

BORNEO RESEARCH BULLETIN

ISSN: 0006-7806

VOL. 41

2010

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NOTES FROM THE EDITOR

In This Issue

Danau Sentarum Essays

The present volume of the *BRB* departs somewhat from our usual format. It is divided into two principal parts. The first part comprises what, in effect, is a special issue in its own right—a set of ten essays plus an editorial introduction—which are presented here as a memorial in honor of the late Reed Wadley. These essays, written by specialists in different fields, all focus on the Danau Sentarum National Park and the region of West Kalimantan that surrounds it, an area closely identified with Reed Wadley, and where he carried out major anthropological fieldwork over a period of nearly two decades, until his untimely death in 2008 (see *BRB*, 2008, Vol. 39: 16-25). The authors were his colleagues and friends, many of whom worked with Reed on collaborative projects related to the park or the indigenous peoples who live in and around it. As the editors make clear, Reed's intellectual concerns were wide-ranging and by no means confined to the park; but Danau Sentarum was clearly an empirical touchstone of his work and a lifelong source of interest.

Here, on behalf of the Borneo Research Council, I wish to thank the contributors for making this well-deserved memorial a reality. In addition, I thank Carol Colfer and Linda Yuliani for organizing the project and seeing it through to completion, for writing an informative introduction that not only introduces the park, but the long-term research and conservation efforts that have taken place there, and for their part in editing the ten essays that, as indicated here, follow their introduction.

While these essays stand on their own merits, they take on added value, I think, by their appearing together. In addition, as the editors note, the Danau Sentarum National Park was also the focus of an earlier volume of the *Borneo Research Bulletin* (Vol. 31, 2000), which, as a single-topic issue, dealt almost exclusively with the park. Hence, this memorial also provides a timely update of work that has taken place since 2000.

The earlier Danau Sentarum volume concentrated primarily on the natural features of the park, its topography, ecology, plant and animal communities, interrelationships between these communities and features of the physical environment, the history and demography of human settlement, and patterns of local resource use, particularly of forest and freshwater fishing resources, the latter associated with the vast network of seasonal lakes that form the single most distinctive feature of the park. The present volume, by comparison, focuses more on the cultural and sociological side of conservation activities, including issues of park management and policy, external politics and outside economic threats to the park's future, population growth within the park, conflicts over the use of local resources and methods of conflict resolution, sustainable development and projects aimed at identifying the benefits of conservation efforts for local communities. In addition, the contributors also provide a useful background history of past and current research projects and an overview of changes that have occurred since 2000. Perhaps, the most notable among these changes are an accelerating rate of population growth that now threatens the sustainability of park resources, continued

illegal logging, potential dam construction, and the very real intrusion into the park's buffer zone of large-scale oil palm plantations. These problems, of course, are not unique to Danau Sentarum, but have their parallels elsewhere in Borneo.

The final essay in the memorial section is of special note. The idea behind it was originally formulated by Reed Wadley in discussions with the present co-authors and others. It concerns what Reed termed the "social life" of conservation—that is to say, the human interactions and interpersonal relations that play themselves out between conservation workers, research teams, and local people—which tend to pass unexamined, but upon which the success or failure of conservation efforts very often hinges. Reed's motive in writing the paper was to heighten awareness, particularly among those trained in the natural sciences, of the social implications of their work. The essay draws in a highly illuminating way on a number of projects undertaken at Danau Sentarum from 1991 onward. Reed completed a first draft of the essay, but failing health prevented him from putting it into final form, a task which the present co-authors here have admirably completed. A somewhat shorter version of this paper, directed more explicitly to an audience of conservation biologists, is scheduled to appear, more or less simultaneously with the appearance of this longer version, in the journal *Ecology and Society*.

In the Remainder of This Issue

The second part of the present volume follows our usual format and opens, in this case, with two Research Notes.

In the first, Robert Pringle records diary entries for a trip which he and his wife Barbara made to Bario and the Kelabit Highlands of Sarawak in 1966. As he notes in his opening introduction, this trip came at the end of an extended period of ethno-historical research. The topic of this research was a history of Iban relations with the Brooke Raj. In a way, then, the trip to Bario represented something of a diversion. At its conclusion, the Pringles left Sarawak and returned to Cornell, where Bob wrote up his materials on Iban history, first as a dissertation, and, shortly afterwards, in book form, as *Rajahs and Rebels: The Iban of Sarawak under Brooke Rule, 1841-1941* (1970, Macmillan).¹ Although a brief diversion, the trip clearly provided material for historical reflection. At the time, Confrontation with Indonesia was still in full swing and, as he notes, the excellent relationships that existed between the Kelabits and British and Gurkha troops then fighting along the nearby Sarawak-Kalimantan border owed much to a legacy of comparatively benevolent colonial rule initiated by the Brookes. Given the remoteness of the Kelabit Highlands and the area's sparse population, the impact of these troops and the modern technology used to sustain them in the field was obviously immense and appears to have reaffirmed the Kelabits' already well-established commitment to a program of deliberate self-modernization. In his diary entries, Pringle comments on this commitment at some length and with considerable admiration. Hastened by the events of Confrontation, the "World Within," as Tom Harrisson had called the Kelabit Highlands, was now being drawn rapidly into the wider "World Without," a process which the

¹ Which, your Editor is happy to be able to report here, has just been republished with a new introduction by the author by the Universiti Malaysia Sarawak (UNIMAS).

Kelabits themselves actively embraced, but on their own terms, selectively, without at the same time giving up their own unique sense of cultural grounding (cf., Poline Bala, “An engagement with ‘modernity’?” *BRB*, 2009, Vol. 40: 173-85).

In passing, Pringle briefly comments on the influx of Iban newcomers into the Baram district and its potentially unsettling consequences. Throughout the 1970s, other commentators similarly warned of an Iban “takeover” of the region. This “takeover” never happened, however, although the Iban remain, as they had become by the late 1960s, a substantial local presence. Beginning over the next two decades, a contrary movement occurred as a younger generation of rural people flowed from the countryside to the cities, not only within Sarawak, but, for the ever-adventuresome Iban, even further afield, to Sabah, Singapore, and Peninsular Malaysia.

The second Research Note, “Ethnic Minorities in Late Twentieth Century Brunei,” by Roger Kershaw, a regular contributor to the *BRB*, surveys what the author sees as errors or imbalances in recent writings about ethnic minorities in Brunei Darussalam since the state gained its formal independence in 1984. A major point that Kershaw makes is that a significant source of error, or, perhaps, more accurately, of distortions in writings about Brunei’s ethnic and religious minorities stems, not so much from poor scholarship (although he detects evidence of this as well) as from the influence of an official state ideology— i.e., the “Malay Islamic Monarchy” (MIB) —that, as he describes it, quite simply, “leaves no room for pluralism”—whether of a religious, political, or ethnic variety.

Reflecting the influence of this ideology, foreign scholars have, he argues, whether wittingly or not, tended to write non-Malay ethnic groups “out of the record” or have been inclined to see them through this ideological lens as incipient Malays, well-advanced along an inevitable process of total cultural and religious assimilation. Similarly, the presence of awkward, but, nonetheless, vital, non-indigenous groups, like the Iban and Chinese, is glossed over or ignored. Another way noted by Kershaw in which the influence of official ideology can be seen is in an ongoing rewriting of history, by, for example, playing down the degree of ethnic autonomy that existed in the pre-modern Brunei sultanate, ignoring the presence of an early autochthonous Bisaya kingdom in Brunei Bay, passing over Brunei Malay myths of their own non-autochthonous origins, and, in various other ways, writing non-Malay groups out of historical accounts of Brunei’s past. Kershaw concludes his essay with an interesting discussion of the problematic, internally differentiated nature of Malay identity itself, not only in Brunei, but throughout the Malay-speaking world. For Brunei, the most cogent example is the persisting distinction within the local Malay population between Brunei Malays and Kedayans, a distinction that continues to carry weight in terms of social status and political privilege.

Following these Research Notes, our Brief Communications section opens, as it has in past years, with a “Letter from Lundu” written by our resident classicist and man of letters, Otto Steinmayer. As will be familiar to readers of recent Letters, the author has returned to teach at the University of Malaya and his letter this year is again addressed to us from Kuala Lumpur, rather than from Lundu itself. The subject this year is change. Sarawak, he tells us, after the tumultuous early years of its independence,

entered a seeming time warp in 1970. For the last 40 years until now, a single family dynasty has ruled the state without interruption. In the process, political loyalties and business interests have coalesced, becoming, for those in positions of power, one and the same. Now, however, with an aging Chief Minister in declining health and no clear line of succession, all of this seems poised on the brink of change. As in much of the modern world around us, the internet, Otto tells us, has come to function in Sarawak as a major source of information and opinion, creating a new force that seems destined to play some part in a seemingly imminent reshaping of the state.

The next two Brief Communications are in the nature of rejoinders. In the first, Bernard Sellato responds to a review of two recent volumes on the Kayan Mentarang National Park that appeared in last year's issue of the *BRB* (Martin Baier, 2009, 40: 297-305). Dr. Sellato's response is especially welcome, as he uses it to outline the results of a singularly important project of which he was director—"Culture and Conservation [*Kebudayaan dan Pelestarian Alam*] in East Kalimantan." In an earlier report, Dr. Sellato outlined the scope and some initial findings of the project while it was still underway (Bernard Sellato, *BRB*, 1995, 26: 54-68).

In the next Brief Communication, Michael Heppell replies to an earlier rejoinder by Traude Gavin of a review essay he wrote four years ago in the *BRB* (Heppell, "Women's war: An update on the literature on Iban textiles," 2006, Vol. 37: 182-92). Writings on Iban weaving have burgeoned in recent years and, reflecting these riches, a lively debate has emerged concerned with the cultural meanings that Iban weavers and others attach to cloth and to interpretations of textile designs. Here, Heppell describes what he sees as two contrasting positions in this debate, arguing for a position that designs have, in some instances at least, a clear narrative intent. Given the importance of the issues involved, this debate seems certain to continue.

Finally, in our last Brief Communication, Dr. A.V.M. Horton reports on the winner of the ASEAN "South-East Asia Write[rs]' Award" for 2010, the Brunei Darussalam historian, educator, and poet, YD Pehin Dato Seri Utama Dr. Haji Awang Mohd. Jamil, known by his pen-name as "Wijaya."

Report on the 2010 BRC Biennial Conference

Also contained in this volume is a report by Bibi Aminah, the conference organizer, on our Tenth Biennial BRC International Conference held in Miri, 4 through 7 July, on the campus of the Curtin University of Technology Sarawak. We wish to congratulate Bibi for a successful conference and thank her, her colleagues, and her friendly and efficient staff for all the work they did to ensure the conference's success.

As Bibi notes in her report, at the conclusion of the conference, it was announced that the Faculty of Arts and Social Sciences, Universiti Brunei Darussalam (UBD), had agreed to host the 2012 BRC conference. Since then, this agreement has been confirmed and a committee formed to plan and organize the 2012 conference (see Announcements). Dates and details will appear in next year's *BRB*.

Award of the BRC Medal of Excellence to Professor Bob Reece

During the opening-day ceremony at the BRC Conference in Miri, your Editor

had the honor of presenting Professor Bob Reece the BRC Medal of Excellence, on behalf of the Council, for his outstanding contributions to the study of Borneo history. The full text of the citation that accompanied the medal appears immediately following the BRC 2010 Biennial Conference report.

BRB Outreach

One of the rewards of being your Editor comes from the correspondence I receive. As an example, two recent letters brought to my attention the outreach, apropos Otto's "Letter from Lundu," that the internet now makes possible, allowing the *Bulletin* to serve a readership far larger than our regular BRC membership base.

The first letter comes from Inche Shamsul Rizal, writing from Selangor, Malaysia, and refers to Bob Reece's essay, "The Little Sultan," that appeared in last year's *BRB* (2009, vol. 40: 81-128). Inche Shamsul writes

After reading Mr. Bob Reece's article, "The Little Sultan": Ahmad Tajuddin II of Brunei," I was surprised to stumble upon my great-grandfather's name featured [there]. My great-grandfather was the Sultan's private secretary, he was from Selangor... The writer... portrays my great-grandfather as someone loyal and trustworthy to the Sultan [who]... played some crucial part as moderator to the country.

The private secretary referred to was Inche Mohamad Hassan bin Kulop Mohamad. Inche Shamsul continues

The writer's article amazed us. Even my family members were not aware or had [no] knowledge of what my great-grandfather's contributions [were] to Brunei.

Shamsul's mother's family knew that his great-grandfather had once lived in Brunei, but little information had been passed down within the family, it seems, as to what he had done during his time there. Concluding his letter, Shamsul said that Bob Reece's article had inspired him to learn more about his family's history. He also asked whether he might be put in contact with Professor Reece to ask about further library sources. Bob kindly consented and the two have since been in correspondence.

The second letter reached me indirectly, and I am grateful to Professor Danny (Tze Ken) Wong of the History Department, the University of Malaya, for sharing it with me. Two years ago, Professor Wong published a paper in the *BRB* examining the life of an early, but now almost forgotten champion of Kadazan rights, Simon Sindurang (Wong, "In Search of Simon [Sindurang Bulankang]: A pioneer defender of Kadazan rights in colonial North Borneo," *BRB*, 2008, Vol. 39: 53-70). The letter was written by the husband of the great-granddaughter of Simon, and the granddaughter of Simon's son, Raphael. Like Inche Shamsul, the writer was amazed to discover the paper and be able to read it on the internet. Thanking Professor Wong, he writes:

Sangat terharu dan bangga sejarah mengenai perjuangan orang2 Kadazan telah dicatatkan dalam sejarah dan dapat pula dibaca di internet. [(I was) very touched and proud to find that an account of the struggles of the Kadazan peoples has been recorded in history and

can be read on the internet]. *Terima kasih atas usaha anda.... teruskan perjuangan...*[thank you sincerely for your efforts...please press on with your work...]

In a covering message, Professor Wong added that, for Malaysians, the online version of the *BRB* (available, for example, through <thefreelibrary.com>) functions as an excellent outreach source.

Simon's great-granddaughter and her husband still live in Papar. I am happy to report that Professor Wong was able to meet them over the Christmas holidays in Kota Kinabalu. In his most recent message, Professor Wong writes,

We are making plans to meet again in Papar where they hope to show me a Dusun Dictionary compiled by Father Gossens and given to Simon's son, Raphael.

The existence of this dictionary, presumably "A Grammar and Vocabulary of the Dusun Language" published by Gossens in 1924 as a volume of the *JMBRAS*, kept for all of these years by Simon's descendants, is, indeed, a remarkable story in itself. We hope to learn more soon.

Memorials

In order to foreground the memorial section in honor of Reed Wadley, our ordinary memorials, including A.V.M. Horton's annual *Negara Brunei Darussalam* obituaries, do not appear in this volume, but will return to their usual place in Volume 42.

John Landgraf and Ivan Polunin

Sadly, near the end of the year 2010, your Editor received news of the passing of two scholars who have made a pioneering contribution to Borneo studies. Anthropologist John Landgraf died on 14 December 2010 in Plymouth Harbor, Florida, and Dr. Ivan Polunin, an epidemiologist and member of the medical faculty of what was formerly the University of Malaya at Singapore, later the National University of Singapore, died exactly a week later, on 21 December 2010, in Singapore.

The two men were personal friends and professional colleagues. In 1954-55 they collaborated on a joint research project in what was then British North Borneo (now Sabah), studying infertility and "depopulation" among the Murut community. The project broke new ground, involving, as it did, the collaboration of a trained medical specialist and a professional anthropologist. However, aside from a brief report presented to the colonial government, the results of the project were never fully published, and, as George Appell convincingly demonstrated in his survey of social and medical anthropology in Sabah (Appell, 1968, "A survey of social and medical anthropology of Sabah: Retrospect and Prospect," *Behavioral Science Notes*, 3(1): 1-53), the presumed Murut "depopulation" that had prompted the project to begin with, proved, during subsequent census cycles, to have been the product of shifting ethnic labels.

In 1998, John Landgraf presented a paper at the International Congress of Anthropological and Ethnological Sciences which he described as an "atonement" for his

academic “sin” of not publishing on the Murut. The same year we published a somewhat expanded version in the *BRB*, entitled “North Borneo over Seventy Years: Anthropological Comments on the Muruts of Sabah” (Vol. 29: 10-18). The paper offers an engaging personal account of John’s experiences of working with the Murut community during the mid-1950s and his long personal connections with Sabah. In 1987, John revisited Sabah, where he deposited his photographs, slides, artifacts, and copies of his Murut field notes in the Sabah State Archives and Museum. He also donated copies of his field notes, maps, and personal correspondence to the Borneo Research Council’s archives. After his death, his wife, Dr. Mary Elmendorf, also an anthropologist, presented the remainder of his Borneo-related correspondence to the BRC. John’s last visit to Sabah occurred in 1995.

Both John Landgraf and Ivan Polunin played an important part in my own life. I first met John in 1962. A cousin of mine, now deceased, James K. Anderson, had just left Columbia University and taken a job as a city manager in Rockland County, New York. He and his family lived in Palisades, on the Hudson River, just outside of New York City. At the time, John Landgraf was teaching anthropology at New York University and had just returned the previous year from Sabah, where he had served briefly (1960-61) as the regional Peace Corps director. The Landgrafs and Andersons were neighbors and personal friends. In the fall of 1961, I started graduate studies at Harvard University. From that first year, until I left to do fieldwork in Sabah in 1964, I spent each Christmas holiday with my cousin’s family in Palisades. It was there, at the Andersons’, that I first met John. He told me a great deal about northern Borneo (John had also spent four years as a teenager in Miri, Sarawak), Sabah in particular, and about his experiences doing fieldwork there. For a young, 20-year old graduate student preparing for fieldwork, it was, of course, just the sort of thing I wanted to hear about. John also gave me a number of names and addresses by way of later introductions.

By far the most valuable of these names was that of Ivan Polunin. While John had worked deep in the interior of Sabah, I was determined to work on the coast, as it seemed to me that despite the strong maritime orientation of Island Southeast Asia as a whole, anthropologists had taken little interest in coastal societies, a state of affairs that would persist for some decades to come. Ivan, on the other hand, had a serious interest in sea people and by the early 60s, had already done medical research among both the Orang Laut in Johor and in a then semi-settled Bajau Laut (or *Sama Dilaut*) village in southeastern Sabah. It was this latter group that particularly interested me, and, in the end, I settled upon the very same village that Ivan had visited as the site for my own field research.

To describe Ivan Polunin, as Landgraf did in his *BRB* essay as “a young Oxford-trained medical doctor” (1998: 11)—which he certainly had been when they worked together in Sabah—tells only a fraction of the story. A man of seemingly boundless energy, who appeared to me to have explored virtually every remote corner of the Malayan Peninsula and northern Borneo, Ivan was a mesmerizing figure, a raconteur, naturalist, documentary film-maker, ethnologist, collector of Asian antiquities, and an ethnomusicologist of note who had produced a number of superb recordings of indigenous Southeast Asian music, including one, unrivaled to this day, of Bajau Laut music. As a

graduate student at the time, I was reading every written source I could find on Southeast Asian sea people, frequently visiting the International House at Harvard to seek out the translation help of Dutch-speaking students. Most of what I read was hopelessly out of date, often by two or three centuries. For Sabah, Ivan's on-the-spot observations were invaluable when it came time to write up a plausibly workable research proposal.

When I left for Sabah in 1964, Malaysia had gained its independence. I just missed the first anniversary-day celebration, but witnessed the second in Semporna in 1965. What I found when I arrived was already, in many ways, a very different place from the world of planters and European district officers that John had described. On my way to Sabah, I stopped first in Singapore, where I stayed for part of a week with Ivan and his family. At the time, Ivan kept a Malay sailboat in Johor, and we spent a memorable day in the mangrove swamps, in the company of Geoffrey Benjamin, visiting a small, boat-living Orang Laut community. It was my first actual encounter with Southeast Asian boat people. At the time, very little was known concerning the relationship between different groups of Southeast Asian sea people. The Orang Laut clearly spoke a Malay dialect, some examples of which Geoffrey tape-recorded at the time. Language would prove to be one of many differences between the Orang Laut and Bajau Laut. Another, which Ivan pointed out to me at the time, was that the Johor community totally lacked any kind of musical instruments. By contrast, the Bajau Laut in the mid-1960s would certainly have ranked well up among the world's most musical people. In Semporna, I met the villager who had assisted Ivan in his medical survey. He was an expert boat-builder and spirit-medium named Tandoh, who later became a much-valued informant. A photo of Tandoh, carving decorations on the prow section of a fishing boat he was building appears in my *Bajau Laut* book.

Later, when my family and I lived in Penang, Ivan was an occasional visitor. He was a favorite of my children, partly because he made a game of leaving Malaysian coins for them to find in the living room chair cushions. His trips to Penang involved visits to irrigated rice fields where he filmed archer fish and to the Botanical Garden to film the behavior of its resident macaque population.

For all of us who knew them, John and Ivan will be greatly missed.

Thanks and acknowledgments

In closing these Notes, I would like to thank all of those who assisted me during the year with article reviews, editorial or technical assistance, or who contributed news items, announcements, comments, bibliography, or book reviews. The list, as always, is a long one, but here I would like to thank, in particular, George Appell, Ann Armstrong, Dee Baer, Bibi Aminah, Daniel Chew, Carol Colfer, Rob Cramb, Mary Elmendorf, Traude Gavin, Mike Heppell, A.V.M. Horton, Roger Kershaw, Jayl Langub, Junita Maiullari, Bob Pringle, Jacqueline Pugh-Kitingan, Bob Reece, Bernard Sellato, Peter Sercombe, Otto Steinmayer, Vinson Sutlive, Phillip Thomas, Danny Wong Tze Ken, and Linda Yuliani. As in past years, I am grateful to Alan Morse for the skillful work he did in preparing the present volume for publication and to the other members of the BRC staff in Phillips, Maine, for overseeing its printing, distribution, and mailing. In his role as Book Review Editor and compiler of our annual abstracts and bibliography

sections, I am especially indebted to A.V.M. Horton. As always, Dr. Horton has also been a regular correspondent during the year and a frequent source of news items, advice, and information. Once again, a special thanks goes to my wife, Louise Klemperer Sather, who, as our Assistant Editor, carefully read through all of the papers, reviews, announcements, and brief communications that appear in this volume. Her editorial skills, as always, have been an invaluable help to us all.

Member Support

Here we wish to express our thanks to the following individuals for their contribution over the last year to the BRC endowment and general funds.

Endowment Fund:

Steven G. Alpert, Dr. Jay B. Crain, Dr. Michael R. Dove, Dr. Michael Heppell, Mrs. Charity Appell McNabb, Professor H. Arlo Nimmo, Mr. John Pearson, Dr. & Mrs. Otto Steinmayer, Dr. W.D. Wilder, and Dr. George N. Appell.

General Fund:

Dr. Adela Baer, Dr. Martin Baier, Dr. Jay B. Crain, Dr. & Mrs. Alan Drake, Ms. Katherine Edwards, Ms. Judith Heimann, Dr. A.V.M. Horton, Dr. Michael E. Leigh, Gerry Masteller, Quentin Phillips, Dato Seri John Pike, Dr. Robert Pringle, Dr. Anne Schiller, Dr. and Mrs. Otto Steinmayer, Dr. Jack Stuster, Dr. W. D. Wilder, Dr. Robert Winzeler, and Dr. Patricia Yamaguchi.

We thank each of these individuals for their generous support.

About the Authors in this Issue

Julia Aglionby, currently based in the Lake District, England, is a rural practice Chartered Surveyor specializing in the governance of common property resources in national parks. She worked in Danau Sentarum from 1994-96 and has maintained a strong interest in the park. Holding a degree in Biology from the University of Oxford and a M.Sc. from University College London in Environmental Economics, she is currently a doctoral student at Newcastle Law School and a visiting researcher at CIFOR, using Danau Sentarum as a case study for her Ph.D. studies.

Gusti Zakaria Anshari has a Ph.D. in Geography and Environmental Science from Monash University in Australia. He is currently a Senior Lecturer at the Faculty of Agriculture, Tanjungpura University in Pontianak, West Kalimantan. His major research interests are wetlands and peat ecology, carbon balance in wetland ecosystems, and sustainable management of oil palm plantations.

Carol J. Pierce Colfer obtained her Ph.D. in Anthropology from the University of Washington in Seattle in 1974 and an MPH in International Health from the University

of Hawaii in 1978. Much of her professional life has been spent in Indonesia, where she has worked for the Center for International Forestry Research since 1994. She is currently a Visiting Fellow at Cornell University, with the Cornell Institute for International Food and Agricultural Development, in Ithaca, New York. Her last publications in the *BRB* were “Fire in East Kalimantan: A panoply of practices, views and [discouraging] effects,” vol. 32 (2001): 24-56, and “In Honor of Reed Lee Wadley,” vol. 39 (2008): 23-24.

Irham Zafarlan Farid is now working in a riverbank restoration project for Dinas Pekerjaan Umum (the Department of Public Works) Bali as a soil surveyor. He got his Bachelor’s degree in Soil Science from Tanjungpura University in 2003. He worked as a field facilitator and researcher for Riak Bumi NGO 2001-2007, and as a field researcher for the Soil Laboratory, Tanjungpura University 2004-2006.

Emily E. Harwell is a natural resource analyst, human rights investigator, and partner with Natural Capital Advisors, with nearly two decades of experience researching resource conflict, ethnic identity, human rights, and governance reform. Dr. Harwell earned her Ph.D. from the Yale University School of Forestry and Environmental Studies. She has published on natural resource conflicts and conducted research and advised the East Timor and Liberian truth and reconciliation commissions; the European Commission; the World Bank; the Canadian Department for Foreign Affairs and International Trade, the European Commission; Human Rights Watch; and International Crisis Group.

Valentinus Heri is from Lanjak, a small town in the northern part of Danau Sentarum. He got his Bachelor’s degree from the Law Department, Tanjungpura University, Pontianak. Currently he is the Executive Director of Riak Bumi Foundation, an NGO established in 2000 that focuses on Danau Sentarum conservation and local people’s empowerment to improve their livelihoods from sustainable practices. He worked as a community conservation officer with the Wetland International Indonesia Programme from 1995-97.

Yayan Indriatmoko graduated from the Anthropology Department, University of Indonesia in 1999, and joined the Center for International Forestry Research (CIFOR) as a research assistant. He is also an Asian Public Intellectual Fellow, the Nippon Foundation, and did anthropological research among the Orang Asli, the indigenous minority people of Peninsular Malaysia, during his fellowship period in 2003-2004. Now he is working for the Forest and Governance Programme in the same institution, studying REDD (Reduced Emissions from Deforestation and Forest Degradation) in Central Kalimantan, Indonesia.

Roger Kershaw is a graduate of Oxford University in Modern History, with a Ph.D. in Political Science from London University (SOAS). He has lectured on Southeast Asian Studies at the Universities of Hull and Kent. In 1984 he joined the Brunei Education Service, where he remained until 1994. Among a variety of published work, the broadest

in scope is *Monarchy in South-East Asia* (London, Routledge, 2001). Dr. Kershaw is a frequent contributor to the *Borneo Research Bulletin*, his most recent contribution being a review essay, "Contesting convention in Malay-World historiography" (Vol. 39, 2008). In addition to his scholarly writing, Dr. Kershaw and his wife otherwise devote much of their time to two Highland crofts and a flock of Hebridean sheep.

Matthew Minarchek has a M.A. of International Affairs from Ohio University's Center for International Studies. His current position is Program Research Assistant, Department of Program Development and Evaluation, Cornell Lab of Ornithology, Ithaca, New York. His major research interests are environmental policy, biofuels production and sustainable certification, the interaction of scientific knowledge and local civic epistemologies, and environmental justice.

Mumu Muhajir obtained his degree in Law from Gadjah Mada University. He is currently working as a researcher at the Epistema Institute, a research institute on legal, social and environmental issues in Jakarta. He worked at CIFOR as a consultant for the ILEA project (Integrated Law Enforcement Approach) in 2007-2009.

Leon Budi Prasetyo studied in the Botanical Department, Gajah Mada University, and learned about orchids from Prof. Moeso Suryowinoto, one of Indonesia's leading orchid scientists. He has been interested in orchids since junior high school. In 1981, when he was 14, he became the youngest member of the Indonesian Orchid Society and, a year later, the youngest member of the jury for a national and regional orchid competition. He joined a number of orchid expeditions and trained local people in orchid conservation and cultivation, and to establish orchid ecotourism, e.g. in Poso, Central Sulawesi in 1990 and Wasur National Park, Papua in 1992. He worked as a CIFOR consultant in Danau Sentarum from 2006-2008, and currently continues working in the Danau Sentarum area on a GEF funded project.

Robert Pringle first came to Borneo in 1965 under an arrangement between Cornell University and the Sarawak Museum to do research on Brooke-era Iban history in collaboration with the late Benedict Sandin. Pringle's research was published as *Rajahs and Rebels: the Ibans of Sarawak under Brooke Rule, 1841-1941*, a new edition of which has just been published by the University of Malaysia Sarawak. At the end of his stay, he and his wife Barbara, who was a teacher at Batu Lintang Teacher Training College during their year in Kuching, flew to Bario and walked out, a trip which Bob described in a diary excerpt published in this issue of the *BRB*.

After completing his Ph.D. in 1967, Bob served in the US Foreign Service for 37 years. Since retirement he has been a freelance author, mainly writing on Indonesia. His recently published work includes *A Short History of Bali: Indonesia's Hindu Realm* (Sydney, Allen and Unwin, 2004) and *Understanding Islam in Indonesia: Politics and Diversity* (Singapore and Honolulu, Editions Didier Millet and University of Hawaii Press, 2010).

Mohammad Agus Salim has been working for the Center for International Forestry Research since 2002 as a GIS assistant and on spatial data management and analysis. He earned his Bachelor's degree in Geodetic Engineering from Bandung Institute of Technology, Indonesia in 2002.

Reed L. Wadley obtained his Ph.D. in Anthropology from the University of Arizona in Tempe. He was involved with Danau Sentarum from the early 1990s, conducting extensive research there, until his death in 2008. He also conducted archival research in the Netherlands, at Leiden. He was the author of numerous papers and the editor of two volumes, *Histories of the Borneo Environment* (Leiden, KITLV Press, 2005) and (with A. Horstmann), *Centering the Margins: Agency and Narrative in Southeast Asian Borderlands* (New York, Berghahn Press, 2006). Reed was also a regular contributor to the *Borneo Research Bulletin* and served until his death on the Board of Directors of the Borneo Research Council.

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DANAU SENTARUM ESSAYS: MEMORIAL IN HONOR OF REED WADLEY

1. INTRODUCTION

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This special section of Volume 41 of the *Borneo Research Bulletin* has been compiled in honor of Dr. Reed Lee Wadley, an anthropologist who conducted research for two decades in the Danau Sentarum area before dying prematurely in June 2008. We have assembled more recent research in the area, at the invitation of Dr. Cliff Sather and with the encouragement of Dr. George Appell. The compilation is multidisciplinary, bringing together researchers from the fields of anthropology, economics, botany, earth sciences, ecology, geology, geography, law and soil science. The authors also work in a range of research settings and include university professors, consultants, NGO personnel and people working in research organizations. We believe that Reed Wadley would have been particularly supportive of this diversity, given his own extraordinarily diverse interests and areas of expertise.

Wadley's Work: A Partial Snapshot

Reed Wadley's work on the Iban of Wong Garai in West Kalimantan has been widely appreciated for its systematic and comprehensive nature. Although space does not allow a thorough review of his work, we acknowledge its unusual breadth and scope. He was a prolific writer. In his short life, he managed to produce three books, 38 journal articles, and 12 book chapters and articles in proceedings; and he edited four special issues of journals. He also produced 60 other publications, such as book reviews, manuals and encyclopedia entries, on a wide range of topics, from environmental history, kinship and social organization to labor migration, warfare and colonization. The following few paragraphs are designed simply to give a sense of his breadth.

He began his career with a doctoral dissertation on migration (Wadley 1997) and maintained his interest in demography, more recently co-editing a book on peoples living

in borderlands (Horstmann and Wadley 2006). He was instrumental in the conception and early phases of organizing a very successful March 2008 international meeting in Hanoi, titled “The Demise of Swidden Agriculture,” the results of which morphed into a special issue of *Human Ecology*, Volume 37, 2009. His commitment to conservation concerns was repeatedly demonstrated; for instance, he analyzed illegal logging (e.g., Wadley and Eilenberg 2005), people’s time use (Colfer et al. 1999) and wildlife use and management (Wadley et al. 1997), among other related topics.

His interest in conservation did not reduce his concerns for people’s livelihoods (e.g., Wadley and Mertz 2005; Wadley 2007). Nor was he devoid of some of our stereotypical anthropological concerns; he studied sacred forests (Wadley and Colfer 2004), shamanism (Wadley et al. 2006) and ancestor worship and mourning taboos (Wadley 1999).

He was ahead of his time in his interest in the ethnography of climate change. In 2006, he made a presentation at the Center for International Forestry Research (CIFOR) titled “Ethnometeorology, or what people say they know about the weather and why CIFOR should care.” In 2008, CIFOR made climate change its central and highest profile focus – though his talk was admittedly just one of a growing number of pressures in that direction. He continued to facilitate and engage in interdisciplinary exchange until the end of his life. Indeed, the article he conceived for this journal (Chapter 11) was intended for conservation biologists – a wish we are still trying to fulfill more directly through re-publication in a journal biologists are more likely to read.

He worked in the Department of Anthropology at the University of Missouri, in Columbia, from 2001 until his illness incapacitated him a few months before his death on 28 June 2008, at the age of 45. Prior to his work in Missouri, he spent three years in the Netherlands conducting archival research on West Kalimantan, and he served from time to time as a consultant for the Center for International Forestry Research, in Bogor, and for Wetlands International–Indonesia. It was in this latter capacity, as a consultant, that Wadley’s work linked most closely with that of most of the authors in this special section.

Wadley had a personal commitment to the people whose lives he studied so faithfully. He was an active contributor to the work of an environmental NGO, Riak Bumi (led by Valentinus Heri, Chapter 5). He would have been most pleased to hear of these essays, which bring together the work of so many of his friends and colleagues. He would also have been pleased at the Indonesian representation in this collection, since so much of the internationally available, published work on Borneo has been dominated by foreigners.

Danau Sentarum National Park: Another Snapshot

Wong Garai, Wadley’s primary field site, is located in the buffer zone of Danau Sentarum National Park, so the destiny of the peoples he worked with is bound up in the park’s management and future. In this section you will read much more about the area and its people; we provide only a bare-bones introduction here.

Located on the northern side of the Kapuas River, 700 km upriver from Pontianak in West Kalimantan, the park is bordered on the north by the Malaysian state of Sarawak.

The peoples are primarily Malay (Melayu) within the park proper, with Kantu', Iban, and Embaloh surrounding the park's western, northern and eastern borders, respectively (roughly). The Iban, whom Wadley studied, are the dominant Dayak group in the area.

The park covers 132,000 ha and consists of a core area, which is a series of interconnected seasonal lakes (of some 82,000 ha), with surrounding hillier dryland areas. Management of the park has been problematic, with frequent incursions by loggers (Wadley 2006) and, more recently, oil palm companies (see Chapters 5 and 7). There have been recurrent threats of dams and transmigration programs, though none have yet materialized. Fortunately, the government has grown quiet about damming Danau Sentarum, at least for the time being, since Yuliani et al. (2007) summarized the potential detrimental effects to the ecosystem and to the livelihoods of local people in particular, whose income (from fisheries), health and transport within the park would be affected. Governmental policy also has changed erratically, with national security concerns related to the border areas mixed with the national need to provide foreign exchange and funding for military budgets, further complicated by corruption at various levels. And the population has grown precipitously (Chapter 5).

Decentralized corruption, collusion and nepotism are major factors in the establishment of new, large-scale oil palm plantations around DSNP (Chapter 7) including a possible take-over of some parts of the territory of Wong Garai (the village where Wadley centered his research) for a plantation. The oil palm plantation is likely to harm local people's livelihoods and biodiversity conservation. Many organizations are now collaborating to ensure the viability of Danau Sentarum ecosystems. Riak Bumi Foundation, for example, is working with local communities from all over the Danau Sentarum area and with CIFOR to conduct participatory action research, build collaboration and ensure good governance in managing park resources sustainably. Several NGOs, such as Sawit Watch, the Indonesian Environmental Forum (WALHI), Titian Foundation and West Kalimantan Alliance for the Indigenous People (AMAN Kalbar) form the Coalition for Danau Sentarum's Redemption. A central goal is to save Danau Sentarum from oil palm expansion. Worldwide Fund for Nature (WWF) is conducting an orangutan awareness program in Wong Garai, and a tree-planting movement is underway in the Labian-Leboyan watershed and the corridor between DSNP and Betung Kerihun National Park to the northeast.

This Special Section and Its Organization

The articles in this special section are organized into three main parts. First, there is a series of three introductory chapters, including this one. Chapter 2, by Julia Aglionby, provides the historical context, taking up where the earlier *Borneo Research Bulletin* special issue on Danau Sentarum (Giesen 2000) left off. Chapter 3 is the most anthropological of the contributions to this special section, focusing on how diverse local identities link to livelihoods and to the diverse perceptions of resources and territories. Emily Harwell examines the interplay of notions of identity, livelihood and entitlement and how these relate to historical realities and change. The chapter takes into account the power dynamics in the region, which bring together local people, neighbors and the state in attempts to resolve boundary questions.

The second set of chapters (Chapter 4–8) is more topical. Each describes a slice of Danau Sentarum's reality. Chapter 4, by Gusti Anshari, is a geologist's look at the peat soils in the area; their potential contribution to mitigating climate change, and thus their value in the coming decades give this article its relevance.

Chapter 5, by Valentinus Heri et al., is a full accounting of the dangers threatening the park and the people living in it. The author comes from the village that Wadley studied, and his long history in the region and continuing commitment to its sustainable management provide a unique perspective on the threats.

The next chapter (6) is by Yayan Indriatmoko, a CIFOR anthropologist, who takes a quick look at population growth in recent years. Although earlier resource use by local communities was fairly sustainable (see, e.g., Dennis et al. 2001), the region is unlikely to be able to sustain continued human growth at the present rate without adverse environmental consequences.

One of the most worrying threats is the expansion of oil palm, which has resulted in controversies in many parts of Indonesia. Anthropologists tend to conclude that oil palm has primarily negative effects on local people's livelihoods and rights and on biodiversity conservation; economists focus on tax revenue from the companies and the employment and additional income opportunities for local people through the nucleus estate system. Linda Yuliani and her coauthors, in Chapter 7, emphasize the current dangers of oil palm, in the park context.

The last chapter in this part looks at conflict in the area. Yurdi Yasmi and his coauthor examine a series of specific conflicts both within Iban and Malay populations and between them. There has been a long and bloody history of violent conflict in this region, and only a decade ago, similar conflicts verged on war in a nearby region of West Kalimantan (Peluso and Harwell 2002). The goal of Yasmi's analysis is to examine how to reduce the likelihood of continuing or accelerating conflict in this region.

The final part of this special section focuses on action research designed to promote benefits for local people from conservation actions. Chapter 9, by Leon Prasetyo, reports on his efforts to encourage the cultivation and maintenance of wild orchids. Danau Sentarum has many species of orchids, some very beautiful. Prasetyo has taught local people methods of cultivating and conserving orchids; he describes the learning processes that lead to self-organization and bottom-up decisions, including successes and challenges he has encountered in this process.

In Chapter 10, Mathew Minarchek and Yayan Indriatmoko describe an experiment in the construction and use of a simple microhydro generation facility in one of the Iban villages in the northeastern quadrant of the Danau Sentarum National Park. Prior to this experiment, which drew partially on expertise from Sundanese farmers who had constructed a similar facility in their village, the only possible source of electricity had been a small generator. The fuel for the generator had become exorbitantly expensive in this remote location. The authors analyze the pros and cons of this effort.

The final essay in this special section is reserved for Reed Wadley's work. He and his coauthors, all individuals with long experience in Danau Sentarum, explore the human interactions of three earlier teams of researchers with villagers, other stakeholders, and among themselves. The authors argue that the specificities of individual people and

their interpersonal skills have a previously ignored impact on conservation success or failure in any given area. They provide examples of their own and others' mistakes and successes with some indications of the results for conservation.

The Park Now and in the Future

Although this special section of the *Borneo Research Bulletin*, like most research, provides information on the past, some quite recent, the park represents a very dynamic context. In this section, we introduce the most recent activities of which we are aware, some of which hold both potential benefits and dangers for local people and for the environment.

Since February 2007, the park has been managed by the National Park Authority, which consists of 38 staff – 30 *pegawai negeri tetap* (permanent staff) and eight *pegawai honorer* (temporary employees). The main office is in Sintang, several hours downriver from Danau Sentarum, and field offices are in the nearby towns of Lanjak, Semitau, and Selimbau. The authority is using a management plan developed in 2006, aimed to promote collaborative management of the park.

Officially abandoned between 1999 and 2004, the park now attracts growing interest from researchers, NGOs, donors and carbon-related projects.¹ As of January 2010, there are more than 20 projects being conducted in the park: research by local, national and international research institutions, community empowerment by NGOs, locations for TV programs, and others. We briefly describe two new CIFOR projects that began in mid-2009: an orangutan project and a scoping study for reductions in emissions from deforestation and degradation (REDD). The orangutan project, funded by the U.S. Fish and Wildlife Service, is documenting the orangutan population and habitat conditions, local people's perceptions of conservation and traditional norms and beliefs related to orangutans. The project will also develop an awareness program and capacity building for local stakeholders on orangutan conservation issues.

The REDD scoping study in Danau Sentarum is part of a global comparative assessment. The entire world is gearing up to mitigate climate change, and concerned researchers have begun to evaluate Danau Sentarum as a potential site for REDD. A decision to implement REDD in this area could have significant implications (positive or negative) for local people and the environment.

A new project funded by the European Commission includes Danau Sentarum as one of its sites. Beginning in 2010, the project will build stakeholders' capacity in collaborative land-use planning for sustainable natural resources management and better protection of ecosystems that have important functions.

The National Park Authority has the critical role of ensuring coordination and communication across projects and avoiding overlapping activities and schedules. However, it has not yet played this role effectively, which has led to considerable delays for some projects, inefficiency and frequent disappointment. Despite efforts to devolve

¹ We use the term "carbon related projects" to describe a wide range of activities related to carbon and climate change, either for carbon trading and REDD (Reduced Emissions from Deforestation and [forest] Degradation) pilot sites, or for research.

responsibilities to field offices, internal political wrangling continues to plague the authority's efforts.

Effective management of the park is also challenged by the national recruitment and staff placement system. Of the authority's 38 staff members, only two come from the area. The rest, newly appointed, come from other islands, and several readily admit that they hope to be relocated as soon as possible to their homelands. Many of the new staff demonstrate inadequate knowledge of crucial general issues like conservation and management of protected areas, and even less on location-specific issues, and long-term personal vision and commitment to better management of the park appear to be lacking.

Such attitudes undermine conservation efforts and the effectiveness of park management. Efforts are now underway to combine several tools, strategies and approaches (see, e.g., Yuliani et al. 2008, 2009) to build the authority staff's motivation and passion to achieve better management of Danau Sentarum.

In Sum

We have found the process of pulling together the essays in this special section both challenging and rewarding. It was challenging because of the diversity inherent in any international effort (geographical, linguistic, cultural) and all interdisciplinary work (different norms about style, format, content and process). But the rewards have been far greater. The authors who have contributed to this collection have strong personal attachments to the region, and many have fond and cherished memories of Reed Wadley. All have done their best – often with serious time, linguistic, and institutional constraints – both to honor Reed's memory and to make continued contributions to both the Danau Sentarum ecosystem and to the human beings who reside there.

References

- Colfer, C.J.P., R.L. Wadley and P. Venkateswarlu
 1999 Understanding Local People's Use of Time: A Precondition for Good Co-Management. *Environmental Conservation* 26:41-52.
- Dennis, R., C.J.P. Colfer and A. Puntodewo
 2001 Forest Cover Change Analysis as a Proxy: Sustainability Assessment using Remote Sensing and GIS in West Kalimantan, Indonesia. In: C.J.P. Colfer and Y. Byron, eds., *People Managing Forests: The Links Between Human Well-Being and Sustainability*. Washington, DC: Resources for the Future and CIFOR.
- Giesen, W.
 2000 Special Issue on Danau Sentarum National Park. *Borneo Research Bulletin* 31.
- Horstmann, A. and R.L. Wadley, eds.
 2006 *Centering the Margin: Agency and Narrative in Southeast Asian Borderlands*. Asian Anthropologies Series 4. Oxford: Berghahn Press.
- Peluso, N.L. and E. Harwell
 2002 Territory, Custom, and the Cultural Politics of Ethnic War in West Kalimantan, Indonesia. In: N.L. Peluso and M. Watts, eds., *Violent*

Environments. Ithaca, NY: Cornell University Press.

Wadley, R.L.

- 1997 Circular Labor Migration and Subsistence Agriculture: A Case of the Iban in West Kalimantan, Indonesia. PhD dissertation, Department of Anthropology. Tempe: Arizona State University.
- 1999 Disrespecting the Dead and the Living: Iban Ancestor Worship and the Violation of Mourning Taboos. *Journal of the Royal Anthropological Institute (incorporating Man)* 5 (4):595-610.
- 2006 Community Co-operatives, Illegal Logging and Regional Autonomy in West Kalimantan, Indonesia. In: F. Cooke, ed., *State, Communities and Forests in Contemporary Borneo*. Canberra: ANU e-Press.
- 2007 The Complex Agroforests of the Iban in West Kalimantan, and Their Possible Role in Fallow Management and Forest Regeneration. In: M. Cairns, ed., *Voices from the Forest: Integrating Indigenous Knowledge into Sustainable Farming*. Washington, DC: Resources for the Future.

Wadley, R.L. and C.J.P. Colfer

- 2004 Sacred Forest, Hunting, and Conservation in West Kalimantan, Indonesia. *Human Ecology* 32 (3):313-338.

Wadley, R.L. and M. Eilenberg

- 2005 Autonomy, Identity and "Illegal" Logging in the Borderland of West Kalimantan, Indonesia. *Asia Pacific Journal of Anthropology* 6 (1):19-34.

Wadley, R.L. and O. Mertz

- 2005 Pepper in a Time of Crisis: Smallholder Buffering Strategies in Sarawak, Malaysia and West Kalimantan, Indonesia. In: O. Mertz, R.L. Wadley and H. Christensen, eds., *Local Land Use Strategies in a Globalizing World: Subsistence Farming, Cash Crops and Income Diversification*, Special Issue of *Agricultural Systems*.

Wadley, R.L., C.J.P. Colfer and I. Hood

- 1997 Hunting Primates and Managing Forests: The Case of Iban Forest Farmers in Indonesian Borneo. *Human Ecology* 25:243-271.

Wadley, R.L., A. Pashia and C.T. Palmer

- 2006 Religious Scepticism and Its Social Context: An Analysis of Iban Shamanism. *Anthropological Forum* 16 (1):41-54.

Yuliani, E.L., Y. Indriatmoko and V. Heri

- 2007 What Will Happen If Danau Sentarum Is Dammed? (*Apa yang akan terjadi jika Danau Sentarum dibendung?*). CIFOR–Riak Bumi Newsletter No. 2, December. Bogor: CIFOR and Riak Bumi.

Yuliani, E.L., H. Adnan and Y. Indriatmoko

- 2008 The Use of Appreciative Inquiry as a Tool in Enhancing Adaptive Capacity in Natural Resources Management. Paper presented at International Association for the Study of Commons conference, Cheltenham, UK, 14-18 July.

Yuliani, E.L., D. Kuncarasakti, E. Rosdiana, Suhaeri and D. Wahab

- 2009 Birokrasi Departemen Kehutanan: Memicu Perubahan dari Dalam dengan Energi Positif [*The Ministry of Forestry Bureaucracy: Make Changes from Within through Positive Energy*]. FGLG Learning Paper 2. Inspirit and IIED.

2. DANAU SENTARUM NATIONAL PARK, INDONESIA: A HISTORICAL OVERVIEW

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This chapter aims to introduce the reader to the history of resource use, protection, research, and development activities in Danau Sentarum National Park (DSNP) and paint a backdrop against which the more detailed and specific essays that follow can be set.

Over the past 20 years, DSNP has attracted an increasingly wide spectrum of interest from the academic community, both Indonesian and international. The disciplines include forestry, fisheries, anthropology, sociology, economics, honey processing and marketing, ecology (including birds, reptiles, primates and fire studies), paleobotany, development studies; the list goes on. The history of local communities, however, has been more neglected except by the researcher in whose memory this section has been collated: Reed Wadley. With his consummate attention to detail and interest in the locale far wider than his specialty, Wadley has left a legacy through his work for which we can all be grateful.

This literature review is meant to summarize the major activities and research findings since the previous special issue of the *Borneo Research Bulletin*, volume 31, published in 2000. Readers are encouraged to revisit the previous volume to gain a more complete picture of work and activities in the park.

Danau Sentarum National Park is an extensive area (132,000 ha) of freshwater lakes and lowland swamp forests in West Kalimantan, some 700 km up the Kapuas River from Pontianak. The predominant vegetation is swamp forest, and more than 500 species of plants have been identified (Giesen 2000). The forest is flooded for much of the year by seasonal lakes whose water levels can vary by up to 12 meters; these lakes support a high diversity of fish, some 211 species (Kottelat and Widjanarti 2005). The lakes also buffer the flow of the Kapuas, thus reducing flooding along the longest river in Indonesia (Klepper 1994). Reptilian and amphibian fauna include crocodiles (Frazier 2000), turtles (Walter 2000), monitor lizards and snakes. The number of bird species is 237 (van Balen and Dennis 2000). With the exception of proboscis monkeys (Sebastian and Dennis 2000) and orangutans (Russon et al. 2001), information on mammals is limited. Danau Sentarum hosts many species not found, or rarely found, elsewhere because of its underlying hydrology and the relatively good condition of the habitats. This site of high biodiversity is home to approximately 10,100 people (Indriatmoko, this volume) who depend on its natural resources for their livelihoods.

Settlement and Resource Use

The following summary of human settlement in DSNP is based predominately

upon Wadley's work (2002, 2006). Colfer et al. (2001) provide a detailed timeline obtained from local communities in the Danau Sentarum region.

Precolonial History

Evidence of human activity in Danau Sentarum dates back more than 30,000 years (Anshari et al. 2004). The dating is based on carbon levels in the peat that indicate a higher incidence of fires that cannot be explained through climate change; there is no archaeological or documentary evidence of human activity in the area until much more recent times.

The Kapuas River has been critical for transport and trade through West Kalimantan and was controlled through a series of sultanates, the Kapuas kingdoms. The Selimbau Kingdom, from which many of the residents of the lakes originate, is considered the oldest, reputedly dating from prior to 1500, based on oral histories (www.rulers.org). An increase in interest in genealogical studies has led to a proliferation of websites on the traditional rulers in Indonesia, indicating a long history of governance in the Upper Kapuas and a continuing pride in that history.

The recorded history of the Upper Kapuas dates from the seventeenth century, when Islamic traders who arrived on the coast moved upriver, converting local Dayak communities. The Dayaks who converted to Islam in this area were called Melayu, their name incorrectly implying that they did not originate in Kalimantan. Those who did not adopt Islam continued with their traditional practices, though Christian missionaries converted many in later years. These people are now referred to as Dayaks. The many groups of Dayaks vary in their culture, language, land management practices, and spiritual beliefs. The three groups of interest to Danau Sentarum are the Iban, Embaloh, and Kantu, with the Iban being the group most numerous within the national park boundary and buffer zone.

Both the Melayu and the Dayaks lived in the kingdoms, but the former were subjects, under the authority of the sultans, and the Dayaks were not. The relations between the two groups were often cordial, but periods of wars and raids punctuated times of rapprochement and peace. Governance was complicated because the kingdoms had jurisdiction over people rather than land, a matter the Dutch authorities found confusing.

Colonial History

The first extant written report of habitation in Danau Sentarum, by the Dutch explorer Hartmann, appeared in 1823; he noted the presence of fishing and longhouses in the DSNP area. The location of Danau Sentarum, on the borderlands with Sarawak, significantly affected the history of the area over the next 120 years. From 1841 Rajah Brooke controlled Sarawak as a private kingdom aligned to Britain. In the 1850s the Dutch recognized that Brooke's occupation of Sarawak could affect their trading routes and tax revenues. Goods transported north, rather than along the Kapuas, and goods from Sarawak were circumventing Dutch taxation and being brought into Kalimantan at much cheaper prices.

One area the two colonial authorities agreed upon was their desire to suppress

pirating and raiding attacks, though initially they did not work in tandem. Brooke's suppression of Iban pirating activities in Sarawak probably led to the return of the Iban into the lakes area and Upper Kapuas.¹ The Iban appear over this time to have been relatively mobile, moving according to the local political situation as well as access to natural resources.

Later, in the 1880s, the Dutch and British cooperated to reduce raids and headhunting by attempting to settle the Iban away from the border, and also by constructing a fort in Danau Sentarum from which the military could patrol the area. This not only kept the lakes safe for Melayu fishing but also prevented Iban incursions down into the Kapuas and the kingdoms there.

In 1886 a massive raid by the Brooke government resulted in the destruction of some 80 Iban longhouses on both sides of the border. After that, headhunting and raids were less frequent, though skirmishes occurred from time to time. From the 1890s the River Leboyan on the eastern reaches of Danau Sentarum was settled, first by the Iban, and later in the 1930s by the Melayu. Aside from these small settlements in the lakes area, most economic activity was still undertaken by residents from the Kapuas communities of Selimbau and Suhaid, who occupied the area on a seasonal basis.

The Second World War ended Dutch influence in the region, and there were limited interventions until Indonesia was formed and a government structure of province, regency and district introduced. Parallel to this, the Fisheries Service from 1945 started outreach work and was a significant influence in encouraging further year-round settlement in the national park and an increase in fishing intensity (Giesen and Aglionby 2000).

A final event of note was Konfrontasi, armed conflict between Malaysia and Indonesia. This concerned the Sarawak border and lasted from 1963 into the early 1970s, and for many years affected trade patterns. The relatively open border was tightened, restricting trade and travel into Sarawak. The northwestern border at Lubuk Antu and Nanga Badau was effectively closed for more than 10 years and even then remained closed for those not from the borderland area; it is still not an official border crossing for foreign nationals.

Current Resource Use

The survey undertaken by Riak Bumi and CIFOR estimated the population in DSNP at more than 10,100 people in 43 villages, 37 of which were permanent villages, with six seasonally occupied during the dry (fishing) season (Indriatmoko and Abas 2007). This is more than double the population in the early 1990s (Aglionby 1995), though the earlier surveys covered only 39 villages because of the smaller size of the wildlife reserve.

Current resource use in DSNP is much as described in volume 31 of the *Borneo Research Bulletin*, with further information available in Yuliani and Erman (2005). The value of the resources harvested is detailed by Aglionby (1997) and Yuliani et al. (this volume), but briefly, the population is largely dependent on fishing for both income and

¹ See Cramb (2007) for a recent discussion on the topic.

protein. Agriculture is minimal except on the periphery of the park among the Dayaks and a few Melayu communities. Timber is harvested from the reserve for the construction of houses and boats as well as for fuel for cooking. Because of the increased population and demand for cash, the stock of natural resources is declining as the volumes extracted increase, even though patterns of harvesting remain similar (Yuliani and Erman 2005).

Legal Frameworks

The management of Danau Sentarum is largely determined by national and regional legislation. Although there is a gulf between written law and its implementation, a clear understanding of the legal framework explains much of the history of management in protected areas (Patlis 2007).

The Indonesian government's Forest Protection and Nature Conservation directorate has not had sufficient staff or facilities to fully implement conservation management at DSNP, but even a "paper" park has its advantages. The very designation of Danau Sentarum as first a wildlife reserve and then a national park has limited development and extraction of the natural resources in the area.

The 1994 international designation of DSNP as a Ramsar site (a wetland of international importance) has also brought benefits, releasing funding streams that otherwise would be less accessible. Furthermore, it raises the profile of DSNP internationally and brings pressure on the Indonesian government both within the Ministry of Forestry and in the regional government to provide resources for its protection. It further discourages decisions that would adversely affect its condition. This has affected some decisions concerning oil palm plantations, as detailed by Yuliani et al. (this volume), although concessions have been awarded in surrounding areas.

Decree SK757/Kpts/Um/10/1982 made Danau Sentarum a wildlife reserve in 1982, and SK 34/Kpts-II/1999 created the national park in 1999. These decrees cannot be considered in isolation but must be viewed in connection with the law and regulations covering national parks.

National Legislation for Forestry

The Indonesian Constitution of 1945, as amended, grants the Indonesian state control and ownership over all natural resources. More particularly, all land declared as forest is state-owned and under the management of the Ministry of Forestry. The current primary law governing forest management is the 1999 Forestry Law, which replaced the 1967 Forestry Law. The 1999 law acknowledges that the forest estate is declining and requires sustainable management; it also requires management for both current and future generations, by implication adopting the ecosystems approach as required by the Convention on Biological Diversity. Article 1, Section 11, of the 1999 law defines nature conservation forest areas, including national parks, as "a forest with specific characteristics, having the main function of protecting life-supporting systems, preserving species diversity of plants and animals, and sustainable use of biological resources and their ecosystem" (Forestry Law 1999).

The 1999 law also allows some state forests to be *adat* (customary) forests if

traditional rights have been continuously exercised and the use is consistent with the objectives of the forest area. Achieving formal recognition of *adat* rights in national parks, however, is difficult in practice (Moeliono 2008).

Conservation forests are under the control of the Ministry of Forestry. This means local government has no jurisdiction within Danau Sentarum, which has in the past resulted in difficulties in meeting local communities' socioeconomic needs, though it seems less of a problem since decentralization. Protected areas create a black hole in the administrative map of local government. Local governments have three options: (1) ignore communities resident in a national park; (2) treat the villages as if they were adjacent to the conservation area and build schools and clinics outside the park; or (3) provide some resources to the permanent settlements inside the park – an option that makes officials uncomfortable. The second and third options represent the strategies used by the *kabupaten* (district) of Kapuas Hulu for communities in DSNP. Significant efforts have been made since 1993 to increase coordination and understanding with the government of Kapuas Hulu. One limitation is that the national park headquarters are in Sintang, several hundred kilometers from Putussibau, the administrative capital of Kapuas Hulu district; the journey to Putussibau takes more than six hours by speedboat, or it can be reached in four hours by road from Lanjak.

The lack of socioeconomic support has disadvantages to communities but can be an advantage for the retention of forest. The policy of decentralization² allowed local government to grant small concessions of up to 100 ha for local needs, but only in areas under its jurisdiction. Because DSNP remains under the control of central government, local government cannot grant logging concessions within the park, but its authority in the buffer zone is less clear. DSNP's buffer zone of 65,000 hectares is thought by some to be part of the conservation area, but concessions have been granted, with significant impacts on the national park. There is also concern that the law is not being strictly followed, since the concessions are being granted for large-scale commercial use.

Administratively, Danau Sentarum may be a protected area under national regulation, but in practice it is part of a continuum of forest. Its boundary is in most places not apparent, and the forest just outside the park has been managed in much the same way as that just inside. Protected area boundaries have little significance for local communities. Furthermore, the demand for land for oil palm plantations in the buffer zone has increased pressure on DSNP. Not only would such development increase demand for timber and nontimber forest products from within DSNP, but clearing the forest for plantations would damage the park's water quality. The debate over oil palm concessions and who receives its benefits has been heated and has raised the profile of natural resource conservation. The status of the buffer zone as a conservation forest remains disputed, with both regional and central governments claiming authority.

Because of the work started by the United Kingdom–Indonesia Tropical Forestry Management Programme (UK-ITFMP) and continued by Riak Bumi and CIFOR, as well as the activities in Bentung-Kerihun National Park, the administration

2 Decentralization has been the major driver of reform in Indonesia since 1999. The initial two decentralization laws, Law No. 22 of 1999 on Regional Government, and Law No. 25 of 1999 on Central-Local Fiscal Balance, as amended, were the basis for this policy.

of Kapuas Hulu is aware of the area's importance for conservation and declared itself a conservation district in 2003 (SK Bupati Kabupaten Kapuas Hulu No. 144 2003). This public statement is a significant step forward, but it is a major task with high opportunity costs if the district in fact limits development.

Conservation Management

Management of DSNP is now under the head of the National Park Authority for DSNP, which was established on 1 February 2007 by Ministerial Decision P.03/Menhut-II/2007. The technical unit is based at Sintang, some 200 km from DSNP, but enforcement officers are stationed in the field at various guard posts, including the small towns of Semitau, Selimbau, and Lanjak. The technical unit is responsible for managing the reserve and enforcing legislation to prevent illegal resource extraction and activities. In 2009 the technical unit's staff numbered 22, compared with two in 2005.

Hukum Adat and the Legal Framework

Hukum adat (customary law) has long governed the use of natural resources, mediated disputes between individuals, and addressed minor crimes. It is based on oral rules that are enforced by community elders and leaders (Lindsey 2008). If matters can be resolved in a local community, then recourse to state law can be avoided. Moreover, many matters are not addressed by state law in ways appropriate to specific communities' culture or religious beliefs.

Wilayah Kerja: Spatial Implementation of Hukum Adat

The 1994–1995 survey of villages in Danau Sentarum revealed that each village had its own rules governing the harvesting of resources and its own *wilayah kerja* (resource utilization area; literally, 'work area') to which those rules applied (Aglionby 1995). This geographical aspect of customary law represents a change from earlier times (Wadley 2006), when the Kapuas kingdoms had control over their subjects, but not the land.

In DSNP today, with some exceptions, communities allow outsiders to enter and fish or harvest other resources, but the outsiders must follow the *wilayah kerja*, the rules of that area. Access is therefore not open, but managed by collective rules. It is not known when this change occurred, but the practice is estimated to be at least two generations old. The fisheries service may have had a role in the transition, since in the 1950s–1970s it conducted extension work that strengthened the role of the head fisher *ketua nelayan* (head fisher) in each settlement. In 1994 and 1995 Dennis and Erman mapped the *wilayah kerja*, and data on the rules were collected by Aglionby (1995), Heri (1996), Harwell (1997) and Anshari et al. (2005).

Each main ethnic group has its own system of *adat* in force across the national park, and when disputes occur between people of different ethnic groups, a problem arises: which *adat* system should be used? Yasmi et al. (2007; see also Yasmi et al., this volume) researched this question in relation to fish poisoning incidents, which killed fish downstream. Their conclusion was that good negotiations between head fishers was

the key to reaching settlements and preventing escalation. In addition, clear boundaries between communities assist in conflict resolution.

Participatory management based on *adat* was initiated by UK-ITFMP,³ but because of changes in staff and policies, was not continued, resulting in a lost opportunity (Claridge 1997). There were several reasons why the work was not continued, but one was the lack of *de jure* status of communities. During UK-ITFMP's work, field staff of the national conservation agency (Konservasi Sumber Daya Alam, KSDA) supported establishing *kelompok-kelompok nelayan* (fishers' groups), but the Minister of Forestry could not authorize making community groups conservation managers while Danau Sentarum was still a wildlife reserve (Jeanes 2000).

Since UK-ITFMP ended, the legislative position nationally and locally has altered. The 1999 Forestry Law can promote community-based forest management because it gives greater recognition to *adat* rights and *masyarakat hukum adat* (customary law communities) in some forest areas. It does not give title to *adat* rights, but rather gives communities the right to manage; this right is subordinate to the national interest (Marr 2008). However, this recognition did not extend to conservation forests, such as Danau Sentarum.

In 2004 a ministerial directive on collaborative management in protected areas was issued (P.19/Menhut-II/2004) that formally allows local communities, as well as other parties, to be co-managers in protected areas, including national parks. By formally recognizing the role of communities, this decree offers a new *de jure* paradigm for co-management in DSNP. Like the 1999 Forestry Law, the decree does little to recognize *adat* rights as tenure and is very broad in its guidelines (Moeliono 2008). It does, however, recognize that communities living in protected areas are dependent on the natural resources.

Research Activities

In 1986 and again from 1992 until 1997, Danau Sentarum was an active research site with ecological specialists researching flora and vegetation, fish, crocodiles, birds, proboscis monkeys and orangutans, as well as human resource use, including honey, fisheries, turtles, rattan, timber, culture and social and environmental economics. The results of much of that research are presented in volume 31 of this journal and confirm Danau Sentarum's importance both nationally in Indonesia and internationally.

Since 1997, research activity has varied. Until 2005 activities were limited to single researchers (e.g., Dennis and a local NGO, Riak Bumi), but in the past five years a resurgence in interest has occurred.⁴ Some of the research has been analytical and academic, but much has been action research, with two primary aims. The first is to build capacity and capability among local communities and forestry officials to enable them to manage the resources more sustainably. The second, and the more important

3 Further information on this program is given later in the paper.

4 The reasons for the hiatus include the delay in establishment of the National Park Authority, the political unrest in West Kalimantan and the general political changes in Indonesia as regional autonomy was introduced.

purpose from CIFOR's perspective, is to research methods that enhance the efficacy of participatory and collaborative management.

The decline in purely ecological research reflects several factors. First, there is no question about the biological significance of DSNP; the data already justify protection of the site. Second, the status of the site changed from a wildlife reserve, where communities were "illegal" residents, to a national park, where humans are recognized as legitimate users of resources. Third, the research reflects the interest and concerns of the scholars who have remained active in the area. The following list indicates the scope of research since 1997.

Peatland and carbon. Anshari et al. (2004) have undertaken research into the peat soils of Danau Sentarum, revealing the high carbon storage capacity of the peat soils and the long history of human management of the landscape.

Forest governance. CIFOR and Riak Bumi have led the work in this area with a major CIFOR project on the subject.⁵ Their work, funded by CIFOR core funds and by the Ford Foundation, has also contributed to the European Union project on governance for the conservation of biodiversity, GEM-CON-BIO. The work of Yuliani et al. (2007a) was a case study, subsequently used in the development of guidelines for community management of forest for biodiversity conservation (Simoncini et al. 2008). The role of local communities as major stakeholders in governance was also addressed by Anshari (2006).

Conflict management. Yasmi's (2007) Ph.D. research used Danau Sentarum as a case study for analyzing how conflict can be used constructively to manage natural resources on the premise that conflict is inherent to natural resource systems and that explicitly increasing communities' capability to manage conflicts will improve natural resource management.

History of resource use. After his initial Ph.D. research near Lanjak in the early 1990s, Wadley proceeded to work on the history of the borderlands between Sarawak and West Kalimantan as well as on traditional resource management practices and their implications for current natural resource management (Wadley et al. 2000, 2002, 2006; Wadley and Colfer 2004).

Traditional resource management. How local communities use and manage natural resources has been a continuing theme of Colfer's (2000). Research since 1997 has included using Danau Sentarum to develop principles and criteria to assess the security of intergenerational access to resources and the link with sustainable forest management. Danau Sentarum scored highly, indicating active management and a commitment by local communities to ensure resource sustainability (Colfer et al. 2001). In 2005, a report on traditional rules as a basis for the management of Danau Sentarum was produced (Anshari et al. 2005). Indriatmoko (this volume) has produced more recent data on traditional land tenure.

Threats to habitats. Research has covered the effects of damming (Yuliani et al. 2007b), population increase (Indriatmoko, this volume), analysis of threats (Heri et al., this volume) and oil palm (Yuliani et al., this volume).

5 http://www.cifor.cgiar.org/Research/Governance/Projects/danau_sentarum.htm.

Development Projects

Development and conservation activities in the area have continued for more than 60 years, and it was the high value of Danau Sentarum's natural resources that attracted early intervention. That said, many of the communities are very isolated and government intervention has been minimal. This section covers government activities, international projects and local initiatives.

Government-Sponsored Actions

Many years before the designation of Danau Sentarum for its biodiversity, the area was recognized as an important fisheries resource, and the Department of Fisheries operated actively within the area (Dudley 2000). The stated objective was to increase fisheries' yields through advice and assistance with new techniques, such as using *jermal* (fine nets) and farming fish in cages.

The fisheries department opened an office in Selimbau in 1945, and the head of the office had an important role in the community. Staff made regular visits to all the communities, collecting data from the *ketua nelayan*. The role of head fisher therefore increased through this extension work, and the interaction between *hukum adat* and national government legislation began.

Other government interventions included the establishment of primary schools and health clinics in year-round settlements with sizable populations. Almost none of the communities had the status of *desa* (village), so people were registered as residents of the closest *desa* immediately outside the park boundary, in Selimbau, Semitau, Jongkong or Lanjak. Later, government departments were therefore able to assert that there were no permanent residents in Danau Sentarum – as required for a wildlife reserve.

When the area became designated as a wildlife reserve in 1982, the limited resources of the offices of Conservation Agency (Konservasi Sumber Daya Alam, KSDA) meant that there were no permanent staff within the protected area. Danau Sentarum was a paper park. The agency considered the local people illegal occupants, preferably to be relocated, even as the government's health and education departments were acknowledging the permanent resident status of the population by providing schools and clinics. The confusion and lack of coordination arose partly because education and health services were administered by provincial and regency-level government, while KSDA was directly under control of the national Ministry of Forestry.

Permanent staff were first deployed by KSDA in 1992, with the start of UK-ITFMP, and in 2007, the National Park Authority became the coordinating body for the many initiatives in the park.

Early International Projects

In the 1980s Dutch ecologists working for the Asian Wetlands Bureau started field visits to Danau Sentarum and recorded the richness of the site, far beyond the already recognized habitat for the arowana fish (*Schleropagus formosus*) (Giesen 1987).

This research, supported by the World Wildlife Fund, concluded that the site was of international significance, and the Asian Wetlands Bureau sought international

recognition and support through two initiatives. The first was to seek funding for a conservation project, and the second, to achieve international status through designation of the area as a wetland of international importance, a Ramsar site.

Both were successful, and in 1994 Danau Sentarum became Indonesia's second Ramsar site, which places Indonesia under certain obligations with regard to the management of the area. At the same time, the United Kingdom was adopting green policies, and the conservation of the rainforest was an increasingly important political issue. The decision taken by Prime Minister Thatcher to invest development monies in tropical forest management was not only significant in the United Kingdom but timely for Danau Sentarum. Most of the £5 million committed to UK-ITFMP was targeted at improved management of production forestry, but Project 5 focused on Danau Sentarum Wildlife Reserve and was subcontracted to the Asian Wetlands Bureau.

UK-ITFMP Project 5 Conservation, 1991–1996

Project 5 was designed by ecologists and, given the site's status as a wildlife reserve, focused on conservation management. At first, project designers envisaged a conservation and development project, but the designation of the site meant that the actual project objectives were more conservation-oriented. In practice, most of the staff were inclined to a combined approach.

The project started in 1991, and in 1992 the first consultants were in the field. Their job was logistical as much as technical: building a field center, hiring staff, installing communication systems, establishing links with local government staff and communities. The logistics of running the program in such a remote location had been underestimated by the Asian Wetlands Bureau (see Wadley et al., this volume, for a full account), and the first consultants, feeling unsupported, resigned. The approach of their replacements was not inclusive of local communities, and they, too, soon left. The third team, who came in 1994, consisted of international experts and local counterparts who focused on conservation management and worked with local communities. Their work attracted visiting researchers from academic institutions (see, e.g., Peters 2000; Harwell 1997; Wadley and Colfer 2006).

Although UK-ITFMP Project 5 was a conservation project, the staff understood that involving local communities and addressing their needs was a prerequisite for conservation. Resource management projects were initiated, such as planting rattan and selling honey and rattan baskets, and local government officials were encouraged to address socioeconomic needs, including health, education and microfinance. In addition, a concerted effort was made to understand, map and codify the communities' traditional governance systems based on work areas and customary laws (Harwell 1997). Another important strand of the activities was the work on forest fires by Dennis et al. (2000), who identified fires as a major threat to the forest habitat.

The fieldwork deepened understanding of the areas outside the wildlife reserve boundary. Their value as forest ecosystems and, in particular, as habitat for orangutans gained appreciation, and the threats to wildlife habitat from the extraction of timber were noted (Russon 2000). As a result, the UK-ITFMP workers recommended that the boundaries of the reserve be enlarged and its status changed to a national park. These

changes would make it possible to implement a management plan that both protected biodiversity and integrated Danau Sentarum's communities into resource management.

UK-ITFMP succeeded in raising awareness among local and national stakeholders about the importance of the site and the difficulties of conservation management, and project workers' relations with the local communities were good (Yuliani 2007a). The project also made progress in setting up several small-scale income-generating initiatives, but no management structure was in place to take over when its staff left. The conservation agency did not have sufficient resources to patrol the protected area or work with local communities. The management plan was at risk of being just a paper plan, rather than an action document. The project ended as the Suharto era was drawing to a close and a new era of decentralization was around the corner.

Riak Bumi and CIFOR, 1997–2009

As with many protected areas, the titles and nature of projects alter, but continuity is achieved through the individuals involved at a site. In the case of Danau Sentarum, two individuals have provided continuity—Valentinus Heri and Carol Colfer.

Heri was the Indonesian colleague of one of the consultants, Trevor Wickham. Originally from Lanjak, he holds a law degree and is particularly interested in resource management. As UK-ITFMP ended, he and two other colleagues, Andi Erman and Ade Jumhur, established a nongovernmental organization called Riak Bumi⁶ to continue activities in Danau Sentarum. Together with their staff, many of whom are also local, they undertook various small-scale projects. Riak Bumi has also raised awareness of the threats from local timber concessions, oil palm plantations and a proposed dam. Riak Bumi has obtained funding from international donors, including CordAid, Dfid and the European Union. Its initial success was in part due to an American volunteer, Noriko Toyoda, who assisted with grant applications. When the UK-ITFMP project ended, Danau Sentarum became dependent on small grants from international organizations. Riak Bumi did not have the funds to underwrite joint activities with the conservation agency in the manner that had been the norm under the bilateral project.

Carol Colfer, an anthropologist, was part of the first UK-ITFMP team and later joined the Center for International Forestry Research, a research institution with a policy focus. Over the past 10 years, with Colfer's support, CIFOR has undertaken a range of participatory action research in Danau Sentarum with Riak Bumi. In this approach, communities are partners with the researchers, and the objective is often to empower local resource managers to improve their management; that is, there is a secondary development agenda.

Riak Bumi's field activities, many of which have been conducted with CIFOR, are described in greater detail elsewhere in this volume. Some are straight development activities, but others are part of CIFOR's broader action research projects in which Danau Sentarum is one among several case studies. A short summary of important projects follows.

Development of a honey industry. Riak Bumi has continued this activity, which

6 <http://www.riakbumi.or.id/>. Riak Bumi means 'ripples of the earth.'

was started under UK-ITFMP. Honey production generates income and requires a healthy forest. Those who benefit financially are therefore expected to have a strong incentive to protect the forest. The honey is now certified as organic, the returns to honey producers have risen, and a national network has been established.

Microhydro. With support from the German Embassy, a small hydro scheme to generate electricity has been installed by the people of Sungai Pelaik. As well as being practical, this has been a learning exercise (Indriatmoko 2008).

Reforestation. As identified by Dennis (2000), forest fires are a huge threat to the ecology of Danau Sentarum. Riak Bumi has worked with local communities to plant saplings and regenerate areas damaged by fire.

Management planning with local communities. Local communities are the de facto managers of DSNP, and from 1999 to 2006 there was no *de jure* management presence in DSNP. Riak Bumi has worked with local communities to develop community management through the formation of MIKE, a consortium of *adat* leaders from the Melayu, Iban, Kantuk and Embaloh peoples. CIFOR has been a critical partner and has introduced the use of appreciative inquiry as a management tool (Yuliani et al. 2008). In March 2009, Riak Bumi facilitated a visioning session to enable stakeholders to look ahead to 2014.

Coordination with government officials. In 2006, seven years after Danau Sentarum was designated as a national park, the National Park Agency was established. Riak Bumi and CIFOR are working with the park staff and local communities to develop a 25-year management plan for DSNP (Yuliani et al. 2007a).

Orchid-based conservation. A newsletter for local communities describes opportunities to make DSNP a destination for viewing orchids in the wild, as well as developing orchid gardens (Prasetyo and Zulkifli 2009).

Ecotourism. The National Park Authority has been working with local partners to assess the tourism potential of Danau Sentarum and increase awareness.

Awareness of environmental issues. Riak Bumi has at regular intervals produced *Suara Bakakak*, a newsletter for local communities describing their activities, threats to the national park and information on the ecology of the area. Together with CIFOR, the organization produced a film, *Abandoned Paradise*, in 2005 and has been influential in increasing awareness about the site.

Orangutan conservation. In 2009, funding was awarded by the U.S. Fish and Wildlife Service to CIFOR to lead a project on orangutan conservation in Danau Sentarum.

Other Initiatives

Over the past five years other partners have shown increasing interest in Danau Sentarum and surrounding areas. For example, WWF's Heart of Borneo project links Danau Sentarum with the wider network of protected areas in Borneo, in particular, Benteng Kerihun. Yayasan Konservasi Borneo and Universitas Tanjungpura have been researching carbon storage in peat forests. The EU-Indonesia Forest, Law Enforcement, Governance and Trade (FLEGT) worked on forest governance in villages surrounding DSNP. Recently, Flora and Fauna International has sought to generate carbon credits

through conserving forests in the oil palm concessions surrounding Danau Sentarum (http://www.fauna-flora.com/ffi_macquarie_taskforce.php). On the research side, the French research agency CIRAD led a forestry project in which DSNP is a study site.

Conclusion

Of necessity, this article has glossed over the vast data pool on Danau Sentarum, much of which is in the “gray” literature. This special section of the *Borneo Research Bulletin* aims to expose much of the work by many parties to research and understand this unique ecosystem, the services it provides and the management systems used.

A legislative framework is now being developed in Indonesia that recognizes the role of local communities. This means the communities and other stakeholders of Danau Sentarum are presented with an opportunity to use the past as a springboard for effective and sustainable future management.

References

- Aglionby, J.
1995 Final Report of the Associate Professional Officer (Environmental Economist) Project 5 Conservation. Jakarta: ODA.
1997 Community Management of Danau Sentarum wildlife reserve. In: Kenneth King and Wim Giesen, eds., *Incremental Costs of Wetland Conservation*. Kuala Lumpur: Wetlands International.
- Anshari, G.Z.
2006 Dapatkah Pengelolaan Kolaboratif Menyelamatkan Taman Nasional Danau Sentarum? Jakarta: CIFOR. http://www.cifor.cgiar.org/publications/pdf_files/Books/BAanshari0601.pdf.
- Anshari, G., A.P. Kershaw, S. Van Der Kaars, and G. Jacobsen
2004 Environmental Change and Peatland Forest Dynamics in the Lake Sentarum Area, West Kalimantan, Indonesia. *Journal of Quaternary Science* 19(7): 637-655.
- Anshari, G.Z., M.S. Zulkifli and N.W. Handayani
2005 Atutan-Aturan Tradisional: Basis Pengelolaan Taman Nasional Danau Sentarum. Yayasan Konservasi Borneo, Pontianak.
- Claridge, G.
1997 Community Based Conservation at Danau Sentarum Wildlife Reserve (West Kalimantan, Indonesia): Lessons Learnt from the Indonesia-UK Tropical Forestry Management Programme Conservation Project and Guidelines for the Future. Report for UK-ITFMP, Jakarta.
- Colfer, C.
2000 Understanding Patterns of Resource Use and Consumption. *Borneo Research Bulletin* 31:29-88.
- Colfer, C.J.P., R.L. Wadley, E. Harwell and R. Prabhu
2001 Assessing Intergenerational Access to Resources: Using Criteria and

Indicators in West Kalimantan, Indonesia. In: *People Managing Forests: The Links between Human Well-Being and Sustainability*. Washington, DC: RFF Press.

Cramb, R.

2007 *Land and Longhouse: Agrarian Transformation in the Uplands of Sarawak*. Copenhagen: Nias Press.

Dennis, R.

2000 The Underlying Causes and Impacts of Fires in South-East Asia Site 5. Danau Sentarum, West Kalimantan Province, Indonesia. Bogor: CIFOR.

Dennis, R., A. Erman and E. Meijaard

2000 Fire in the Danau Sentarum Landscape. *Borneo Research Bulletin* 31:123-137.

Dudley, R.G.

2000 The Fishery of Danau Sentarum. *Borneo Research Bulletin* 31:261-306.

Frazier, S.

2000 Crocodiles of Danau Sentarum. *Borneo Research Bulletin* 31:307-322.

Giesen, W.

1987 Danau Sentarum Wildlife Reserve: Inventory, Ecology and Management. Report commissioned by World Wildlife Fund for Nature. WWF Zeist, Netherlands.

2000 Flora and Vegetation of Danau Sentarum: Unique Lake and Swamp Forest Ecosystem of West Kalimantan. *Borneo Research Bulletin* 31:89-122.

Giesen, W. and J. Aglionby

2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.

Harwell, E.

1997 Law and Culture in Resource Management. Consultant's Report to Indonesia-UK Tropical Forestry Management Programme Project 5: Conservation. Bogor: Wetlands International.

Heri, V.

1996 Laporan data hukum adat: Berapa peraturan nelayan di Suaka Margasatwa Danau Sentarum, Kalimantan Barat, Indonesia. Indonesia - UK Tropical Forest Management Programme: Project 5: Conservation. Wetlands International - ODA, Bogor, Indonesia.

Indriatmoko, Y.

2005 Traditional Resource Tenure and Conservation Program in Danau Sentarum, West Kalimantan. Paper presented at Heart of Borneo conference, Leiden, Netherlands.

Indriatmoko, Y., and M. Abas

2007 Report of a Social Economic Survey in Danau Sentarum National Park. Unpublished report. Bogor: CIFOR.

- Jeanes, K. and E. Meijaard
2000 Danau Sentarum's Wildlife. *Borneo Research Bulletin* 31:150-245.
- Klepper, O.
1994 A Hydrological Model of the Upper Kapuas River and the Kapuas Lakes. Consultancy Report for the Asian Wetland Bureau / PHPA for the UK-Indonesia Tropical Forestry Management Programme.
- Kottelat, M. and E. Widjanarti
2005 The Fishes of Danau Sentarum National Park and the Kapuas Lakes area, Kalimantan Barat, Indonesia. *Raffles Bulletin of Zoology Supplement* 13:139-173.
- Lindsey, T., ed.
2008a *Indonesia: Law and Society*, 2nd ed. Sydney: Federation Press.
2008b Forests and Mining Legislation in Indonesia. In: T. Lindsey, ed., *Indonesia: Law and Society*, 2nd ed. Sydney: Federation Press.
- Moeliono, M.
2008 Hands off Hands on: communities and the management of national parks in Indonesia In: N.S. Sodhi, G. Acciolioli, M. Erb and A. Khee-Jin Tan, eds., *Biodiversity and Human Livelihoods in Protected Areas: Case Studies from the Malay Archipelago*. Cambridge: Cambridge University Press.
- Patlis, J.M.
2007 What Protects Protected Areas? Decentralisation in Indonesia, the Challenges Facing Its Terrestrial and Marine National Parks. In: N.S. Sodhi, G. Acciolioli, M. Erb and A. Khee-Jin Tan, eds., *Biodiversity and Human Livelihoods in Protected Areas: Case Studies from the Malay Archipelago*. Cambridge: Cambridge University Press.
- Peters, C.M. and W. Giesen
2000 Balancing Supply and Demand: A Case Study of Rattan in the Danau Sentarum National Park, West Kalimantan, Indonesia.
- Prasetyo, L.B. and M.S. Zulkifli
2009 Anggrek Alam: Warisan Alam yang Perlu Dilestarikan, CIFOR – Riak Bumi newsletter. http://www.cifor.cgiar.org/publications/pdf_files/research/governance/TNDNews4.pdf.
- Russon, A., E. Meijaard and R. Dennis
2001 The Population and Distribution of Orangutans (*Pongo pygmaeus pygmaeus*) in and around the Danau Sentarum Wildlife Reserve, W. Kalimantan, Indonesia. *Biological Conservation* 97:21–28.
- Sebastian, A.C. and R. Dennis
2000 Proboscis Monkeys in Danau Sentarum National Park. *Borneo Research Bulletin* 31:359-371.
- Simoncini, R., G. Borrini-Feyerabend and B. Lassen
2008 Policy Guidelines on Governance and Ecosystem Management for Biodiversity Conservation. <http://www.gemconbio.eu/downloads/>

- booklet_FINAL_Version_20080423.pdf.
- van Balen, B. and R. Dennis
2000 Birds of Danau Sentarum. *Borneo Research Bulletin* 31:336-358.
- Wadley, R.L.
2002 The History of Displacement and Forced Settlement in West Kalimantan, Indonesia. In: D. Chatty and M. Colchester, eds., *Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement, and Sustainable Development*. Oxford, Berghahn Books.
2006 Boundaries territory and resource access in West Kalimantan, Indonesia 1800-2000. In: R.L. Wadley, ed., *Histories of the Borneo Environment*. Leiden: KITLV Press.
- Wadley, R.L. and C.J.P. Colfer
2004 Sacred Forest, Hunting, and Conservation in West Kalimantan, Indonesia. *Human Ecology* 32 (3):313-338.
- Wadley, R.L., R.A. Dennis, E. Meijaard, A. Erman and V. Heri
2000 After the Conservation Project: Conditions and Prospects. *Borneo Research Bulletin* 31:385-401.
- Walter, O.
2000 A Study of Hunting and Trade of Freshwater Turtles and Tortoises. *Borneo Research Bulletin* 31:323-335.
- Yasmi, Y.
2007 Institutionalization of Conflict Capability in the Management of Natural Resources. PhD thesis, Wageningen University, Netherlands.
- Yasmi, Y., C.J.P. Colfer, L. Yuliani, Y. Indriatmoko and V. Heri
2007 Conflict Management Approaches under Unclear Boundaries of the Commons: Experiences from Danau Sentarum National Park, Indonesia. *International Forestry Review* 9 (2): 597-609.
- Yuliani, L. and A. Erman
2005 Present Trends of Resource Use in Danau Sentarum National Park. Paper presented at Heart of Borneo conference, Leiden, Netherlands.
- Yuliani, L., Y. Indriatmoko, V. Heri, S. Ernawati, S.B. Prasetyo and M.S. Zulkifli
2007 Promoting Good Governance in Managing Danau Sentarum National Park through Adaptive Collaborative Management Approach. In: Promoting Conservation through Good Governance That Benefits Local Communities: Case Study of Danau Sentarum National Park. Report for EU funded GEM-CON-BIO project, Thessaloniki-Perea, Greece.
- Yuliani, E.L., Y. Indriatmoko and V. Heri
2007 What Will Happen If Danau Sentarum Is Dammed? (*Apa yang akan terjadi jika Danau Sentarum dibendung?*). CIFOR–Riak Bumi Newsletter No. 2, December. Bogor: CIFOR and Riak Bumi.
- Yuliani, L., H. Adnan, Y. Indriatmoko
2008 The Use of Appreciative Inquiry as a Tool for Enhancing Adaptive Capacity in Natural Resources Management Paper prepared for the IASC Conference, Cheltenham, U.K., 14-18 July, 2008

3. FLUID LANDSCAPES AND CONTESTED BOUNDARIES IN DANAU SENTARUM¹

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This chapter analyzes the dynamic physical and social environment around resource claims in the Danau Sentarum National Park (DSNP), West Kalimantan, Indonesia. I investigate the changes in meaning ascribed to the forest and fish resources of DSNP and how these meanings are influenced by history, livelihood strategies, markets, ecology, and relations with the state and neighbors. In turn, I explore how these meanings, and the continually renegotiated ideas of territory they engender, affect both the social and the physical landscapes of the present and future.

In resource-dependent communities, livelihood strategies are critical influences on what people consider a “resource” and how corresponding use rights are defined. Changing markets are also intimately associated with local perceptions of value and the interest in controlling that value through territories. In turn, access to markets depends on social networks, which are linked to ethnic, religious, political and kinship identities (Miles 1976; Hefner 1985). Seeking livelihood, therefore, is never simply an economic endeavor but one deeply imbued with cultural and social politics, in which history plays a central role (Hefner 1985; Gudeman 1986; Shipton 1989; Harwell 2000). Local resource rights to farmland, fishing grounds, and forest products are based on labor, residence and inheritance (Freeman 1955; Dove 1985; Acheson 1988; Sather 1990; Harwell 2000). Having ancestors who farmed, fished, planted trees or collected forest products in particular locations bestows complex inheritable rights to those resources, making it important for claimants to know their genealogy as well as the history of their ancestors’ residence and management activity. This paper will also demonstrate how historical claims to resources have often morphed into claims over land and territory (see also Peluso 1996). The case of DSNP is an example in which these layers are exposed, in part through specific local institutions and management practices that indicate the diverse local perspectives on territory.

1 A version of this paper appears in M.R. Dove, P.E. Sajise and A.A. Doolittle, eds., *Complicating Conservation: Beyond Sacred Forests* (Durham, NC: Duke University Press, forthcoming). This paper is based on my own independent fieldwork (1994–1997), primarily in the Leboyan River of DSNP. Some of the data on village rules for resource management were collected by DSNP field researcher Valentinus Heri (1996) and park guards Pangarimpunan Sinaga and Tarigan Sinaga (1994a, 1994b, 1996), on mapping village boundaries by DSNP staff members Andi Erman and Rona Dennis (Dennis 1997), supplemented by my own interviews with DSNP staff and government officials, DSNP project reports, and historical research in the Jakarta and Kuching archives.

This paper begins, after a brief site overview, by outlining some of the ways that diverse local identities are linked to livelihoods and diverse perceptions of resources and territories. I then position these notions of identity, livelihood and entitlement by demonstrating how history from precolonial sultanates to post–New Order logging entrepreneurs serves as an important resource for different players seeking to stake claims in the present. I then move to a brief examination of how everyday management itself amounts to a form of entitlement discourse. Claims asserted through management practice are also in constant tension and renegotiation with other competing claims of neighbors and the state, and they thereby underscore the power dynamics involved in whether one’s own vision of boundaries is recognized or disregarded by other users.

Seasonal Flux

DSNP is ideal for an investigation of diverse forms of boundary-making because it is important to many groups for different reasons. The physical landscape of the place lends itself to dynamism in territorial claims because of its dramatic seasonal flux in water levels (up to 12 meters) and shifting availability of resources. Populated by two main ethnic groups, Malays (primarily fishers) and Iban (primarily rice farmers), the area has long been divided into village territories which enclose forests and fishing grounds of varying importance to the two groups. Informal village legal institutions, or *hukum adat*,² within these village boundaries regulate local management practices. These boundaries and regulations have changed in response to dynamic relations with states, markets and neighbors and with the mobility of people and resources.

The Kapuas lakes are part of an intricate network of seasonally flooded lakes and tannin-rich blackwater swamp forests that lie in the center of the island of Borneo, about 20 km south of the Sarawak border. The area acts as an overflow valve from the Kapuas River and is marked by a stunning difference between the wet and dry seasons. Under high rainfall, the smaller Tawang and Belitung rivers flow northward from the Kapuas River into the lakes, eventually flooding all the surrounding lowland forest (Giesen 1987). However, when rainfall drops below 300 mm a month at the source of the Kapuas, the falling water level of the great river causes the Tawang and Belitung Rivers to reverse direction and drain the expansive flooded forest and lakes back into the Kapuas, leaving only narrow channels through the dry lakebeds.

The variation in water levels between wet and dry seasons in DSNP may reach 12 m. or more – a striking alteration in the landscape that creates a shift in both settlement and livelihoods. In the wet season, the expansive lakes and flooded forest are quiet: a traveler traversing the area by boat (which would take only a few hours) might only see two or three people, fishing alone with hand lines. Entire villages are closed up and vacant because seasonal residents have returned to their homes on the Kapuas River.

2 *Hukum adat* is generally translated as ‘customary law’ but may be more accurately understood as the “moral ideal of social consonance and the behavioral imperative of propriety” (Geertz 1983:207) and has roots in cosmological connections between humans, their ancestors, and their environment. These deep meanings are in fact one of the greatest strengths of *adat* as a resource management institution.

But in the dry season, the place is transformed. Traveling across the dry lakebeds to seasonally landlocked villages can be a daylong journey under a blistering sun and requires maneuvering between countless fishnets strung across shrunken streams. The once quiet, dark landscape turns to hazy hues of yellows and tan, quivering in heat waves and buzzing with activity. Scores of fishers pull up rattling nets and traps heavy with fish (on which, if left too long unattended, otters, macaques, birds, snakes, turtles, crocodiles and monitor lizards eagerly gorge themselves). Floating houses and *bandung* (small houseboats), many sporting satellite dishes, congregate into temporary villages in the middle of the dry lakebeds – complete with soccer and volleyball fields on what was recently submerged lake bottom. Late into the night, people squat on the edge of makeshift docks, cleaning and salting their catch in big pottery jars, squinting in the light of flickering kerosene candles. In the morning, the splayed salted fish carcasses are laid out over every available surface to dry in the sun. Downstream, traders' massive houseboats linger on the Kapuas, collecting the dried catch and selling fishing gear, packaged food, brightly colored clothes and toys, pop music cassettes, gold jewelry, and televisions.

The seasonal flux of the lakes creates both great opportunities as well great risks for people dependent on local resources.³ As water levels drop (sometimes, as in 1994, as fast as 90 cm a day), fish migrate through small rivers leading to the Kapuas or are stranded in seasonal ponds, creating ideal conditions for fishing,⁴ and upriver levees become fertile fields for rice agriculture.⁵ However, this seasonal water drop does not always materialize – historically only about half the time, although not necessarily alternating years.⁶ In wet years, fish remain dispersed throughout flooded forests and floodplains submerged or too poorly drained to be properly burned before planting (to release nutrients from slashed secondary growth). Although local rice varieties are selected to withstand some flooding, a newly planted field may be abruptly flooded, drowning the young plants. Local people must be prepared to deal with flux in climate and resource availability, which demands great flexibility and diversity of livelihood strategies; these tend to differ along ethnic lines.

3 For a review of the reserve ecology, see Giesen 1987 (general); Kottelat 1993 (fish); Peters 1993a (forests); Klepper 1994 (hydrology).

4 The lakes also serve as the spawning grounds of many migrating Kapuas fish and have some of the highest freshwater fish diversity in the world, with a species list of 315 species, including many endemics “new to science” (Kottelat 1993; Widjarti 1996). This richness is critical for the lakes' international conservation value.

5 However, such alluvial conditions are not present throughout the area, since the downstream areas are blackwater peat swamps or have heavy acid clays unsuitable for agriculture. See Padoch (1982) for a description of floodplain agriculture.

6 Giesen (1987) found that drought sufficiently long to drain the lakes occurred in 27 of 52 years (52 percent), or about every second year. Following the severe 1994 El Niño drought, there were two consecutive years of extremely heavy rainfall and flooding.

Social Networks and Livelihood Strategies

To understand the differing territorial claims of Malays and Iban⁷ to fish and forest resources, we must consider how livelihoods in the two groups differ and how they have changed in response to new markets, social conditions and relations with the state. Among the Iban, the need to deal with uncertainty has led to strategies that tend to increase privatized territory and decrease in-migration, whereas among Malays, it has most commonly led to increasingly permeable territory and increased numbers of resource users.

The two main ethnic groups survive seasonal fluxes and hardships through mobility and social networking – but these practices vary in form and have different consequences, as reflected in contrasting notions of community, landscapes, territories and entitlement. Further, these different perspectives are based on contrasting relations with the state, which color their ideas of rights and territory. Of course, there also exists great heterogeneity within the groups, as different individuals pursue or flee state association and cross ethnic boundaries through marriage, religious conversion or adoption (see Harwell 2000 for a discussion of the permeability of these ethnic categories). Nevertheless, the assertion of ethnic polarity by states, international media, conservationists, regional ethnic and religious elites and locals themselves has greatly influenced political discourses of entitlement in the region.⁸

Consequently, there is a difference between the two ethnic groups in the spatial and conceptual perceptions of resources and the cultural construction of rights around waterways and forests. DSNP Iban (primarily farmers) view their territory as anchored to forest and agricultural resources, marked by vegetation types or hillsides. Meanwhile, DSNP Malays (primarily fishers) perceive their *wilayah kampung* (village territory) first and foremost as fishing grounds, marked by streams and lakes.⁹

Iban Dayaks have diversified strategies of subsistence and commercial activities. By far the most important activity for the Iban is a complex combination of rice and vegetable agriculture and silviculture of rubber, fruit and other perennials.¹⁰ In addition to rice, Iban harvest various wild and cultivated forest products, hunt wild game, raise domestic animals and fish as well as raise pond and cage-cultured fish. Most men engage in wage labor migration during some phase of their lives, if not regularly (Padoch 1982; Kedit 1993; Wadley 1997).¹¹ A minority of Iban living close to the rivers supplement their subsistence activities with cash from the seasonal sale of freshwater turtles, honey,

7 Other Dayak groups, such as Kantu' and Embaloh, also live around the edges of the reserve, but because they do not live inside the reserve boundaries, they are not included in this analysis.

8 See also Harwell (2000).

9 A few Malay communities, however, lay claim to honey trees, floodplain rice fields, and community forests.

10 These systems have been described in depth elsewhere (Freeman 1955; Padoch 1982; Sather 1990; Sutlive 1978).

11 One missionary described Iban journeys, although likely to be in part an economic venture, as also being motivated by desires similar to modern tourism: "The Dyak is fond of travel, and, like other people, loves to visit foreign countries and return to relate his adventures to his stay-at-home friends" (Gomes 1911:233).

swidden vegetables (cassava roots and leaves, squash, cucumbers, corn) or rattan to passing traders' boats, nearby Malay communities or timber camps. However, this income is typically both meager and sporadic, and as a general rule, DSNP Iban subsist on what they produce themselves, relying on fish, rubber, and wage labor to provide cash to pay for staples, fuel, school fees and other necessities.

In contrast, the majority of DSNP Malays use income derived from fish to buy all their necessities, including rice. Some have secondary sources of income from the harvesting of honey and rattan and timber sales, but most are dependent on fish to generate cash. Only a small minority grow rice, and they have considerably less success than the Iban farmers – the Malay farmers never have enough for their own consumption, perhaps because of limited access to farmland and shorter fallow cycles, poor rice varieties, less experience or expertise with farming or reduced availability of labor for weeding (frequently limited by fishing activities; see Harwell 2000).¹²

Rather than depending on a diversity of activities, the flexibility that allows many Malays to survive seasonal hardships lies in their mobility and wide social networks.¹³ Until about 60 years ago, most Malays fished the lakes only seasonally and returned home to towns along the Kapuas River during the high-water season, when fish were scarce.¹⁴ Today, many Malays have permanently settled on the lakes but maintain strong social ties with the large Kapuas towns. In wet years, when fishing is poor, many Malays fall back on these social networks, relying on relatives or credit with riverboat traders. The reciprocal nature of these networks increases outsiders' access to village fish resources because relatives from the Kapuas come in the dry season wanting to fish (and may decide to stay), and traders demand repayment of debts in fish rather than cash. Many traders may front the capital to buy fishing gear or salt in return for the fishers' promise of exclusive rights to their catch. These factors, along with the dependence on fish rather than forest resources, contribute to a more permeable view of territory.

Iban have similar fallback strategies of mobility and social networks, but the patterns of resource access that result from employing these strategies differ. Iban livelihood demands mobility, but their journeys are primarily through their rice fallows and orchards.¹⁵ Additionally, for Iban men (and increasingly, women), *bejalai* (individual journeys) stretch farther afield for wage labor (mainly to Sarawak), where they often

12 One of the reviewers hypothesized that the Malays devote less labor to farming and therefore have lower yields because the rice harvest may be less important than maintaining a claim to land by farming it.

13 Sara Berry (1993) noticed a similar attention to social networks in Africa, where because of the difficulty in gaining access to farmland, a proliferation of social networks that might increase such access actually began to take precedence over land management in people's time and capital investments.

14 Pulau Majang was established as a Dutch guard post in the late 19th century and, according to local reports, was quickly populated by Malays seeking access to fish resources and protection from Iban raiding. Seasonal use of the area stretches beyond the historical record: early reports from Veth (1854) and Enthoven (1903) report Malay and Dayak fishing in the area, although this use ebbed and flowed with raiding activities.

15 See also Tsing (1993) for a description of Central Kalimantan Meratus Dayak mobility across farming landscapes.

remain for years, if not permanently) and where they establish new social ties, but periodically send remittances home (Kedit 1993; Wadley 1997). Like Malays, Iban also cultivate social networks, but these networks have very different effects on the notion of territory and on the resources themselves. Village cooperative work groups are important for planting and harvesting fields.¹⁶ When harvests fail, people depend on social ties to borrow rice. *Gawa'* (harvest festivals) are not only a request for the continued favor of the spirit world, they are also an opportunity to socialize and strengthen ties with other villages. Although communal relations are an important aspect of Iban lives, Iban households are also very independent (Dove 1982; Sutlive 1978) and tend to use these social networks as a fallback, rather than as a seasonal strategy. Likewise, Iban social networks make it possible for people from other longhouses to come to borrow farmland or cut new fields. However, such movement typically involves only single households because the limited forest resources restrict the number of new residents who can be accommodated.¹⁷

Although movement has been an important part of Malay and Iban livelihoods, history has played a large role as both states and markets have greatly reduced the mobility of both groups. State pressure to settle and subjugate warring populations during the late 19th and early 20th centuries contributed to the narrowing of Iban mobility from expansive migrations to localized movement across secondary fallows or individual *bejalai* journeys (Pringle 1970; Tarling 1978; Wadley 1997; Harwell 2000). Ironically, the increasing state involvement that suppressed Iban movement worked to encourage Malay movement, since it became safe to migrate seasonally to the lakes to fish without fear of Iban raiding. This contrast is part of a longer history of the Iban's efforts to achieve independence from state control while Malays have sought refuge in state privilege – a difference reflected in the contrasting views of territorial entitlement and citizenship, as I discuss below.

New markets, primarily for rubber and fresh fish, have also encouraged people to alter their movements and changed local notions of boundaries and territory. Iban migrations declined in the beginning of the 20th century as more families wished to stay

16 Contrary to what many outsiders commonly believe, however, not all Iban use reciprocal work groups. Although those without access to sufficient labor have little choice, those households who did have enough labor were divided as to whether they used work groups. Several families in the longhouse where I lived declared work groups to be a waste of time and resources, since the groups require outlays of food and *tuak* alcohol (rice wine). "Everyone drinks more and works less. Even though there are many people, it still takes longer. I prefer to just do it myself [with my immediate household]," one man complained.

17 In the past, some anthropologists emphasized Iban movement as a livelihood strategy, even characterizing the group as "addicted to prodigal farming methods" that forced them to constantly move in search of new farmland (Freeman 1955; Geertz 1983; Vayda 1961). However, other anthropologists say this reliance on migration has been overemphasized. Padoch (1982), for example, found alternatives to migration for securing new farmland, including shifts to different swidden types such as swamp swiddens, use of labor-intensive cropping patterns, management of secondary fallows, reduced fallow time, borrowing land, temporary wage labor migrations (*bejalai*), and decreased fertility and population growth.

in one place to tend rubber and pepper trees (Dove 1994).¹⁸ “Our feet have been stuck by rubber,” as one Iban pioneering family succinctly observed in Sutlive’s (1992:31) ethnography of Sarawak Iban. Many Iban grow pepper, especially those with easy access to the lucrative Sarawak markets. Most families have access to rubber, which they tap during lulls in agricultural work or during high water, when fish catches are low. The latex is sold to riverboat traders or in the Kapuas River markets. Likewise, new markets for fresh and live fish encouraged Malays (and some Iban¹⁹) to begin raising caged *toman*, or snakehead (*Channa micropeltes*). This large fish, used for subsistence consumption and sold both live and salted to local, regional, and national markets, requires daily feeding and therefore generates more permanent settlement. Both resources, rubber and *toman*, are frequently referred to by locals as *tabungan*, ‘savings accounts’ that can be drawn on in times of need or climatic extremes.

However, the effect of these two practices on local territory has not been identical, either for the resources or for the social relations of those who manage them. Because *toman* are a carnivorous species, cage culture requires enormous amounts of smaller fish for food. The explosion of this aquaculture and the need for large quantities of baitfish has led to ever more efficient fishing gear, primarily the *jermal*, a very large, staked funnel net. These nets are expensive (in 1997, about a million rupiah, or US\$ 430) and thus are frequently funded by traders in exchange for exclusive rights to the *toman* harvest. In this way, the expansion of cage culture has served to make Malays more sedentary, their territories ever more permeable to outsiders’ access, and through the demand for baitfish, it has greatly increased pressure on the fishery overall (see also Heri et al., this volume).

In contrast, rubber trees are property held by individual planters (or when they die, equally held by their descendants). The land immediately under rubber trees also becomes de facto individual property, since it needs to be regularly cleared of competing vegetation. Therefore, increasing establishment of permanent tree crops more firmly establishes individual or descent group claims to land, thereby narrowing rather than widening access to resources and the surrounding land (Peluso 1996).²⁰ Communal land, therefore, is gradually converted to individual land (under and immediately around the rubber trees), and resource claims (to the rubber trees) become territorial.

Thus, Malay dependence on fish, with its specific technologies and social modalities of use, as well as Malay patterns of mobility and use of social networks, mean that access to village territories is much less restricted than that of Iban. Rather than

18 Male labor migrations, however, continue to be important sources of cash and social networks (Wadley 1997).

19 Of Iban who live along riverbanks, fewer have taken up *toman* aquaculture than their Malay neighbors. The daily labor needed to catch large amount of baitfish (about 50 kg daily for a cage of about 1,500 fish) may detract from labor needed for subsistence agriculture. It is notable that among Malays, both men and women – usually jointly – keep *toman* and catch their food, whereas among Iban, it is exclusively men because women are busy with rice agriculture.

20 Peluso (1996) recounts that among Salako Dayaks in the western part of the province, individuals have been planting rubber in *tembawang* (descent group gardens), thus establishing circles of individual property within communal property.

limit the community of allowable users, Malays instead tend to regulate types of gear and times and locations of allowable fishing.²¹ The mobile nature of the fish resource lends itself to continued acceptance of new residents if this acceptance secures other social returns, such as maintenance of social security nets and credit relations. Although patches of common forest may be parceled out to a limited number of new immigrants (until all available land is claimed, after which people wishing to immigrate must borrow, or in rare cases buy, fallowed land rather than clear their own),²² mobile fish populations are a nonspatial, or “congestible” resource – that is, one that can be shared up to a point with little noticeable impact on regeneration and catch until a threshold is reached, after which the resource population declines rapidly until it “crashes” (Rose 1991). Information about how many fish are left is always incomplete – the tipping point for extraction pressure is unknown – and this limitation has consistently plagued efforts to determine a Maximum Sustainable Yield concept for fisheries.

This gap in knowledge about the pressure that the fishery can withstand enables a fishing community to continue to accept newcomers so that it can reap the benefits derived from maintaining social networks and avoid the social friction that might result from closing its fishing grounds to outsiders. Weighing the benefits of maintaining social networks by accepting more new users against the costs of probable reduced overall catch requires a discourse of entitlement and value – that is, a cultural interpretation of rights and territories. Diverse discourses of rights are in constant competition, not only to secure access to valuable resources, but also to define the meanings associated with histories, authority and even communities and resources themselves.

Histories of Boundaries and Authority

The complex amalgam of claims and territories operating today is not only a product of competition for resources in the present but also evidence of the multilayered power struggles of the past. These contests for control took place both between warring local groups and between the Dutch and British colonials, who each sought to control territory as a means of controlling valuable natural resources, including swiftlet nests (for use in Chinese cuisine), damar resin (used in torches and for sealing and caulking boats), gaharu incense (from the fungus-infected wood of the *Aquilaria* tree), bezoar

21 Acheson's (1988) report on the “lobster gangs” of Maine describes two patterns of management that are analogous to those of the Iban and Malay: those that maintain “perimeter-defended” territories and those that maintain “nuclear-defended” territories. The former have membership that is inherited and closed to outsiders. Intruders are dealt with swiftly through graduated sanctions, culminating in the destruction of traps if warnings are ignored. The “leaky” nuclear-defended territories have open membership, no trap limits, and less stringent enforcement against intruders. Not surprisingly, lobster populations were found to be more numerous and of larger average size in the former, where there were fewer fishers and traps and more incentive to invest in habitat improvement. Interviews with fishers in the Kapuas Lakes suggest that catch per household is dwindling in those areas where fishing pressure is the heaviest (because of unenforceable rules, efficient gear types, and high numbers of fishers). However, there has been no systematic study to document whether the overall catch is declining.

22 See also Padoch (1982), who explores Iban alternative strategies to migration when faced with limited access to farmland.

stones (a traditional Chinese medicinal or amulet from the gallbladders of bears and monkeys), native latexes, rattan, timber, coal and fish (Enthoven 1903).²³

Oral historical and Dutch archival data stretching back to the mid-1800s recount violent struggles for control over territory, resources and subjects between the newly Islamic Malay sultanates (*kerajaan*) on the Kapuas River and the Iban and Embaloh Dayaks (Dutch residents' reports MvO/PVR/AVR 1860–1886; Veth 1854; Enthoven 1903; Kater 1883; King 1985). Complex networks of alliances and enmities created frequent tides of migration as groups fled the raids and sought economic and bureaucratic control of various states, only to have the vacant resources claimed by new settlers (Enthoven 1903; Pringle 1970; McKeown 1983; Wadley 1999, 2003; Harwell 2000). The Dutch began to intervene in the mid-1800s, as they had throughout Kalimantan, offering military support to the Malay sultans in return for “loyalty” – which included allowing the Dutch to control trade and collect taxes (MvO 1860; PVR 1861; Veth 1854; Enthoven 1903). Late in the 1870s, Dutch guard posts were set up in towns in and around the lakes – Badau, Pulau Majang, Kenelang (a pseudonym), Ukit-Ukit and various towns on the Kapuas, including Bunut and Semitau (AVR 1884, 1885; Enthoven 1903), which temporarily reduced raiding and encouraged Malay use of the lakes.

Both Iban and Malay oral history recall Dutch attempts in the beginning of the 20th century to negotiate and map Malay, Iban and Embaloh territories in an effort to achieve peace and secure stability in the Upper Kapuas. One such strategy for allocating territory used two valuable tree species. Malay interviews recount how land containing *belian*, or ironwood trees (*Eusideroxylon zwagerii*, an upland timber species which grows on land fertile for agriculture) was allocated to the Dayaks, and land with *kelansau* (*Dryobalanops abnormis*, a swamp timber species) to the Malays.²⁴ This exemplifies how livelihood practices became spatially and rhetorically mapped onto ethnicities – the Iban were restricted to farming and Malay to fishing zones – and illustrates the state's attempts to simplify complex claims into bounded territories.

These efforts were largely ineffective and complicated by continued raids by Sarawak Iban, many of whom were under orders from Charles Brooke, Second British Rajah of Sarawak (Pringle 1970; Sandin 1967; Wadley 1999, 2003). In addition, to flee these raids, as well as the demands for tribute and labor of the Malay sultanates, many Dayak groups continued to migrate throughout the officially designated “territories” (Enthoven 1903; Bouman 1952; McKeown 1983). Further, the Dutch territorial treaties also failed to resolve the existence of some Malays' long-standing seasonal claims to fishing territory and *lalau* (honey trees) in the lakes area.

The involvement of the state in delimiting areas of administrative control increased with independent Indonesia, when government *kecamatan*s (subdistricts) were drawn up in 1974.²⁵ These boundaries approximated those of the historical sultanates and

23 Trade in this “jungle produce” between Borneo, China and India may have begun as early as the fifth century (Wolters 1967). According to Vaas (1952), probably no export market existed for fish until the early 1900s.

24 Carol Colfer (pers. commun.) reports hearing similar stories from Malays in DSNP, but their designated tree species was *tembesu* (*Fragrea fragrans*), also a swamp timber species.

25 Undang-Undang No. 5 1974 tentang Pokok-Pokok Pemerintahan Daerah (National Law No.

Dayak territories, but deviated in many places. Indeed, even today, many of the official subdistrict boundaries are still under dispute and are inaccurately mapped using hand-drawn sketches. Traditional claims of sultans or tribes are frequently used as evidence to support present-day claims. For example, documents from the *camat* (subdistrict head) of Batang Lupar make use of oral histories regarding treaties between tribes and boundaries of sultanates to justify territorial claims.

In fact, many subdistrict claims are directly linked to historical natural resource claims. For example, Selimbau bases its claim to the “right bank going upstream” of the Leboyan River on the sultanate’s rights to seven honey trees. The resource rights to these trees, like the cultivation of rubber trees, have been dramatically expanded into wider claims to rights to land and territory, not only immediately surrounding the trees but on one entire side of the Leboyan.

One might wonder why the precise location of the boundaries of small, remote districts with scant funds for administration or tax collection matter at all. These boundaries are important because they are rhetorical tools for staking claims to territory and resources; they sketch the contours of political and economic authority and constituencies. Bitter disputes occur because residents along the Kapuas River view any areas within their own subdistrict as open for their settlement and use.²⁶ Similarly, many individuals wishing to gain access to resources in another village territory may claim rights based on their lineage from a particular sultanate. For example, people from the Kapuas town of Suhaid claim rights to territory within the lakeside villages of Pulau Majang, Lubok Kelakati and Kenelang, all of which are within their former sultanate. The village head of the larger Malay village, Pulau Majang, asserts that the residents of Lubok Kelakati originally came as seasonal fishers from Suhaid and asked permission to work in Majang’s territory. “What could we do? We couldn’t refuse them,” the headman complained, “but then they stayed ... They built houses and a mosque, they brought their relatives and now they will never leave!”²⁷

Laid over this complexity was the independent Indonesian state’s organization of all communities (previously called *kampung*, now assigned the administrative label of *dusun*, or ‘hamlet’) into larger administrative villages (*desa*), to be administered under one subdistrict.²⁸ The primary purpose of the Village Law of 1979 was the replacement of the vast diversity and complexity of village *adat* and local institutions throughout the archipelago with uniformity, purportedly for better administration of development.²⁹ The

5 1974 on Principles of Regional Government).

26 For the *camats* (subdistrict heads), the extent of the territory under their control indicates their power and significance as officials; hence the contention over boundaries even though they are logistically incapable of actually administering these areas.

27 Among Malays who live in areas where sultanate and subdistrict boundaries do not coincide, local rights to forest products are frequently determined by sultanate boundaries (reflecting the importance of the physical presence of inherited honey trees), whereas fishing rights are determined by subdistrict boundaries (Rona Dennis, pers. commun.).

28 National Law No. 5 1979 on Village Administration.

29 See Lynch and Harwell (2001) for more on the intent and effects of the 1979 village administration law.

Malay villages in the lakes area are all administratively grouped under a geographically remote *desa* on the Kapuas, which further complicates the village's ability to be self-governing and control access to its territory. For example, the village of Lubok Kelakati belongs to the *desa* of Suhaid, a large town on the Kapuas River that has many other constituent villages. Members of other villages may not, according to government officials, be denied access to resources within Lubok Kelakati territory because, administratively, they are considered to be resources that belong to the entire *desa*, the rights to which are shared by all *desa* members. Not surprisingly, Lubok Kelakati residents feel differently, even though they originally staked their claims to their territory within Pulau Majang based on their historical rights as heirs to the Sultanate of Suhaid.

Other forces have further compromised village control of territory and restriction of outsider access and have redefined entitlements. One such change has been the classification of large areas under customary claim as state forest to be managed for the "greater good." During the 1970s, large-scale forest concessions were granted to outside parties, based on the state's right to control national territory.³⁰ These logging concessionaires operate within village territories, sometimes with and sometimes without local consent.

In a unique case, a logging concession was granted to three Iban elites in return for Iban assistance in tracking and intelligence gathering during the 1964 confrontation with Malaysia and the subsequent suppression of the communist guerilla resistance (Harwell 2000). These "local" concessionaires then proceeded to secure permission to log forests in village territories within their concession by portraying the area as an Iban concession, which would "use Iban forests to benefit Iban." Years later, villagers whose forests were logged with no return of benefits to them complained that the elites had inappropriately used Iban ethnicity to expand their claims to resources that did not belong to them. "Those forests belong to my grandparents and to the grandparents of the others who first came here and built the first longhouse," complained one man. "We need those forests to build houses and canoes. If anyone is to benefit from them, it should be us, not those from the outside."³¹

The many layers of territorial control and claims are maintained and reinvented rather than overwritten as people continue to make strategic use of them. In the same way that government officials cite national legislation, local people refer to their history

30 In accordance with newly-appointed President Suharto's goal of economic development through extraction of natural resources, one of the first laws passed after the beginning of the New Order was Undang-Undang No. 5 1967 Pokok-Pokok Kehutanan (Basic Forestry Law).

31 It is worth emphasizing that the granting of this concession to local Iban elite was indeed an extraordinary occurrence in a period when most timber concessions were doled out to military generals, members of Suharto's family, and their elite business partners. There are other unique aspects of tribal-state relations in this region of West Kalimantan. For example, as part of their participation in anti-Japanese resistance, some Dayak war leaders (some of them from the lakes area) received pensions from the Indonesian government (Frans 1981). It is no small feat that local communities have been able to leverage such influence (even if, in the case of the concession, that influence was co-opted by a few), and it is likely a reflection of the state's deep anxiety regarding the "influx" of foreign influence beyond its reach in this border area.

to support particular claims. In this way, different forms of authority – including history itself – are marshaled by different stakeholders seeking to gain or maintain access to territory and natural resources.

Conservation and International Claims

In 1982, a new layer of territorial claims emerged: the establishment of a wildlife reserve. In 1971, the Kapuas lakes area was designated as a Ramsar site,³² a wetland of international importance, because of the unusual ecology, high species diversity, and number of endangered and endemic species. In addition to the wetland's biodiversity, its value as crucial habitat for the endangered arowana (*Scleropages formosus*, known locally as *siluk*) served as the primary basis for establishment of the reserve.³³

The designation of the Kapuas lakes as a wildlife reserve conflicted with the area's longstanding habitation and claims and its importance to the livelihoods of local people. At the time of its establishment in 1995, the reserve and buffer zone enclosed 76 villages and an estimated dry-season population of 12,000 people (Aglionby 1995). Although Indonesian law prohibits the human habitation of wildlife reserves, conservation staff acknowledged that the resettlement of so many residents would be politically dangerous, prohibitively expensive, and ultimately ineffective (Giesen 1987).³⁴ Furthermore, budgetary constraints and lack of state capacity made the strict enforcement of state-imposed regulations impossible. With this in mind (and also to obtain more financial and logistical resources for management),³⁵ the status of the area was ultimately changed in 1999 to a national park, which allows human settlement and some forms of resource extraction. Even before the change to national park, given the circumstances, the Indonesian Directorate of Forest Protection and Nature Conservation (PHPA, with direct responsibility for the reserve's management) and the United Kingdom's Overseas Development Administration (which funded the management of the reserve and coordinated with PHPA) had recognized the need to provide reserve residents with a stake in resource management.

As one means of tapping into this local capacity, the wildlife reserve management team aimed to map resource territories, catalogue *hukum adat* (local institutions of resource

32 Ramsar Conference on Wetlands of International Importance, Ramsar, Iran 1971. The Convention on Wetlands, to which Indonesia is a party, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. See www.ramsar.org.

33 The arowana is an ornamental aquarium fish sold domestically as well as internationally to Singapore, Japan, and Hong Kong (Dudley 1996b). Believed by many Chinese and Japanese to bring good fortune, the arowana has become a status symbol for the well-to-do in Indonesia and abroad.

34 Although relocation was a logistic and political impossibility, local people continued to fear displacement and enclosure of the reserve's resources. In fact, according to project staff, Jakarta officials continually brought up the idea of relocation in project meetings, right up until the end of the contract. The fear of displacement and the idea that resources belong to the state are powerful rhetorical tools for forest guards and local officials.

35 Carol Colfer, pers. commun.

management) and deploy some of these local rules and institutions for the management goals of the project – a difficult task, explored more deeply elsewhere (Harwell 1997; Harwell 2000; see also Dennis 1997 for a firsthand description of the process). The mapping process established new forms of entitlement and authority, creating new meanings for landscapes and social relations of production. During the reserve team's mapping activities, new territorial boundaries emerged and old ones were solidified. When asked by reserve staff to “write down your *adat*” for resource management, local communities often developed new village rules for newly conceived violations, such as hunting “endangered species” or “animals protected by the government” (although very few could say which animals these were, and almost no Malay in the reserve hunted anyway because Muslims are forbidden to eat game other than venison) and fishing with electricity (which no one I met during my fieldwork in the 1990s had ever heard of occurring). In the text of the village rules appeared new concerns with *bukti* (evidence), and previously flexible sanctions became standardized, echoing legalistic language. Rules that previously had *sesuai dengan kesalahan* (sanctions in accordance with offense) oddly morphed into “punishment in accordance with national law, 3 months in prison and a fine of 10 million rupiah” – a financial penalty unimaginable by local standards and a concept of incarceration that has no basis in local legal practice.

The language of these new rules, especially in the context of persistent fear of relocation, seemed designed to build relationships with conservation staff and send a message that the villagers were cooperative, worthy stewards of their resources and deserving of project support (many times at the expense of their neighbors, with whom they competed for control of resources). The presence of an identifiable “conservation ethic” became a way for locals to form alliances with conservationists and their national and international networks and thus win support for their village claims.

Nowhere was the conflict of local interpretations of entitlement more visible than in the project's mapping of territorial boundaries. Given the convoluted historical background of territories in the lakes area, discussed previously, the mapping of current village territories presented a dizzying task. In addition, the act of mapping itself settled some boundary disputes and created new conflicts. Ambiguity in practice is easy to live with, but disagreement is bound to surface when someone wishes to record boundaries on an official map. Conflict was most pronounced in areas of special economic value – good fishing spots and swiftlet caves in particular. Conflict intensified with the post-Suharto logging boom and other changing markets, as described below.

Conversely, many areas of ambiguity around the edges of village territory are more congenially described on project maps as *wilayah kerjasama* (cooperation areas). This may be the result of close village ties, such as those that result from close kinship, or the fission of a large village into two. Such cooperative areas may also indicate that as long as the resources involved are not too valuable, ambiguity is permitted. In any case, at least as they have been represented on project maps, *kerjasama* areas vastly outnumber the *belum disepakati* (areas not yet agreed upon), which is a sign of the great potential for cooperation among neighboring villages. Dispute is a natural part of a continual process of renegotiation or reaffirmation of resource access between competing parties, and in situations of such complex layering of claims, it is the intensity and forms of dispute

resolution that may be more accurate indicators of unworkable conflict, rather than the mere presence of disagreement.

Decentralization of Forest Control and the Illegal Logging Boom

In recent years, the disputes over boundaries and claims to territory have become more heated. Following the economic crash of 1997, the International Monetary Fund's controversial "rescue" loans specifically emphasized oil palm plantation expansion as a means to speed economic recovery. The Kapuas Hulu district, where DSNP is located, was designated as an integrated economic zone (KAPET), in which oil palm was prioritized as a way to generate revenue. This move was further facilitated by the decentralization of government to the province and district level, initially ceding authority to the *bupati* (district head) to issue permits for extraction projects, such as logging and plantations, and receive the resulting income. The central government subsequently withdrew the authority to issue logging and plantation permits, but many *bupatis* continue to claim the right to do so, thus adding layers of resource claims and increasing uncertainty as to who has sovereignty over which local resources. For example, in 2008, the *bupati* of Kapuas Hulu issued permits for 18 oil palm concessions surrounding the park, with a total area of up to 366,823 ha. Local residents and NGOs complained about the negative effects on the park and local livelihoods and observed that some concessions were violating the law by beginning to clear forest without undertaking any environmental impact assessment. The minister of forests indeed urged that 12 permits be withdrawn on this basis,³⁶ but apparently this suggestion was ignored, and clearing of forest for planting oil palm continues (see Yuliani et al., this volume).

Meanwhile, in the midst of the rush by large-scale extraction industries to claim resources, some local interests also gained ground in the struggle for control over territory. Small-scale logging boomed under decentralization (timber was illegally smuggled across the international border to Sarawak, further complicating the notion of territory and national sovereignty), and local Iban elites whose ties on both sides of the border positioned them perfectly to act as paid liaisons, set up community logging and oil palm plantations after the valuable timber was removed. Local villages were paid a commission amounting to less than 1 percent of the export value of the timber (Wadley 2006).

Disputes proliferated within villages over whether to harvest the most commercially valuable timber from village forest resources for such meager returns. Many were skeptical of claims that logging and oil palm were an "Iban" development effort "by and for Iban," pointing to what they viewed as the poor performance of the logging concession in sharing benefits with local communities in the past. Yet the scheme and its language of ethnic empowerment, equitable development and local control of resources were especially resonant during the so-called "euphoria" years of decentralization and intensifying ethnic politics. Additionally, many locals feared that the outside threat to their resources was so great that they should take at least some small compensation rather than let others reap all the benefits.

Bitter disputes between neighboring villages emerged (or perhaps old

36 "Menhut Desak Izin Kebun Kelapa Sawit Dicabut," *Sinar Harapan*, 8 August 2008.

wounds were reopened) over where boundaries lay. Imprecision and lack of clarity are commonplace around resources that are amicably shared or have little market value. But once resources gain value, this lack of clarity quickly becomes problematic as different interpretations and sources of evidence are marshaled. In one example, a dispute arose between neighboring Iban communities over the ownership of hill forest, and the rights to forbid or be compensated for logging. Claimants in one village drew not only upon oral history but also on community maps made by the conservation project as evidence of their boundaries and rights to resources. However, these maps had been made by a Malay field assistant primarily for the purpose of mapping fishing boundaries that make up the core of the reserve. Forest boundaries, in contrast to river courses and lakes, are hard to access, and the dense canopy made it difficult to get satellite readings, so these terrestrial boundaries were frequently estimated rather than surveyed in the field using GPS coordinates. As a result, the DSNP project maps for these two communities were made in consultation with the Malay communities living on the river, rather than with the hillside Iban community who claimed the forests. The maps therefore could not be used to resolve the forest boundaries. Competing versions of oral history and the promise of financial gain, however slight, made these disputes intractable.

After several unsuccessful attempts to resolve one such dispute between neighboring Iban communities, traditional leaders resorted to holding a cockfight, believing that the spirits would intervene on the side of right (and recognizing that any human arbitrator, government or not, was vulnerable to corruption and bias). Following the cockfight, several members of the losing longhouse, despondent over their loss and the prospects of protecting their forests, decided to get what they could from the timber boom and began to cut wood for sale to Malaysian brokers. However, a high-profile crackdown on illegal logging sent the Malaysian brokers into hiding, and a large portion of the cut timber remained unsold. In addition to harming the forest, the boundary dispute similarly left ruined social ties in its wake. Relations have never been the same between the two closely related and formerly friendly longhouses. Within the losing longhouse, even several years later, bad feelings persist and rifts within the community have yet to heal. Although this case illustrates that ethnicity, economics, and state politics all matter in the perception of what is to be mapped, it also underscores the fact that village politics and personal affiliations continue to complicate consensus based on ethnicity alone and muddy the waters of boundary making.

Local Boundary Practice

In the previous section, we have seen the range of dynamic arguments and strategies to claim rights to a resource or territory. One means to assess the strength of the arguments invoked is to compare them to local practice on the ground. Seen through the optics of the history of boundary disputes and its current retelling, local practice acts as one rhetorical device among many by which claims to entitlement and territory are staked.

Honey Trees and Honey Areas

As discussed above, inherited ownership of honey trees is important to the notion of territory. Over time, this ownership, as for rubber trees, has expanded rights to resources into rights to land. Honey is harvested from wild nests on *tapang* or *lalau* (honey trees), from *repak* (low scrub) and from *tikung* (traditional honey boards), which encourage nesting and are hung in trees within *periau* (individually owned areas of honey trees). The income received from honey is especially important to local residents because the harvest comes at a time when water levels are high, and both fish and money are scarce (Rouquette 1995).

As with rubber, the area around honey trees is cleared of competing underbrush, and the labor establishes de facto rights of control to the surrounding land. Iban refer to these areas as *pulau tapang* (honey tree islands). In Malay villages heavily involved in honey harvest, groups of many hundreds of wild honey trees are collectively inherited (frequently over several generations) as a *periau*, rather than as individual trees. This inheritance establishes exclusive rights to all the honey and the attendant right to protect those trees from damage created by any other practices.³⁷ It is likely that *periau* provides a powerful incentive to protect the forest from fire and felling. In fact, one *tikung* owner told me that his village (one with particularly high honey production) does not allow the use of gillnets because people frequently burn forest – and thus threaten *periau* – to clear spots to hang their nets.

Recent market changes have also affected the idea of territory around honey trees. As part of an effort to provide alternative income to residents, the conservation project initiated a honey and beeswax program in several villages that have historically collected honey. The project offered training to increase honey quality and acted as the middleman – buying the products and selling them both domestically and internationally. Although commercial honey harvesting has gone on for at least a century, the project's attention and the higher price received for the higher quality has raised awareness of honey's value. Indeed, before the project began its activities, honey sold for Rp1,500/kg (Rouquette 1995). In 1997, it sold for Rp3,750/kg, whether sold to the project or to local traders.³⁸ The NGO Riak Bumi, founded by former park staff originally from DSNP communities, now works with local honey collectors to increase quality and markets their products, and honey prices have increased to Rp45,000/kg.³⁹

The increasing value of honey has led to more vigorous defense of the territory around honey trees. During an initial investigation of the potential of honey markets, Peters (1993b) and Rouquette (1995) noted the existence of rules protecting tree ownership, limits on the number of people permitted to harvest honey, and fines for theft. Further, the fines more than doubled in two years, reaching Rp250,000 per *tikung* (or roughly US\$ 100 in 1997) in the village with the most complex management system.

37 The bees migrate freely, and not every honey tree will host a nest every year. The bees do, however, show preferences for particular trees.

38 Wickham (1997) notes that as a result of the increased prices paid by the project, traders have been induced to increase their prices also.

39 Valentinus Heri, pers. commun., 26 October 2009.

Timber

Forest resources are important to both Malay and Iban communities, but their territorial control has historically differed, as explained above. Malay communities value timber for construction of stilt houses and extensive networks of boardwalks (for use in the high-water season), as well as for canoes and houseboats. But the forest has not been as deep a source of spiritual and historical significance for Malays as it has been for Iban, who value forests for the subsistence and culture value of long-fallow farming and silviculture (Padoch 1982, 1994; Peluso 1995; Dove 1985). The importance of forests to Iban is reflected in their diverse array of protected forest management (Wadley et al. 1996). Iban orchards are communally owned by longhouse communities or, if planted by a single household in former rice fields, by all the descendants of that household. These orchards, or *tembawai*, in addition to producing useful fruits and fiber, also have great social significance as the sites of previous longhouse settlements and contain individual trees planted by longhouse members and passed to their descendants. As such, *tembawai* serve as cultural and historical markers. Frequently named after a significant event or pioneer ancestor who planted the trees, the stands are physical evidence of local history and kinship ties and, as such, imbue territory and boundaries with rich social meaning.

Likewise, Wadley et al. (1996) explain in depth the diverse forms of Iban protected forest, *pulau*. These 'islands' are believed to house spirits and frequently are explicitly recognized for their ecological functions (as stream corridors, as wildlife habitat⁴⁰ and as seed sources for regeneration of fallows). There are complex and stringent regulations for felling of trees in these protected (and sometimes sacred) groves because of their spiritual and/or ecological importance. Indeed, fines are required as ritual compensation to angered spirits, not as a commercial exchange of cash for damages. Not only do local people carefully monitor local use of these forests, but many Iban villages have successfully stopped cutting and levied *adat* fines against timber companies encroaching into these protected areas.

In contrast, although Malays in the past did not defend their forest resources as forcefully as their fishing grounds, the advance of logging companies and the increasing value of timber and honey resources have caused Malays to restrict outsiders' access to their forests. Many Malay villages have cooperative agreements with other villages to protect *hutan adat* (customary forests) for local subsistence use only. A timber company that began felling trees in one such protected forest near the Kapuas town of Suhaid had its base camp burned and heavy equipment destroyed by angry locals. Operations were halted for a time but then began again, since the Ministry of Forestry gave the timber company special permission to log the area even though it was outside the logging concession.⁴¹ This is a vivid example of the high stakes involved when outside interests compromise local management, as well as the costs of conflicting government goals even within the Ministry of Forestry, which both issues logging concessions and is

40 Wadley et al. (1996) report increased wildlife sightings in village-claimed *hutan adat*.

41 Logging for timber production, however, has reportedly ceased in the park and buffer zones since 2006. But large areas are being cleared around the park for oil palm plantations (Valentinus Heri, pers. commun., 19 October 2009).

charged with conservation of forests. The case also illustrates that the success of states in imposing boundaries that conflict with local claims is not necessarily a foregone conclusion.

Bubu Rattan Traps

Bubu are staked cylindrical fish traps woven from rattan that range from 2 to 5 m in length and are typically about 1 m in diameter. *Bubu*, used during periods of falling or low water levels, are set in streams to funnel and trap the fish migrating downstream. As the water levels fall, *bubu* are very efficient, averaging catch rates of 1kg/hr, and Dudley (1996a) estimates that their use accounts for 20 percent of the annual catch from DSNP. During the dry season in 1997, one *bubu* in the lakes of the upper Leboyan River caught 500 kg of fish over a three-day period.

Because they are so efficient, there is competition for the few naturally-occurring spots productive for staking *bubu*. Many villages have responded to this competition with seasonal lotteries, which (if outsiders are ineligible and only one ticket per person may be bought) in theory can help distribute the spots equitably. Rules establish how rights to set *bubu* are seasonally determined and limit the activities of others that would infringe on these rights. *Bubu* seem to take priority over other gear, especially in areas where user rights are determined by lottery or inheritance.

In many villages, inherited *bubu* rights are along man-made streams, which are hand dug and maintained by the family over generations, like rice farms and rubber gardens. They are unique physical manifestations of local management of waterways and fish populations. Both the labor invested as well as historical claims based on long-term settlement firmly establish the priority of *bubu* owners' rights to fish in these areas over the rights of those using other gear. These artificial streams have become crucial evidence of claims in territorial disputes between neighboring communities in the lakes area.

Lottery of Fishing Spots

Some types of territory vary with time. Many villages have lotteries to divide up good fishing spots (such as naturally occurring *bubu* spots) or the rights to use particular kinds of gear, such as *jermal* nets (see below) or *rabai* (long, staked lines with multiple hooks). The primary goal behind the fishing lottery is the equitable distribution of fish catches.⁴² Because the number of spaces is limited, there would be stiff competition for the good spots if the rights were not raffled.

Some villages allow nonresidents to enter the annual lotteries. Access for outsiders provides an opportunity for fish traders to repeatedly win the raffle and catch as many fish as they can without concern for sustainability. Aglionby (pers. commun.) related one example of wealthy outsiders from the *desa* of Suhaid who repeatedly won the lottery of smaller *dusun* in the Suhaid area of the reserve, in part because they were able to buy more tickets than the locals. Thus, the lottery became more of an auction,

42 This attention to local equity may be costly to sustainability. People with only rare opportunities to fish in these locations have little incentive to limit their catches.

and the *dusun* received revenue from the ticket sales but lost the distributive equity of a lottery. Finding themselves excluded from the resources within their own territory, villagers asked the conservation project to intervene in excluding the outsiders from their lottery. Aglionby reported that the district head admonished the project, saying they had no right to restrict access of Suhaid residents to resources within their *desa* boundaries. These overlapping resource claims between governmental departments, as well as among the district, the conservation project and the local community, are another illustration of the complex forms of territory at work around resources in the park.

Jermal Nets

Jermal are the most controversial fishing gear in DSNP. These stationary funnel nets, typically about 6 m across and 10 to 20 m long but sometimes much larger, are staked to block the stream flow and left standing for 30 minutes to several hours. *Jermal* come in various mesh sizes, from 2 cm to as fine as mosquito netting (0.01 cm). By far the most controversial is the use of the smallest mesh, or *jermal padat*, which catch huge amounts of very small fish, mostly for feeding caged *toman*, but also catch valuable aquarium ornamentals, *ulang uli*, which are sold for export. As an example, in 1996, one 10 m *jermal padat*, emptied once every 30 to 45 minutes, brought four catches of approximately 10 kg each. The 50 kg total was enough to feed one cage of *toman* for one day. Although Dudley's (1996a) reported catch rates vary widely with season (from 1 to 70 kg per hour), *jermal* are used throughout the year, accounting for about 10 per cent of the annual catch from the reserve (948 tons). In 1992 Dudley estimated some 275 *jermal* in DSNP, although the Fisheries Department had nominal regulations restricting the total to 177.

The use of *jermal* raises many territorial and equity concerns. Many local fishers complain that *jermal*, because they are expensive (nearly Rp. 1,000,000 each, or in 1996, about US\$ 400), allow the wealthy (or those with access to outside credit) to gain unfair access to fish resources. Aside from its effect on equitable access to resources, this gear is damaging to the fishery because it has a very efficient catch rate: it catches small fish, before they reach reproductive age, is deployed along streams that are spawning migration routes and increases pressure on the resource by making territorial boundaries less exclusive. Even though villages may be able to physically patrol the borders of their territories, it is difficult to restrict the entrance of outside commercial interests when this gear continues to be used by influential members of their own community.

The government has also recognized the threat to the DSNP fishery, although like local fishers, officials are ambivalent. The government has failed to address the threat because of conflicting goals of conservation under the subdirectorate of Nature Conservation (in the Ministry of Forestry) and production under the subdirectorate of Fisheries (in the Ministry of Agriculture). As mentioned previously, when locals complained about one village's use of *jermal*, which was believed to decrease yields in neighboring territories, government officials were reluctant to intervene because the offending *jermal* owners held permits. A further complication is the bureaucratic tension between national government directives for conservation and local concerns for revenue generation.

In an attempt to build on the strength of ethnic tradition to protect resources, in 1994 the deputy governor presided over a ceremony in which local Iban and Malay leaders swore an oath to protect DSNP fish resources threatened by *jermal padat* and large-scale chemical fish poisoning. However, the villages that used *jermal padat* were not present, and the Fisheries Department continued to issue permits for them.

Conclusions

This paper has illustrated that in and around Danau Sentarum National Park, notions of territory are not uniform and static expressions of timeless tradition, but fluid and mutually constituted conceptions of identity, history, and livelihood. Likewise, there are (and have been) multiple and changing interpretations of these notions that produce competing notions of value, authority, and entitlement. Competing claims, although unequal in power, do not evolve and obliterate one another but rather coexist—at times in conflict, at times in cooperation.

Some notions of property are more powerful than others, as evidenced by the military and political force behind national borders drawn artificially over preexisting types of boundaries around village, family or ethnic territory. Political ecologists have richly illuminated the genealogy of state territorial strategies as a means of establishing and reinforcing state power (Vandergeest and Peluso 1995; Peluso and Vandergeest 2001).

This paper contributes to the literature by illustrating that the power of state discourses of territory is not stable, as visible in the struggle for territory under decentralization in Indonesia and even in the everyday spatial practices in DSNP. Local community members continue to stake contradictory claims despite state efforts to insist on impermeable sovereignty. In fact, many local groups in Indonesia have resorted to violence in defending their own vision of territory against the state and other interests.⁴³ Competing territorial claims are not only material struggles over space, but also symbolic ones over meaning and identity (Moore 1998; Li 2000; Hefner 1985). These struggles lay claim to specific terrain but are never simply local, both drawing from and, conversely, influencing discourses of broader scope (Massey 1994; Moore 1998; Raffles 2002).

This paper provides a field-level view of how—understood within this multi-scalar landscape of politics, economics, and identity—local resource use practices are not only a means of livelihood, but can also be read as claims to territorial entitlement. This is not to say such claims are uniformly successful—their success depends on whether they align with or contradict the goals of the state and its capacity (or lack thereof) to impose its ideas of territory, as well as the influence of the international conservation community. The waxing and waning tides of state influence and changing

43 Attacks by locals on logging and plantation camps have occurred since the 1990s and became more common under the new political climate of local authority under decentralization (often referred to as “euphoria”). The causes are too complex to be dealt with here, but many actors assert that the ethnic violence in Kalimantan in the 1990s, as well as in the restive provinces of Aceh, Maluku, and Papua, is in many ways a counterclaim to territory (Harwell 2000; Peluso and Harwell 2001). In any case, while the state’s hand is visible in many aspects of these conflicts, the state does not have a monopoly on the use of violence.

economic markets, as well as efforts by a variety of local groups to stake claims, produce sedimented layers of territory and interpretation of boundaries that will necessarily interface and interfere with conservationists' own attempts to produce boundaries and territory within the park.

Malthusian logic about the growing number of resource users without legal title to resources would predict increasing degradation from excessive extraction, leading to ultimate resource destruction. However, given its history, it is more likely that the landscape of claims and the ability to defend them in DSNP will remain fluid. The driving forces influencing the boundaries and access of various stakeholders will depend on changing political alliances, social networks, market forces and local and international political agendas. Management of DSNP for the benefit of the local communities and the conservation of its biodiversity will have to be aware of these dynamic realities. Given the province's recent bloody history, ethnic politics in West Kalimantan have too often been portrayed only in relation to violent conflict. However, in Danau Sentarum such networks and shifting constituencies have also produced new allegiances and cooperation. Far from being timeless, these alliances and claims will continue to change in the pursuit of protecting local interests and livelihoods, rather than become an endgame of obliteration of defensible territory.

References

Acheson, J.

- 1988 The Lobster Fiefs Revisited: Economic and ecological effects of territoriality in Maine lobster fishing. In: B. McCay and J. Acheson, eds., *The Question of the Commons: the Culture and Ecology of Communal Resources*. Tucson: University of Arizona Press.

Aglionby, J.C.

- 1995 Final Report of the Associate Professional Officer (Environmental Economist), Vol. 1: Economic Issues in Danau Sentarum Wildlife Reserve. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).

Berry, S.

- 1993 *No Condition Is Permanent*. Madison: University of Wisconsin Press.

Bouman, M.A.

- 1952 Gegevens uit Semitau en Boven-Kapoeas (1922). *Adatrechtbundels* 44: 47-86.

Dennis, R.

- 1997 Where to Draw the Line: Community-Level Mapping in and around the Danau Sentarum Wildlife Reserve. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).

Dove, M.R.

- 1982 The Myth of the "Communal" Longhouse in Rural Development: The Kantu' of Kalimantan. In: Chia Lin Sien, ed., *Too Rapid Rural*

- Development: Perceptions and Perspectives from Southeast Asia*. Athens: Ohio University, pp. 14-77.
- 1985 *Swidden Agriculture in Indonesia: Subsistence Strategies of the Kalimantan Kantu'*. Berlin: Mouton.
- 1994 The Transition from Native Forest Latexes to Hevea in Kalimantan: Lessons regarding peasant independence and state interest. *Economic Botany* 48(4): 382-396.
- Dudley, R.
- 1996a The Fishery of Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia: Fisheries Analysis. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).
- 1996b The Fishery of the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia: Management Considerations. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).
- Enthoven, J.J.K.
- 1903 *Bijdragen tot de geographie van Borneo's Westerafdeeling*. Leiden: Brill.
- Frans, J.E.
- 1981 *Sejarah Perang Majang Desa Melawan Jepang*. Pontianak: Departmen Pendidikan dan Kebudayaan.
- Freeman, D.
- 1955 *Iban Agriculture: A Report on the Shifting Cultivation of Hill Rice by the Iban of Sarawak*. London: H.M.S.O.
- Geertz, C.
- 1983 *Local Knowledge*. New York: Basic Books.
- Giesen, W.
- 1987 Danau Sentarum Wildlife Reserve: Inventory, Ecology and Management Guidelines. World Wildlife Fund report for the Directorate of Forest Protection and Nature Conservation (PHPA). Bogor.
- Gomes, E.H.
- 1911 *Seventeen Years among the Sea Dyaks of Borneo*. London: Seeley and Company, Ltd.
- Gudeman, S.
- 1986 *Economics as Culture: Models and Metaphors of Livelihood*. London: Routledge.
- Harwell, E.
- 1997 Law and Culture in Resource Management: An Analysis of Local Systems for Resource Management in the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. Bogor: Wetlands International - Indonesia Programme.

- 2000 The Un-Natural History of Culture: Ethnicity, Tradition and Territorial Conflicts in West Kalimantan, Indonesia, 1800-1997. Ph.D. Dissertation, Yale University School of Forestry and Environmental Studies, New Haven, CT.
- Heri, V.
1996 Laporan Data Hukum Adat: Berupa Peraturan Nelayan di Suaka Margasatwa Danau Sentarum, Kalimantan Barat, Indonesia. Indonesia-UK Tropical Forest Management Programme: Project 5: Conservation. Wetlands International-ODA.
- Hefner, R.W.
1985 *Hindu Javanese: Tengger Tradition and Islam*. Princeton: Princeton University Press.
- Kater, C.
1883 Iets over de Batang Loepar Dajakhs in de "Westerafdeeling van Borneo." *Indische Gids* 5:1-14.
- Kedit, P.
1993 *Iban Bejalai*. Kuching: Sarawak Literary Society.
- King, V.
1985 *The Maloh of West Kalimantan*. Dordrecht: Foris.
- Klepper, O.
1994 A Hydrological Model of the Upper Kapuas River and Lake Sentarum Wildlife Reserve. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).
- Kottelat, M.
1993 Technical Report on Fishes of Danau Sentarum Wildlife Reserve and the Kapuas Lakes Area, Kalimantan Barat, Indonesia. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).
- Li, T.
2000 Articulating Indigenous Identity in Indonesia: Resource politics and the tribal slot. *Comparative Studies of History and Society* 42(1): 149-179.
- Lynch, O. and E. Harwell
2001 *Whose Resources? Whose Common Good? Towards an Environmental Justice Paradigm in Indonesia's Natural Resource Management*. Jakarta, Indonesia: ELSAM.
- Massey, D.
1994 *Space, Place and Gender*. Minneapolis: University of Minnesota Press.
- McKeown, F.A.
1983 The Merakai Iban: An Ethnographic Account with Special Reference to Dispute Settlement. Ph.D. Dissertation, Monash University.
- Miles, D.
1976 *The Cutlass and the Crescent Moon: A Case Study in Social and*

Political Change in Outer Indonesia. Sydney: Center for Asia Studies, University of Sydney.

- Moore, D.S.
1998 Subaltern Struggles and the Politics of Place: Remapping resistance in Zimbabwe's Eastern Highlands. *Cultural Anthropology* 13(3):344-381.
- Padoch, C.
1982 *Migration and its Alternatives among the Iban of Sarawak*. The Hague: Martinus Nijhoff.
1994 The Woodlands of Tae: Traditional Forest Management on Kalimantan. In: W. Bentley, ed., *Forest Resources and Wood Based Biomass Energy as Rural Development Assets*. Delhi: Oxford University Publishing.
- Peluso, N.
1995 Whose Woods Are These? Counter-mapping forest territories in Kalimantan, Indonesia. *Antipode* 27 (4):383-406.
1996 Fruit Trees and Family Trees: Property rights, ethics of access, and environmental change in West Kalimantan. *Comparative Studies in Society and History* 38: 510-48.
- Peluso, N. and E. Harwell
2001 Territory, Custom and Cultural Politics of Ethnic War in West Kalimantan, Indonesia. In: N. Peluso and M. Watters, eds., *Violent Environments*. Ithaca: Cornell University Press, pp. 83-116.
- Peluso, N. and P. Vandergeest
2001 Genealogies of Forest Law and Customary Rights in Indonesia, Malaysia and Thailand. *Journal of Asian Studies* 60(3):761-812.
- Peters, C.
1993a Forest Resources of the Danau Sentarum Wildlife Reserve: Observations on the Ecology, Use, and Management Potential for Timber and Non-timber Products. AWB-KSDA.
1993b Forest Resources of the Danau Sentarum Wildlife Reserve: Strategies, for the Sustainable Exploitation of Timber and Non-Timber Products. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).
- Pringle, R.
1970 Rajahs and Rebels: The Ibans of Sarawak under Brooke Rule 184-1941. Ph.D. dissertation. Ithaca: Cornell University.
- Raffles, H.
2002 *In Amazonia: A Natural History*. Princeton: Princeton University Press.
- Rose, C.
1991 Rethinking Environmental Controls: Management strategies for common resources. *Duke Law Journal* 1991 (1):1-38.
- Rouquette, J.
1995 Honey Harvesting: Developing Alternative Sources of Income in the Danau Sentarum Wildlife Reserve, Kalimantan Barat, Indonesia. Bogor:

- Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).
- Sandin, B.
1967 *The Sea Dayaks of Borneo before White Rajah Rule*. Ann Arbor: University of Michigan Press.
- Sather, C.
1990 Trees and Tree Tenure in Paku Iban Society: The Management of Secondary Forest Resources in a Long-Established Iban Community. *Borneo Review* 1:16-40.
- Shipton, P.
1989 *Bitter Money: Cultural Economy and Some African Meanings of Forbidden Commodities*. Washington, DC: American Anthropological Association.
- Sinaga, P. and T. Sinaga
1994a Laporan Kegiatan dan Hasil Rapat Ketua Nelayan Wilayah Suaka Margasatwa Danau Sentarum. KSDA-AWB.
1994b Rapat Ketua Nelayan Wilayah Sungai Tengkidap di Nanga Sauk, Proyek Konservasi Suaka Margasatwa Danau Sentarum. KSDA-AWB.
1996 Surat Pertanyaan para Ketua Nelayan dalam Wilayah Kecamatan Selimbau tentang Tidak Melakukan Penubaaan Ikan dan Kesepakatan Adat Masyarakat yang Bermukim di Sekitar Suaka Margasatwa Danau Sentarum. KSDA-AWB.
- Sutlive, V.
1978 *The Iban of Sarawak: Chronicle of a Vanishing World*. Prospect Heights: Waveland.
1992 *Tun Jugah of Sarawak: Colonialism and Iban Response*. Kuala Lumpur: Sarawak Literary Society and Penerbit Fajar Bahkti.
- Tarling, N.
1978 *Piracy and Politics in the Malay World: A Study of British Imperialism in Nineteenth Century Southeast Asia*. Nendeln: Kraus.
- Tsing, A.L.
1993 *In the Realm of the Diamond Queen: Marginality in an Out-of-the-Way Place*. Princeton: Princeton University Press.
- Vaas, K.F.
1952 Fisheries in the Lake District along the Kapuas River in West Borneo. Proceedings of the Indo-Pacific Fisheries Council, Madras, India, 1952. Section II: 1-20.
- Vandergeest, P. and N. Peluso
1995 Territorialization and State Power. *Theory and Society* 24:385-426.
- Vayda A.P.
1961 Expansion and Warfare among Swidden Agriculturalists. *American Anthropologist* 63:346-58.
- Veth, P.J.
1854 *Borneo's Westafdeeling: statistisch, historisch, vorafgegaan doore eene algemeene schets des ganschen eilands*. Zaltbommel.

Wadley, R.L.

- 1997 Circular Labor Migration and Subsistence Agriculture: A Case of the Iban in West Kalimantan, Indonesia. Ph.D. thesis. Arizona State University.
- 1999 The History of Population Displacement and Forced Resettlement in and Around Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia: Implications for Co-Management. Paper presented at Displacement, Forced Settlement and Conservation conference, Refugee Studies Program, Oxford University, 9-11 September.
- 2003 Lines in the Forest: Internal territorialization and local accommodation in West Kalimantan, Indonesia (1865-1979). *South East Asia Research* 11 (1):91-112.
- 2006 Community co-operatives, illegal logging and regional autonomy in West Kalimantan, Indonesia. In: F. Cooke, ed., *State, Communities and Forests in Contemporary Borneo*. pp. 111-132. Canberra, Australia: ANU.

Wadley, R.L., C.J.P. Colfer and I.G. Hood

- 1996 The Role of Sacred Groves in Hunting and Conservation among the Iban of West Kalimantan, Indonesia. Paper presented at 95th Annual Meeting of the American Anthropological Association, San Francisco, 20-24 November.

Wickham, T.

- 1997 Two Years of Community-Based Participation in Wetlands Conservation: A Review of the Activities and Challenges of the Danau Sentarum Wildlife Reserve Conservation Project, West Kalimantan, Indonesia. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).

Widjarti, E.H.

- 1996 Checklist of Freshwater Fishes of Danau Sentarum Wildlife Reserve and Adjacent Areas, Kapuas Hulu, West Kalimantan. of Danau Sentarum Wildlife Reserve and the Kapuas Lakes Area, Kalimantan Barat, Indonesia. Bogor: Wetlands International/PHPA/ODA (Indonesian-UK Tropical Forestry Management Programme, Project 5: Conservation).

Wolters, O.W.

- 1967 *Early Indonesian Commerce: A Study of the Origins of Srivijaya*. Ithaca: Cornell University Press.

Archival Sources

- AVR: Algemeen Verslag der Residentie Westerafdeeling van Borneo (1860–1887).
PVR: Politiek Verslag der Residentie Westerafdeeling van Borneo (1860–1888).
MvO: Memorie van Overgaaven (1860–1880).

4. CARBON CONTENT OF THE FRESHWATER PEATLAND FORESTS OF DANAU SENTARUM¹

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Tropical peat swamp forests in Indonesia are in rapid decline because of drainage operations, logging, land conversion and fires. Peat areas are commonly considered unproductive because they support only a limited number of high-value commercial timber species. Between 1970 and 1990, *rain* (*Gonystylus bancanus*), *kawi* (*Shorea* spp.) and *kayu cin* (*Dacrydium* spp) were intensively harvested by concessionaires, and the logs were often transported via newly-dug shallow canals. The logged-over peatland forests were then abandoned and unmanaged, and the access roads allowed for the further removal of valuable trees by local people and outside encroachers. Having been drained by the logging canals, the swamps became increasingly vulnerable to fire in years with a long dry season. Large areas of peatland were also converted to agricultural use under government-sponsored transmigration projects, and private firms established plantations of oil palm and fast-growing timber species (Muljadi et al. 1974; Boehm & Siebert 2001).

Extractable goods aside, the nonmarket ecological services of tropical peat swamp forests have been largely neglected. Recently, climate change has drawn the international community's attention to the potential emissions of greenhouse gases from tropical peatlands (Hooijer et al. 2006). If carbon emissions from tropical peatlands in Indonesia are included in the national estimate, Indonesia may well be the third-largest emitter in the world, but the data are incomplete and their interpretation is uncertain. The carbon sink functions of peat swamp forests need to be better quantified. Peatlands vary in three properties that jointly determine the carbon storage: the depth of the peat dome, its dry matter content, and the carbon concentration of the dry matter. Tropical peats contain only partially decomposed wood, and the buried hard material makes them difficult to sample.

This paper is a preliminary study of carbon stores in the peat layers of peat swamp forests in the Danau Sentarum National Park. The park's peat is classified as "inland." Anshari et al. (2001, 2004) report that the formation of peats in this park started in the Late Quaternary. The radiocarbon age of the peat from Hutan Rawa Gambut Nung in this park is close to 30,000 years BP (Anshari et al. 2004). The peat in the upper Kapuas River basin, where Danau Sentarum is located, might have been formed during the last glacial maximum.

¹ This article is adapted from a paper presented at the International Symposium on Tropical Peatland held in Sarawak, 19–21 August 2008. The symposium was organized by the Universiti Malaysia Sarawak (Unimas) and the Malaysian Agricultural Research & Development Institute (MARDI) in collaboration with CARBOPEAT and in partnership with the International Peat Society (IPS).

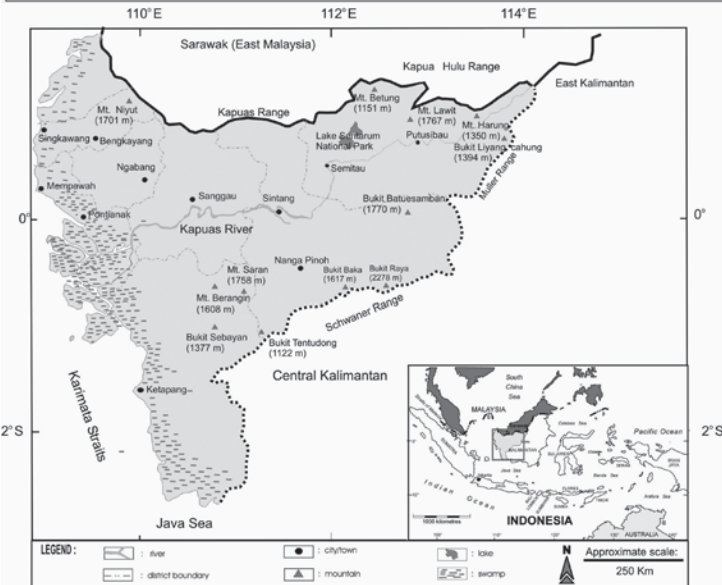
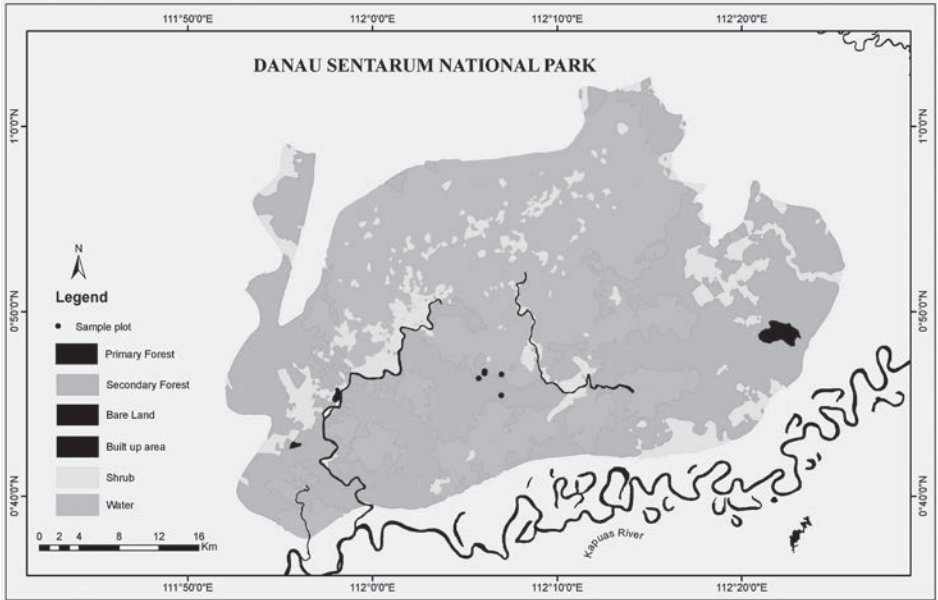


Figure 1. Danau Sentarum National Park, West Kalimantan Province

Research Site

Danau Sentarum National Park (DSNP), in West Kalimantan Province (Figure 1), covers 132,000 ha (Minister of Forestry, Republic Indonesia No SK 34/Kpts-II/1999). Wetlands International proposed in 1997 to protect an additional 65,000 ha buffer zone (Giesen and Aglionby 2000), but this has been seen as an obstacle to economic development.

Table 1. Land cover in DSNP (1996 estimates)

<i>Land cover classification</i>	<i>Core area (ha)</i>	<i>Percentage of total</i>	<i>Core + buffer zone (ha)</i>	<i>Percentage of total</i>
Dry land				
Lowland hill forest	6,766.7	5.17	7,845.2	3.99
Heath forest	200.8	0.15	200.6	0.10
<i>Ladang</i> (shifting cultivation)	4,602.6	3.52	8,488.2	4.76
Swamps				
Peat swamp forest	21,915.2	16.76	63,305.4	32.21
Stunted swamp forest	39,469.3	30.18	53,344.8	27.19
Dwarf swamp forest	2,362.0	1.81	3,314.8	1.68
Burnt swamps	23,084.4	17.66	27,037.9	13.75
Floating grass	256.0	0.20	258.9	0.13
Open water (lakes, streams, rivers)	30,094.6	23.01	30,360.7	15.94
Miscellaneous				
Settlements	31.5	0.02	46.2	0.002
Clouds on image	1,109.1	0.85	2,221.5	1.13
Shadow on image	890.7	0.68	1,087.0	0.55
Total	130,783	100	196,514	100

Source: Modified from Jeanes (1997).

The distance from the Kapuas delta to the park is about 680 km. The park lies at approximate latitude 0°35'–1°07'N and longitude 111°50'–122°27' E in the upper Kapuas River basin, and its terrain varies in altitude from 35 to 50 m above sea level (Jeanes 1997). The annual rainfall of this region exceeds 4,000 mm, with an average monthly rainfall of 340 mm. Air temperature averages 33°C during the day and 22°C at night. Water temperature ranges between 27° and 30°C and can be as high as 35°C in shallow pools (Giesen 1987). The relative humidity is very high, between 70 and 90 percent. The park features seasonal and shallow lakes, inundated swamps, peatland forest, dry dipterocarp forest and heath forest (Table 1).

A series of seasonal lakes in the park function as a floodplain for the Kapuas River and thus buffer the stream flow. In 1982, these lakes were designated as a wildlife reserve by the Government of Indonesia because the habitat is important for waterbirds, freshwater fish and peat swamp forest. In 1999, the status of the lakes was changed from wildlife reserve to national park to accommodate the needs of local communities using the park's natural resources. The park has been listed as a Ramsar site, a wetland of international importance, since 1994.

Methodology

We used an Eijkelkamp peat sampler to collect five peat cores from Hutan Rawa Adat Nung (Nung customary peat swamp forest) in June 2007. Because of difficulties in accessing the site and retrieving the cores, we took samples in the periphery of the forest. The auger commonly hit logs and other obstructions. Many coring attempts were necessary to obtain a full profile, but the data underestimate the real C content because of sampling bias from not using samples that contained logs. We collected five core samples, one from each location depicted in Figure 1. Cores A, B and E were collected from logged-over forest sites that had considerable regrowth and were seasonally flooded during the rainy season. Cores C and D were collected from a completely deforested area that had recently been cleared by local communities seeking to plant rubber trees (*Hevea brasiliensis*).

We took core samples in 50-cm increments from the surface until we reached the substrate beneath the peat layer. Each 50-cm section was then stored in half-round PVC pipe and carefully wrapped with plastic to protect it from damage, but some loss of moisture during transportation from the site to the laboratory was unavoidable. We then sampled for pH, total organic carbon (TOC), total nitrogen (TN), loss on ignition, bulk density and carbon density.

We measured pH by diluting the sample with distilled water. We used a dry combustion technique to measure the concentrations of TOC and TN: the samples were homogenized and dried in the oven at 40°C for 24 hours, then completely oxidized at high temperature ($\pm 1,200^\circ\text{C}$) and converted into CO_2 and N_2 gases. Then the concentrations of CO_2 and N_2 gases can be measured (Schumacher 2002). The results of high temperature combustion technique are more accurate than the conventional Walkley and Black method for TOC and the Kjeldhal method for TN.

Loss on ignition is a method for estimating organic matter in soil samples. Because tropical peats contain high fractions of organic matter, the samples were combusted at 550°C for five hours. The loss on ignition value is calculated as follows:

$$\text{LOI}_{550} \approx (\text{DW}_{110} - \text{DW}_{550}) / \text{DW}_{110} * 100 \text{ (Heiri et al., 2001)}$$

Where:

LOI_{550} = the amount organic matter loss after combusting at 550°C for 5 hours (%);

DW_{110} = oven dry weight of samples at 110 °C for 24 hours (gram); and

DW_{550} = ash residue of samples after combusting at 550 °C for 5 hours (gram).

Bulk density is defined as the ratio between the mass of the solid component of samples and the total volume. In this research, bulk density was measured after heating the samples in the oven at 110°C for 24 hours or until a constant weight was achieved. The peat sampler volume was 430 cm³ for every 50 cm of peat cores. The volume of subsamples for bulk density determination was 86 cm³. The calculation of bulk density follows this formula:

$$\text{Bulk density} \approx \frac{\text{dry mass of samples (g)}}{\text{volume of samples (cm}^3\text{)}}$$

Finally, carbon density is calculated by the following formula (Pearson et al. 2007):

$$\text{Carbon density (t/ha)} = \left[(\text{bulk density (g/cm}^3\text{)} \times \text{peat depth (cm)} \times \% \text{C}) \times 100 \right]$$

Table 2. Results of laboratory analyses of Core A

<i>Peat layer (cm)</i>	<i>pH (H₂O) 1:2.5</i>	<i>TOC (%)</i>	<i>TN (%)</i>	<i>C/N ratio</i>	<i>LOI (%)</i>	<i>Ash residue (%)</i>	<i>Bulk density (g/cm³)</i>
0-50	3.17	49.33	1.15	42.90	99.30	0.70	0.12
50-80	3.33	52.78	0.76	69.45	99.09	0.91	0.10
80-130	3.59	50.94	0.55	92.62	99.40	0.60	0.05
130-150	3.68	51.05	0.73	69.93	99.39	0.61	0.05
150-200	3.56	51.17	0.82	62.40	99.28	0.72	0.05
200-250	3.63	50.53	0.91	55.53	98.87	1.13	0.11
250-300	3.63	50.13	0.84	59.68	99.33	0.67	0.10
300-350	3.71	50.22	0.73	68.79	99.21	0.79	0.10
350-400	3.45	51.67	0.92	56.16	99.12	0.88	0.10
400-450	3.75	51.37	0.81	63.42	99.15	0.85	0.07
450-480	3.54	54.91	0.78	70.40	99.26	0.74	0.10
480-500	3.43	52.43	0.95	55.19	99.23	0.77	0.10
600-650	3.65	54.31	0.95	57.17	99.13	0.87	0.10
700-750	3.65	51.12	0.84	60.86	99.19	0.81	0.10
850-900	3.43	50.27	0.86	58.45	99.54	0.46	0.08
Mean	3.55	51.48	0.84	62.86	99.23	0.77	0.09
Min	3.17	49.33	0.55	42.90	98.87	0.46	0.05
Max	3.75	54.91	1.15	92.62	99.54	1.13	0.12
SD	0.16	1.55	0.13	11.00	0.16	0.16	0.02

Results and Discussion

Core A (0°46.593'N, 112°07.000'E) consisted entirely of peat because we were not able to retrieve the mineral substrate underneath, despite several coring attempts to penetrate the base. The bottom layer of peat in this core contained pieces of large logs and compact woody fibers. The peat depth was 900 cm, and the water table at the time of sample collection was 33 cm. Because the location of Core A was very close to water, the site was regularly inundated.

Results of laboratory analysis of Core A are presented in Table 2. Peat layers of Core A were mostly uniform, with a high fraction of organic matter and TOC. TN

Table 3. Results of laboratory analyses of Core B

<i>Peat layer (cm)</i>	<i>pH (H₂O) 1:2.5</i>	<i>TOC (%)</i>	<i>TN (%)</i>	<i>C/N ratio</i>	<i>LOI (%)</i>	<i>Ash residue (%)</i>	<i>Bulk density (g/cm³)</i>
10-30	3.20	50.19	1.08	46.47	99.67	0.33	0.10
30-50	3.38	57.42	0.67	85.70	99.40	0.60	0.10
50-100	3.46	52.66	0.87	60.53	99.30	0.70	0.10
100-150	3.58	51.93	0.75	69.24	99.39	0.61	0.07
150-200	3.51	53.66	0.71	75.58	99.24	0.76	0.10
200-250	3.75	49.85	0.63	79.13	99.10	0.90	0.06
250-350	3.78	51.01	0.50	102.02	99.01	0.99	0.07
350-400	3.70	53.60	0.65	82.46	99.26	0.74	0.10
400-450	3.90	54.25	0.84	64.58	99.15	0.85	0.05
450-500	3.72	52.14	0.87	59.93	99.50	0.50	0.07
500-550	3.65	51.96	0.92	56.48	99.57	0.43	0.07
550-600	3.47	53.37	0.92	58.01	99.50	0.50	0.09
600-650	3.59	52.73	0.92	57.32	99.55	0.45	0.08
700-750	3.51	53.29	0.98	54.38	99.16	0.84	0.09
800-850	3.95	53.92	0.89	60.58	99.17	0.83	0.09
850-900	3.62	52.42	0.84	62.40	99.61	0.39	0.10
900-940	3.94	47.07	0.81	58.11	87.31	12.69	0.10
Mean	3.63	52.44	0.81	66.64	98.64	1.36	0.08
Min	3.20	47.07	0.50	46.47	87.31	0.33	0.05
Max	3.95	57.42	1.08	102.02	99.67	12.69	0.10
SD	0.20	2.21	0.15	14.02	2.93	2.93	0.02

and ash residue were extremely low. This core contained many woody fragments and debris. A moderately decomposed peat was observed in the upper layer (0-50 cm). The remaining peat layers of the core showed slightly decomposed peat matter.

Core B (0°45.463'N, 112°06.986'E) was collected approximately 2.1 km south of Core A. The site was very similar to Core A, with signs of timber extraction and regular inundation. The peat and water table depths of this sample were about 965 cm and 28 cm, respectively. In this core, we observed slightly decomposed peat layers and

Table 4. Results of laboratory analyses of Core C

<i>Peat layer (cm)</i>	<i>pH</i>					<i>Ash residue</i>	<i>Bulk density</i>
	<i>(H₂O)</i>	<i>TOC</i>	<i>TN</i>	<i>C/N</i>	<i>LOI</i>		
	<i>1:2.5</i>	<i>(%)</i>	<i>(%)</i>	<i>ratio</i>	<i>(%)</i>	<i>(%)</i>	<i>(g/cm³)</i>
10-50	3.40	62.39	0.52	119.98	98.15	1.85	0.10
50-75	3.31	56.99	0.81	70.36	99.17	0.83	0.10
75-100	3.37	54.47	0.81	67.25	98.70	1.30	0.08
100-150	3.59	49.97	0.41	121.88	98.33	1.67	0.07
150-180	3.62	48.35	0.73	66.23	96.81	3.19	0.10
180-200	3.81	50.13	0.72	69.63	83.38	16.62	0.15
Mean	3.52	53.72	0.67	85.89	95.76	4.24	0.10
Min	3.31	48.35	0.41	66.23	83.38	0.83	0.07
Max	3.81	62.39	0.81	121.88	99.17	16.62	0.15
SD	0.19	5.33	0.16	27.19	6.11	6.11	0.03

Table 5. Results of laboratory analyses of Core D

<i>Peat layer (cm)</i>	<i>pH</i>					<i>Ash residue</i>	<i>Bulk density</i>
	<i>(H₂O)</i>	<i>TOC</i>	<i>TN</i>	<i>C/N</i>	<i>LOI</i>		
	<i>1:2.5</i>	<i>(%)</i>	<i>(%)</i>	<i>ratio</i>	<i>(%)</i>	<i>(%)</i>	<i>(g/cm³)</i>
10-50	3.47	61.56	0.42	146.57	97.22	2.78	0.08
50-70	3.41	54.49	0.71	76.75	99.34	0.66	0.09
70-100	3.43	50.28	0.74	67.95	99.25	0.75	0.10
100-150	3.53	56.11	0.91	61.66	99.14	0.86	0.12
150-200	3.50	53.67	0.88	60.99	98.82	1.18	0.11
200-250	3.66	50.13	0.71	70.61	98.02	1.98	0.11
250-275	4.09	44.82	0.73	61.40	90.92	9.08	0.25
Mean	3.58	53.01	0.73	77.99	97.53	2.47	0.12
Min	3.41	44.82	0.42	60.99	90.92	0.66	0.08
Max	4.09	61.56	0.91	146.57	99.34	9.08	0.25
SD	0.24	5.29	0.16	30.80	3.01	3.01	0.06

abundant woody remains and fragments. The mineral substrate beneath the peat layer consisted of extremely compact clay.

Results of the laboratory analyses of Core B are presented in Table 3. This sample also showed high concentrations of organic matter and TOC and low values of TN, ash and pH.

Cores C (0°46.656'N, 112°06.071'E) and D (0°46.774'N, 112°06.089'E) were short and of relatively simple composition. Peat depths of these cores were 200 cm and 275 cm, respectively. The water table depths at the time of sample collection were 13 cm

Table 6. Results of laboratory analyses of Core E

	<i>pH</i>						<i>Ash</i>	<i>Bulk</i>
<i>Peat layer</i> <i>(cm)</i>	<i>(H₂O)</i> <i>1:2.5</i>	<i>TOC</i> <i>(%)</i>	<i>TN</i> <i>(%)</i>	<i>C/N</i> <i>ratio</i>	<i>LOI</i> <i>(%)</i>	<i>residue</i> <i>(%)</i>	<i>density</i> <i>(g/cm³)</i>	
20-50	3.30	50.17	1.15	43.63	99.67	0.33	0.15	
50-80	3.58	53.19	0.97	54.84	99.46	0.54	0.11	
170-200	3.58	50.13	0.93	53.90	99.50	0.50	0.10	
200-250	3.67	52.17	0.99	52.70	99.29	0.71	0.09	
350-400	3.56	54.92	0.68	80.76	99.25	0.75	0.11	
450-480	3.87	58.79	0.49	119.98	99.02	0.98	0.15	
Mean	3.59	53.23	0.87	67.63	99.37	0.64	0.12	
Min	3.30	50.13	0.49	43.63	99.02	0.33	0.09	
Max	3.87	58.79	1.15	119.98	99.67	0.98	0.15	
SD	0.18	3.28	0.24	28.51	0.23	0.23	0.03	

for both cores. Core D was sampled approximately 200 meters north of Core C.

Both cores indicated further degrees of peat decomposition and had compact clay in the base. The high decomposition rates in these cores may be associated with fire disturbance, and the shallow peat depths probably reflected the degraded state of the site. Results of the laboratory analyses of Cores C and D are listed in Tables 4 and 5.

Like the previous two cores, Cores C and D also had high values of TOC and organic matter and low TN, pH and ash. It is interesting to note that the upper layers (to 100 cm below the surface) showed very high fractions of TOC. During the laboratory analysis, we observed that these contained charcoal, from fires. The presence of charcoal may explain the substantial increase in the TOC fraction. Small fire regimes may cause incomplete combustion and convert woody organic matter into charcoal.

Core E (0°46.383'N, 112°05.759'E) was collected from a logged-over peat swamp forest, at a site approximately 2.3 km west of Core A and about 750 m southwest of Core C. The peat depth of Core E was 480 cm. At the time of sample core collection,

Table 7. Summary results

Core	<i>pH</i>	<i>TOC</i> (%)	<i>TN</i> (%)	<i>C/N</i> ratio	<i>LOI</i> (%)	<i>Ash</i>	<i>Bulk</i>
	(<i>H₂O</i>)					<i>residue</i>	<i>density</i>
	1:2.5					(%)	(g/cm ³)
A	3.55	51.48	0.84	62.86	99.23	0.77	0.09
B	3.63	52.44	0.81	66.64	98.64	1.36	0.08
C	3.52	53.72	0.67	85.89	95.76	4.24	0.10
D	3.58	53.01	0.73	77.99	97.53	2.47	0.12
E	3.59	53.23	0.87	67.63	99.37	0.64	0.12
Grand mean	3.57	52.77	0.78	72.20	98.10	1.90	0.10

the water table of this core, at 91 cm, was considerably lower than that of the other cores. It is probable that timber removals explain the decline in the water table at this site.

Fractions of organic matter and TOC in peat layers of this core were high, ranging from 99.0 to 99.7 percent and from 50 to 59 percent, respectively. A high TOC in the bottom layer was associated with high fiber content. As in the other core samples, TN, ash and pH values are extremely low.

In summary, the peat cores were characterized by low pH, ash and TN but extremely high levels of organic matter and TOC. Values for bulk density ranged from 0.08 to 0.12 g.cm⁻³. TOC concentrations and bulk density values in the logged-over forest (Cores A, B and E) were comparable to those from the cleared forest sites (Cores C and D). The present laboratory results indicate that there is essentially no difference between the logged-over forest sites and the cleared forest sites due to all cores having

Table 8. Estimated carbon density in peats from Danau Sentarum National Park

Core	Peat depth (cm)	Carbon density (t/ha)
A	925	4,222
B	965	4,286
C	200	1,074
D	275	1,791
E	480	3,023
Mean		2,879
SD		1,284

been collected from one peat dome.

Summary results of laboratory analyses of these peat core samples are presented in Table 7.

Based on peat depths, average carbon concentrations and dry bulk density values, we estimated the distribution of carbon density in peats from Nung Forest of Danau Sentarum National Park (Table 8) and calculated 1,000 to 4,000 tons of carbon per hectare (t C/ha), with an average value of 2,800 t C/ha, equivalent to approximately 10,000 t CO₂/ha. The carbon content of peat is roughly 10 times the above-ground carbon of living vegetative biomass. Thus we estimate that the total carbon storage in peats of the park is at least 33.5 million t C, or approximately 122.6 million t CO₂.

As this study shows, values of carbon density are highly dependent on the variability of peat depths. This means that the peat forest may act as a carbon storage site if it grows or if the rate of decomposition is lower than, or equal to, the rate of organic matter accumulation. Organic matter and carbon are accumulated in the upper layers of the peat, based on litter fall, root turnover and accumulation of branches and logs (Ingram 1978; 1982; Clymo 1984, 1991). The deposition of organic matter into the anaerobic layer (below the water table) is essential to keep peat growing. In the absence of anthropogenic disturbances, the present humid climate and frequent inundation of the sites favor peat accumulation.

Conclusions

Danau Sentarum National Park is the site of active peat-forming habitats. The peat in this park started to form in the Late Quaternary and has played important roles in past and current global carbon cycles. A preliminary 2007 study to quantify the total organic carbon storage in the DSNP peat swamp forests has revealed highly variable peat depths, ranging from 2.0 to 9.6 meters. Values of pH, ash, and total nitrogen are extremely low. Bulk density ranges from 0.08 to 0.1 g.cm⁻³, and the average concentration of total organic carbon is 53 percent. The mean carbon storage in the samples is 2,800 (± 1,200) t C/ha, roughly 10 times the aboveground carbon storage in primary rainforests. Variation among the samples was high, however (1,000–4,000 t/ha), mostly because of variations in peat depth. The total carbon storage in the DSNP peat swamp forests is estimated at 33.5 million tons, equivalent to approximately 122.6 million tons of CO₂.

Since the tropical peat originates from woody organic matter; wood extraction, peat swamp conversion, and fires on peat swamp forests degrade the functions of tropical peats for carbon storage and are threatening the ecological function of the peat forest ecosystem as a large carbon reservoir. Peat fires reduce peat depths by directly converting peat into gases. The conversion of peat forests into agricultural uses (such as oil palm and rubber tree plantations) usually requires draining the swamps, and once the water table depth declines, peat decomposition rates accelerate. A high water table is essential for preventing rapid aerobic decomposition and the loss of organic carbon.

Further studies of the peat swamp forest in Danau Sentarum National Park will need to interpret the spatial distribution of peat depths along with vegetation type and process of peat dome formation. Remote sensing and GIS technology would be helpful for making a detailed assessment of peat and aboveground carbon stocks, for

valuing ecological functions of the peat forest, and for determining the uniqueness of the park's peat forest ecosystem. It is also important to control anthropogenic disturbances, particularly fires and conversion into oil palm and rubber tree plantations, that eliminate the functional role of the park's peat forests in storing carbon.

Acknowledgments

This research was funded by Direktorat Jenderal Pendidikan Tinggi Departemen Pendidikan Nasional through the grant No:041/SP2H/PP/DP2M/III/2007. The author is grateful to Bambang, Jefri, Eta, and Dedek, who helped collect the samples. The author would like to express sincere thanks to Carol Colfer and an anonymous reviewer from CIFOR. The author has received great help and inspiration from Linda Yuliani, who voluntarily spent her time to organize this special publication. The author also thanks Afifudin from the provincial Forestry Department for drawing the map.

References

- Anshari, G., A.P. Kershaw, and S. van der Kaars
2001 A Late Pleistocene and Holocene Pollen and Charcoal Record from Peat Swamp Forest, Lake Sentarum Wildlife Reserve, West Kalimantan, Indonesia. *Palaeogeography, Palaeoclimatology, Palaeoecology* 171: 213-228.
- Anshari, G., A.P. Kershaw, S. van der Kaars, and G. Jacobsen
2004 Environmental Change and Peatland Forest Dynamics in the Lake Sentarum Area, West Kalimantan, Indonesia. *Journal of Quaternary Science* 19 (7):637-656.
- Boehm, D.V.H., and F. Siegert
2001 Ecological Impact of the One Million Hectare Rice Project in Central Kalimantan, Indonesia, Using Remote Sensing and GIS. Land Use Change and Logging in Central Kalimantan, Indonesia. 22nd Asian Conference on Remote Sensing, Singapore.
- Clymo, R.S.
1984 The Limits to Peat Bog Growth. *Philosophical Transactions of the Royal Society* 303B, 605-654.
1991 Peat Growth. In: Linda C.K. Shane and Edward J. Cushing, eds., *Quaternary Landscapes*. Minneapolis: University of Minnesota Press, pp. 76-112.
- Giesen, W.
1987 Danau Sentarum Wildlife Reserve. Inventory, Ecology and Management Guidelines. A World Wildlife Fund Report for the Directorate of Forest Protection and Nature Conservation (PHPA), Bogor.
- Giesen, W. and J. Aglionby
2000 Introduction to Danau Sentarum National Park West Kalimantan, Indonesia. *Borneo Research Bulletin* 31:5-28.

Heiri, O., A.F. Lotter, and G. Lemcke

- 2001 Loss on Ignition as a Method for Estimating Organic and Carbonate Content in Sediments: Reproducibility and Comparability. *Journal of Paleolimnology* 25:101-110.

Hooijer, A., M. Silvius, H. Wösten, and S. Page

- 2006 PEAT-CO₂, Assessment of CO₂ Emissions from Drained Peatlands in SE Asia. Delft Hydraulics report Q3943.

Ingram, H.A.P.

- 1978 Soil Layers in Mires: Function and Terminology. *Journal of Soil Science* 29:224–227.
- 1982 Size and Shape in Raised Mire Ecosystems: A Geophysical Model. *Nature* 297:300–303.

Jeanes, K.

- 1997 Guidelines for Conservation Management: Danau Sentarum Wildlife Reserve, West Kalimantan. Bogor: Wetlands International, Indonesia Programme, Directorate General of Forest Protection and Nature Conservation, and Overseas Development Administration.

Muljadi, M. Soeprapto and M. Soekardi

- 1974 Survey dan penelitian tanah. Daerah Sei Rasau, Kalimantan Barat. Unpublished Report No. 2/1974. Bogor: Lembaga Penelitian Tanah.

Pearson, T.R.H., S.L. Brown, and R.A. Birdsey

- 2007 Measurement Guidelines for the Sequestration of Forest Carbon. Washington, DC: USDA Forest Service.

Schumacher, B.A.

- 2002 Methods for the Determination of Total Organic Carbon (TOC) in Soils and Sediments. Las Vegas: National Exposure Research Laboratory, U.S. Environmental Protection Agency, Environmental Division.

5. INTERACTING THREATS AND CHALLENGES IN PROTECTING DANAU SENTARUM

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Danau Sentarum was declared a conservation area by the government in 1981, was established as a Ramsar wetland conservation area in 1984 and became a 132,000 ha national park with a 65,000 ha buffer zone in 1999. But being named a wetland of international importance and having national park status do not mean that Danau Sentarum receives more attention and better management. Forest cover within and around the park is declining rapidly. The fish stocks and water quality of the wetlands and river network are threatened. Logging has left large tracts of open land, destroyed wildlife habitat and reduced wildlife populations. The Pulau Majang forest, formerly an orangutan habitat, is now devoid of orangutans. Tree felling and land clearing have also triggered human-animal conflict, apparently because forest food sources have fallen drastically, forcing wild animals to seek food in human settlements.

This paper aims to identify the interacting threats and underlying causes of the ecosystem degradation and declining resources. The research serves as a baseline study for a larger research project: Promoting Good Governance of Protected Areas Management, being conducted by CIFOR and Riak Bumi Foundation since early 2005.

Site Description

The Danau Sentarum wetlands comprise approximately 83 large and small lakes interconnected by rivers, and partly covered by peat swamp forest (Jeanes). Part of the region is surrounded by hill forest with high-value tree species, including *ramin* (*Gonystylus* spp.), *tengkawang* (*Shorea* spp.), *meranti* (dipterocarps), *tembesu* (*Fagraea fragrans*) and other timber species (Giesen 2000). The hill and swamp forests in DSNP are habitat for endangered wildlife, including orangutans (*Pongo pygmaeus*), proboscis

monkeys (*Nasalis larvatus*), long-tailed macaques (*Macaca fascicularis*) and numerous rare bird and reptile species (Jeanes and Meijaard 2000a; Sebastian 2000; van Balen and Dennis 2000; Russon et al. 2001).

The Danau Sentarum wetlands are the largest contributor to the West Kalimantan freshwater fish industry, accounting for 26.8 percent of these products in 2006 (West Kalimantan Fisheries Office no date), though the proportion has likely fallen in the past few decades. In addition to being a source of freshwater fish for consumption, DSNP is also home to ornamental fish such as the clown loach, and a center for breeding super red Asian arowana as well as various other species of ornamental fish for export. The park and its environs also have mineral reserves, particularly gold, though on a small scale.

Most communities around the lakes are Malay, and the majority of them are made up of fishing families. Historically, their ancestors came only to catch fish during the dry season. The oldest settlement, according to the locals, is Lupakmawang hamlet, where the founder of the Selimbau Kingdom originated. Other inhabitants are Iban Dayaks, who practice dryland cultivation but also fish for both food and extra income.

The park now is formally managed by the Danau Sentarum National Park Authority and is under the Ministry of Forestry, but the people living inside the park come under subdistrict and district administration.¹ Located in Kapuas Hulu district, the park is divided among the four subdistricts of Selimbau, Embau, Batang Lupar and Badau. The park's buffer zone is categorized as Area Peruntukan Lain (APL, other land use), which also falls under the district government's responsibilities and can be allocated by the district government for development schemes.

As described by Wadley and Eilenberg (2006), natural resource management in the borderland of West Kalimantan is influenced strongly by vigilantes and gangsters. Martinez (1994) noted that the Iban who live in the borderland have the feeling of being pulled in several directions at once, but that the strength of the pull depends on the degree of interaction and relations on both sides.

Methodology

The study relies on primary data collected through in-depth interviews, participatory rural appraisal (PRA), and direct observation on the ground; as well as on secondary sources, including published articles, unpublished field notes, and project reports. Informants selected for the in-depth interviews were people identified as having a deep understanding of the topics and issues. The research team visited several hamlets and asked informants for their opinions and about their experiences. PRA was conducted in five villages (Pulau Majang, Leboyan, Semalah, Pelaik and Tekenang), chosen because the study team has had good relations with them and therefore could expect openness. Participants were asked to describe their village history per decade since the 1960s. Important events, such as the reform movement and the resignation of Suharto, served as points of reference to help community members identify and remember the years. The

¹ Subdistrict towns are located outside DSNP. This is obvious at election time, when people from the park have to travel to the subdistrict towns to register as subdistrict residents, rather than as residents of fishing settlements inside DSNP where they live and fish.

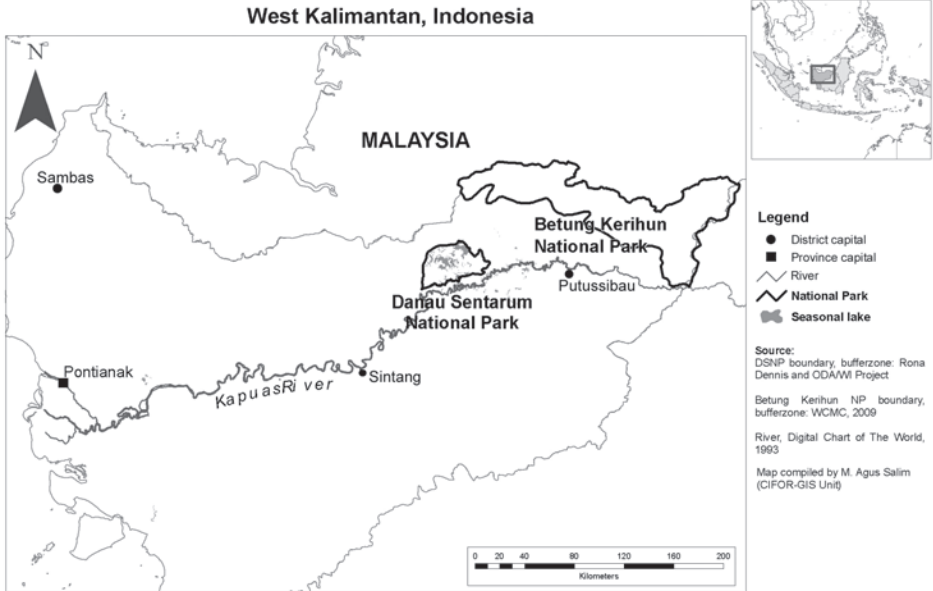


Figure 1a. Danau Sentarum and its proximity to the country border. Bottom: hamlets within and around Danau Sentarum.

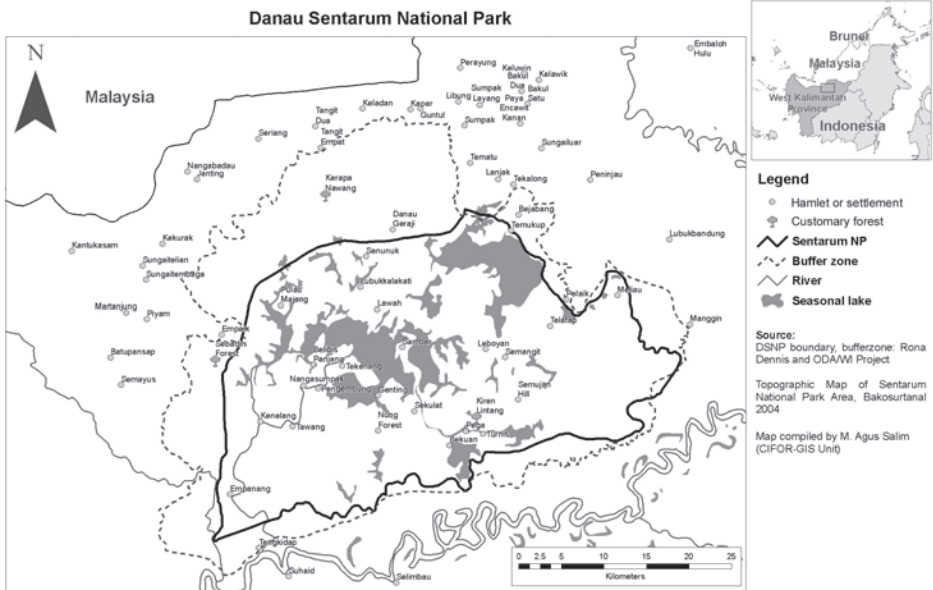


Figure 1b. Hamlets within and around Danau Sentarum.

authors made direct observations on the ground, looking at the condition of forests and waterways, and used these observations to determine topics for interviews, supplement existing data and check the reliability of information gathered from informants.



Figure 2. View in the borderland

Results and Discussion

Our study shows that some major threats remain the same as were reported by Jeanes (1997), Giesen and Aglionby (2000), Dudley (2000), and Wadley (2000): large-scale oil palm plantations, commercial logging, unsustainable fishing practices, human population growth, and permanent human settlements. The underlying causes, the actors and power dynamics behind the threats, however, are different. The threats to Danau Sentarum ecosystems have been greatly influenced by complex and interrelated factors: market-driven decision-making at all levels, open-access resources, lack of law enforcement and contradictory and incoherent policies. We also found new threats emerging from the changing political situation, including regional fragmentation and local elite politics. Those threats, underlying causes and the dynamics are described below.

Commercial Logging

Here, we do not mean the cutting of trees to meet community needs for houses, boats, and other necessities. The intensity of noncommercial uses is far lower than that of commercial logging, and given the still comparatively low population density, it appears to have an insignificant impact on the forest, although increasing human population, as

reported by Indriatmoko (this volume), has to some extent intensified noncommercial logging.

Our study reveals that for commercial logging, the intensity, the actors involved, and the logging methods around DSNP have changed over time. In general, commercial logging can be divided into three periods: 1980–1997, when logging was dominated by concession companies; 1997–2005, a period characterized by illegal logging; and 2005–2009, when commercial timber harvesting has been officially stopped but logging is still practiced, largely to clear land for monoculture plantations.

1980–1997. This was the golden era for giant timber concessions, whose owners were powerful and often backed-up or even owned by the army. Seven timber concession companies held *hak penguasaan hutan* (HPHs, timber concession permit) around DSNP: PT Rimba Ramin, PT Lanjak Deras, PT Satya Djaya Raya, PT Bumi Raya, PT Kapuas Sakti Utama and PT Tawang Meranti, all owned by Indonesian conglomerates; and PT Yamaker (PT Yamaker or Yayasan Maju Kerja), a military-owned HPH.² Concession areas included peat swamp forest in the Suhaid, Empanang, Badau, Seriang, Tangit IV, Senunuk, Sumpak, Meliau, Manggin, Sungai Jaung, Pengerak, Kepiat, Jongkong, Selimbau, and along Leboyan and Belitung watersheds; and peat swamp forest around Bukit Telatap, Bukit Menyukung, and Bukit Semujan; and the sacred forest, Hutan Nung (Jeanes 1997).

At the time, there was no demand for logs smaller than 40 cm in diameter or for logs with holes. So, despite being cut, these were never transported. The rest of the timber was transported to Pontianak via lakes and rivers. Light species were transported by raft, while heavier species were moved on pontoon boats. Laborers came from waterside hamlets and used a relay system to transport wood downstream from one hamlet to the next.

Some communities and local business people who also operated commercial logging on a much smaller scale were considered thieves; some were caught and tried under the law. Local communities who had lived there for generations saw this as unjust.

1997–2005. The rapid political and institutional changes of this period led to intensified commercial logging, both legal and illegal. The Asian economic crisis hit Indonesia in 1997, and some logging companies ceased operations completely. Others found their permits revoked because their concession areas fell inside the new park's expanded boundaries. The international demand for Indonesian wood continued, however. Malaysian brokers took advantage of the situation by exploiting timber from Indonesian forests, including those in and around DSNP. The situation was exacerbated with the fall of the Suharto regime in 1998 and the ensuing political turbulence. *Reformasi*, which

2 PT. Yamaker was a military-owned HPH, founded through Surat Menteri Pertahanan No. 79/II-1967, 1 November 1967; it started operation in 1969. Yamaker was located along the border between Indonesia and Malaysia in Borneo and covered 265,000 ha. According to the decree, Yamaker aimed to “improve the protection of Indonesia’s territory, and empower communities economically and socially.” Its concession was handed over to the Minister of Defense through Presidential Decree 44/1994, then to the Ministry of Forestry through Presidential Decree 63/1999. PT Yamaker is now managed by the State’s Concession (*Perum Perhutani*).

originally meant freedom from Suharto's dictatorial regime, was misinterpreted by some as freedom to violate rules and break the law. Autonomy regulations that went into effect in January 2001 spawned the traditional community autonomy movement and to some extent facilitated "illegal" logging (Wadley and Eilenberg 2005).

Legal logging also caused rapid forest degradation during this period. At the end of 1999, the government issued 100 ha *hak pemungutan hasil hutan* (HPHHs, forest product extraction concession), giving timber businesses opportunities to form community cooperatives. Previously, only companies with licenses were allowed to extract forest products, while locals worked only as laborers. The community cooperative HPHH concession areas were on the former Yamaker timber company concession.

Both legal and illegal timber was bought from local communities, processed in mini-sawmills, and then exported through Malaysia by Malaysian businesspeople without legitimate Indonesian government documentation. Some local people were also

Table 1. Price classification, by wood type

	Classification	Species	Price per tan (USD)
1	Ramin	Ramin (<i>Gonystylus</i> spp.)	329
2	Jelutung	Jelutung (<i>Dyera</i> spp.)	211
3	Red meranti	Pukul kawi (<i>Cotylelobium burkii</i>) Tekam (<i>Shorea</i> sp.) Keladan (<i>Dryobalanops</i> sp.)	158–184
4	Meranti	Perawan (<i>Shorea</i> sp.) Pukul perawan baya or pengerawan buaya (<i>Shorea uliginosa</i>) Merkunyit (<i>Garcinia</i> sp.)	132
5	Tengkawang	Enkabang (<i>Shorea smithiana</i>)	132
6	Red wood	Kelansau (<i>Dryobalanops</i> sp.) Penyau (<i>Upuna borneensis</i>)	118
7	Kapur wood	Keruin or Keruing (<i>Dipterocarpus</i> sp.) Resak (<i>Vatica oblongifolia</i>)	84–100
8	M-less	Kayu medang (Lauraceae, e.g. <i>Litsea</i> sp., <i>Alseodaphne coreacea</i>) Gerunggang (<i>Cratoxylum arborescens</i>) Sempetir (<i>Sindora leiocarpa</i>) Merbau (<i>Intsia</i> spp.) Rengas (<i>Gluta renghas</i> or <i>Swintonia</i> spp.) Pitoh (<i>Swintonia</i> spp.) Entangor or Mentangur (<i>Calophyllum</i> sp.) Ketuntum or Maripat (<i>Combretocarpus rotundifolius</i>)	74–90

involved by handing over their timber concessions or working for companies to facilitate shipments. Wood from in and around DSNP was transported via Lanjak and Badau in the northern part of the national park to Lubok Antu, across the border. On arrival in Batu Kaya, Malaysia, not far across the border, the wood was “legalized” with Malaysian government stamps to meet the export requirements of other countries. Timber transport via this route reached its peak in 2004 with 300 trucks passing daily. One truck could carry 1.4 to 3 *tan* (2.5 to 5.5 m³; 1 *tan* = 1.8 m³), and thus approximately 750 to 1,650 m³ of timber crossed the border every day.

Malaysian brokers set price classifications based on wood type (Table 1).

As the most valuable timber species became scarce, buyers shifted to less valuable species. In 1997, Malaysian brokers sought red meranti, meranti, ramin and jelutung. By 1999, these species were also becoming harder to find in forests, so buyers began asking for red wood species. By 2002, they were requesting almost all timber species. Such timber scarcity has led to exploitation of almost all types of timber, even lower quality species.

Only trees with a basal diameter of more than 25 cm were felled. These were sold in various dimensions, from 4 by 6 inches to 12 by 12 inches, in lengths of 10, 12 and 14 feet. Brokers asked for an additional 1.5 by 1.5 inches to avoid damage when the boles were cut by chainsaw, usually not far from where the trees were felled. Wood was then transported by bicycles along narrow, planked trails. One bicyclist could carry two lengths of these sizes. The laborers usually came from the Kalimantan District of Sambas and were well-known for their skill and strength. Some timber brokers set up mini-sawmills close to hamlets. Wood was carried to these sawmills on large trailers and cut into lengths of various measurements. Sawmill workers usually lived in nearby hamlets.

Local communities used the opportunities afforded by the timber trade, and they themselves were used by brokers: some sold timber from forests around their settlements with support from Malaysian investors, and some sold their forests directly to the Malaysians for certain compensations. People in one hamlet received one-time contributions – called *sagu hati* – of US\$ 263 per family (a tidy sum, in this context). Each hamlet received RM 8 per *tan* of wood, and sawmill workers received a salary of RM 8 per person per day. In addition, the roads built to transport wood also served the hamlets.

The logging businesses were led by *tauke* (large-scale traders) based in Malaysia, who appointed field managers, also from Malaysia. The tasks of organizing employees and sharing premiums were delegated to people trusted by field managers, commonly local inhabitants who were lent certain amounts of Malaysian ringgit to supply wood to the *tauke*. It was these trusted employees who determined the logging and sawing operations and recruitment.

A typical answer, when people were asked why they had become involved in these logging activities, is given here:

We never used to get anything or any share of the profits from the companies felling timber in our forest. Government officials would

even say the wood around us belonged to the state, so the ones entitled to extract wood for commercial purposes were the timber companies with their government concessions.

In June 2005, the district government stopped tree cutting and wood sales. Logs that had been felled were later auctioned and could be transported and sold to Malaysia through September 2005. In October 2005, logs were still seen on roadsides, but the government strictly prohibited their transportation and sale to Malaysia.

Despite the government's strict stance, illicit small-scale logging continues. Local people, who had become used to having relatively large sums of money from timber, have had to readjust to being forest farmers and gatherers, only now their forests were degraded and it was difficult to find food and other non-timber forest products.

2005–2009. The most recent period has been marked by a decline in illegal logging; however, this has not meant a significant decline in the rate of deforestation. Logging continues, in new guises. In Suhaid and Selimbau Subdistricts, for example, large trees in community protected forests and old secondary forests have been cut, ostensibly to clear land. The wood was transported out of the area, without permission, and the case was reported by local people to the police and local government.

The region's natural resources have been overexploited by large businesses meeting market demand. Logging has opened large areas around Pulau Majang and Meliau hamlets and in the Kiren Nung protection forest. In Kapar, a hamlet in the buffer zone north of DSNP, many wild animals, including proboscis monkeys (*Nasalis larvatus*) and long-tailed macaques (*Macaca fascicularis*), which prior to 2004 had not been a problem, are now considered pests that attack rice, corn, and fruit crops near the hamlet. This suggests that forest food sources have fallen drastically, forcing wild animals to seek food in human settlements. Some suspect these animals have moved closer to human habitation because they are afraid of the sound of chainsaws in the forest.

The political and policy changes from dictatorship to reform and decentralization have not yet led to better management of the forest. Lack of law enforcement has worsened the situation. The communities are left with feelings of injustice and inequity; they have struggled for their rights through involvement in illegal logging.

Illegal Trade and Gangster Practices

Cross-border trading, which is now illegal, has been going on for centuries and includes trade in timber, wildlife, and animal body parts (Jeanes 1997; Wadley et al. 2000). The illegal orangutan trade in DSNP was first noted in 1992, when two orangutans from Seriang Village were sold to the Batang Ai' Recreation Park in Sarawak (Erman 2005). That same year, Colfer (pers. commun.) saw some orangutans being sold in Putussibau. The orangutan trade increased along with the widespread timber sales to Sarawak, Malaysia.

In the past decade, live animal trade has been increasing and is associated with illegal logging. Timber brokers deal not only in wood but also in wildlife. The most frequently requested animals were orangutans, gibbons (*Hylobates mulleri*), deer (*Cervus* spp.), and myna birds (*Gracula religiosa*). From 2002 to 2005, approximately 100 to 200

young orangutans from in and around DSNP were held temporarily in illegal logging camps and eventually sold to zoological gardens in Sarawak. In addition, an estimated 100 to 150 orangutans were killed for food by timber company employees, particularly in Tangit IV, Tangit II and Sering (north); Piyam, Semanyus and Batu Pansap (west); and Semangit, Sei Luar and Lubuk Bandung (east).

A lack of government control over the use of natural resources, particularly during 1997–2005, has afforded huge opportunities for gangster practices (Wadley & Eilenberg 2006) and illegal trading of the park's natural resources to Malaysia. Rare and protected wildlife was easily traded in the border region, without supporting permits or official documents. The closest border towns, Badau in Indonesia and Lubok Antu in Malaysia, still have no legal border-crossing post. NGOs have worked in collaboration with police and the government to minimize illegal cross-border trading activities and have been successful in stopping illegal timber, but not yet trade in other natural resources.

Monoculture Plantations and Farming

Oil palm plantations. Large-scale oil palm (*Elaeis guineensis*) plantations belonging to about 20 companies and covering an area of 259,500 to 366,823 ha are currently the number one threat to Danau Sentarum's wetland ecosystems. All the pollutants from oil palm estates around DSNP are likely to flow into the wetland waterways, harming local people's livelihoods. In addition, conversion of forests and peat-swamp forests are likely to harm biodiversity and release carbon dioxide.

Oil palm plantations are not a new threat and were described by Wadley (2000). Several oil palm companies were granted permits in the 1990s and early 2000s. These companies built roads and cleared the forests, destroying habitat for hundreds of orangutans. Wood extracted from these forests was brought profitably to Malaysia, but the planned oil palm estates never materialized.

Aside from being a threat to biodiversity, establishment of the new oil palm plantations has raised questions about why more land should be allocated and cleared for oil palm when only a small number of oil palm estates have actually begun operations. By 2005, oil palm estate permits covering 5.8 million hectares had been granted across Kalimantan, but only 1.5 million hectares had been planted. In West Kalimantan, only 427,000 ha (28.47 percent) of the 1.5 million ha targeted for oil palm development had

Table 2. Oil palm allocations and plantings in Kalimantan

<i>Province</i>	<i>Area allocated (ha)</i>	<i>Area planted (ha)</i>	<i>Percentage planted</i>
West Kalimantan	1,500,000**	427,000*	25.47
East Kalimantan	2,000,000**	303,000**	15.15
Central Kalimantan	1,800,000**	438,000**	24.33
South Kalimantan	500,000**	391,000**	78.20

Sources: **Kompas* (2008), ***Sawit Watch* (2005)

been planted. Nevertheless, by 2008 the government had issued permits covering 4.6 million ha (Kompas 2008).

The district government, the district legislative assembly, and several government officials supported the companies, which they hoped could contribute to economic progress and local development. Where law enforcement is weak and decisions are made for the benefit of corporations rather than local people and conservation, however, the actual contributions of the oil palm business to the economic progress and local development should be scrutinized. Pollutants from chemical fertilizers and pesticides from the plantations, and waste from oil palm processing plants will undoubtedly enter the waterways of Danau Sentarum's wetlands, causing the economic collapse of affected communities and irreversible damage to Indonesia's largest inland wetland. Effective environmental impact management is unlikely to be implemented by the companies, which have a history of illegal activities and corruption (see Yuliani et al., this volume).

Rubber and rice. Drastic declines in fish catches in recent years, coupled with the end of illegal logging in 2005 and a doubling of rubber prices in 2007 (from US\$.54 to US\$ 1–1.14 per kg), have encouraged local people and the government to expand rubber plantations. As part of the district's rubber development scheme, the government provides hybrid varieties, which, unlike local rubber, die if planted on seasonally flooded land. Because people must plant these trees on higher ground, they clear lowland and hill forests. The hybrid varieties were developed for intensive monocultures; planting sites must be cleared of all other vegetation and given high applications of fertilizers and pesticides. The resulting monoculture rubber estates disrupt ecosystem balance and threaten biodiversity.

Based on our observations in the field, 155 households in the hamlets of Terunis and Pegah³ in the Kiren Lintang region have cleared a total area of 70 by 100 meters. Larger areas have been cleared for planting rubber in Leboyan, Sekulat watersheds, Kiren Meresak and the foot of Semujan Hill. Various types of land have been cleared: former farmland, secondary forest (terrestrial and peat swamp), and old timber concession areas where regeneration and forest succession were underway. The land is frequently cleared using fire; some people say burning eradicates ants and other insect pests, enabling rubber to grow unimpeded.

The decision to plant rubber has been significantly driven by the market, without consideration of how to maintain the farmers' selling price and minimize the negative consequences to the environment. Fluctuating prices at the global level could cause big losses to the farmers and ecosystem. As a result of the global economic crisis, rubber prices fell in mid-2008 to US\$ 0.5 per kg and had yet to rise by the end of 2009. Some farmers have started to look for substitutes, which could lead to another ecosystem damaged.

Another crop promoted by the district government is hybrid rice, which also requires high inputs to ensure growth and eliminate vegetative competition. The hybrid variety is provided by the Kapuas Hulu District Agriculture and Estate Crops Office in a package with chemical fertilizer, chemical pesticides, and simple farming tools, such as hoes and machetes. The first packages were delivered to 45 households from Pegah

3 Pegah is also written as "Pega" or "Vega."

and Terunis. Each household cleared roughly one hectare of forest. Since then, more and more villagers from Semalah, Semangit, Nangaleboyan, Pegah, Terunis and Sekulat hamlets have cleared land for rice farming as far away as Bukit Melingkung and the foot of Bukit Semujan.

One potential consequence of planting hybrid rubber and rice is the contamination of river and lake water from agricultural fertilizers and pesticides, many of which are deadly to fish, other aquatic life, birds, and insects, including wild honeybees (*Apis dorsata*). Because fish and honey are livelihood sources for communities in DSNP, such contamination will further reduce their income.

Road Construction

Road construction is beneficial, since it helps communities to transport their products and sell them in urban areas, but it also encourages exploitation of natural resources (Sunderlin and Resosudarmo 1996) and can directly harm the ecosystem if the work is not properly executed.

Roads have been built both by logging companies, often illegally, to carry logs out of the forests to the main road north of the park, and by the district government, to facilitate communities' mobility. Some roads were constructed through rivers, with no effort to minimize the negative impact on hydrology and water quality, even blocking the rivers entirely. Recent road-building projects are summarized in Table 3.

The table reveals an interesting feature: in a typical border area, the illegal activities that can be carried out with great freedom include large-scale construction projects like roads. One road that was built illegally was even extended and improved by the district government. This shows a serious lack of integrated land-use planning and long-term development vision in line with conservation priorities.

Unsustainable Fishery Practices

The DSNP wetlands are the most valuable freshwater fish habitat in West Kalimantan, where fish reproduce and grow naturally. This remote area also has endemic fish species rarely or never found in other places. Now, however, stocks and yields are in steady decline. Based on interviews with local informants, we found that between 1999 and 2006, catches fell by around 40 percent compared to the 1990–1999 period. As an illustration, 100 to 150 kg⁴ of smoked fish was produced between 1990 and 1999, but by 2005–2006 the amount had fallen to 25 to 50 kg. The most drastic decline occurred in 2002, when the catch was only 35 percent of the previous year's. Suspected causes of declining fish stocks in DSNP are the use of fishing gear, cage culture of the giant snakehead fish, and declining natural habitats.

Our research shows that exploitative fishing practices (described below) have led to declines in fish stocks. Ironically (and predictably), the increasing difficulty of catching fish has pushed local people to use even more exploitative means. Unsustainable fisheries are one challenge requiring immediate resolution for fish stocks to recover naturally (with minimal inputs) and generate meaningful income for communities.

4 Cooked weight for smoked fish.

Table 3. Road construction in and around DSNP, 2000–2007

<i>Year</i>	<i>Location</i>	<i>Builder</i>	<i>Land type</i>
2000–2002	From Piyam to Kenelang hamlet	Illegal logging business people	Peat swamp forest
2002–2003	From Kekurak and Sungaitelian to Seriang	Illegal logging business people	Peat swamp forest
2002–2003	From Empaik to Seriang	Illegal logging business people	Peat swamp forests of Sebadin
2002–2003	From Guntul hamlet to Perayang hill	Illegal logging business people	Hill and lowland forests
2002–2003	From Indonesia's Libung, Indonesia, to Sungai Seabai and Wong Kapit, Malaysia, passing Kibung, Sumpak Layang, Bakul I, II dan III, Keluin, Kelawik, and Nanga Entebuluh hamlets	Illegal logging business people	Hill and lowland forests
2003	Former logging road from Empaik to lake area, widened and improved	Illegal logging business people, based on community of Empaik requests	Lowland and swamp forests
2003	From Libung intersection to Sungai Seabai	Illegal logging business people	Small rivers (blocked), pristine forests of Betung Kerihun National Park, 6 km into park
2003–2004	From Tangit II and Tangit IV to Sungai Senunuk, to illegal logging port in Geraji Lake	PT Plantana Razindo	Lowland and swamp forests
2003–2004	From Seriang to Wong Panjai and Batu Kaya, Malaysia	Illegal logging business people	Hill forests
2004	From sawmill at Guntul down Guntul watershed, Nanga Jabang, Senunuk watershed, to Tembawai Galang (also known as Padang Bilun)	Illegal logging business people	Hill and lowland forests
2004	Road intersection before Payak Encawit to Sungai Luar, Peninjau I and II hamlets	First built by PT Yamaker up to Sungai Luar, and continued by illegal logging business people up to Peninjau I and II	Hill and lowland forests
2004	From Lanjak to Tekalong and Bejabang	Kapuas Hulu government	Hill and lowland forests
2004	From Sungai Santak in Manggin hamlet, crossing over Leboyan River	Kapuas Hulu government	Hill and lowland forests
2005	From Kelawik stretching into Batu Peti hill forest to edge of BKNP	Illegal logging business people	Hill forests
2005	From Sumpak Layang north, crossing hills that border Indonesia and Malaysia	Illegal logging business people	Hill and lowland forests
2007	From Empaik to Sungaitembaga	Kapuas Hulu government	Lowland and swamp forests
2007	From Bejabang to Kedungkang	Kapuas Hulu government	Lowland and swamp forests
2002–2007	Lorry trails and bicycle trails, from logging camps in hamlets to main roads	Illegal logging business people	

Destructive equipment and techniques. Many experts, including Dudley (2000) and community figures, had warned that using nylon *warin* nets would become serious threats to fish resources in DSNP. Fishing equipment used regularly by communities in DSNP include *jermal warin* (a pocket net) and *bubu warin* (a kind of trap), *empang putus* (gill nets that block main rivers), poison, electricity, and *jermal karam kemarau*. *Warin* are fine-mesh nylon nets with a mesh spacing of less than 0.5 cm; these nets are responsible for dwindling fish numbers in lakes because they can catch up to 100 kg at a time and do not discriminate between adults and juveniles. Villagers frequently use *warin* not only for catching fish for their own consumption and for sale, but also for catching food for the giant snakehead fish, a voracious carnivore. Unsurprisingly, fishing communities in Tekenang, Semangit, Genting and Pulau Majang hamlets blame current diminishing fish catches on people rearing giant snakehead fish in cages.

Other problematic ways of catching fish are *empang putus* and *jermal karam kemarau* (funnel nets). Both are installed at the end of the dry season, to catch fish that come from upstream to their spawning grounds in lakes and rivers as they begin to flood. These nets reduce populations by preventing fish from reaching their spawning grounds. Fish trapped include large, high-value species, such as *kelabau* (*Osteochilus melanopleura*), *lais bangah* (*Micronema micronemus*), *tapah* (*Wallago leeri*) and *tengalan* (*Puntiplites bulu*).

Fish reproduction is also hindered by increasing areas of swamp forest clearing. The roots of swamp trees constitute hatcheries and shelter for such high-value species as *belida* (*Chitala hypselonotus*), arowana (*Schleropages formosus*⁵) and *patik* (*Hemibagrus olyroides*).

Chemical poisons and electric current. Before chemical poisons were introduced, there were no reports of fish kills. Communities in and around DSNP traditionally used natural poisons made of sap from the roots or stems of plants such as *tubai rabut*, *tubai benang*, *tubai dilah bayak*, and *tubai buah*. These substances were originally used by ethnic Iban Dayaks to deter plant pests in their shifting cultivation systems but have also been used periodically to catch fish for home consumption.

Natural poisons would be applied on a single day when the water in rivers and lakes began to dry, usually around June. Poisons were applied by groups and involved customary rituals passed down from generation to generation. All families in the longhouse as well as people from other hamlets would be invited. Catches were used for family food needs and not for sale. Natural poisons were effective for only 4 km downstream. The fish would not die but be stupefied or have blurred vision. If not caught, fish would generally recover within 10 to 12 hours, though a small number would die.

The chemical poison often used today is potassium cyanide, which is far more potent and kills all fish. A number of cases of fish kills are also thought to have resulted from wood preservation chemical compounds used on ramin wood transported along waterways. The effects last for years, since fish avoid places affected by chemical poisons, which may settle in the mud at the bottom of the water. The fish killed by

5 There is taxonomic dispute over the name of this species. Some refer to it as *Scleropages legendrei*, a new name proposed by Pouyaud et al. (2003).

chemical poisons are quick to rot, with pale gills and a strong smell.

One of the most serious chemical poisonings in DSNP occurred in 1990, when the chemical endrin was used in the Seriang watershed, causing the death of 23 arowana parent stock fish whose value at that time was US\$ 570 each. The poison was purchased in shops in Lubuk Antu.⁶ Costly losses occurred again in 1994, when villagers poisoned the Seriang, Lawah, Sentarum and Tawang watersheds with potassium cyanide. All the *toman* (giant snakehead fish, *Channa micropeltes*), *betutu* (marble goby, *Oxyeleotris marmorata*) and *jelawat* (mad barb fish, *Leptobarbus hoevenii*) in cages in Pulau Majang, Lawah, Bukit Tekenang and Pengembung died. In 2006, the Seriang watershed was poisoned again, causing the deaths of caged giant snakehead and mad barb fish in Pulau Majang, incurring total losses of US\$ 21,700–32,600.

Giant snakehead fish cage culture. The environmental implications of culturing this food fish in wooden cages have been recognized for many years (e.g., Dudley 2000; Wadley et al. 2000). The species is carnivorous and can be quite fierce; the cage owners feed them with small fish freshly caught from the lake. One 1.5-by-1.5-by-2-m cage usually holds around 100 giant snakehead fish, which require 30 to 100 kg of food per day. If given insufficient food, the fish inside the cage will cannibalize each other.

Although expensive to rear, giant snakehead fish are still the most popular species raised in cages because they are a tolerant species and can adapt to low oxygen levels in water by taking oxygen from the air; mad barb fish would die. They also grow quickly and can reach marketable size in 10 to 12 months, as opposed to three years for mad barb fish. Rearing giant snakehead fish in cages is a sort of savings account and a hope for survival in DSNP as these fish are ready to sell after they reach around 1 kg in weight.⁷

The giant snakehead fish's huge food requirements push fishing communities to use *jermal warin* fishing platforms, which can catch fish of all sizes; large and small. With increasing numbers of villagers rearing giant snakehead fish, the population of wild fish has declined significantly. According to communities in DSNP, fish catches from the lakes have already fallen drastically and are now only just enough to meet daily needs.

Exploitation of high-value fish species. High-value fish include *kujam merah* (signal barb, *Labiobarbus festivus*), *ketutung* (shark minnow, *Balantiocheilos melanopterus*), *ringau* (tiger fish, *Datnioides microlepis*), *ulang uli* (clown loach, *Botia macracantha*) and arowana (Asian bonytongue, *Schleropages formosus*). The arowana commands the highest prices. Based on observations by fishers and local villagers, some high-value species have become very rare or even extinct in the wild in a short time; high prices without prudent harvest systems or breeding techniques can be serious threats to fish and other natural resources.

The signal barb, for instance, first sought in 1972 at a price of IDR 5–10 per fish (equivalent to IDR 1,800–3,600 in 2007), had become extremely rare by 1987 and was no longer fished. The shark minnow was valued at IDR 20–50 per fish (equivalent to IDR 3,600–8,900 in 2007) and became rare within approximately 20 years. Now, shark

6 Endrin is illegally traded in Lanjak and can be bought for US\$ 5/litre.

7 Giant snakehead fish growth depends on the species and amount of food. With enough food, giant snakehead fish grow to a weight of 1.2 kg in 10 to 12 months. With less food, it can take two years for a fish to weigh 1 kg.

minnow are no longer seen in the park.

The arowana is more valuable than other fish, and the super red strain in DSNP is the most valuable of all, because according to Chinese belief, they can bring luck and good fortune to their owners. Unsurprisingly, the main export destinations for this fish are China and other Far East countries. Arowana fishing began in 1982 and caused a drastic fall in the population in only 10 years. Meanwhile, demand continues to rise, causing prices to increase steadily year by year (Table 4).

Super red arowana are rare and nearly endangered in their natural habitat in DSNP, and are now found only around Meliau and Kenelang hamlets. Increasing scarcity in the wild and relatively stable high prices have motivated many villagers, particularly those in Suhaid and Selimbau, as well as people in large cities outside DSNP, to learn super red arowana breeding techniques. Since then, distributors and importers have bought super red arowana from breeders at current prices of around IDR 3 million to 5 million for one 4–5-cm fingerling, and more than IDR 30 million each for mother fish. Prices are determined by shape, color, scales, body shape and flawless eyeballs.

Another high-value fish is the clown loach, an ornamental fish that became popular in the aquarium trade in 1993. Prices per fish were IDR 50–200 from 1993 to 1997, IDR 400–800 in 1997–2001, and IDR 800–1,200 in 2008–2009. Though not particularly expensive, it is caught in huge quantities in season – around 100 fish per day per household. In contrast to other fish species, the clown loach has not experienced a significant fall in catch, and harvest levels remain relatively stable.

The clown loach lives in Kapuas River and enters the park only to spawn, then returns to the river. The fish is usually caught when it enters the park during the seasonal flood or in the change from flood to dry season between December and April. The fact that they are caught for only several months of the year is presumed to help, but if prices do rise sharply, it is not inconceivable that the clown loach will decline.

Marble goby, tiger fish, tapah catfish, belida, and mad barb fish are regularly sold illegally to Malaysia through the Badau–Lubok Antu border crossing. Selling prices are higher in Malaysia than Indonesia, and transport is relatively easy, thus encouraging illegal trade.

Tiger fish have been traded for many years but the price was never high. They were an incidental by-catch when people caught clown loach, and the number of tiger fish caught was only 20 to 30 per catch. However, in late 2009, the price increased six times, from US\$.05 to US\$.35 per fingerling, and the number in each night's catch increased to 50 and as many as 300 fingerlings. This encouraged people to target tiger fish specifically, even by using *warin* nets. Some people were able to earn US\$ 100 per night from catching and selling tiger fish.

As with other natural resources in the park region, many valuable fish species have become endangered or even extinct in the wild because of overexploitation. Decisions and management of natural resources are largely driven by market prices and competition over the open-access resources. The government and local people have made few, if any, attempts to protect the resources in the wild or cultivate them.

Introduction of nonnative fish species. The shrinking catches in DSNP have encouraged villagers to develop fish aquaculture, sometimes rearing nonnative species.

Table 4. Prices for arowana hatchlings from DSNP

Year	Price per hatchling (5 cm)			
	Minimum	Maximum	Minimum	Maximum
1982-1985 ⁱ	IDR 3,000	IDR 25,000	US\$ 2	US\$ 14
1986-1989 ⁱ	40,000	175,000	22	97
1990-1991 ⁱⁱ	300,000	1,250,000	136	568
1991-1992 ⁱⁱ	1,250,000	2,500,000	568	1,136
2004-2005 ⁱⁱⁱ	4,800,000 ^v	5,000,000 ^v	516	538
2006-2007 ^{iv}	1,500,000	1,600,000	150	160
2008-2009 ^{iv}	1,700,000	2,000,000	190	200
Dec 2009 ^{iv}	2,200,000	2,200,000	220	220

Source: Interviews with arowana farmers.

i US\$1 = IDR 1,800

ii US\$1 = IDR 2,200

iii US\$1 = IDR 9,300

iv US\$1 = IDR 10,000

v Using Indonesian rupiah, the highest price was in 2004–2005. But converted into U.S. dollars, the highest price was in 1991–1992. The high 2004–2005 price was caused by high demand, disappearing stock from the wild and only a small number of arowana farmers.

The introduction of nonnative species, particularly those that could be invasive, may lead to the extinction of DSNP's native and endemic species.

White and yellow silver catfish⁸ were reared by residents in the hamlets of Piasak, Nibung, Lupakmawang, Mawan, Bekuwan and Genting from 1999 to 2001. Fingerlings were brought from Pontianak by local businesspeople in Suhaid and sold to residents for US\$.05–.07 (IDR 800–1,000) each. In 2000, several people in Pungau, Pegah, Genting and Sekulat began rearing African catfish (*Clarias gariepinus*). Local fishers obtained fingerlings from fish traders who came to DSNP to buy giant snakehead fish, which they would take from Danau Sentarum to sell in the cities of Sintang and Pontianak. However, most African catfish in cages failed to survive. In 2003, a businessman from Suhaid brought more African catfish fingerlings from Pontianak and sold them for IDR 500 each. At first they were reared by people in Genting, and later in Sekulat, Semangit and other villages. Now only Semangit continues to rear this fish.

Beginning in 2006, people in Suhaid bred red-bellied pacu fish (*Colossoma macropomum*), a nonnative species, fingerlings of which were bought from the Fry Production Hatchery (BBI) in Anjungan, a small town near Pontianak. In the same year, the governor visited DSNP and distributed silver catfish fingerlings free to people in Tekenang; after several weeks all the fish had died. But villagers in Sekulat succeeded in

⁸ The scientific names for these catfish could not be determined because no individuals survived.

rearing silver catfish and selling them in Lanjak. According to villagers, the silver catfish handed out by the governor in Tekenang were nonnative species, whereas those reared in Sekulat were the local yellow silver catfish species.

The dangers of introducing nonnative species to DSNP have yet to be researched, but we can learn from studies in other locations and other countries. Released into the wild, the African catfish can be an invasive species that threatens local species with its feeding habits, rapid reproduction, and ability to live in dirty water (Barua et al. 2000; Vitule et al. 2006). In Bangladesh, for example, the African catfish is one of the most disastrous invasive species because it has crowded out so many local species.

In late 2009, we found the South American apple-snail (*Pomacea canaliculata*) in Sekawi lake and Lupakmawang village. The snail lays its eggs on aquatic plants and the hulls of boats, and in this way spreads to other places quickly. It is one of worst pests to paddy and other crops in many places in Indonesia and therefore could threaten paddy and crop gardens in the DSNP area. The people of Lupakmawang said that the first specimen was brought by a Javanese Sintang resident who married a local woman. We also found that some people in this hamlet rear apple-snails in nets, for food.

The introduction and keeping of nonnative species is prohibited in conservation areas under Act No. 68/1998 Article 44, and violators can be charged under the law. However, law enforcement has risks and can be construed as violating a community's rights to make a living.

Even though DSNP and the Kapuas River have native fish species in addition to giant snakehead fish with high economic development potential, we found three underlying reasons for the introduction of nonnative species. First, the government and local people (like some international agencies) do not fully understand the risks of introducing nonnative species. Second, the government's fishery development program, including the fish fingerling subsidies, like many other agricultural and fishery programs in the country, is determined by the central government and therefore uses species common in Java. The selection of species is also often driven by the supplier companies that successfully lobby the government or win contracts. Third, many local people consider imported species more modern and developed. These reasons are linked and continuously happen.

Gold Mining

Gold mining in the protected area is often categorized as *pertambangan emas tanpa ijin* (PETI, illegal gold mining). In our view, however, whether it is legal or illegal, mining threatens the ecosystem and the health of local people. Two major factors make gold mining possible: investors and buyers, and permits from local government (which, in fact, does not have authority to grant mining permits).

Gold mining in Pengerak hamlet, in the Jongkong subdistrict, began in 1995 with a 200 m² area approximately 18 m deep at the foot of Semujan Hill, operated by an investor from Sarawak who had secured a permit from the Kapuas Hulu district head. The mining site is 2 km from the shore of the lake. The owner of the area, an elderly woman, received a monthly royalty of US\$ 300 from the investor, whether or not any gold was found. Conflict between the villagers and the project stopped the operation, but

in 2004, people began mining in the same location with an investor from Sintang district. Gold mining ceased in July 2005 and resumed in May 2006, stopping temporarily during the dry season. The miners had no license from the Kapuas Hulu District Mining and Environment Office, only a permit from the head of the village and head of the fisher association.

Gold miners also operated in the Kantukasam and Sungaikantuk regions in 1998–1999 and dumped the tailings into the Empanang and Batang Tawang rivers. In 2006, miners operated in the Sungai Sedampak, Sungaitelian, and Martanjung regions (which had been mined in Dutch colonial times), and the tailings flowed into the Telian River and then on to the Majang River. Though the community tried to prevent tailings from entering the waterways, damage still occurred. Trees within a 500 m radius of the mining site died, presumably from mercury. Other hamlets with waterways connected to the mining site also became worried about the effect on fish and people if the lakes were contaminated with mercury. Despite the well-known danger of mercury contamination and other environmental consequences of gold mining, no significant action to stop the activities has been undertaken either by the DSNP authority or the district government.

Forest Fires

Forest fires break out almost every dry season in Danau Sentarum. People use fire for various purposes: clearing land before planting rice, vegetables and rubber; clearing water hyacinth from rivers; clearing plants from river shortcuts; and cooking in the forest. In some hamlets that have disputes over boundaries, the people use fire for burning *tikung* (artificial bee hives) placed in their forest by trespassers. Fires also ignite from discarded cigarette butts and lightning strikes. When winds fan the flames in hot, dry conditions, the fire can spread out of control. The most serious wildfire occurred in 1997, when the El Niño cycle lengthened the usual three-month dry season to seven months. The most difficult fires to extinguish are in peatland, which burn below the surface; the fire can spread easily to surrounding trees and peat fields when the wind blows.

One consequence of the 1997 forest fire was the loss of wild bee honey production, which resumed only in early 2000. Annual production of wild bee honey in DSNP was around 20–25 tons per group of gatherers, at an average price of IDR 15,000 (US\$ 1–2) per kg. Consequently, losing honey production in 1998–1999 has caused losses of US\$ 67,000 to \$84,000⁹ per group. These losses do not include unquantifiable damage to ecosystems and other intangibles.¹⁰

Population Growth

DSNP has both permanent and seasonal populations. In 10 years, the total population increased by 55 percent, from around 6,500 in 1997 (Aglionby 1997) to

⁹ During 1998–1999 the exchange rate fluctuated abruptly, with US\$ 1 ranging between IDR 7,800 and 10,200.

¹⁰ There are more than 30 groups of wild bee honey gatherers in Danau Sentarum. Annual production per group varies widely.

10,104 in 2007 (Indriatmoko, this volume), as detailed in Table 6.

This growth comes primarily from the increasing number of seasonal migrants, some arriving on their own initiative, others invited by relatives in DSNP; in addition, more seasonal migrants are becoming permanent settlers. Between 2005 and 2009, the annual population increase in several villages was 1.99 to 19.06 percent (Selimbau Subdistrict Office 2009).

Table 5. Large dry-season wildfires in DSNP

<i>Year</i>	<i>Area (ha)</i>
July 1973	5,483
August 1990	9,045
January 1994	11,105
May–June 1997	18,905

Source: Dennis & Kurniawan (2000).

Table 6. Permanent and seasonal settlements and population in DSNP, 1997–2007

<i>Year</i>	<i>Settlements</i>			<i>Population</i>		
	<i>Permanent</i>	<i>Seasonal</i>	<i>Total</i>	<i>Permanent</i>	<i>Seasonal</i>	<i>Total</i>
1997	33	6	39	—	—	6,500
2007	37	6	43	9,478	626	10,104

The migrants come from the larger, surrounding villages of Selimbau, Lanjak, Suhaid, Semitau, Jongkong and Badau during the dry season to catch fish, stay in several smaller hamlets, then return to their homes at the beginning of the flood season. Permanent settlement began with the onset of fish trading in Saka Jongkong in 1992. Beginning in 1998–1999, immigrants settled to tend their fish cages, which need daily feeding. As temporary shelters become permanent settlements, the number of inhabitants continues to grow. In the last few years, seasonal fishing families have come not only from neighboring subdistricts, but also from Sintang, Sambas and other regions. If they marry locals, their families often visit, and some of them become permanent residents as well.

The growing number of people entering and settling in DSNP is one of the main causes of declining availability of the resources, and one of the greatest threats to the sustainability of its ecosystems through reciprocal means. The growing population has increased pressure on natural resources and space for living. Traditional resource management cannot meet the needs of the park's ever-growing population, or people's

desire for modernization and development, even though Western lifestyles are not entirely replicable in this rural context. Many immigrants ignore traditional values or do not recognize or acknowledge customary rules; they come into the park looking for income and may exploit resources for personal gain.

Unintended Consequences and Contradictory Policies

Government policies and programs have constantly bedeviled DSNP management. Some examples of the policy and program, including direct and indirect relation with ecosystem degradation are described below.

Fertilizer and pesticide aid. Government policy to support community economic development through agriculture frequently fails to consider the environmental consequences. It is not clear whether government officials are unaware of the effects or simply do not want to know. For example, in 2007, the Kapuas Hulu District Agriculture Office provided aid packets in the form of hybrid plant varieties (*bibit unggul*), chemical fertilizers, and pesticides to communities at the foot of Bukit Semujan. According to staff from the district agriculture office, the aid packets came from the central government and had to be distributed, even though hybrid varieties, chemical fertilizers, and pesticides could conflict with the aims of conservation.

Dam construction plans. Government officials have often put forward plans to dam Danau Sentarum. In January 1995, during a workshop on development of Danau Sentarum Nature Reserve, the Ministry of Public Works announced its desire to dam Danau Sentarum with funding support from the Japanese government. Later, in 2003, during the West Kalimantan World Environment Day celebrations in Lanjak, the governor of West Kalimantan reiterated the idea to dam Danau Sentarum, "...so it doesn't dry out, and fish can continue to reproduce." This environmentally detrimental development plan was actually proposed during the ceremony to formalize Kapuas Hulu District's status as a conservation district, in front of the Deputy Minister of the Environment. The proposal's backers did not realize that Danau Sentarum, like many wetlands, naturally dries during the dry season and that the local plants, animals and people are adapted to the phenomenon. In long dry seasons, the lakes in the park can dry out completely. Damming Danau Sentarum could have drastic detrimental effects on water quality, hydrology functions, fish populations and local people's income and health (Yuliani et al. 2007).

Lack of consideration for social impacts. Some well-intended programs have backfired because they failed to consider the social aspects. For example, government and NGO reforestation and rehabilitation programs that focused on hamlets with burned or degraded forests created an incentive for hamlets with intact forests to cut and burn their forests so that they could get help, too (Box 1). Such reactions were also reported by Prasetyo (2008). Programs that are intended to fix a problem end up causing more damage because of envy and misinterpretation. Just as when the government provided rubber hybrid varieties, many people cut trees and burned their land to become eligible for the assistance. These examples suggest a need for better understanding of local people's perceptions and better communication between agencies.

Another example of community resistance to ecosystem protection efforts

Box 1. Perverse Incentives

In 2001–2002, Riak Bumi, a local NGO working with the Kapuas Watershed Management Agency, and local communities planted trees that are important food for bees in areas that had been affected by forest fires. Plants that provide sources of nectar and pollen for honeybees had become scarce, reducing harvests of forest honey. The aim was to reforest bare areas with *putat* and *masung* trees, two species that increase forest honey production and benefit local communities, for whom honey is the second most important source of income, after fish.

Similar reforestation projects were undertaken in some hamlets in Danau Sentarum under a national program. Called GERHAN, this Ministry of Forestry program aimed at rehabilitating critical land and degraded forest. In April 2006, 250 families in each of two villages were given 125,000 *omat* (grafted) rubber seedlings, 18,000 stink bean (*Parkia speciosa*) seedlings, 30,000 jack (*Peronema canescens*) seedlings and 12,000 agarwood (*Aquilaria* spp.) seedlings. The government provided hybrid varieties especially for villages whose land was categorized as burned over, degraded, or non-forested. During in-depth informal discussions, we discovered that most villagers had burned their forests just to secure seedlings from the district government.

involves conservation projects, rules, and research that have no benefits (or appear to have no benefits) for local communities. As a region with extremely high levels of biodiversity, the park was designated a Ramsar site, making it important on the international level and attracting many researchers from Indonesia and overseas. Many people living in the park, however, do not know why there are so many conservation projects or see any benefit in the research. Some believe that making the park a conservation area limits their activities.

Many community members are unclear about the different roles played by NGOs and government and frequently confuse them. On one occasion, villagers vented their anger on a team of NGO researchers, thinking they represented the government after an official had let them down. Communities rarely understand what NGOs actually do. They are unsure why community facilitation takes place in some hamlets but not in others, leading to social resentment. Confusion over the projects and roles of different organizations and their impact on communities makes them suspicious and reluctant to participate. This is a significant constraint to the success of conservation programs designed for collaborative management with communities as major actors.¹¹

¹¹ The Danau Sentarum National Park Management Plan (RPTN-DS) was prepared in 2006–2007 with the participation of local communities, NGOs and research organizations. The West Kalimantan Natural Resources Conservation Agency (BKSDA) was originally responsible for preparing the management plan, but later delegated the task to the park authority. Participatory preparation methods were designed by Riak Bumi, Yayasan Titian, Unit Koordinasi Kalbar (UKK), CIFOR and Tropenbos. The park authority has a commitment to apply a collaborative management model.

Regional fragmentation and “development” policies. Since 2006, several fishing hamlets have been granted permanent village administrative status, and there are plans for establishing a new subdistrict in the region. This is part of a government decentralization policy called *pemekaran* (establishment of new provinces, districts, subdistricts, and villages). As a consequence, some temporary fishing settlements inside the park have formal status as permanent settlements.

The communities hope the provision of village and subdistrict status within the park will improve their welfare, and expect the government will build public facilities such as schools, community health centers, and administrative offices. Interviewing local elites, we also found that the new village and subdistrict status was also motivated by their personal interests: they expect to become heads of villages or subdistricts, or members of a local legislative assembly, which will increase their social status and entitle them to some financial benefits.

In most cases in Indonesia, regional fragmentation has led to overexploitation of natural resources, with less evidence of any improvement in local people’s welfare, except for the elites. On the one hand, development of public facilities, especially inside protected areas, could help improve well-being. On the other hand, it would spur rapid growth in the number of park residents and associated demand for space and natural resources. Conservation NGOs, scientists and other external actors who would encourage prohibition of the establishment of villages and a subdistrict inside the park should reconsider and communicate carefully to avoid giving the impression that human interests come second to conservation.

Rising fuel prices. Rising and highly inflated global fuel prices have had a huge impact on community economies in many rural places in Indonesia, including in DSNP, and become an indirect cause of deforestation and natural resource overexploitation. In DSNP, the main fuel requirement is for river transport, consisting of outboard motors, speedboats, and motor boats for fishing and for traveling between hamlets, to school and to surrounding towns. Community members also need fuel to run household electricity generators.

Fuel prices in and around DSNP, as in other remote areas in Indonesia, are higher than the government standard. In places that rely on water transport, access becomes even more difficult during the dry season, and causes fuel prices to rise higher than in the rainy season.

The Government of Indonesia raised fuel prices three times between 1 March 2005 and 24 May 2008. When prices fell again, retail prices in DSNP remained at their peak levels (Table 7).

Fuel prices rose dramatically on 1 October 2005. By 2007, the average family in Sungai Palaik was spending IDR 51,300 a day, or IDR 1,540,000 a month—68 percent of their income—on fuel (Table 8), which left only 32% for food and other needs, such as education and health. This figure does not include fuel for cooking because park inhabitants have switched from kerosene to firewood.

To balance the rising expenditures on fuel, local people are developing community rubber estates and increasing their fish catches, both of which have a negative effect on the park’s ecosystems, as explained earlier. The high price of kerosene has also

Table 7. Government standard and prevailing DSNP prices for fuel (in IDR)

	<i>Premium petrol*</i>		<i>Kerosene</i>		<i>Diesel oil</i>	
	<i>Government standard</i>	<i>Average in DSNP</i>	<i>Government standard</i>	<i>Average in DSNP</i>	<i>Government standard</i>	<i>Average in DSNP</i>
Before 28 Feb 05	1810	2500	1800	2000	1650	2500
1 Mar –30 Sep 05	2400	5000	2200	3500	2100	5000
1 Oct 05–23 May 08	4500	7500	2000	5000	4300	6500
24 May 08–29 Nov 08	6000	8000	2500	6000	5500	8000
1–14 Dec 08	5500	7500	2500	6000	5500	7500
15 Dec 08–14 Jan 09	5000	8000	2500	6000	4800	7500
15 Jan 2009–Aug 09	4500	8000	2500	6000	4500	8000

* In DSNP, petrol is mixed with oil.

intensified demand for firewood, which often means cutting trees. In these ways, the increasing global and national fuel prices have led to deforestation and overexploitation of the fishery.

Institutional and bureaucratic challenges. A number of institutional and bureaucratic challenges contribute to ecosystem degradation and resource overexploitation in DSNP and surrounding areas. From 1999 to early 2007, the park was managed minimally by the West Kalimantan Natural Resources Conservation Agency (BKSDA). There were only three forest rangers, who worked without an adequate operational budget—they had a speedboat for patrols, for instance, but no budget for fuel. Consequently, illicit activities in the park, such as commercial logging, wildlife hunting, use of exploitative fishing equipment, and environmental damage, often went unnoticed. Moreover, the rangers' salary payments were often delayed up to 10 months. According to the agency, the staffing and budgets were all organized by the central government. The inadequate staffing and support may indicate the central government's level of priority for the conservation of DSNP.

Establishment of the park authority's Technical Implementation Unit (UPT) in February 2007 (Minister of Forestry Regulation No. P.03/Menhut-II/2007) did not immediately mean better protection of the DSNP ecosystem. In 2008, the operational budget for the park authority, as well as many other government offices, was reallocated by the central government for fuel price subsidies. Another problem associated with the national bureaucracy system is the recruitment and placement system. The well-intended effort to devolve and decentralize responsibilities and develop collaboration with stakeholders, including local communities, faltered because the staff was not sufficiently trained and knowledgeable. Of the 38 staff appointed to work in the DSNP authority, only two come from the area and know its biophysical and social conditions. In addition, internal power struggles among midlevel staff have often hampered the progress of park programs and the effectiveness of its management.

Table 8. Household fuel requirements in Pelaik hamlet

	<i>Fuel</i>	<i>Price per liter (IDR)</i>	<i>Cost (IDR)</i>
Buying everyday needs, selling fish and rubber in Semalah	5 litres of petrol a day	8,000	40,000 a day 1,200,000 a month
Lighting (kerosene lamps)	1 litre of kerosene a night	6,000	6,000 a day 180,000 a month
Traveling to Lanjak to visit children at school, deposit money, go shopping, receive health care	20 litres of petrol a month	8,000	5,300 a day 160,000 a month
Total per household*			51,300 a day 1,540,000 a month 68% of average income**

* Sometimes several members of different families travel together and share costs, so it is difficult to determine exactly how many people travel, their destinations and the amount of fuel used. The main sources of these comparatively high incomes are rubber and fish.

** Source of average income data: Indriatmoko (this volume).

Conclusions and Recommendations

Even though its surrounding areas are highly degraded, Danau Sentarum National Park and its buffer zones still have many natural riches – resources that many people want to use and exploit. Community-level decisions on land use and natural resource management systems are often based on traditional and customary rules or community-based income-generating activities, particularly in communities that have lived in DSNP for decades. However, many people are now attracted by the opportunities that regional fragmentation and illegal logging represent. Some others, particularly immigrants, base their decisions on short-term economic considerations, since they have come to DSNP to make a living.

Things are not so different at the district and central government levels. Power, short-term economics and the interests of investors are the main considerations in policy making. Spatial planning at the national, provincial and district levels generally ignores the functions and long-term benefits provided by ecosystems. The conservation and preservation of forest, wetland, and other ecosystems are never priorities.

Conservation programs, be they action or research, should be designed to provide real benefits for communities who have protected their forests. Methods and approaches should be designed to build self-motivation and self-organization among communities and other stakeholders so that the programs can continue without depending on external input or intervention. Another urgent need is local income-generating activities

compatible with the principles of conservation. Programs appropriate for DSNP include ecotourism and community arowana development. Local communities should be made aware that introducing nonnative species can endanger their resources and that culturing nonnative carnivorous species, such as the African catfish, will cause the same problems as keeping giant snakeheads. Production of local species should be encouraged.

Communication and relations between the park authority and the Kapuas Hulu district government need to improve so that the former's collaborative management concept and the latter's conservation district designation can be mutually supportive. For conservation and community welfare to coexist and be mutually reinforcing, key stakeholders must develop their knowledge and capacity to understand and carry out conservation efforts, collaborative management and proconservation income-generating activities. Other important issues are law enforcement and sanctions for violations, integration of customary law and local rules in formal regulations, and a larger role for communities in park supervision and law enforcement.

Acknowledgements

The authors wish to thank the donors, the Ford Foundation and the EU-funded Gemconbio Project for their funding support, and our home institutions, Riak Bumi Foundation and CIFOR for their co-financing, technical and conceptual support. The views expressed in this article remain our personal views and do not necessarily reflect either the donors' or our home institutions' views. We also thank the local communities in and around DSNP, the Ministry of Forestry, Danau Sentarum National Park Authority, Kapuas Hulu District Government, Titian Foundation, WWF, Sawit Watch, Carol J. Pierce Colfer, Richard G. Dudley, Moira Moeliono, Terry Sunderland, Bruce Campbell, Doris Capistrano, Mohammad Agus Salim, Bagus Hargo Utomo, Yuan Oktafian, Sufiet Erlita, Fitri Heryani, Wiwit Siswarini, Rahayu Koesnadi, Dina Hubudin, Charlotte Soeria, Titin Suhartini, Suci Ningsih, Hari Sukmara, Henny Linawati, Ir. Soewignyo, Budi Suriansyah, Bambang Dahat, Jefri Irwanto, Yuyun Kurniawan, Seselia Ernawati, Jim Sammy, Zul MS, Andi Erman, Ade Mohammad Abas, Ade Mahadeli, Ade Bujani, Abdul Mu'in and all anonymous reviewers of this article.

References

- Aglionby, J.
1997 Database of social economic survey of Wetlands International project.
- Barua, S.P., M.M.H. Kha and A.H.M. Ali Reza
2000 *The Status of Alien Invasive Species in Bangladesh and Their Impact on the Ecosystems*. Bangladesh: IUCN, World Conservation Union.
- Dennis, R.A. and I. Kurniawan
2000 Tropical Forest Cover Monitoring in Indonesia. TREES II Project. Joint Research Centre and CIFOR.
- Dudley, R.G.
2000 The Fishery of Danau Sentarum. *Borneo Research Bulletin* 31:261-306.
- Erman, A.
2005 Investigation Report on Wildlife Trading; Orangutan and Lempiau

(*Hylobates* sp.) in the Border of Kapuas Hulu District, Indonesia and Sarawak Malaysia. Unpublished report. Pontianak: Yayasan Titian and Yayasan Riak Bumi.

- Giesen, W.
2000 Flora and Vegetation of Danau Sentarum: Unique Lake and Swamp Forest Ecosystem of West Kalimantan. *Borneo Research Bulletin* 31:89-122.
- Giesen, W. and J. Aglionby
2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.
- Hardin, G.
1968 The Tragedy of the Commons. *Science* 13 162 (3859):1243-1248.
- Jeanes, K.
1997 Guidelines for Conservation Management: Danau Sentarum Wildlife Reserve, West Kalimantan. Pontianak: Directorate General of Forest Protection and Nature Conservation of Indonesia Ministry of Forestry, Overseas Development Administration (ODA), Wetlands International Indonesia Programme (WIIP).
- Jeanes, K. and E. Meijaard
2000a Danau Sentarum's Wildlife Part 1: Biodiversity Value and Global Importance. *Borneo Research Bulletin* 31:150-229.
2000b Danau Sentarum's Wildlife Part 2: Habitat Characteristics and Biodiversity Contribution. *Borneo Research Bulletin* 31:230-245.
- Kompas
2008 Produksi CPO Kalbar Turun (CPO Production from West Kalimantan is Declining). 24 November.
- Martinez, O.J.
1994 The Dynamics of Border Interaction: New Approaches to Border Analysis. In: C.H. Schofield, *Global Boundaries, World Boundaries*, Vol. 1. London: Routledge.
- Pouyaud, L., [N]. Sudarto and G.G. Teugels
2003 The Different Colour Varieties of the Asian Arowana *Scleropages formosus* (Osteoglossidae) are Distinct Species: Morphological and Genetic Evidences. *Cybium* 27 (4):287-305.
- Prasetyo, L.B.
2008 Is Funding for Conservation on the Right Track? Some Ideas for Improvement. Paper presented at International Association for the Study of the Commons conference, Cheltenham, UK, 14-18 July.
- Russon, A.E., A. Erman and R. Dennis
2001 The Population and Distribution of Orangutans (*Pongo pygmaeus pygmaeus*) in and around the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. *Biological Conservation* 97:21-28.
- Sawit Watch
2005 4,3 juta ha lahan untuk sawit terlantar (4.3 Million Hectares for Abandoned Oil Palm Estate). Bogor: Sawit Watch.

- Sebastian, A.C.
2000 Proboscis Monkeys in Danau Sentarum National Park. *Borneo Research Bulletin* 31:359-371.
- Selimbau Subdistrict Office
2009 Selimbau demography data. Selimbau Subdistrict Office.
- Sunderlin, W.D. and I.A.P. Resosudarmo
1996 Rates and causes of deforestation in Indonesia: towards a resolution of the ambiguities. *CIFOR Occasional Paper 9 (E)*. Bogor: CIFOR.
- van Balen, S. and R.H. Dennis
2000 Birds of Danau Sentarum. *Borneo Research Bulletin* 31:336-358.
- Vitule, J.R.S., S.C. Umbria and J.M.R. Aranh
2006 Introduction of the African catfish *Clarias gariepinus* (Burchell, 1822) into Southern Brazil. *Biological Invasions* 8:677-681.
- Wadley, R.L. and M. Eilenberg
2005 Autonomy, Identity, and “Illegal” Logging in the Borderland of West Kalimantan, Indonesia. *Asia Pacific Journal of Anthropology* 6 (1):19-34.
2006 Vigilantes and Gangsters in the Borderland of West Kalimantan, Indonesia. In: A. Horstmann (ed.), *State, People and Borders in Southeast Asia*. Special Issue of *Kyoto Review of Southeast Asia* 7.
- Wadley, R.L., R.A. Dennis, E. Meijaard, A. Erman, V. Heri and W. Giesen
2000 After the Conservation Project: Danau Sentarum National Park and its Vicinity – Conditions and Prospects. *Borneo Research Bulletin* 31:385-401.
- West Kalimantan Fisheries Office
no date 2006 West Kalimantan Fisheries Data. In: *West Kalimantan Online Statistics*. <http://kalbar.bps.go.id/tabel/Tabel%206%20ikan.htm>.
- Yuliani, E.L., Y. Indriatmoko and V. Heri
2007 Apa yang Terjadi Jika Danau Sentarum Dibendung? (What Is Likely to Happen If Danau Sentarum Is Dammed?). *CIFOR–Riak Bumi Newsletter* 1(2).

6. RAPID HUMAN POPULATION GROWTH AND ITS IMPACTS ON DANAU SENTARUM

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In the past decade, Indonesia's protected areas have been threatened not only by illegal logging and mining, poaching, and other illegal activities, but also by the increasing population of the local communities. Many of these local communities depend on the natural resources of the protected areas. This paper presents the case of Danau Sentarum National Park (DSNP), where the human population inside the park has grown rapidly, and discusses the implications for the conservation area.

Protected Areas and Human Population Growth

Human population growth and associated resource demands correlate significantly with threats to biodiversity in protected areas (Soule and Sanjayan 1998; Dompka 1996; Tan et al. 2000). The World Conservation Union (IUCN) found that habitat loss affected 76 percent of all mammal species, and expansion of settlements, 56 percent. Logging and plantations affected 26 percent. IUCN considers human population growth to be the main cause of biodiversity loss (Hinrichson 1994).

Indonesia, well-known for its extraordinarily rich biodiversity, exemplifies the problem. This developing country has a high rate of poverty in rural areas, and most of its protected areas, including 50 national parks, are subject to pressure from human activity and exploitation of natural resources. Economic interests often dominate people's activities rather than sustainable use of natural resources or conservation interests. Research on population growth and rural dependence on protected areas' natural resources can inform management approaches to managing population growth while seeking a balance between conservation and local people's interests.

In the case of Danau Sentarum National Park, West Kalimantan, the protected area is facing rapid human population growth; the population increased 55 percent during the past decade, and this growth became one of the major threats to the park. Although the problem is recognized by park managers as well as local communities, the management authority has developed no policies to address the issue. Future management of the protected area will require a specific strategy for dealing with the rapid growth of its human population and the interaction pattern between human and natural resources.

Danau Sentarum Background and Demographics

Danau Sentarum National Park is located in West Kalimantan, Indonesia. It is an area of open lakes, seasonally flooded peat and freshwater swamp forest, and lowland

hill forest (Giesen 1996; Colfer and Wadley 1999; Dennis et al. 2000). Ninety-five percent of the area is inundated during the flood season, creating a network of rivers and lakes. During the dry season there is an average 12 m drop in water level (Adger and Luttrell 2000). Hills in the northern part of the park serve as a water catchment area, whose waters flow into rivers that feed the wetlands. Based on the management scheme proposed by Wetlands International, the catchment area is included as a buffer zone. However, agreement on the boundary of the buffer zone has never been completely reached (Wadley et al. 2000), and the area has suffered from illegal logging and conversion to oil palm plantations since 2000 and rubber plantations during 2006–2007 (Yuliani et al. 2008; see also Heri et al., this volume). The peat swamp forest and lakes have been home to 212 species of fish, including 2 globally threatened species (IUCN status), *Balantiocheilus melanopterus* (ketutung) and *Scleropages formosus* (Asian arowana), the latter listed in CITES Appendix 1 (Kottelat and Widjanarti 2005; Jeanes and Meijaard 2000); 26 reptiles, including 11 species globally threatened, 6 species listed in CITES Appendix II, 7 species nationally protected, and 1 species endemic to Borneo (Jeanes and Meijaard 2000); 282 birds, including 31 confirmed globally threatened, 36 CITES-listed species, 72 nationally protected bird species, and 5 confirmed Borneo endemics (Jeanes and Meijaard 2000).

Because of its hydrology and biodiversity, DSNP is one of the most important conservation areas in Indonesia. The 132,000-ha area was declared a national park in 1999 by the Indonesian Ministry of Forestry and Estate Crops (Decree No. 34/Kpts-II/1999). However, the park's technical management unit (Unit Pelaksana Teknis) was not formed until 1 February 2007, with Ministry of Forestry regulation No P.03/Menhut-II/2007. The technical unit management office is located in the town of Sintang, some four hours by speedboat downriver from the park.

Although remote, the area of Danau Sentarum has a long history of human settlement and exploitation (Wadley 2000; Colfer et al. 2000). As far back as 200 years, the wetlands area was already inhabited by various ethnic groups (Giesen and Aglionby 2000). Two major ethnic groups, the Iban and the Malay, live in and around the park and depend on its resources for their livelihoods (Aglionby 1996; Harwell 1997; see also their contributions to this volume). The Iban, who mostly live in traditional longhouses, occupy the uppermost area of the river basin and live on high land as shifting cultivators, planting rice and other crops (Wadley 1997). Although they also fish along the river and around the lakes, fishing is not their major livelihood. The Malays, on the other hand, are mainly fishers who reside downstream around the lakes and along the rivers (Wickham et al. 1997) and depend almost exclusively on fishing for their livelihoods. They are among the major fish producers in West Kalimantan, supplying 60 percent of the freshwater fish in the province. Current surveys indicate that, in total, 10,104 people inhabit the conservation area, in 43 settlements and villages (Indriatmoko and Abas 2007).

The human population inside DSNP is growing at a faster rate than that of most other protected areas in Indonesia. Data for the period 1990–1997 was recorded by the UK-Indonesia tropical forest management project. Aglionby (1997) counted 39 villages in or immediately adjacent to the park, having a total of about 6,500 inhabitants, of which about 85 percent were Malay, and the density of the park area was about five persons per square kilometer. The population of the park area appeared to have grown by

almost 40 percent during the 1985–1995 decade (Aglionby 1995).

As noted by Colfer et al. (2000), the Malay inhabit 34 of the 39 villages in or adjacent to the park, with a population numbering about 4,000 in 1990 and 5,500 in 1997. The Malay population increases by 20 percent during the fishing season (June–August), when families from the Kapuas River towns (Selimbau, Semitau, Nanga Suhaid, etc.) often join the local population.

From 1997 to 2007, no population data were collected, but the pressure of human activity increased, with minimal management from the authorities. In July–August 2007, CIFOR and Yayasan Riak Bumi (a local NGO) conducted a census in each village to update the demographic and socioeconomic data. The table below shows the total human population: 10,104, comprising 9,645 Malay and 639 Iban Dayak. Of the 44 villages, six were seasonal or temporary settlements (Radai, Japnila, Pengulun, Nanga Sentarum, Lubuk Liuk and Mukup Hilir).

Table 1. Human population and village numbers in DSNP, 2007

<i>Ethnic groups</i>	<i>No. of Villages</i>	<i>Households</i>	<i>Total Population</i>
Malay	44 (6 seasonal)	2411	9645
Iban Dayak	5	187	639
<i>Total number</i>	43	2598	10284

Source: field survey CIFOR and Yayasan Riak Bumi, July 2007

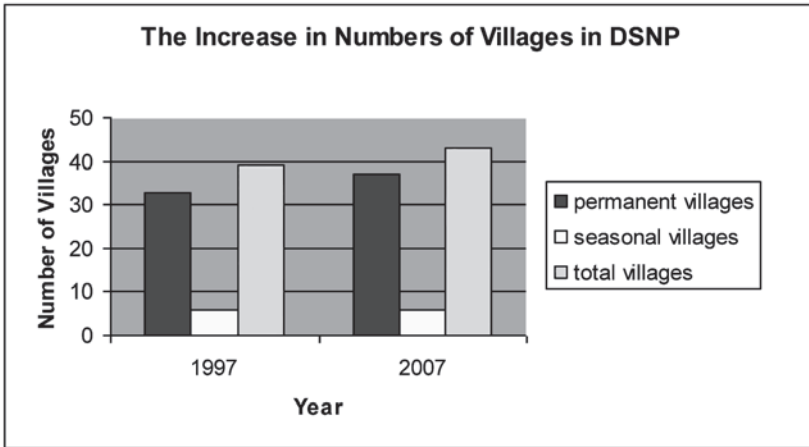
The human population in DSNP increased 58 percent during the decade 1997–2007, compared with the current national population growth rate of 1.3 percent yearly. Figure 1 shows the trends of the increasing human population in DSNP over time.

Beside natural growth, the Malay population also increased by migration from small towns along the Kapuas River near Danau Sentarum, as mentioned above. For example, Tekenang village in 2007 was inhabited by 17 households, which during the fishing season were joined by five or six additional families (each consisting of four or five people) from Selimbau. Some stayed in this village after the fishing season ended. Nanga Telatap has 21 households, joined by nine additional families in the 2007 fishing season. Semangit, with 80 households, was augmented by eight families (Heri 2008). The additional families increase the population of almost all Malay villages by approximately 10 to 20 percent. These villages maintain strong ties with larger Malay towns located along the Kapuas River (Selimbau, Nanga Suhaid, Semitau, etc.) and according to Wadley (n.d.) the subdistrict boundaries follow the old Malay fiefdom boundaries established by the colonial administration in 1880 (see Box 1 for the Nanga Leboyan case; this pattern applies to most Malay villages).

Consequences of Growth

Population growth has led to the establishment of new villages. Some seasonal settlements have become permanent, and new seasonal settlements have been established where none existed before. The trend is likely to continue into the future. Our survey in July 2007 found 37 permanent and six seasonal villages, up from 33 permanent and six seasonal ones in 1997. This trend has occurred only among the Malays; the Iban villages have remained the same. Figure 1 gives the comparisons.

Figure 1



Source: field survey CIFOR and Yayasan Riak Bumi, July 2007

The growing human population has put pressure on the natural resources. A study by the UK project in 1993-1997 indicated that natural resource exploitation levels appeared to be sustainable until about three to four decades ago. Since then the resource base has been eroding, with declining fish catches and forest area (Aglinby 1997). Further increases in a human population that is dependent on natural resources will increasingly threaten local conditions as people harvest resources unsustainably to meet their daily subsistence needs (Wickham 1997). The following cases illustrate the problem.

In 2006, after generations of local people had made their livelihoods primarily from fishing and wild honey production, some Malay villages began to clear forestland for agriculture, especially rubber plantations. The Malays of three villages – Nanga Leboyan, Pegah, and Terunis – developed rubber plantations on Bukit Semujan, to the east of DSNP. Pegah and Terunis also prepared land for rubber plantations for at least 155 households (Heri 2008). Before 2006, only eight households of Semalah were

Box 1. Nanga Leboyan

Nanga Leboyan is one of several large settlements in the estuary of Leboyan River in Danau Sentarum National Park. During the rule of the Selimbau Malay Kingdom, in the 18th century, the area of Nanga Leboyan was already important for its fishing and wild honey collecting. At that time, there were no permanent settlements; people would visit only during the fishing season. Old informants in this village recounted that during the Japanese occupation (1942–1945) there were five or six households from Selimbau who began to stay permanently, for security reasons. Their relatives from Selimbau then joined them and built houses. As of 2009, there were 137 households with 644 people.

engaged in swiddening, but by July 2007, more than 70 of the total 102 households had joined them, developing rubber plantations in the area of Semalah and Menyukung hill (Ernawati 2006). Pegah villagers also cleared land for rice on the hillsides of Semujan in 2005; they even received support from the district government in the form of seeds, fertilizer and agricultural tools, including pesticides. The decline in fish catches and associated income is the main reason the Malay villagers are searching for alternative livelihoods, and agriculture is one of the few choices. Diversifying into agriculture is one way the people of Danau Sentarum can compensate for decreasing incomes from fishing, but they have no strategy to solve the problem of rapid human population growth.

The communities noticed the population trend in the early 1990s (Dudley and Colfer 1993) and now recognize that rapid human population growth threatens this conservation area. One community leader attributed the decrease in the fish catch over the past decade to competition among villagers. Harianto, a community leader in Nanga Leboyan, said that the boats during the fishing season in his area numbered only 70 in 1987, compared with 130 in 2006. The decreasing fish catch has been followed by reductions in household incomes from the fishing sector in all villages (Indriatmoko and Abas 2008).

Local communities, both Malay and Iban, are the real managers of the natural resources in this protected area. They implement their local rules based on their customary laws. Each village has its own regulations (*aturan nelayan*) for its utilization area, most of which relate to fishing. Unclear boundaries and the mobile nature of fish in the rivers and lakes have created conflicts, particularly when the rules regarding fishing areas and fish catches are broken. Traditionally, the villages have their own mechanisms to resolve these conflicts (Yasmi et al. 2007). However, many of the immigrants during the fishing season are the villagers' own relatives, and thus it is difficult for them to enforce any regulations to limit the number of people.

The management unit of DSNP was established in 2007 and began developing a collaborative management plan with local communities and other stakeholders. The unit is also developing a database and statistics on the park and providing extension services about the park via radio. However, it has no clear strategy or approach for dealing with rapid human population growth inside the park.

There is an ambiguous response from the Kapuas Hulu district government. The district contains two big national parks, Danau Sentarum and Betung Kerihun, and since more than half the district territory is officially protected area and therefore under central government management, in 2003, Kapuas Hulu declared itself a "conservation district" by official decree of the district head (SK Bupati Kapuas Hulu Nomor 144 Tahun 2003). However, there is no clear and significant field implementation of the decree. District officials often express the notion that the conservation area status is a major constraint for development. The district government recognizes its responsibility to enhance the well-being of the people inside the park, yet the national park territory is under central government authority. This background has implications for the minimal role of local government in controlling human population inside the national park. In some cases district policies contradict conservation goals, as when the district government promotes the development of oil palm plantations and provides local communities with seeds and pesticides.

Conclusions and Recommendations

Danau Sentarum has experienced rapid human population growth with a more than 50 percent increase during the last decade. Consequences include depletion of the fishery and conversion of natural forest for swiddening and rubber plantations – threats that are additional to those reported in Heri et al. (this volume). Thus far, neither the park authorities nor the park management unit have made much effort to deal with this issue.

The national park needs to be zoned, based on a comprehensive study and proper consultation with local communities. Zoning could minimize unsustainable human activity in certain areas and thus protect important habitats. In Danau Sentarum, the main challenge in establishing zones will be building agreement with local communities, in a collaborative effort that also involves the management unit (as the representative of the central and district governments) and committed NGOs. Collaborative management of protected areas has now been authorized by a Ministry of Forestry regulation (No.19/ Menhut-II/2004).

The management unit of DSNP should be supported by sufficient funds. Financial support is always a problem for national park management in Indonesia. In the case of DSNP in 2008, funding from the central government covered only staff salaries, with nothing left over for programs to maintain a huge protected area facing serious threats – and among them the difficult problem of human population growth.

References

- Adger, W.N. and C. Luttrell
 2000 The Values of Wetlands: Landscape and Institutional Perspectives. *Ecological Economics* 35: 75-89.
- Aglionby, J.C.
 1995 Final report of the Associate Professional Officer (Environmental Economist) Volume I: Economic Issues in Danau Sentarum National Park. UK-Indonesia Tropical Forest Management Programme: Conservation.
- 1996 Laporan akhir petuga asosiat professional (ekonomi lingkungan) volume 1: Perihal ekonomi di suaka margasatwa Danau Sentarum. Indonesia-UK Tropical Forest Management Programme. Pontianak.
- 1997 Database of Social Economic Survey of Wetlands International project. Unpublished.
- Colfer, C.J.P. and R.L. Wadley
 1999 Assessing “Participation” in Forest Management: Workable Methods and Unworkable Assumptions. Working Paper No. 12. Bogor: CIFOR.
- Colfer, C.J.P., A. Salim, R. Wadley and R.G. Dudley
 2000 Understanding Patterns of Resource Use and Consumption: A Prelude to Co-management. *Borneo Research Bulletin* 31:29-88.
- Dennis, R.A., A. Erman, F. Stolle and G. Applegate
 2000. The Underlying Causes and Impacts of Fires in South-East Asia.

- Site 5 Danau Sentarum, West Kalimantan Province, Indonesia. Site report. Bogor: CIFOR.
- Dompka, V., ed.
1996 *Human Population, Biodiversity and Protected Areas: Science and Policy Issues*. Washington, DC: American Association for the Advancement of Science.
- Dudley, R.G. and C.J.P. Colfer
1993 Conservation Sub-Project Quarterly Report and Attachments (June). Bogor: Indonesia Tropical Forestry Management Project, Asian Wetlands Bureau/ PHPA
- Ernawati, S.
2006 Bertahan saat hidup makin sulit. In: Y. Indriatmoko (ed.), *Dari Desake Desa: Dinamika Gender dan Pengelolaan Kekayaan Alam*. Bogor: CIFOR.
- Giesen, W.
1996 Habitat Types of the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. Report for Wetland International Program (PHPA), Bogor.
- Giesen, W. and J. Aglionby
2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.
- Harwell, E.E.
1997 Law and Culture in Resource Management: An Analysis of Local Systems for Resource Management in the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. Indonesia-UK Tropical Forest Management Programme and Wetlands International Indonesia Programme.
- Heri, V.
2008 Tekanan terhadap ekosistem kawasan Taman Nasional Danau Sentaum. Project report. Bogor: CIFOR.
- Hinrichson, D.
1994 Putting the Bite on Planet Earth: Rapid Human Population Growth is Devouring Global Natural Resources. *International Wildlife* September/October. Available at <http://dieoff.org/page120.htm>.
- Indriatmoko, Y. and M. Abas
2007 Report of Social Economic Survey in Danau Sentarum National Park. Unpublished documentation.
- Kottelat, M. and E. Widjanarti
2005 The Fishes of Danau Sentarum National Park and The Kapuas Lakes Area, Kalimantan Barat, Indonesia. *Raffles Bulletin of Zoology Supplement* 13:139-173.
- Soule', M.E. and M.A. Sanjayan
1998 Conservation Targets: Do They Help? *Science* 279:2060-2061.

- Wadley, R.L.
2000 Warfare, pacification, and environment: Population dynamics in the West Borneo borderlands (1823 – 1934). *Mousson*, Vol.1
- Wadley, R.L.
1997 Circular Labor Migration and Subsistence Agriculture: A Case of the Iban in West Kalimantan, Indonesia. Ph.D. dissertation, Department of Anthropology. Tempe: Arizona State University.
- Wadley, R.L. . R.A. Dennis, A.Erman, V.Heri, E.Meijaard, and W. Giessen
2000 After the Conservation Project: Danau Sentarum National Park and Its Vicinity – Conditions and Prospects. *Borneo Research Bulletin* 31:385-401
- Wickham, T.
1997 Two years of community-based participation in wetland conservation. A review of the activities and challenges of the Danau Sentarum National Park Conservation Project, West Kalimantan, Indonesia. Indonesia-UK Tropical Forest Management Programme, Project 5 Forest Conservation. Wetlands International Indonesia Programme/Danau Sentarum Wildlife Conservation Project.
- Wickham, T., V. Heri and A. Juhur
1997 Results of a Rapid Appraisal of Seasonal Activities, Resource Availability and Production Capacities. Danau Sentarum Wildlife Conservation Project – Indonesia–UK Tropical Forest Management Programme. Conservation Project. ODA.
- Yasmi, Y., C.J.P. Colfer, L. Yuliani, Y. Indriatmoko and V. Heri
2007 Conflict Management Approaches under Unclear Boundaries of the Commons: Experiences from Danau Sentarum National Park, Indonesia. *International Forestry Review* 9 (2).
- Yuliani, E.L., Y. Indriatmoko, V. Heri, S. Ernawati, M.S. Zul and L.B. Prasetyo
2008 Promoting Conservation through Good Governance that Benefits Local Communities: Case Study of Danau Sentarum National Park. GEM-CON-BIO Case Study Report.

7. BIOFUEL POLICIES AND THEIR IMPACT ON LOCAL PEOPLE AND BIODIVERSITY: A CASE STUDY FROM DANAU SENTARUM

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To reduce carbon emissions and mitigate climate change, some developed countries are setting targets to increase their use of biofuels. For example, the European Union is setting a target to shift 10 percent of its fuel consumption to biofuel by 2020 (European Union 2007). The increasing demand for biofuels has created opportunities in Indonesia, and both private firms and the government have been establishing new oil palm plantations all over Indonesia; the initiatives are considered Indonesia's contribution to climate change mitigation, poverty alleviation and carbon emissions reductions. In the International Conference and Exhibition on Palm Oil in Jakarta this year, the country's minister of Industry said that Indonesia's production target is 50 million tons of crude palm oil in 2020 (*Kompas*, 27 May 2009). The target is a more than 400 percent increase compared with the 2007 production of 11.8 million tons (<http://www.bps.go.id/sector/agri/kebun/table2.shtml>).

New oil palm plantations are being established with surprising speed all over the country, including in important conservation areas and forested land. In some areas, land allocated for oil palm has exceeded the target. In West Kalimantan, where the provincial target is 1.5 million ha of oil palm plantations, Idwar Hanis, head of the Provincial Plantation Service, says that permits given by heads of districts have reached 2 million ha. *Surat informasi lahan* (land information documents released by heads of districts) in West Kalimantan indicate an additional 2.6 million ha planned for oil palm plantations; thus far, only 427,000 ha of the total area has been planted (*Kompas*, 24 November 2008).

The increasing demand for biofuel has led not only to deforestation but also to a shortage of cooking oil, starting in early 2007. Cooking oil prices in local markets went up from IDR 5,000/kg (US\$0.50/kg)¹ in 2006 (Ariyani 2007) to IDR 13,000–17,500/kg in 2008 (*Kompas*, 13 March 2008, 17 March 2008), and the price has been fluctuating in 2009. Women must queue for hours, often under the heat of the tropical sun, to buy cooking oil subsidized by the government. Chemical bleaching compounds have been added to make used cooking oil look clear so that it can be resold (Berita Kediri, 25 May 2007; *Kompas*, 17 March 2008).

In response, the Indonesian Minister of Industry, in a parliament meeting in April 2007, stated that the situation was caused by increasing demand and rising prices of crude palm oil on the global market. One mechanism to be implemented by the government is increasing the *pungutan ekspor* (export tax); however, the risks should also be assessed. Companies often pass along costs to farmers—for example, by forcing down the purchase price at the farm gate to compensate for the higher export tax (Widiyanti 2007). Growing evidence suggests that the world's increasing demand for biofuel has caused detrimental effects on the poor and people in developing countries.

Oil palm companies and district government officials talk about employment opportunities and livelihood improvements to persuade local people to convert their forests. But the true benefits of oil palm are not always so clear.² Some authors argue that oil palm plantations can alleviate poverty and improve local people's quality of life (e.g., Basiron 2007; World Growth 2009; Zen et al. 2006). Others report that forest-dependent people often do not become significantly better off when their forests are converted to oil palm plantations (e.g., Adiwinata 1999; Brown et al. 2005; Colchester et al. 2006; Lynch and Harwell 2002; Sirait 2009). Farmers, NGOs and scientists in East Kalimantan report that revitalization of oil palm business has trapped farmers in debt because the loan interest rates are high—between 10 and 17 percent (*Kompas*, 13 November 2009). Benefits from oil palm development—in terms of income, schools and other infrastructure—are accompanied by indirect negative impacts and risks, as described by Gaiser (2009).

1 Data were collected in 2007 and 2008. Between 2007 and 2009, the USD-IDR exchange rate fluctuated between IDR 9,500 and IDR 11,700. In this paper, all calculations use the exchange rate 1 USD = IDR 10,000.

2 We conducted a literature review on financial benefits of oil palm for local people to find information on the companies and locations mentioned; the research mostly contradicted the encouraging findings.

To provide a better understanding of what is happening on the ground, we conducted a study of conservation, social dynamics and local people's livelihoods as they relate to the 18 new oil palm plantations established in and around Danau Sentarum National Park (DSNP), West Kalimantan. This paper reports what has already happened in the field and predicts potential future impact based on experience in this site, local social and biophysical characteristics, and lessons from other locations in Indonesia.

Site Description

Danau Sentarum National Park is located in Kapuas Hulu District, West Kalimantan, 700 km northeast of Pontianak and 4 km south of the Indonesia-Malaysia border. The park covers 132,000 ha and consists of interconnected seasonal lakes interspersed with swamp, peat swamp and lowland forests (Giesen and Aglionby 2000), with a 65,000 ha buffer zone. Its approximately 10,100 inhabitants comprise two ethnic groups: 2,411 Malay families, who live as fisherfolk around the lakes and rivers, and 187 Iban Dayak families, who live in the hills around the periphery as swidden farmers (Indriatmoko, this volume). Many more Iban inhabit the buffer zone and beyond.

The park's ecosystem is home for 211 species of fish (Kottelat and Widjanarti 2005), 27 reptile and 143 mammal species (Jeanes and Meijaard 2000a), and 282 bird species (van Balen and Dennis 2000), including threatened and endemic species. In 1997, the park had about 2,056 Bornean orangutans (*Pongo pygmaeus*), or approximately 15 to 20 percent of Borneo's total orangutan population (Russon et al. 2001).

Giesen and Aglionby (2000) reported that the annual rainfall in the Park fluctuates around 3,900 mm; the surrounding hills and mountainous catchment area receive 4,500 to 6,000 mm per year. Danau Sentarum wetlands are lower than the surrounding area and form a basin, which is flooded during the rainy season. The water flows to DSNP wetlands through rivers and their tributaries from all directions.³

The park's hydrology functions were described by Klepper (1994). One-fourth of the volume of the peak floods of the upper Kapuas River system flows into DSNP's lakes and swamp forests. During the dry season, up to 50 percent of the upper Kapuas River water is supplied by DSNP. Thus, any large-scale development activities in the water catchment areas could have extreme effects on the ecosystem and its people.

Ambiguous policies and overlapping status of DSNP's buffer zone⁴

DSNP's buffer zone is part of the water catchment for the wetlands and performs critical regulatory services, but its boundaries have been contested ever since the area was designated as a park, in 1999. The Ministry of Forestry declared Danau Sentarum a national park by issuing a *surat penunjukan* (gazettement letter), the first part in a four-step process of finalizing its status. A gazettement letter should be followed by boundary marking and mapping, and the area is then legalized through a *surat penetapan*

3 Even though the main flow of the Kapuas River is from northeast to southwest, a significant volume flows into Danau Sentarum wetlands from the south during the dry season.

4 The origin and other details of DSNP's creation are available from Giesen and Aglionby (2000), Wadley et al. (2000) and Aglionby (this volume).

(letter of confirmation).⁵ By mid-2009, however, boundary marking had not yet started. The DSNP management unit itself was not established until February 2007, through the Ministry of Forestry's regulation no P.03/Menhut-II/2007.

In the same year as the gazettement of DSNP, the buffer zone was granted two other statuses: as production forest, according to the regional spatial planning map (1999), and as *area peruntukan lain* (area for other land uses) in the *Paduserasi* map⁶ (1999) (Wadley et al. 2000). In 2004, secondary forest in the buffer zone was categorized as dry land agriculture, and peat swamp forest was considered wetlands agriculture by the District Land Office, according to its plantation and wetlands agricultural map.

The different statuses led to overlapping claims. A buffer zone is intended to be managed by the rights-holder of the land to minimize threats to protected areas⁷; a production forest is managed centrally by the Directorate General of Forestry Production Development of the Ministry of Forestry to improve wood production. An *area peruntukan lain* falls under district government authority and can be allocated for development programs, and this was the basis upon which the district government granted oil palm plantation permits.

The oil palm business is not new in DSNP, but no plantation has yet flourished. For example, PT Plantana Razindo started its operation in 1996 but left after clearing the forest and selling the timber (Wadley et al. 2000). In the north, PT Rokan Group attempted to start an oil palm plantation in 1992 in the *dusuns* (hamlets) of Berangan and Perumbang but did not continue.

Erman (2005) and Farid (2006) reported that most local communities (75 percent) in the northern part of DSNP opposed oil palm development and reacted cynically to the plans. Companies had taken over their customary forests, including croplands, without paying any compensation, then left without fulfilling their promises to provide employment and improve well-being. When the companies left, the land could not be replanted because the fertile topsoil had been removed. Further, the people of Dusun Tangit IV in the north of DSNP reported that the company wanted to acquire only tall forest, not other lands. Local communities in Dusun Berangan, Dusun Perumbang, Dusun Seriang and Dusun Tangit IV reported that the company harvested the valuable timber and sold it in Malaysia.

In mid-2005, the Indonesian government, through the Minister of Agriculture, announced its plan to establish the world's largest oil palm plantation along the border with Malaysia in Borneo. The area along the 1,782 km border (Geographer 1965) encompasses three national parks and orangutan habitat. The plan has prompted controversy and concern worldwide because of the many examples of oil palm plantations causing more problems than benefits to local communities and conservation. On 27 October 2005 the Ministry of Agriculture responded to the concerns expressed by various international, national and local institutions, through a letter to the Ministry of Forestry and the State Department saying that only 13 percent of the border area was suitable for oil palm; the letter did not specify the suitable locations.

5 Forestry Act No. 41/1999 Article 15.

6 "Harmonization" of the spatial planning and forest status maps.

7 Government Regulation No. 68/1998, Article 56-57.

Nevertheless, in 2007, the Kapuas Hulu district government gave permits to as many as 18 to 21 oil palm companies, in total covering 259,500 ha (Kapuas Hulu District Forestry Service press release version) to 366,823 ha (Kapuas Hulu District Forestry Service land-use digital map). Officials of the district government mentioned in various speeches that establishment of the oil palm companies was Indonesia's contribution to climate change mitigation.

Methods for Assessing Effects

To study the effects of the establishment of 18-21 new oil palm plantations on social dynamics, power struggles, conflict and indications of illegality, we used informal and focus group discussions, in-depth interviews and participant observation techniques. More formal techniques could not be used because of the sensitivity of the topics. Researchers strove to be seen as neutral as possible.

The biophysical effects were assessed using primary and secondary data, including in-depth interviews with local people and staff of the National Park Authority, and fire occurrence as documented by the Ministry of Forestry using real-time, fire hotspot data. The extent of forest cover and peatlands converted for oil palm was calculated using spatial analysis and field observations. We overlaid the following spatial data using ArcGIS software to identify and calculate plantation areas that overlapped with forest and peatland areas: plantation areas (Kapuas Hulu District Forestry Service 2008), land cover (Forestry Planning Agency 2002), and peatland distribution (Wahyunto and Subagjo 2004). Results are presented in Figures 2 and 3. Areas categorized as not suitable (or not allowed) for oil palm by the Ministry of Agriculture's Land Suitability Characteristics are shaded in the overlaid maps.

We then predicted the likely impacts of new plantations based on data on biophysical and social characteristics of the site, combined with reports from other locations with similar characteristics.

We calculated emissions of below-ground carbon from peatlands that are allocated for oil palm using the following equation (Wahyunto and Suryadiputra 2008)⁸:

$$\text{Below-ground carbon stores (KC)} = B \times A \times D \times C$$

where:

KC = carbon store, in tons

B = bulk density (BD) of peat soil in grams per cubic centimeter (g/cc) or tons per cubic meter (t/m³)

A = area of peat soil, in square meters (m²)

D = peat thickness, in meters (m)

C = carbon content (C-organic), as a percentage

For the calculation, we used the average values of bulk density and carbon

⁸ We refer to Wahyunto and Suryadiputra's work because their data are the most complete, derived from extensive fieldwork in this location, and spatial data are available in digital format.

content, compiled by Wahyunto and Subagio (2004) from various sources, including laboratory analysis reports by Puslitanak and WIIP in 2002–2004, and field survey reports by other parties (e.g., Bogor Agricultural Institute).

Table 1. Values of bulk density and C-organic content

<i>Peat maturity</i>	<i>Bulk density (g/cc)</i>		<i>Carbon content (percentage)</i>	
	<i>Range</i>	<i>Average</i>	<i>Range</i>	<i>Average</i>
Fibric	0.11–0.33	0.13	35.6–49.6	42.6
Hemic	0.13–0.38	0.23	17.5–54.9	36.2
Sapric	0.26–0.33	0.27	13.2–57.8	35.5
Peaty mineral soil/very shallow	0.30–0.40	0.32	26.85–32.55	30.75

Source: Wahyunto & Subagio (2004).

We used those values to calculate below-ground carbon stores. The results are shown in Table 2.

We assessed the potential effects on biodiversity by first identifying the conservation status of mammal and bird species as listed in the IUCN Redlist online database (<http://www.iucnredlist.org/>). We then looked for types of habitat needed by the species in the following categories: near threatened, vulnerable, endangered and critically endangered. Lists of mammals and important habitats were taken from Jeanes and Meijaard (2000a, 2000b), Sebastian (2000) and Russon et al. (2000), and birds from van Balen and Dennis (2000). We then overlaid the locations of important habitats with the oil palm plantation areas to identify overlaps.

We also conducted a literature review and fishermen interviews on the diet, habitat preference and tolerance to environmental conditions of each fish species and researched its migration patterns (Kottelat and Widjanarti 2005; www.fishbase.org). We evaluated land cover and the topographical and hydrological features of the areas allocated for plantations, and predicted the likely effects on fish downstream. Sources include Klepper (1994), 90M Elevation Data SRTM-NASA, Vegetation Cover of West Kalimantan, and Forestry Planning Agency–Ministry of Forestry (2002). The list of pesticides often used in oil palm plantations was taken from Pahan (2006) and Fernandez et al. (2002), and information about toxicity on fish was obtained from Exttoxnet <http://exttoxnet.orst.edu/>, the Pesticide Action Network database <http://www.pesticideinfo.org/> and published articles.

We assessed the implications of oil palm plantations for local people's livelihoods in terms of health, income, availability of and access to forest products and ecosystem services, and effects on women. The assessment was made based on primary data, which were collected using in-depth interviews and participant observation techniques, and on secondary data about the location (Colfer et al. 2000; Ernowati 2006, 2007; Indriatmoko & Abas 2007; Yuliani & Erman 2005). We also conducted a literature review on pesticide toxicity to human beings and implications of oil palm plantations for women.

Results and Discussion

Our study showed that the new oil palm plantations around DSNP provide benefits for a small number of people⁹ but also involve illegality, conflict, primary and secondary forest clearing, peat swamp conversion and significant changes in important ecosystem functions.

Based on our in-depth interviews, approximately 40 percent of respondents outside the DSNP boundary support oil palm plantations. Supporters include illegal loggers and others who expect cash income for handing over land rights, employment in the oil palm company and in infrastructure development, involvement in a nucleus estate program, and jobs in local businesses, such as groceries, small shops and cafés, and accommodation and car rental services. A small number¹⁰ of community members are employed as security guards, do “public relations” involving communication and negotiation with local people, and work as land brokers. One company provides free health services and has occasionally sent a mobile clinic to villages in the southern buffer zone. Inside the park, however, where communities are dependent on fishing, there is no apparent support for the plantations. People express concern about pesticides, herbicides, fertilizers and siltation from oil palm plantations. They know that chemical compounds used to preserve wood have often killed fish, and chemical poisons have been used to catch fish. They are also worried that the wetlands will dry up, and they have observed abrupt fluctuations in the water level since the catchment area was cleared for the plantations.

To minimize negative consequences and to maximize benefits for local communities, policies and regulations have been developed. An association to ensure sustainable palm oil, the Roundtable for Sustainable Palm Oil (RSPO),¹¹ has also been formed. Nevertheless, our study shows that such mechanisms have not been particularly effective. We identified several underlying problems: tricks, used by *oknum* (brokers) to give an impression that regulations and certification mechanisms are being followed; lack of law enforcement; ambiguous and inconsistent policies; and conflict both between communities and between the communities and the government. These problems and the negative environmental effects are described in the following sections.

9 Despite government propaganda, there are no data on the manufacture of biofuel from the palm oil produced by these companies because the companies have just started land clearing and planting.

10 Getting quantitative data is difficult because of the sensitivity of the issue.

11 The Roundtable for Sustainable Palm Oil was established in 2004 to promote the growth and use of sustainable oil palm products through credible global standards and engagement of stakeholders, in response to the urgent and pressing global call for sustainably produced palm oil. RSPO is a not-for-profit association that unites stakeholders from seven sectors of the palm oil industry – oil palm producers, palm oil processors or traders, consumer goods manufacturers, retailers, banks and investors, environmental or nature conservation NGOs and social or developmental NGOs – to develop and implement global standards for sustainable palm oil (RSPO website http://www.rspo.org/What_is_the_RSPO.aspx, accessed 3 June 2009).

Trickery

We found many tricks being used by companies and their local brokers to circumvent the required procedures. For example, companies planning to open plantations on land categorized as forest¹² are required to obtain forest conversion permits¹³, wood utilization permits¹⁴ and heavy equipment permits¹⁵ (see Figure 1). However, the company in Suhaid subdistrict sent loggers from other districts in April 2008 to cut big trees in the targeted locations, including in community protection forest. The loss of big trees changed the status of the land from forest to nonforest. The company was therefore not required to obtain the permits.

That case also provides evidence of a lack of law enforcement. Having tried but failed to stop the loggers from cutting the big trees, the local community then reported the activities to the police and district government; no action ensued. Several weeks later, a contractor company came “to clean the area” and haul off “the unused plant material”—the company’s wording for the big logs. NGOs and communities surmised that the company had killed two birds with one stone: it both made the land available for oil palm and profited from the sale of the logs. The government said that the contractor did not have any permits to transport big logs, and they would report it to the head of the district, but no action was taken.

The logging changed the condition of the forest. If assessed before the trees were cut, it could have been considered a high conservation value forest because it provided clean water and other resources for local people. Some areas were considered sacred by local people. Once the big trees had been cut, the ecosystem no longer qualified as a high conservation value forest. As a result, the company can argue that it never ignored its obligations as an RSPO member.¹⁶

Other cases involve strategies to get customary leaders’ approval to hand over rights to land. Based on Act No. 18/2004, companies must discuss land transfers and compensation with the holders of customary rights (collectively and as individuals). To

12 “Forest area” refers to the government land-use classification and often does not reflect the actual characteristics (canopy, tree density, biodiversity, etc.) of the area. An area covered by big trees is not a forest if the government classifies it under a different category.

13 Joint Ministerial Decree (Forestry, Agricultural, Agrarian) No. 364/Kpts-II/90 519/Kpts/HK.050/7/90 and 23-VIII-1990 on Forest Conversion Permit and Land Cultivation Rights (*Hak Guna Usaha*, HGU) approval for Agricultural Development.

14 *Ijin Pemanfaatan Kayu* (Forestry Ministerial Decree No. 382/Menhut-II/2004 and Forestry Ministerial Regulation No. 55/2006).

15 *Ijin Peralatan* (Forestry Ministerial Regulation No. P.54/Menhut-II/2007 and No. P.4/Menhut-II/2008).

16 The RSPO Code of Conduct requires that all members work proactively toward the production and promotion of sustainable palm oil, and breaches can result in expulsion. The main objective of the RSPO has been to develop a certification scheme for sustainable palm oil. As the certification scheme is nearing completion, producer members will be required to work toward certified production (RSPO 2007). Criterion 7.3, for high conservation value forest, reads, “New plantings since November 2005 have not replaced primary forest or any area required to maintain or enhance one or more High Conservation Values.”

comply with this regulation, some companies have given special treatment to people originally opposed to their activities – employing former opponents as negotiators or security guards, providing them with free health services, and giving them trips around the country to visit other oil palm areas. By such means, the companies have been able to convert opponents into proponents, despite the visible evidence of adverse effects of oil palm establishment in the area. When “participatory” meetings were held, only these converted proponents were invited.

During a field trip in mid-2008, we witnessed a grieving family whose land was being cleared for an oil palm plantation. The father had initially refused to allow his land to be converted to an oil palm plantation, but the night before, he had gotten drunk and unwittingly signed the agreement to hand over the land to the company. He suspected that the “friend” who took him drinking was paid by the company to do so.

By such trickery, companies have gotten customary rights holders’ approval, as required by law, and companies that are members of RSPO have met their obligations on “participation.”¹⁷

The tricks have also caused a snowball effect and speeded up land clearing. Communities whose lands will be taken over by another party have the right to receive cash compensation. This has motivated opportunists to claim land in order to get the compensation by clearing an area as large as possible or marking new boundaries. Others, including former opponents of oil palm development, follow suit for many reasons: they are tempted by higher compensation, have no choice, or fear being coerced. Arowana fish farmers in particular are among the strongest opponents but many are afraid to say so because their fish breeding ponds can easily be poisoned, and a valuable community business can be killed within seconds.

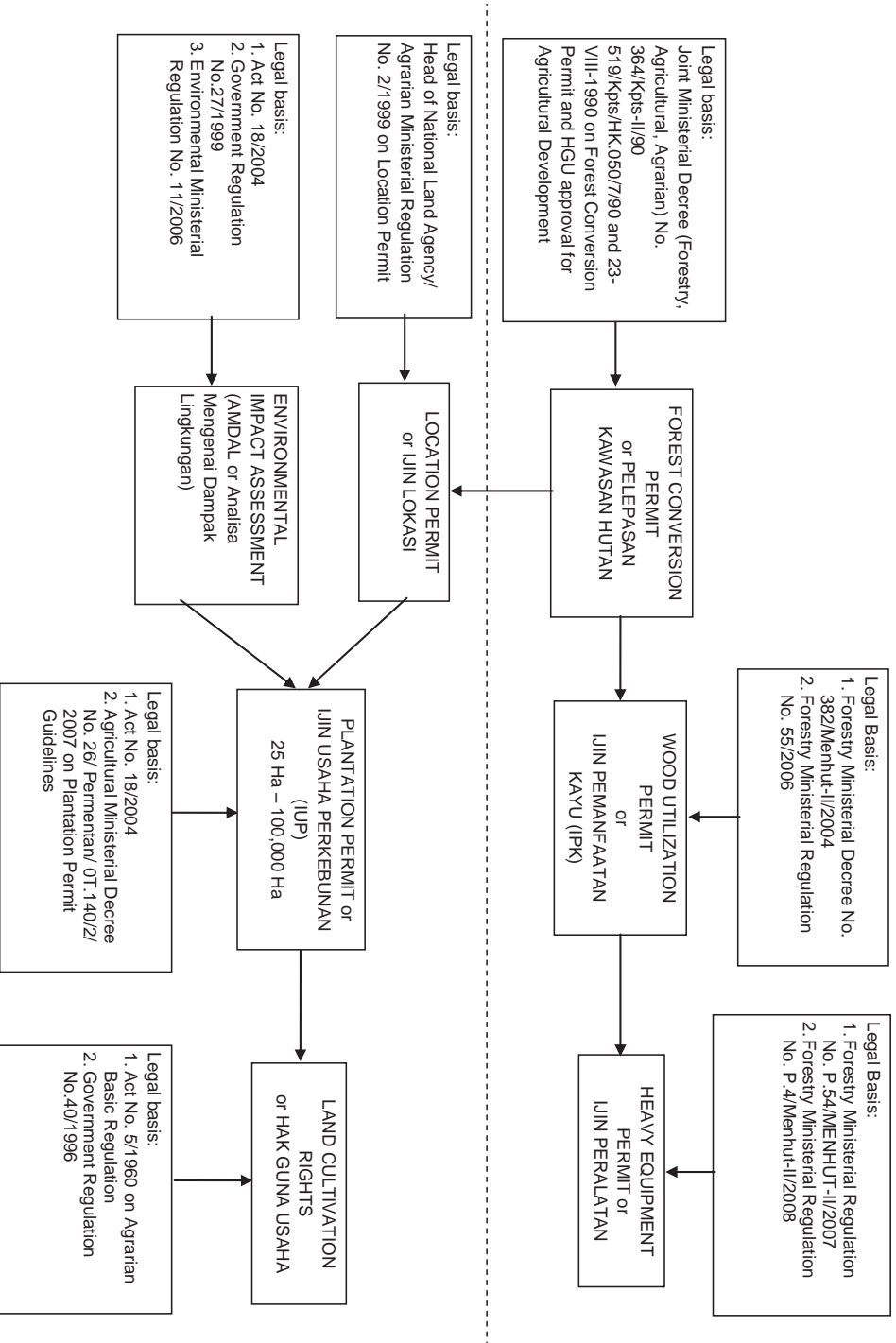
Our findings suggest that the tricks, manipulation, collusion and intimidation commonly used during the New Order era (Colchester et al. 2006; Lynch & Harwell 2002; Potter & Lee 1998) are still employed, even though reform began a decade ago.

Lack of Law Enforcement

Our study shows that laws and regulations have become a “toothless tiger”: they exist but are not enforced and therefore not respected. In two subdistricts, Suhaid and Selimbau, companies marked boundaries for oil palm in customary forests without giving notice to the local communities.

The Indonesian government has a very complex series of steps to get permits (see Figure 1) and local communities’ approval. We found, however, that from July 2007 to September 2008, without having obtained any permits, there were companies clearing more than 1,000 ha of land in each subdistrict. A company could only establish

17 Criterion 2.2 relates to participation: “the right to use the land can be demonstrated, and is not legitimately contested by local communities with demonstrable rights.” Part of the guidance for this criterion says that “for any conflict or dispute over the land, the extent of the disputed area should be mapped out in a participatory way.” In addition, Criterion 6.1 reads, “Aspects of plantation and mill management, including replanting, that have social impacts are identified in a participatory way, and plans to mitigate the negative impacts and promote the positive ones are made, implemented and monitored, to demonstrate continuous improvement.”



a nursery and start planting if they hold Land Cultivation Rights (HGU or *Hak Guna Usaha*). However, the same group of companies started those activities without HGU. One of the companies had only a 'land information document' (*surat informasi lahan*)¹⁸, and another company a 'Plantation Permit' (IUP or *Ijin Usaha Perkebunan*)¹⁹ (see also Figure 1). The land information document and Plantation Permit are only two of many other documents required to apply for the permit to start a nursery and to plant. This indicates violations of Act No. 5/1960, Government Regulation No.40/1996, Forestry Ministerial Decree No. 382/Menhut-II/2004 and Forestry Ministerial Regulations No. 55/2006, No. P.54/Menhut-II/2007 and No. P.4/Menhut-II/2008.

Those violations were reported to the local police office, district government and district legislative assembly (Community of Suhaid 2007a), district forestry service and provincial environmental agency. The report was followed by a brief investigation by the provincial government. As of mid-2009, discussions among the provincial environmental agency, NGOs and district government on this issue were continuing. Despite a series of law violations, WALHI (2009) reported the planting was even launched officially by the district government, and the companies continued clearing and planting the land.

In other cases, the law has been enforced only against local people, who are in a comparatively weak position. For example, a community member who cut trees in a protected area forest was arrested in Sintang; at the same time, a company and its supporters claimed the protected forest as their land and cut trees with impunity.

The government has also broken its own laws.²⁰ Some companies were granted plantation permits by the district government before completing an environmental impact assessment (EIA) and without communities' approval on the land transfer. Clashes between the company and local people occurred when the company started land clearing. The case was reported to the provincial government, but the Provincial EIA Commission refused to have further discussions because land clearing had started (Coalition for Danau Sentarum Redemption 2009).

Ambiguous and Inconsistent Policies

Lack of clear policy and regulations has led to overlapping claims and contributed to the exploitation and conversion of the DSNP buffer zone. Six companies are located in the park's buffer zone (Figure 2).

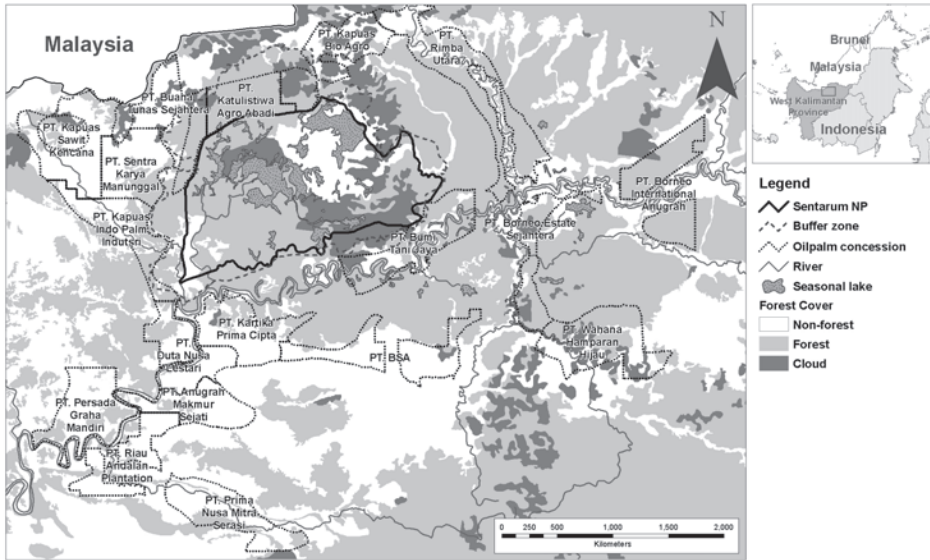
Figure 1 (facing page). Plantation permitting procedures in forested APL (APL = other land uses) for plantation operational activities. If the area is nonforest, the procedure is shorter (bottom side, marked by dash). Many companies trick people by paying a group to cut trees in the targeted location, have it formally categorized as a nonforest area thereby reducing the lengthy procedures. Diagram by E. Linda Yuliani and Mumu Muhajir.

18 No. 525/994/BANG-I-A, 4 AGU 2006.

19 No. 525/61/DISPERHUT/BUN-A/2007.

20 Act No. 18/2004 article 9(2), 17 and 25, Government Regulation No. 27/1999, Environmental Ministerial Regulation No. 11/2006 and the Ministry of Agriculture's decree No. 26/Permentan/05.140/2/2007.

Figure 2. Oil palm concessions areas overlaid with forest areas. Map compiled by M. Agus Salim (CIFOR GIS Unit).



Sources:

- DSNP boundary and bufferzone: Rona Dennis and ODA/WI Project
- Oil palm concessions: Kapuas Hulu District Forestry and Plantation Service
- Forest cover: Vegetation Cover of West Kalimantan, and Forestry Planning Agency- Indonesian Ministry of Forestry (2002)

At the district level, policies are inconsistent. In many cases, habitat conservation and ecosystem functions are rarely considered in decision making and land-use planning. The inappropriate issue of some plantation permits shows that the control mechanism—an environmental impact assessment—is not working. The agency responsible for reviewing EIAs is the District Environmental Impact Management Agency.²¹ The agency reports to the district head, who has the authority to release the plantation permit, and thus cannot easily oppose the granting of a permit.

In one example of inconsistent policy, the head of the district declared Kapuas Hulu a conservation district in October 2003,²² yet no conservation program has been developed. Instead, large-scale development programs driven by big investors have dominated decisions and land-use plans in the district. The head of the district also declared Suhaid and Semitau subdistricts as the center of arowana breeding farms,²³ but instead of developing programs to support them, he granted a permit for a company

21 BAPEDALDA or *Badan Pengendalian Dampak Lingkungan Daerah* (Government Regulation No. 38/2007 Appendix H (Environmental sector) and Government Regulation No. 27/1999).

22 Bupati Decree No. 144/2003.

23 Bupati Decree No. 139/2008.

whose location includes a community-protected lake that has supplied water to the arowana breeding farms.

We found inconsistent policies and programs at the national level and between levels as well. The Minister of Forestry made a public statement asking the head of the district to withdraw the permits of 12 oil palm plantations whose locations overlapped the national park boundaries²⁴ (*Sinar Harapan* 2008), but there has been no follow-up from either the district or the Ministry of Forestry.

Conflict

The establishment of oil palm concessions around DSNP has triggered conflict at all stages of palm oil plantation development. Conflicts occur between groups within the community, between neighboring villages, between the pro and con factions within the district government, and between communities and the government.

For example, one community member who tried to stop land clearing was beaten by company supporters. Two neighboring villages in northern DSNP, Jelawat and Seluang,²⁵ have also been in conflict. Seluang favored oil palm development and reached an agreement on compensation and benefit sharing, followed by boundary marking and land clearing by the company. However, Jelawat, which strongly opposed this development because of experiences with fake oil palm companies, found that part of the oil palm area falls within the village. The people of Jelawat confiscated the equipment and reported the encroachment to the police, but the people of Seluang and the government accused them of being jealous and trying to get compensation. Tension between the two villages escalated. There is now an interesting dynamic and trade-off, however, between the two villages: Seluang, which supported the conversion of its customary forest to oil palm, then lost its supply of clean water and must now buy water from Jelawat.

Conflict among communities is triggered mainly by different perceptions and expectations of oil palm. Based on our interviews with those who live outside the park boundary, up to 60 percent strongly oppose the development of oil palm because of their experience with its associated illegalities and rights violations. Meanwhile, all respondents who live on the lake object to oil palm because they anticipate that pesticides, fertilizers and erosion will pollute the water and kill the fish, water levels will drop as a result of peat swamp forest and forest conversion, and people from outside the park will begin to use natural resources inside the park.

Some anecdotal information²⁶ suggests that the district government has become divided into at least three groups: supporters of oil palm, such as the head of the district and his followers; opponents, led by the deputy; and those who do not want to reveal their opinion. In early 2009, there were some efforts to disempower the opponents by transferring them to less important offices or by liquidating their divisions.

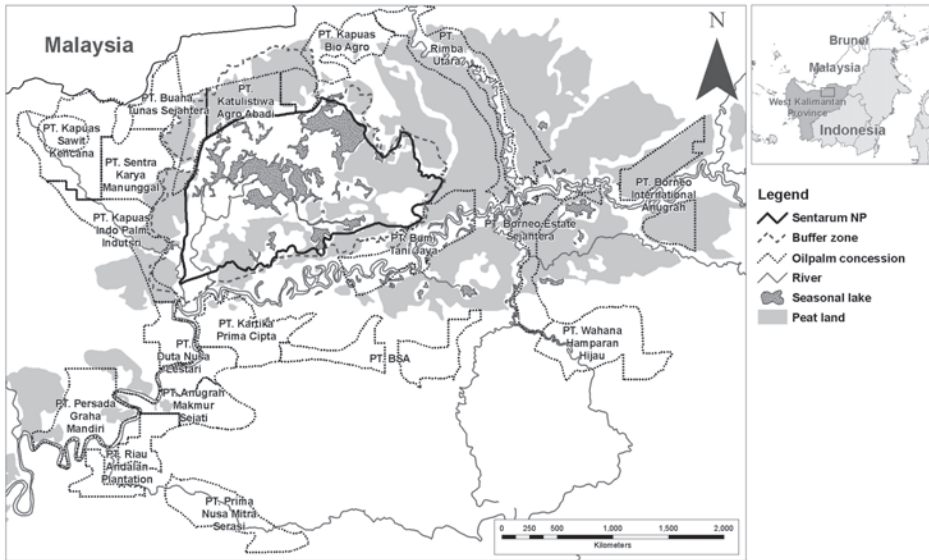
Conflicts also occur between the communities, on the one hand, and the district

24 The Minister of Forestry deemed the district government acted in violation of UU No. 26/2007, on national land-use planning.

25 Pseudonyms are used to maintain confidentiality.

26 To maintain access to future information, we need to protect the anonymity of our sources.

Figure 3. Oil palm concession areas overlaid with peatland areas. Map compiled by M. Agus Salim (CIFOR GIS Unit).



Sources:

- DSNP boundary and bufferzone: Rona Dennis and ODA/WI Project
- Oil palm concessions: Kapuas Hulu District Forestry and Plantation Service
- Peatland: Wajunto and Suryadiputra 2008

government and companies, on the other. In many cases, reports of such conflicts were characterized by company officials as instances of opponents who were “jealous” or “trying to gain more compensation” – assertions made to cover the violations of the companies. This type of conflict is now being investigated by Indriatmoko and Yasmi.

Conversion of Forest and Peatlands

Land conversion around the park has been made easier by the classification of secondary forests and peat swamp forests as *area peruntukan lain* (area for other land uses) and nonforest. Our study shows that 38.52 percent of plantation areas, or 141,290 ha, are located in primary dry land forest, primary swamp forest, secondary dry land forest and secondary swamp forest (Table 2, Figure 2). In particular, 22.8 percent of the plantation areas, or 83,670 ha, are in swamp forests.

The areas outside the DSNP boundary in the west, north, and east are swampy, and have a high water table (Farid 2006) and therefore are not suitable for oil palm. These areas were allocated to four oil palm companies, which have begun clearing the land and draining the swamps without regard for hydrological and other ecosystem functions. The companies, all RSPO members, have not worked effectively toward certified production of sustainable palm oil.²⁷

²⁷ These companies have not worked toward certified production and in particular have ignored

Table 2. Extent of forest and peatland and potential below-ground carbon stores in peatland allocated for plantations

COMPANY*	Plantation area (ha) based on press release	Plantation area (ha) based on digital map	Extent of forest areas allocated for plantations (ha)**					Peatland area allocated for plantations (ha)***	Below-ground carbon (tons)***
			Primary dry land forest	Primary swamp forest	Secondary dry land forest	Secondary swamp forest	Total		
PT. AMS	13,500	15,761.69			479.21	1,059.00	1,538.22		
PT. BAK	16,000	no data							
PT. BES	14,000	14,837.17				8,591.18	8,591.18	12,390.47	32,321,616
PT. BIA	18,500	20,587.53			6,227.41	13,485.94	19,713.35	19,775.92	37,460,331
PT. BSA	18,500	21,609.94				3,660.37	3,660.37	519.51	1,484,061
PT. BTS	14,000	17,732.92		6,151.09			6,151.09	6,100.91	3,264,866
PT. BTJ	no data	23,883.77				12,519.78	12,519.78	5,211.57	2,825,800
PT. DNL	no data	19,179.46			2,497.90	829.15	3,327.05		
PT. KBA	17,000	21,798.21	40.77	3,585.93		1,287.85	4,914.55	7,363.68	4,280,392
PT. KUPI	18,000	18,940.71	135.60	3,895.65	4,309.42	470.51	8,811.18	4,628.08	3,340,494
PT. KSK	no data	23,183.50	0.13		3,904.20		3,904.33		
PT. KPC	18,000	19,821.90				6,356.07	6,356.07		
PT. KAA	17,000	14,132.58		13,233.93			13,233.93	13,169.79	9,472,167
PT. MKA	14,000	no data							
PT. PIP	18,000	no data							
PT. Persada Graha Mandiri	18,000	22,012.92			403.10	4,666.09	5,069.19	294.70	212,712
PT. PNMS	18,000	20,818.68			5,328.41		5,328.41		
PT. RAP	no data	14,484.33			999.13	4.41	1,003.55		
PT. RU	9,000	32,286.91	59.13		15.89	20,768.06	20,843.08	16,930.87	12,577,966
PT. SKM	no data	18,893.79		5,471.37			5,471.37	3,891.96	2,809,172

*Kapuas Hulu District Plantation and Forestry Service written opening address and spatial data.

**Our calculation, made by overlaying the plantation map with Ministry of Forestry land cover data (2002).

***Our calculation, made by overlaying the plantation map with data on peat depth, distribution and average bulk density and C-content of each peat type from Wahyunto & Subagio (2004).

Twelve plantation companies occupy 96,519 ha of peatland, with peat that ranges from shallow and thin, to moderate, to very deep and very thick (Figure 3). That permits were granted for these areas indicates the government's lack of attention to the importance of peatlands. Tropical peatlands make a significant contribution to terrestrial carbon storage because of their considerable thickness, high carbon content and, most importantly, their rapid peat and carbon accumulation rates, which have often exceeded those of boreal and temperate peatlands (Immirzi and Maltby 1992 in Page et al. 2004; see also Anshari, this volume).

Eleven companies occupy major river and water catchment areas, and 13

Criterion 4.4, "Practices maintain the quality and availability of surface and ground water," and Indicator 2, "Protection of water courses and wetlands, including maintaining and restoring appropriate riparian buffer zones."

companies are located on areas that have slopes of more than 8 percent (Figure 4), even though steep slopes are unsuitable for oil palm because of erosion and consequent low soil fertility (Ministry of Agriculture 1997). Moreover, plantation road networks require leveling of steep slopes, which could cause erosion and siltation to DSNP waterbodies. Techniques to minimize the environmental effects are unlikely to be implemented by the companies, given the lax law enforcement in the area. Ecological consequences aside, the conversion of peatland, water catchments, and steep slopes for large-scale development clearly violates the law.²⁸

Loss of Biodiversity Habitat

Forests in and around DSNP, including those allocated for oil palm, have been home to endemic and protected species, such as orangutans and proboscis monkeys (*Nasalis larvatus*), and the swamps are breeding sites for fish, amphibians and reptiles. Some companies have started clearing land, draining the swamps, leveling slopes and building roads, with adverse effects on wildlife habitats and breeding refuges.²⁹

One of the threatened reptile species is *Tomistoma schlegelii*, a rare crocodile whose main habitat in the northern part of DSNP (Gernis, Danau Siawan and Sungai Air Merah; Suriansyah 2006) has been cleared for an oil palm plantation. Communities along the Leboyan River have reported increased sightings of crocodiles, perhaps because of loss of habitat upstream due to land clearing and road construction from Lanjak to Bunut, and they fear attacks on humans.

Fire

Between 1 June and 18 August 2009, we recorded 155 fire hotspots in the oil palm sites. The company said the fires were used by local people to clear land for planting crops. This seems unlikely because the area had been taken over and cleared by oil palm concessions, and the people had no need to clear the land and would have no expectation of raising crops.

Future Consequences

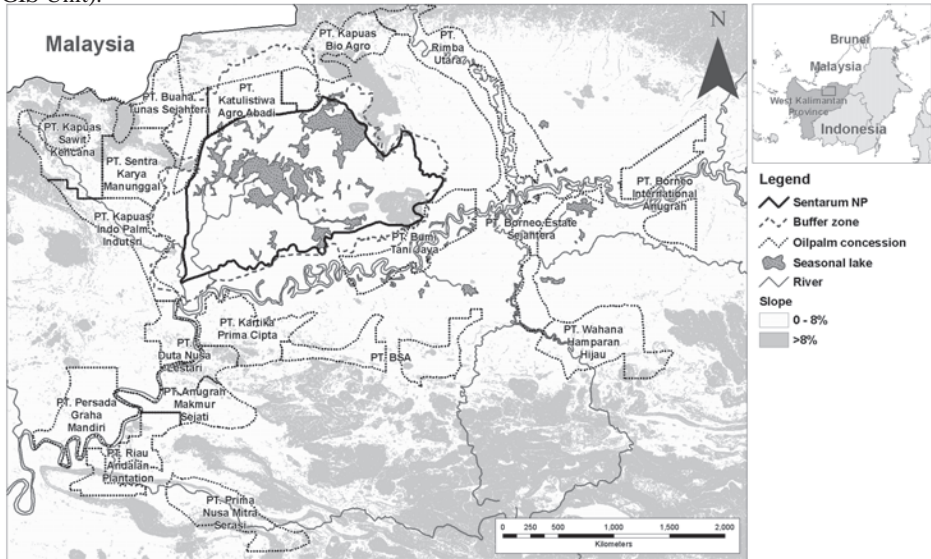
We assess the likely outcomes based on what has happened, as described in previous sections, combined with the social and biophysical characteristics of DSNP and its surrounding area and reports about oil palm plantations from other locations in Indonesia. What has happened in DSNP indicates inadequate attention to issues of social responsibility and good local governance.

Manipulative practices, illegal activities, social injustice, lack of law enforcement, inconsistent policies and vertical and horizontal conflict have been associated with oil palm development all over Indonesia. Local communities have lost

28 Peatland with a depth of more than 3 m is protected by Presidential Decree No. 32/1990 and Act No. 21/1992. Watershed and water catchment areas should be protected, according to Act No. 24/1992, Government Regulation No. 47/1997, and Presidential Decree No. 32/1990.

29 A study of orangutan populations and habitats within and around DSNP began in late 2009. The results of this study will give a more detailed picture of the effects of oil palm development.

Figure 4. Topography around DSNP. The figure also describes main river networks feeding into DSNP wetlands from the west (Seriang river) and northeast (Leboyan river). Even though the main flow of important Kapuas river is from northeast to southwest, a significant amount of water and fish flow into Danau Sentarum wetlands from the south. Map compiled by M. Agus Salim (CIFOR GIS Unit).



Sources:

- DSNP boundary and bufferzone: Rona Dennis and ODA/WI Project
- Oil palm concessions: Kapuas Hulu District Forestry and Plantation Service
- Topography: 90M Elevation Data SRTM-NASA

their forests (and thus their source of food, income, and other services) from “logging disguised as oil palm plantations”³⁰ (Brown et al. 2005; Colchester et al. 2006; Lynch and Harwell 2002; Malinau Participatory Mapping Facilitator Team 2000; Potter and Lee 1998; Rhee 2003; Wulan et al. 2004; National Commission of Human Rights and the Environmental Ministry in *Jakarta Post*, 19 May 2009). We predict that these problems will continue. Mechanisms, regulations, and techniques to minimize negative social and environmental impact are unlikely to be implemented. The likely consequences are described in the following sections.

Carbon Emissions

There are twelve plantation companies that occupy 96,519 ha of peatland, a major carbon sink (Hooijer et al. 2006; Page et al. 2004). Drainage of peat leads to aeration of the peat material and then to oxidation, resulting in CO₂ gas emissions to the atmosphere (Hooijer et al. 2006). Conversion of 96,519 ha of peatland into other land uses will release into the atmosphere approximately 128 million tons of below-ground

³⁰ That is, companies that have been granted plantation permits but have never operated after they cleared the forest and sold the logs.

carbon. This calculation does not yet include the above-ground carbon stores and uptake by vegetation. If the above-ground carbon stores and carbon uptake by vegetation are included, carbon emissions caused by conversion for oil palm will be still higher.

Fish diversity³¹

Fish diversity and populations are likely to significantly decrease because of water pollution and loss of refuges and breeding sites caused by conversion of peat swamp forests, forest streams and creeks. Figure 4 shows the location of plantations within DSNP's water catchment area. Sediments and pollutants caused by project activities in these areas are likely to be carried by the rivers and tributaries and affect aquatic organisms.³² Water bodies around intensive agriculture and large-scale plantations often have high levels of turbidity (Brown et al. 2005; Rachmatika et al. 2005), chemical pollutants (residues of pesticides and fertilizer) and organic pollutants comprising palm oil mill effluent and decomposition of empty fruit bunches. Oil palm plantations generally require one mill for every 3,885 to 5,180 ha of area, and each mill produces 20,000 tons of empty fruit bunches and 50 m³ of palm oil mill effluent per day (Suhaimi and Ong 2001). Given that the total plantation area around DSNP is approximately 366,820 ha, 71 to 94 mills can be expected to be built in the area, producing a total of 1.4 million to 1.9 million tons of fruit bunches and 3,500 to 4,700 m³ of effluent each day.

Such pollutants could kill aquatic organisms through direct and indirect mechanisms. The mixture of more than one pollutant could lead to higher toxicity (Lloyd 1987). Some pesticides are extremely toxic and could directly kill fish or their larvae, inhibit fish reproduction, and reduce aquatic organisms that are important food for fish (Paul and Sinnott 2000; EJF 2002; Johnson and Finley 1980; Koesoemadinata and Djajadiredja 1976). Suspended sediment can adhere to gill tissue and lead to respiration difficulties, with subsequent gill abrasion leading to pathogenic penetration (Rachmatika et al. 2005) and higher fish egg mortality. High turbidity and suspended sediments will reduce light penetration into the water and subsequently reduce primary production of phytoplankton (the first level in the food chain) and thus affect fish breeding or growing. Low photosynthesis rates coupled with high levels of organic pollutants will significantly decrease dissolved oxygen content. The availability of oxygen solubility in water and fish oxygen demand also relate to temperature. The higher the air and water temperature caused by land clearing,³³ the more oxygen solubility decreases, while fish metabolism and oxygen demand increase (Ficke et al. 2005).

As a result, the species that require clear water and high oxygen content are not likely to survive. Among the 211 fish species found in DSNP (Kottelat & Widjanarti

31 Fish is the dominant source of income for local people in DSNP's wetlands; therefore we describe potential impacts on fish separately

32 Although project activities can be done sustainably, environmental impact management is seen as an additional cost that companies tend to avoid. Lack of law enforcement has made this possible.

33 The air temperature difference between cleared and forested land in DSNP's buffer zone is on average 6°C. Measurements were taken in November 2009.

2005) are at least 104 species that fall in this category (Figure 5), including fish with high economic value like freshwater stingray (*Himantura signifer*), Asian bonytongue fish (*Scleropages formosus*), giant featherback (*Chitala hypselonotus*) and tapah catfish (*Wallago leeri*).³⁴ Of the remaining species, 42 thrive in muddy water with low oxygen and are most likely to survive, and we lack data on habitat preference for 65 species.

Terrestrial Biodiversity

Oil palm establishment is likely to adversely affect terrestrial wildlife through loss of habitat, hunting by company workers, poaching, illegal trading, pollution, fire, and conflict with humans. Peat swamp and hill forests in and around DSNP constitute important refuges for a variety of wildlife during the annual nine- to 10-month flooding of the lake basin (Jeanes and Meijaard 2000b). Clearing such areas for plantations will certainly cause loss of habitat. Moreover, we expect consumption of orangutans by company workers, poaching, and illegal trade (Heri et al., this volume) and the use of fire and pesticides. The arrival of hundreds of employees likely to add pressure to the ecosystem (see Indriatmoko, this volume) and, coupled with lack of law enforcement, increase poaching and illegal trading.

Those threats are likely to reduce the population of wildlife in and around the park, where at least 12 species of reptiles, 78 species of birds and 44 species of mammals are listed as threatened by IUCN (Table 3 and Appendixes 1 and 2). Significant declines in numbers of orangutans have followed oil palm development elsewhere. For instance, the people of Telawan district, Central Kalimantan, used to find orangutans everywhere, but now, spotting one a year is exceptional (*Jakarta Post*, 19 May 2009).

Conflict between wildlife and humans is also commonly associated with oil palm development, when conversion of forest for large-scale plantations pushes animals into surrounding areas. Villages located near oil palm plantations have reported a significant increase of pests, such as rats, wild pigs, and locusts. Animals that come into conflict with humans are more frequently killed (e.g., *Kompas*, 11 June 2009; Brown et al. 2005).

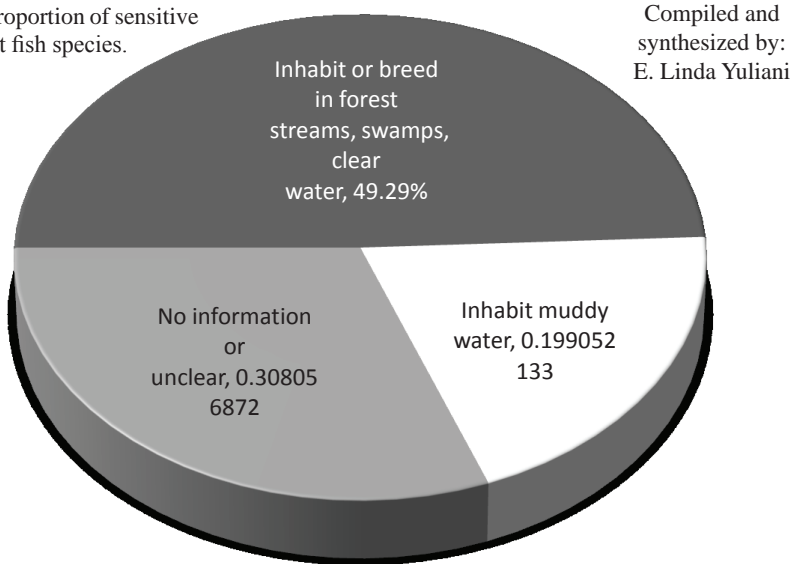
Local People's Well-Being

The operations of large-scale plantations surrounding DSNP may affect the health of local people through water, air, and soil pollution and reduced availability of medicinal plants and sources of nutrition. Released into DSNP wetlands, mill wastes, contaminated sediments and pesticide and fertilizer residues can seriously affect the health of local communities who use lake and river water for drinking, cooking, washing and bathing, and consume fish from the lakes and river networks.³⁵

34 Dudley et al. (2000) reported that these fish species were commonly caught and economically important in the 1990s. Because of exploitation and unsustainable practices, these species have become very rare in the 2000s.

35 Bioaccumulation and biomagnification of pesticides can also cause serious health problems for nonresidents if they regularly consume fish from the contaminated area.

Figure 5. Proportion of sensitive and tolerant fish species.



Sources: Kottelat dan Widjanarti (2005), local fishermen interview, www.fishbase.org, www.loaches.com, www.planetcatfish.com, www.wetwebmedia.com, www.tropicalfishfinder.com.uk

Pesticide residues used by plantations contaminate water, soil and air and reach nontarget organisms (including humans) through several routes – drift, volatilization, leaching and runoff (Silver and Riley 2001). The danger of pesticides to human health is well understood by the companies and the government, but no effective actions have been taken to reduce contamination. Companies have even told some workers that they are using safe pesticides and safe procedures, even though there are no truly safe pesticides (Quijano & Rengam, no date). Various authors (e.g., Fernandez et al. 2002; Ishii-Eiteman & Ardhanie 2002; Kelana & Larasati 2007; Quijano & Rengam, no date) have reported that pesticide accumulation is found in plantation workers, farmers and those who live very close to plantations or intensive agricultural lands.

We were unable to obtain data from the companies regarding their pesticide use. Therefore, we refer to lists of pesticides recommended and commonly used for oil palm (Pahan 2006; Fernandez et al. 2002). We found that among 23 active ingredients of the pesticides, 17 are categorized as moderately, highly, or very highly toxic. Such residues can contaminate people directly, through water and air, or through bioaccumulation, which may occur following consumption of animals contaminated by pesticides. DSNP has at least 134 fish species (105 carnivorous and 29 omnivorous) that are very likely to contain high levels of pesticide residues because of bioaccumulation and could pass them along the food chain, including to humans as the top predators (Figure 6).

Effects on humans vary, depending on the pesticide's active ingredients and combination of compounds, and on the duration and volume of exposure. Some of the

Table 3. Numbers of threatened wildlife species in DSNP.

Class	Total species recorded in DSNP	# of threatened species in DSNP based on 2009 IUCN redlist						Total threatened species	Percentage threatened species
		Extinct	Extinct in wild	Critically endangered	Endangered	Vulnerable	Near threatened		
Reptiles*	27	1	0	0	5	5	1	12	44.4
Birds**	282	0	0	1	2	12	63	78	27.7
Mammals*	143	0	0	0	11	22	11	44	30.8
Total	452	1	0	1	18	39	75	134	

Sources: *Jeanes and Meijaard 2000a; ** van Balen and Dennis 2000.

common symptoms of pesticide contamination include skin and eye irritation, mucosal and gastrointestinal irritation, hypotension, pulmonary dysfunction, central nervous system disorders, vomiting, diarrhea, breathing difficulties, convulsions, loss of consciousness and disorders of the cardiovascular and respiratory systems. In extreme cases, severe congenital deformities, birth defects, cancer, permanent neurological impairment and death have also been reported (EJF 2002; Extoxnet 2008; Fernandez et al. 2002; National Pesticide Information Center 2000; Saenong and Hipi 2005; Quijano and Rengam, no date; WHOPES 2008).

Water polluted by organic mill waste has high turbidity and viscosity and smells bad, and is thus unsuitable for daily human use. Frequent reports of human health problems and mass fish deaths associated with effluent from palm oil mills upstream in various places in Indonesia have been made by local communities, NGOs, the government's environmental agency, and universities. The government has warned 20 companies in Riau Province to improve their waste treatment system (*Jakarta Post*, 9 June 2003); nevertheless, similar accidents have occurred frequently (Riau online, 11 January 2005, 4 October 2006). Released untreated, mill wastes remain dangerous pollutants, despite their many potential uses if recycled (e.g., Schuchardt et al. 2007), per RSPO standards and government regulations.

Indonesia has regulations on pesticides and pollutants, but law enforcement is weak, and violations are rarely punished. In addition, regulations are still ambiguous and allow the use of dangerous pesticides. Endosulfan, one of the most dangerous, is still categorized as for "restricted use" (Usha and Harikrishnan 2005), which implies that use is still allowed. We predict that pesticides and pollutants will contaminate the DSNP area and cause health problems for the people who depend on the wetlands.

The health of local people could also be affected by air pollution caused by fire for land clearing. The worst forest and land fires in Indonesia were recorded in 1997-98 and 2006, causing severe haze in Singapore, Malaysia, Brunei Darussalam, and Indonesia itself. The air pollution index in Sarawak reached 849 in September 1997 and 1000 in East Kalimantan in April 1998 (Schweithelm 1998).³⁶ Approximately 12.5 million people were exposed to hazardous pollution levels in the 1997-98 fires, including

36 An API higher than 100 is considered unhealthy.

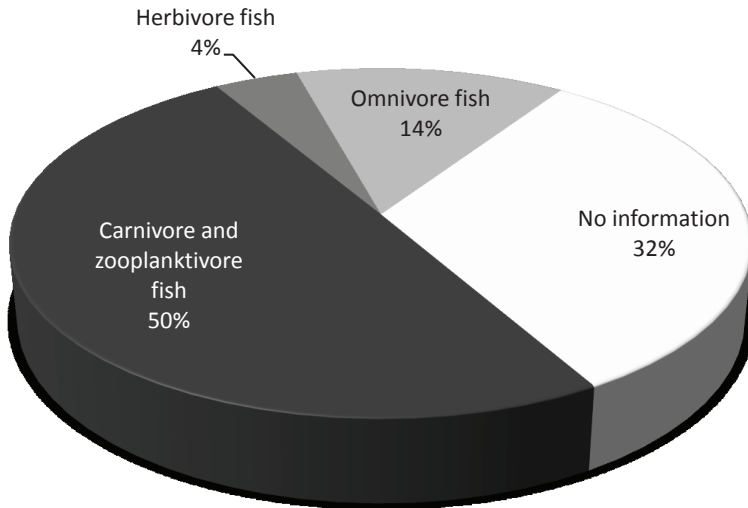


Figure 6. Proportion of carnivore, herbivore and omnivore fish in and around DSNP.

Sources: Kottelat dan Widjanarti (2005), www.fishbase.org, interview with local fisherfolks

527 persons who reportedly died from respiratory complications (UNDP 1998). In 2006, air pollution index readings in Sarawak were 106-188, in the Malay Peninsula 101-116, and in Singapore 81-130³⁷ (AFP/ir 2006).

Most fire hotspots occur within oil palm areas. According to *Eyes on the Forest* (2005), 41.2 to 49.7 percent of fire hotspots in Riau were in industrial plantation areas. The Ministry of the Environment stated that 80 percent of forest and land fires in 1997 began from land clearing for plantation and transmigration schemes (Siscawati 2001). Although oil palm companies are not allowed to use fire, according to government regulations, fire is still being used for land clearing because it is cheaper than mechanical means, and law enforcement is weak. During the 1997 forest fires, 80 percent of the companies accused of practicing careless forest burning were oil palm companies (Potter and Lee 1998; Wakker 1998). Applegate et al. (2001) reported that during large-scale intentional burning of forestland to create plantations of coffee and oil palm, many fires escaped into adjacent open-access forests or timber plantation areas. Frequent reports, coupled with our fire hotspot data for the oil palm areas around DSNP, show that more fires are very likely and may affect local people's health.

Local people's health around DSNP could also decline because their food and medicinal plants disappear following conversion of forest and community gardens to oil palm. Residents of the southern part of DSNP have better access to food shops, but elsewhere, local people depend on food and medicinal plants from forests and gardens. Data presented by Colfer et al. (2000), Yuliani and Erman (2005) and Wadley and Colfer (2004) reveal that they use at least 89 plant species and 114 wild animal species

37 We believe the API is higher than these numbers. The Indonesia State of Environment 2007, published by Indonesia's Ministry of Environment, may be a good source; however, the data were not yet available when this paper was written.

(excluding fish) for food, and a household questionnaire by Yuliani and Erman (2005) on resource use in DSNP shows at least 15 medicinal plant species being used by the people, although this is likely a low figure. Although establishment of large-scale projects in the area may be accompanied by grocery shops, the people's incomes may not be enough to buy food.

Incomes

Local people's main sources of income are fish, wild-bee honey (from *Apis dorsata*), rubber and wood (Figure 7). Income from inland fisheries (traditional and cage culture) totals IDR 34.75 billion (US\$ 3.5 million) per year (Indriatmoko, this volume), and the arowana breeding farms in Suhaid and Selimbau subdistricts provide net cash incomes of approximately IDR 70 billion to 140 billion (US\$ 7 million to \$14 million) per year.³⁸ Water pollution will put one of the local people's crucial income sources at risk.

In 2007, honey produced by DSNP's wild-bee farmer association (Asosiasi Periau Danau Sentarum, APDS) received organic certification, which increased the price by 80 percent, from IDR 25,000 to IDR 45,000 per kilogram – the highest in Indonesia. The production capacity of the association could reach 20 tons per year, resulting in an annual income of IDR 900 million (US\$ 90,000), not including honey production by association non-members.

Large-scale plantations around DSNP are likely to reduce wild bee populations, however, because pesticides kill bees both directly (Paul & Sinnott 2000) and indirectly, when bees consume pollen and nectar contaminated by systemic pesticides (Rortais et al. 2005). In addition, pesticide contamination will cause the APDS producers to lose their organic certification and its price premium. Bees use 17 plant species in and around DSNP for nesting and breeding (Firmansyah 1996), in addition to plants that are food sources. Conversion of forest for large-scale plantations will remove those plant species, thus reducing wild bee populations (Heri et al., this volume).

Access to Forest Products and Ecosystem Services

People in and around DSNP meet their daily needs with products that come from the forest. Besides clean water and the food and medicinal plants mentioned above, the forest also provides wood for making houses, boats, planks for wild bee-keeping and other domestic uses. Colfer et al. (2000) and Yuliani and Erman (2005) have found 48 species used for those purposes. Rivers in two villages have provided energy for micro-hydro power (Minarchek and Indriatmoko, this volume), and more micro-hydro power dams are being planned and built.

Establishment of large-scale plantations will clear the forest and alter hydrological regimes. Local people's remaining sources of food and wood will be the tall swamp forests and hill forests inside DSNP itself. This will increase pressure on the forests within the DSNP boundary, as has happened in some other Indonesian protected

38 Income from arowana was determined by fecundity and mortality rates and number of juveniles sold.

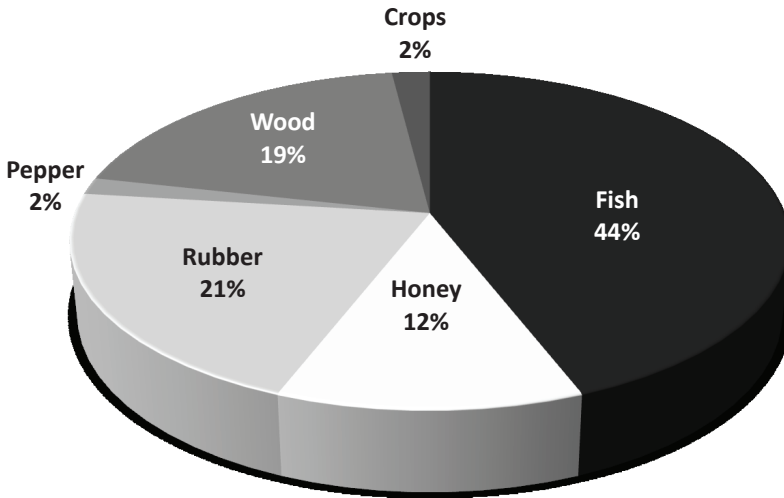


Figure 7. Source of local people's main income (excluding arowana breeding farms).

Source: Indriatmoko, this volume

areas (e.g., Gunung Palung National Park; Curran et al. 2004) and could lead to resource competition and conflict between people from outside and those who live inside the protected areas.

Women

The effects of large-scale projects on rural women are often ignored in decision making because the impacts are rarely understood by decision makers, and sometimes even by the women themselves. We look at lessons from other locations to assess what could happen in DSNP.

The most common kinds of gender inequity following the establishment of oil palm plantations involve prostitution, health problems, wage inequalities, and reduced access to resources. Prostitution involves both locals and women from outside the area. Prostitution has sometimes become the norm on plantations by design, not simply by chance (Enloe 1989). Colfer (1995) reported that company personnel in East Kalimantan considered it necessary to support prostitution. Women and girls are recruited by traffickers using deception, flattery, and promises of pleasure and luxury. Young women from rural areas may be offered jobs as plantation workers, waitresses, hotel employees, or entertainment workers in distant places (Suci 2006), jobs that turn out to be prostitution.

Women laborers are typically paid lower rates than men (DTE 2007). They often have few choices beyond prostitution to support their families, pay debts to the companies and make up for losing their land and traditional forest-based income. Some women who married company workers are left to raise their children alone.

Women are typically a family's collectors of forest foods and water for daily consumption. When forests and gardens have been converted into plantations, and rivers are contaminated by pesticides and siltation, women are likely to have to walk or paddle

several kilometers farther to find clean water and food (Malinau Participatory Mapping Facilitator Team 2000; DTE 2007).

Women who work on the plantations are employed mostly for spraying pesticides, weeding, applying chemical fertilizer, and collecting fallen fruits (Potter and Lee 1998), tasks that directly and indirectly expose them to contaminants (Fernandez et al. 2002). Kelana and Larasati (2007) reported that the breast milk of women living near plantations and intensive agricultural areas is also contaminated by pesticides. Health problems are reported by women who carry heavy baskets of fruit on their backs to the roadside collection points (Potter & Lee 1998). Many complain of back pain and lower abdominal problems, thought to be caused by carrying heavy loads (Siscawati, pers. commun.).

Conclusion and Recommendations

Global biofuel policies have had unintended consequences. The intent is to reduce carbon emissions to the atmosphere, but calls to increase the use of biofuels have been used to justify expansion of palm oil plantations, whose establishment is likely to increase carbon emissions from peatland conversion and land clearing. The violations and inconsistencies shown by the companies and district government in the area around DSNP are strong evidence that companies will not meet their promises, nor employ procedures to minimize negative environmental and social impacts. Laws and regulations have been ignored without appropriate sanctions, opponents have been tricked or arrested, and the government has rarely stood up for local communities. Companies have been able to continue their activities with little interference, even while under investigation. Certification mechanisms such as RSPO criteria and indicators have proven ineffective. According to Indonesia's leading environmental economist Emil Salim, in a scientific discussion on 'The Civilization of the Indonesian', the government at all levels is implementing *etika ekonomi pasar* (market economic ethics) – that is, behavior to maximize benefits and therefore power – while the environment is being commercialized and natural resources are capitalized and treated as objects to be exploited by humans, without consideration of other values.

Under those conditions, large-scale plantation development is therefore likely to reduce biodiversity, harm local communities and incomes, cause deforestation and loss of wildlife habitat, alter environmental services such as hydrological functions and carbon sequestration, destroy cultural and heritage sites, be disadvantageous to women and cause conflict between local communities and between them and outsiders. The damage and losses are likely to be irreversible and irreplaceable by any amount of income from the oil palm business.

Specifically, establishment of oil palm plantations around DSNP will have the following negative consequences:

- conversion of 141,290 ha of forest into monoculture plantation;
- degradation and draining of 96,519 ha of peatland, which will slowly release approximately 128 million tons of below-ground carbon into the atmosphere;
- local extinction of 134 threatened species (12 reptile species, 78 bird species and 11 mammal species);

- local extinction of 104 fish species (both threatened and nonthreatened), including fish with a high commercial value;
- loss of cash income of local communities, estimated at IDR 114 billion to 184 billion (US\$11.4 million to \$18.4 million) per year; and
- generation of 1.4 million to 1.9 million tons of empty fruit bunches and 3,500 to 4,700 m³ of palm oil mill effluent per day.

The private sector and the government often argue that plantations will improve local livelihoods, and indeed, there have been some improvements in certain locations. In some cases, high levels of negotiation and other technical skills have allowed local people to benefit (Malinau Participatory Mapping Facilitator Team 2000; Surma 2007). The benefits, however, are often accompanied by negative environmental and social impacts of which local people were often unaware beforehand (Gaiser 2009).

Moreover, small holders and local workers deriving their livelihoods from oil palm companies are vulnerable to price fluctuations on the global market. As reported by Khudori (2008), the price of crude palm oil declined from US\$1,300 per ton in March 2008 to \$400 in November 2008, following the global economic crisis. Companies cut their price for fresh fruit bunches from IDR 1,500 to IDR 200-300 per kilogram and reduced the number of local workers. Dependence on the oil palm business can put local people at high risk, leaving them vulnerable to the dynamics of the global economic and political situation, and they can no longer return to subsistence farming and forest gathering on lands and forests that they have ceded to companies.

Based on lessons from Sumatra, Kalimantan and Sulawesi (Adiwinata 1999; Colchester et al. 2006; Gaiser 2009; Malinau Participatory Mapping Facilitator Team 2000; Rhee 2003; Potter & Lee 1998; Surma 2007), we conclude that livelihood improvements from oil palm (or other tree plantation) development can be expected only under the following conditions: clear agreements among local people, the company and the government; strong law enforcement; consistent and clear regulations; honest officials who protect the rights of local communities; and local people who have sufficient knowledge and negotiation skills to participate effectively in decision making.

Using biofuel to reduce carbon emissions may be less effective than planting trees and maintaining forest cover. Advocates of biofuel development projects should carefully consider the implications for marginalized groups, including the poor in developing countries.

In addition, we recommend the following:

- Allocate DSNP's surrounding areas for conservation development programs based on local natural resources, such as arowana breeding farms, cultural tourism and ecotourism, traditional fisheries and micro-hydro power.
- The Ministry of Forestry should complete procedures to get the final step in park legalization (*surat penetapan*, 'letter of confirmation'), including boundary marking of the buffer zone. Boundary marking is a sensitive issue and therefore should incorporate customary forest and/or traditional zoning systems to get local people's support and collaboration.
- National and regional land-use planning agencies should protect areas that have significant environmental services for the benefit of local communities. If such

locations have been allocated for oil palm or other development programs, the activities should be immediately stopped and those who have broken the laws or contravened the regulations should be sanctioned.

- Domestic and international banks and investors should not invest in businesses that are likely to have detrimental effects on local communities, biodiversity and conservation areas.
- Developed countries should not import biofuel, including palm oil, that has caused deforestation. Instead, they should encourage efforts to maintain forest cover and appropriately reward those who have retained their forests in the forms that can support long-term benefits.
- Provide training for industry and government personnel on participatory and bottom-up processes, including facilitation skills.
- Encourage collective action among local communities to strengthen local law enforcement.
- Involve women and other marginalized groups in decision making and planning processes.

Acknowledgments

The authors wish to thank the donors, Ford Foundation and the EU-funded Gemconbio project for their funding support, and our home institutions, CIFOR and Riak Bumi Foundation. Nevertheless, the views expressed in this article remain our personal views and do not necessarily reflect either the donors' or our home institutions' views. We also thank the local communities in and around DSNP, the Ministry of Forestry, Danau Sentarum National Park Authority, Kapuas Hulu District Government, Titian Foundation, WWF, WALHI, Sawit Watch, Coalition for Danau Sentarum Redemption, Carol J. Pierce Colfer, Moira Moeliono, Terry Sunderland, Bruce Campbell, Doris Capistrano, Bagus Hargo Utomo, Fitri Heryani, Rahayu Koesnadi, Dina Hubudin, Charlotte Soeria, Titin Suhartini, Suci Ningsih, Hari Sukmara, Yuyun Kurniawan, Irawan Sihombing, Arie Munir, Rudi Saporiza, Jefry Saragih, Shaban Setiawan, Seselia Ernawati, Zul MS, and all anonymous reviewers of this article. We also thank Sally Atwater as our excellent technical editor.

References

Adiwinata, A.S.

- 1999 Insights for More Responsible Palm Oil Expansion in Indonesia: Looking at the Forest Benefits for Forest Dependent People. Research project. Canberra: National Center for Development Studies, the Australian National University.

AFP/ir

- 2006 Haze from Indonesia Fires Chokes Region, Spreads across Pacific. *Asia Pacific News*, 5 October.

Applegate, G., U. Chokkalingam and Suyanto

- 2001 The Underlying Causes and Impacts of Fires in South-East Asia. Bogor: CIFOR-ICRAF.

Ariyani, R.R.

- 2007 Harga Minyak Goreng Masih Tinggi (Cooking Oil Price Stays High). *Tempo Interaktif*. 20 May. Available from http://www.tempointeraktif.com/hg/ekbis/2007/07/11/brk_20070711-103496.id.html.

Basiron, Y.

- 2007 Palm Oil Production through Sustainable Plantations. *European Journal of Lipid Science and Technology* 109:289-295.

Berita Kediri

- 2009 Minyak Goreng Bekas Marak Diperjualbelikan di Kediri (Used Cooking Oil Is Sold in Kediri). *Berita Kediri*, WordPress 25 May [cited 19 May 2009]. Available from <http://beritakediri.wordpress.com/2007/05/25/awas-minyak-goreng-bekas-dijual-di-kediri/>.

Brown, E., M.F. Jacobson, and E. Wakker

- 2005 *Cruel Oil: How Palm Oil Harms Health, Rainforest & Wildlife*. Washington, D.C.: Center for Science in the Public Interest.

Coalition for Danau Sentarum Redemption

- 2009 Report from the Coalition for Danau Sentarum Redemption. Pontianak: The Indonesian Forum for the Environment.

Colchester, M., N. Jiwan, Andiko, M. Sirait, A.Y. Firdaus, A. Surambo, and H. Pane

- 2006 *Promised Land: Palm Oil and Land Acquisition in Indonesia – Implications for Local Communities and Indigenous Peoples*. Moreton-in-March and Bogor: Forest Peoples Programme (FPP) and Sawit Watch.

Colfer, C.J.P.

- 1995 Who Counts Most in Sustainable Forest Management? Working Paper No. 7. Bogor: CIFOR.

Colfer, C.J.P., A. Salim, R.L. Wadley and R.G. Dudley

- 2000 Understanding Patterns of Resource Use and Consumption: A Prelude to Co-Management. *Borneo Research Bulletin* 31:29-88.

Community of Suhaid

- 2007a Surat Pelaporan Pematokan Rimba Milik Bersama Masyarakat Suhaid Tanpa Ijin Untuk Keperluan PT Kartika Prima Citra (PT KPC Sinar Mas Group) (Report of Boundary Marking of Suhaid Community Forest by PT Kartika Prima Citra without Permit from Community). Suhaid: Community of Suhaid Subdistrict.
- 2007b Siaran Pers: Penolakan Masyarakat Kecamatan Nanga Suhaid Terhadap Masuknya Perkebunan Kelapa Sawit PT. Kartika Prima Citra Sinar Mas Group (Press Release: Community of Suhaid Subdistrict Rejection Statement to Oil Palm Company PT Kartika Prima Citra Sinar Mas Group). Suhaid: Community of Suhaid Subdistrict.

Curran, L.M., S.N. Trigg, A.K. McDonald, D. Astiani, Y.M. Hardiono, P. Siregar, I. Caniago and E. Kasischke

- 2004 Lowland Forest Loss in Protected Areas of Indonesian Borneo. *Science* 13:1000-1003.
- DTE
- 2007 Oil Palm/Women: The Impacts of Oil Palm Plantations. Newsletter No. 74. London: International Campaign for Ecological Justice in Indonesia.
- EJF
- 2002 End of the Road for Endosulfan: A Call for Action against a Dangerous Pesticide. London: Environmental Justice Foundation.
- Enloe, C.
- 1989 *Bananas, Beaches and Bases: Making Feminist Sense of International Politics*. Berkeley: University of California Press.
- Erman, A.
- 2005 Investigation Report on Wildlife Trading; Orangutan and Lempiau (*Hylobates* sp) in the Border of Kapuas Hulu District, Indonesia and Sarawak Malaysia. Unpublished. Pontianak: Yayasan Titian and Yayasan Riak Bumi.
- Ernawati, S.
- 2006 Women and Health. Unpublished. Pontianak: Yayasan Riak Bumi, WALHI and CIFOR.
- 2007 Women and Health. Unpublished. Pontianak: Yayasan Riak Bumi, WALHI and CIFOR.
- European Union
- 2007 Promoting Biofuels as Credible Alternatives to Oil in Transport. Press release. Brussels: European Union.
- Extension Toxicology Network (Exttoxnet)
- 2008 EXTTOXNET Global Search and Browse, <http://exttoxnet.orst.edu/ghindex.html>. University of California–Davis, Oregon State University, Michigan State University, Cornell University, University of Idaho.
- Eyes on the Forest
- 2005 More Than 40% of Riau's Fires Burn in APP and Partners' Concessions. *Eyes on the Forest News*, March 23.
- Farid, I.Z.
- 2006 Characteristics of Land in DSNP Bufferzone Allocated for Oil Palm. Unpublished. Pontianak: Yayasan Riak Bumi.
- Fernandez, I., E. Thomas, J.M. Anthony of Tenaganita and S.V. Rengam of Pesticide Action Network Asia and the Pacific
- 2002 *Poisoned and Silenced: A Study of Pesticide Poisoning in the Plantations*. Malaysia: Ganesh Printers.
- Ficke, A.A., C.A. Myrick and L.J. Hansen
- 2005 Potential Impacts of Global Climate Change on Freshwater Fisheries. Gland, Switzerland: WWF.
- Firmansyah
- 1996 Studi Jenis Tumbuhan Tempat Bersarang Lebah pada Suaka Margasatwa Danau Sentarum di Kabupaten Kapuas Hulu, Propinsi Kalimantan Barat

(Plant Species Used by Wild Bees for Nesting and Breeding in Danau Sentarum Wildlife Reserve, Kapuas Hulu District, West Kalimantan), Agricultural Faculty, Tanjung Pura University, Pontianak.

Forestry Planning Agency

2002 Vegetation Cover of West Kalimantan. Ministry of Forestry.

Gaiser, N.

2009 Oil Palm in Kalimantan: The Meaning of Oil Palm Expansion on Local Farmers' Lives. Two Case Studies of Villages in Sanggau District, West Kalimantan. Freiburg: Albert Ludwigs-Universität Freiburg.

Geographer

1965 Indonesia-Malaysia Boundary. Office of the Geographer, Bureau of Intelligence and Research, U.S. State Department.

Giesen, W. and J. Aglionby

2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.

Hooijer, A., M. Silviu, H. Wösten and S. Page

2006 PEAT-CO₂, Assessment of CO₂ Emissions from Drained Peatlands in SE Asia. Delft Hydraulics report Q3943. Netherland: WL/Delft Hydraulics, Wetlands International, Alterra Wageningen.

Immirzi, C.P. and E. Maltby

1992 The Global Status of Peatlands and Their Role in Carbon Cycling. In: *A report for Friends of the Earth by the Wetland Ecosystems Research Group*, edited by Department of Geography, University of Exeter, UK. London: Friends of the Earth.

Indriatmoko, Y. and Abas

2007 Demography, Social and Economic Survey of Communities in and around DSNP. Unpublished. Bogor: CIFOR and Yayasan Riak Bumi.

Ishii-Eiteman, M.J. and N. Ardhanie

2002 Community Monitoring of Integrated Pest Management versus Conventional Pesticide Use in a World Bank Project in Indonesia. *International Journal of Occupational Health* 8:220-231.

IUCN

2009 IUCN Redlist <http://www.iucnredlist.org/>.

Jakarta Post

2003 Palm Oil Waste Kills Thousands of Fish. 9 June.

2009a Palm Oil Firms "Taking Away" Locals' Income. 19 May.

2009b Plantation Companies in Conflict with Villagers. 19 May.

Jeanes, K. and E. Meijaard

2000a Danau Sentarum's Wildlife Part 1: Biodiversity Value and Global Importance. *Borneo Research Bulletin* 31:150-229.

2000b Danau Sentarum's Wildlife Part 2: Habitat Characteristics and Biodiversity Contribution. *Borneo Research Bulletin* 31:230-245.

- Johnson, W.W., and M.T. Finley
1980 *Handbook of Acute Toxicity of Chemicals to Fish and Aquatic Invertebrates*. Washington, DC: U.S. Fish and Wildlife Service.
- Kapuas Hulu District Plantation and Forestry Service
2008 Spatial data of plantation areas in Kapuas Hulu District. Kapuas Hulu District Plantation and Forestry Service.
- Kelana, A. and E.D. Larasati
2007 Bila ASI Tercemar Pestisida (If Breastmilk is Contaminated by Pesticides). *Gatra* 27 Desember 2007.
- Khudori
2008 Titik Balik Industri Sawit (The Turning Point of Palm Oil Industry). *Kompas* 24 November 2008.
- Klepper, O.
1994 A Hydrological Model of the Upper Kapuas River and the Kapuas Lakes. Consultancy report for Asian Wetland Bureau/PHPA, for the UK-Indonesia Tropical Forest Management Project, Sub-project 5 Conservation.
- Koesoemadinata, S. and R. Djajadiredja
1976 Some Aspects on the Regulation of Agricultural Uses of Pesticides in Indonesia, with Reference to Their Effects on Inland Fisheries. Paper presented at Seventeenth Indo-Pacific Fishery Commission (IPFC) Fisheries Symposium.
- Kompas*
2008 *Produksi CPO Kalbar Turun* (CPO Production from West Kalimantan is Declining). 24 November.
2009 *Migor Bekas Diburu Masyarakat* (People Hunt for Used Cooking Oil). 17 March 2008 [cited 20 May 2009]. Available from http://sains.kompas.com/read/xml/2008/03/17/18490964/migor_bekas_pakai_diburu_masyarakat.
2009 *Minyak Goreng Tembus Rp.13.000/kg* (Cooking Oil Price Hits Rp.13,000/kg). 3 March 2008 [cited 20 May 2009]. Available from http://www.kompas.com/read/xml/2008/03/03/21354721/minyak_goreng_tembus_rp13.000kg.
2009 *Pada 2020, Indonesia Produksi 50 Juta Ton CPO* (In 2020, Indonesia will Produce 50 Million Tons CPO). 29 May.
2009 *Revitalisasi Kelapa Sawit Jerat Petani dengan Utang* (Revitalization of Oil Palm Trapped Farmers with Debt). 13 November.
2009 *Satu Gajah Ditemukan dalam Kondisi Hangus Terbakar* (An Elephant was Found Burnt to Death). 11 June 2009.
- Kottelat, M. and E. Widjanarti
2005 The Fishes of Danau Sentarum National Park and The Kapuas Lakes Area, Kalimantan Barat, Indonesia. *Raffles Bulletin of Zoology Supplement* 13:139-173.
- Lloyd, R.
1987 Special Tests in Aquatic Toxicity for Chemical Mixtures: Interactions and

Modification of Response by Variation of Physicochemical Conditions. In: V.B. Vouk, G.C. Butler, A.C. Upton, D.V. Parke and S.C. Asher eds., *Methods for Assessing the Effects of Mixtures of Chemicals*. Elsevier.

Lynch, O.J. and E. Harwell

2002 *Whose Natural Resources? Whose Common Good? Towards a New Paradigm of Environmental Justice and the National Interest in Indonesia*. Jakarta: ELSAM.

Malinau Participatory Mapping Facilitator Team

2000 Dampak Perkebunan Kelapa Sawit: Wakil Masyarakat Hulu Sungai Malinau Belajar di Kabupaten Pasir, Kalimantan Timur (The Impact of Oil Palm Plantation: Community Representatives from the Upstream of Malinau River Learned from People in Pasir District, East Kalimantan). Bogor: CIFOR.

Ministry of Agriculture

1997 Kriteria Kesesuaian Tanah dan Iklim Tanaman Pertanian. Planning Bureau, Ministry of Agriculture.

Minarchek, M. and Y. Indriatmoko

2010 Possibilities and Perceptions of a Community Micro-Hydro Project in West Kalimantan. *Borneo Research Bulletin* (this issue).

National Pesticide Information Center

2000 Glyphosate factsheet. Corvallis: Oregon State University and U.S. Environmental Protection Agency.

Page, S.E., R.A.J. Wust, D. Weiss, J.O. Rieley, W. Shotyk and S.H. Limin

2004 A Record of Late Pleistocene and Holocene Carbon Accumulation and Climate Change from an Equatorial Peat Bog (Kalimantan, Indonesia): Implications for Past, Present and Future Carbon Dynamics. *Journal of Quaternary Science* 19 (7):625-635.

Pahan, I.

2006 *Panduan Lengkap Kelapa Sawit: Manajemen Agribisnis dari Hulu hingga Hilir*. Depok, Indonesia: Penerbit Swadaya.

Paul, E.A. and T.J. Sinnott

2000 Information Bulletin: Fish and Wildlife Related Impacts of Pesticides Used for the Control of Mosquitoes and Blackflies. Albany, NY: Department of Environmental Conservation, Division of Fish, Wildlife, and Marine Resources.

Pesticide Action Network

2008 Pesticide Action Network database <http://www.pesticideinfo.org/>. Pesticide Action Network North America (PANNA).

Potter, L. and J. Lee

1998 Tree Planting in Indonesia: Trends, Impacts and Directions. Occasional Paper No. 18. Bogor: CIFOR.

- 1998 Oil Palm in Indonesia: Its Role in Forest Conversion and the Fires of 1997/98. A report for WWF-Indonesia programme, University of Adelaide.
- Quijano, R. and S.V. Rengam
nd Pestisida Berbahaya Bagi Kesehatan (Pesticide Is Dangerous to Human Health). Solo, Indonesia: Yayasan Duta Awam and Pesticide Action Network Asia and the Pacific.
- Rachmatika, I., R. Nasi, D. Sheil and M. Wan
2005 *A First Look at the Fish Species of the Middle Malinau: Taxonomy, Ecology, Vulnerability and Importance*. Bogor: CIFOR.
- Rhee, S.
2003 De facto Decentralization and Community Conflicts in East Kalimantan, Indonesia: Explanations from Local History and Implications for Community Forestry. In: K.-I. Abe, W. d. Jong and T.-P. Lye, eds., *The Political Ecology of Tropical Forests in Southeast Asia: Historical Perspectives* Trans Pacific Press and Kyoto University Press.
- Riau online
2005 Hasil Otopsi Ikan Sungai Siak Mati Akibat Limbah PKS (Fish Autopsy Concluded Palm Oil Wastes as the Cause of Mass Fish Deaths). 11 January.
2006 Bapedalda Riau Memperkirakan Limbah Sawit Diduga Penyebab Matinya Ikan di Sungai Siak (Riau Provincial Environmental Agency Estimated Palm Oil Wastes as the Cause of Fish Deaths in Siak River). Riau online, 4 October.
- Rortais, A., G. Arnold, M.-P. Halm and F. Touffet-Briens
2005 Modes of Honeybees Exposure to Systemic Insecticides: Estimated Amounts of Contaminated Pollen and Nectar Consumed by Different Categories of Bees. *Apidologie* 36:71-83.
- Roundtable for Sustainable Palm Oil (RSPO)
2007 *RSPO Principles and Criteria for Sustainable Palm Oil Production – Including Indicators and Guidance*. Kuala Lumpur, Malaysia: Roundtable for Sustainable Palm Oil.
2007 FAQ on the Roundtable on Sustainable Palm Oil. Zurich, Switzerland.
- Russon et al.
2000 Declining Orangutan Populations in and around Danau Sentarum. *Borneo Research Bulletin* 31:372-384.
- Russon, A.E., A. Erman and R. Dennis
2001 The Population and Distribution of Orangutans (*Pongo pygmaeus pygmaeus*) in and around the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. *Biological Conservation* 97:21-28.
- Saenong, M.S. and A. Hipi
2005 Kerusakan Lingkungan dan Gangguan Kesehatan sebagai Dampak

Penggunaan Pestisida Pertanian (Environmental Degradation and Health Problems Associated with Agricultural Pesticides). BALITSEREAL (Cereal Research Center).

- Schuchardt, F., K. Wulfert, D. Darnoko and T. Herawan
2007 Effect of New Palm Oil Mill Processes on the EFB and POME Utilisation. Paper presented at Chemistry and Technology Conference PIPOC, Kuala Lumpur, 26-30 August.
- Schweithelm, J.
1998 The Fire this time: an overview of Indonesia's Forest Fire in 1997/1998. WWF Indonesia Forest Fire Project. Jakarta, Indonesia: WWF Indonesia.
- Sebastian, A.C.
2000 Proboscis Monkeys in Danau Sentarum National Park. *Borneo Research Bulletin* 31:359-371.
- Silver, J. and B. Riley
2001 Environmental Impact of Pesticides Commonly Used on Urban Landscapes. Eugene, Oregon: Northwest Coalition for Alternatives to Pesticides/NCAP.
- Sinar Harapan*
2008 Menhut Desak Izin Kebun Kelapa Sawit Dicabut Dicabut (The Minister of Forestry Urged (District Government) to Withdraw Oil Palm Permits). *Sinar Harapan*.
- Sirait, M.
2009 Indigenous Peoples and Oil Palm Plantation Expansion in West Kalimantan, Indonesia. Paper presented at ICRAF-CIFOR weekly presentation.
- Siscawati, M.
2001 The Case of Indonesia: Under Soeharto's Shadow. In: *The Bitter Fruit of Oil Palm: Dispossession and Deforestation*. World Rainforest Movement.
- Suci, E.S.T.
2006 Women and Child Trafficking in Indonesia: What Should Be Done? In *The Fifth ASEAN People's Assembly (APA)*. Mandaluyong City, Philippines: The ASEAN Institutes of Strategic and International Studies (ASEAN ISIS).
- Suhaimi, M. and H.K. Ong
2001 Composting Empty Fruit Bunches of Oil Palm. Kuala Lumpur, Malaysia: Malaysian Agricultural Research and Development Institute (MARDI).
- Suriansyah, B.
2006 Penyebaran Buaya Senyulong *Tomistoma schegelii* di Danau Sentarum (Distribution of *Tomistoma schegelii* in Danau Sentarum National Park). Internal report. Sintang: Danau Sentarum National Park Authority.

- Surma, E.H.
2007 Oil Palm: Loved and Loathed. In: E.L. Yuliani, D.J. Tadjudin, I. Indriatmoko, D.W. Munggoro, F. Gaban and F. Maulana eds., *Multistakeholder Forestry: Steps for Change*. Bogor: CIFOR.
- UNDP
1998 Forest and Fires in Indonesia: Impacts, Factors and Evaluation. Jakarta: Ministry for Environment.
- Usha, S. and V.R. Harikrishnan
2005 Endosulfan – Fact sheet and Answers to Common Questions. Thiruvananthapuram: IPEN Pesticide Working Group Project.
- van Balen, S. and R.H. Dennis
2000 Birds of Danau Sentarum. *Borneo Research Bulletin* 31:336-358.
- Verwer, C., P. van der Meer and G.J. Nabuurs
2008 Review of Carbon Flux Estimates and Other Greenhouse Gas Emissions from Oil Palm Cultivation on Tropical Peatlands – Identifying the Gaps in Knowledge. Alterra-rapport. Wageningen: Alterra.
- Wadley, R.L.
2006 Wildlife Diversity on the Periphery of Danau Sentarum National Park, West Kalimantan, Indonesia. *Borneo Research Bulletin* 37:157-174.
- Wadley, R. and C.J.P. Colfer
2004 Sacred Forest, Hunting, and Conservation in West Kalimantan, Indonesia *Human Ecology* 32 (3):313-338.
- Wadley, R.L., R.A. Dennis, E. Meijaard, A. Erman, V. Heri and W. Giesen
2000 After the Conservation Project: Danau Sentarum National Park and Its Vicinity – Conditions and Prospects. *Borneo Research Bulletin* 31:385-401.
- Wahyunto and I.N.N. Suryadiputra
2008 *Peatland Distribution in Sumatra and Kalimantan: Explanation of Its Data Sets Including Source of Information, Accuracy, Data Constraints and Gaps*. Bogor: Wetlands International – Indonesia Programme.
- Wahyunto, R.S. and H. Subagio
2004 *Peta Sebaran Lahan Gambut, Luas dan Kandungan Karbon di Kalimantan / Map of Peatland Distribution Area and Carbon Content in Kalimantan 2000 - 2002*. Bogor: Wetlands International – Indonesia Programme & Wildlife Habitat Canada (WHC).
- Wakker, E.
1998 Palm Oil, Crisis, and Forest Loss in Indonesia. WWF, Germany.
- WALHI
2009 Stop Forest Clearing for Oil Palm Plantation. Press release. Pontianak: WALHI-Greenpeace.
- WHO Pesticides Evaluation Scheme (WHOPES)
2008 <http://www.who.int/whopes/en/>. World Health Organization.

Widiyanti, A.

- 2007 Cakupan PE Sawit Akan Ditambah (Scope of Palm Oil Export Tax Will Be Expanded), 15 May [cited 19 May 2009]. Available from <http://www.detikfinance.com/read/2007/05/15/191002/781245/4/cakupan-pe-sawit-akan-ditambah>.

World Growth

- 2009 Palm Oil – The Sustainable Oil. Arlington, VA: World Growth, Palm Oil Development Campaign.

Wulan, Y.C., Y. Yasmi, C. Purba and E. Wollenberg

- 2004 *Analisa konflik sektor kehutanan di Indonesia 1997-2003 (An analysis of forestry conflict in Indonesia from 1997-2003)*. Bogor: CIFOR.

Yuliani, E.L. and A. Erman

- 2005 Present Trend of Resource Use in DSNP. In *Heart of Borneo Conference*. Leiden.

Zen, Z., C. Barlow and R. Gondowarsito

- 2006 Oil Palm in Indonesian Socio-economic Improvement: A Review of Options. *Oil Palm Industry Economic Journal* 6:18-29.

8. FORESTRY AND FISHERY CONFLICT IN DANAU SENTARUM: APPLICATION OF AN IMPAIRMENT APPROACH¹

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Rigorous conflict analysis is needed to develop sound conflict management strategies. The recently proposed “impairment approach” is based on conceptual considerations, but empirical application in natural resources management has been lacking. The approach defines conflict as a situation in which one actor feels “impaired” by the action of another. We explore the applicability of this approach in analyzing inter- and intraethnic conflicts in a wetland conservation area of Danau Sentarum National Park, Indonesia. The park is home to two ethnic groups, Iban and Malay, which depend on forest and fish resources, respectively. Interethnic conflicts reflect local residence patterns and include the Iban communities’ use of fish “poisons,” perceived by the Malay communities as impairment because poisons kill their caged fish and all other fish along the watercourse. In contrast to Malay customary law, the use of poisons is allowed by Iban customary law. Intra-ethnic conflict, between hamlets within a particular group, commonly relates to logging and timber sales and is often triggered by unclear forest boundaries between Iban hamlets and unclear boundaries of fishing zones in Malay areas. This study demonstrates how the use of an impairment approach helps identify the sources of conflict over natural resources.

The unprecedented destruction of tropical forests is receiving worldwide attention (Myers 1985; Laurence 1999; Pimm et al. 2001). Indonesia has responded to its high rate of deforestation by taking important measures to conserve its remaining tropical forests. The Government of Indonesia enacted the Biodiversity Conservation Law in 1990 and ratified the United Nations Convention on Biological Diversity in 1995. By the end of 2005, the government had established 50 national parks with a total area of approximately 15 million ha (Ministry of Forestry 2006). Managers of the parks, however, are confronted with conflicts involving different stakeholder groups (Daniels and Walker 2001; Moeliono and Fisher 2003). The Indonesian experience reflects the common problems of park management, such as uncertain tenure, unclear boundaries,

¹ More material on conflict in this area, with more thorough methodological discussion is available in Yasmi et al. (2007).

conflicts among stakeholders, difficulties with law enforcement and unjust laws (Jamal and Eyre 2003; Castro and Nielson 2003). Rigorous methods of conflict analysis can contribute to providing a sound basis for addressing these problems (FAO 2000; Adams et al. 2003).

Numerous methods and models for conflict analysis exist. Classically, conflict is defined as differences in such things as perceptions, goals or interests (Cosser 1956; Fisher and Ury 1981; Pruitt and Rubin 1986; Bartos and Wehr 2002). According to this definition, differences need to be reduced or eliminated to address conflict. However, scholars also argue that the classic model fails to distinguish between conflict and its antecedent conditions (e.g., Fink 1968; Dadrian 1971). Additionally, this broad definition fails to distinguish conflict from non-conflict situations that also involve differences, which are inevitable and inherent in every social interaction and do not necessarily represent conflict. Alternative models for conflict analysis in natural resources management have also been proposed (e.g., Pinzón and Midgley 2000; Hjørstø et al. 2005), although most do not explicitly distinguish conflict from non-conflict situations.

More recently, an impairment approach (Glasl 1997, 1999; Marfo 2006; Yasmi 2007) defines conflict as a situation in which one actor *feels impaired* by the behavior of another actor because of different perceptions, emotions and interests. Conflict consists of three distinctive features. First, conflict is always attributed to two-actor, opponent-opponent settings: Actor A acts to impair Actor B, and each actor may be one or more individuals or organizations (Marfo 2006). Second, the experience of an actor's behavior as impairment becomes a central part of the definition of conflict. Unless impairment is felt, there is no conflict. Third, factors or conditions that induce such behavior, like the presence of differences, should not be confused with the actual conflict situation; they are the sources of impairment – also often referred to as sources of conflict – that trigger or induce impairing behavior.

Yasmi (2007) inductively derives impairments based on an extensive review of the literature, which argues that impairment plays a pivotal role in conflict over natural resources and that the sources of impairment dictate how a particular impairment manifests itself. The present study explores to what extent the impairment model can be used empirically and, based on that, seeks to generate lessons that may be applicable to wider contexts. We focus on two types of resource conflict (forestry and fisheries) that involve the two main ethnic groups (Iban and Malay) in Danau Sentarum National Park (DSNP). We investigate conflicts that occur between the two groups as well as internal conflicts within a particular group.

Methodology

The identification of impairments and their sources is primarily based on the perceptions of stakeholders who are directly and indirectly involved in conflict (Bernard 2002). Our main strategy to obtain such perspectives is through a case study (Yin 1994). We use an exploratory case study method to go beyond mere description of a case; we require a hermeneutic process (continued interpretation and reinterpretation of social phenomena) (Kyburz-Graber 2004). Our case study site is DSNP. It comprises various types of forest and aquatic ecosystems (Giesen and Aglionby 2000) and has several large

seasonal lakes connected by a dense network of rivers and channels, surrounded by swamps and low hills. Rich in biodiversity, it faces tremendous threats to its ecological integrity from illegal logging, palm oil plantation development and unsustainable fishing practices (e.g., Heri et al., this volume). Its multiple resources are continually contested by stakeholders, and the persistence of various conflicts offers an opportunity for in-depth exploration and learning.

Yasmi conducted semi-structured interviews to elicit stakeholders' perspectives (Gubrium and Holstein 2001; Holstein and Gubrium 2003), including in-depth, face-to-face interviews with 31 key informants, consisting of six Iban, 11 Malays and 14 outsiders (researchers, park rangers, and NGO and district forest service personnel of varying ethnicity). The number of informants represents the saturation point of the data, the point at which interviewing more informants would not provide additional substantive information (Guest et al. 2006) and is also proportional to the size of each stakeholder group.² In addition to interviews, we carried out two focus group discussions, one in an Iban and another in a Malay settlement. We also convened a multi-stakeholder workshop attended by representatives of all stakeholder groups. We double-checked our findings with experts with long-term experience working in the area. Finally, we analyzed our data primarily through qualitative content analysis of the interview texts following iterative steps (e.g., data reduction, categorization, adjustment of categories) described by Mayring (2000).

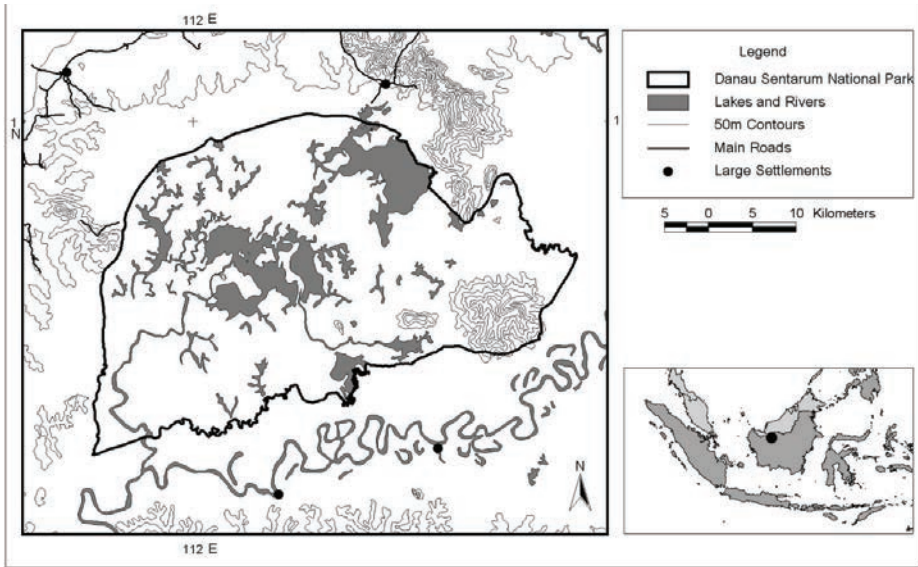
Conflict in Sociopolitical Context Site and Stakeholders

DSNP covers an area of 132,000 ha in the floodplain of the Upper Kapuas River basin, Indonesian Borneo, near the border with Malaysia (Figure 1). It consists of a series of interconnected lakes (*danau*) interspersed with swamp forest, peat swamp forest, and dry lowland forest on isolated hills in the northern and eastern part of the park area (Colfer and Wadley 1999; Dennis et al. 2000a; Anshari et al. 2001). Ninety-five percent of the area is inundated during the flood season (October–April), creating a network of rivers and lakes. During the dry season (May–September) there is an average 12 m drop in water level (Adger and Luttrell 2000). A Ramsar site (a Wetland of International Importance), the park is home to 500 tree species, 250 fish species, 250 bird species, and three crocodile species, as well as orangutans and proboscis monkeys (Giesen and Aglionby 2000; Dennis et al. 2000a).

Local communities depend on fish, timber and nontimber forest products, including rattan, honey and medicinal plants (Harwell 1997). The two major ethnic groups found in DSNP, Iban and Malay, have different livelihood strategies (Colfer et al. 2000). The

² In line with anthropological disclosure of sources of possible bias, Yasmi is a Muslim of Minangkabau ethnicity (from Sumatra) and was associated both with CIFOR and Riak Bumi (an NGO created and run mainly by people for this area). Part of Colfer's contribution (as an American foreigner of culturally Christian background) has been her longer-term experience with and understanding of DSNP lifeways. Unfortunately, given the cultural context and sociopolitical structure of the community in the study area, it proved difficult for Yasmi to interview female informants. Hence, the results may not adequately address women's perspectives.

Figure 1. Location of Danau Sentarum National Park



Iban, who are Christian, are primarily shifting cultivators and hunters. They live in traditional longhouses and occupy the more upland, drier areas surrounding the lakes (Wadley 1997). Although they fish routinely for subsistence along the rivers and around the lakes, fishing is not their primary source of livelihood. The Malay, who are Muslim, are fishers. They reside downstream, around the lakes and along the large rivers, and depend almost exclusively on commercial fishing for their livelihoods (Dudley 2000).

The population in DSNP grew by almost 40 percent between 1985 and 1995 because of a large influx from surrounding areas who came for fishing (Aglionby 1995). These newcomers were, by and large, tied by kinship to the earlier residents and simply increased the population rather than forming additional stakeholder groups. There were 39 permanent and 10 seasonal hamlets recorded within the park in the late 1990s (Giesen and Aglionby 2000).³ In addition, 14 other hamlets located outside the park had utilization zones (e.g., fallows, customary forests) that overlapped with the park boundaries. Of the total settlements, there were only 12 Iban hamlets, 10 of which were outside the park. Erman and Heri (2005) reported that the population of DSNP was about 8,000, of whom 80 percent were Malay “fisherfolk.” With the growing population, increased pressure on aquatic and forest resources, and new involvement of powerful external actors (especially the timber and oil palm industries), conflict among community groups has become more frequent.

³ In Danau Sentarum a hamlet is typically a group of households composed of people from the same ethnic group who share the same geographical area.

Forestry Conflicts

Local forestry conflicts can be best understood by looking at the historical division and utilization of forest resources. The division is primarily based on the location of the hamlet. Every hamlet has its own *wilayah kerja* (utilization zone) (Dennis & Erman 1999). The zone of a particular hamlet is usually distinguished by natural features, such as rivers or hills.⁴ The use of resources in any particular zone is regulated by *hukum adat* (customary law), which stipulates, for instance, how many of which kinds of trees can be harvested, which locations are off-limits to harvesting and for what purposes the trees can be used (Anshari et al. 2005). In Malay settlements, timber is usually used for house and canoe construction, walkways, simple furniture, floating gardens and fish cages. In Iban settlements, there tends to be somewhat less use of timber for floating gardens, fish cages and walkways; other uses remain similar.

Giesen and Aglionby (2000) stated that until the 1980s, extraction of products from forests was quite sustainable. This observation was reinforced by Dennis et al. (1998), who used time-series remote sensing data (1973, 1990 and 1994) to conclude that local forest management appeared to have minimal impact on forest cover. However, in late 1999, Wadley et al. (2000) found signs of illegal logging activity. This finding was confirmed by Anshari et al. (2005), who reported that after the demise of the Suharto regime in 1998, illegal logging activities increased. A common explanation for this phenomenon has been the political instability in the country following the end of Suharto's authoritarian regime. During the transition period of weak state control (1998–2004), many communities took advantage of the situation to make some quick cash, often encouraged by wealthy entrepreneurs from across the border. This period was the peak of illegal logging, and preliminary analysis of time-series satellite imagery corroborates these findings (Dennis, pers. communication).

Illegal logging in DSNP seemed to follow a common pattern. Usually, a hamlet made an agreement with a timber company to log within its utilization zone. In almost all cases, Malaysian timber companies were the major players. These companies used local entrepreneurs as “brokers” to persuade communities to enter into logging deals. The communities received fees from the companies (from \$2 to \$5 per cubic meter) and local infrastructure development assistance (e.g., renovation of longhouses or mosques). During the expansion of illegal logging, conflict increased, particularly between hamlets over unclear boundaries of utilization zones.

Fishery Conflicts

Fishing zones are defined by natural features, such as rivers and lakes. The divisions between the Malay and Iban zones are more pronounced than the divisions among the Malay hamlets. The Iban fishing zones normally exist in the upstream areas, which include rivers and some lakes. The Malays, who live mostly downstream along major rivers and lakes, divide fishing zones among themselves. Sometimes two hamlets share the same river or lake, in which case the boundaries may be rather vague.

⁴ Although each hamlet has a utilization zone, people from other hamlets normally may collect timber and NTFPs if they have permission from the customary leader.

Table 1. Intra-ethnic conflicts in DSNP

<i>Conflict case</i>	<i>Actor A</i>	<i>Impairing behavior of Actor A</i>	<i>Actor B</i>	<i>Explanation of why B perceives A's behavior as impairment</i>	<i>Source of impairment</i>
1	Iban	Using poison in fishing	Malay	Destroying/causing death to caged fish, jeopardizing fish stocks	Differences in customary laws
2	Malay	Fishing in Iban territory	Iban	Disrespectful to one's utilization zone, jeopardizing fish stocks	Decreasing fish resources

Fishers in DSNP use lift nets, funnel nets, cast nets, gill nets, traps, hooks-and-lines, and other practices (Dudley 2000). The intensity of fishing activities is highly influenced by the water level, reaching its peak during the dry season. Each hamlet has its own *adat* (customary regulations) that control fishing activities, such as regulation on gears (allowed or prohibited, allocated by lottery, seasonal), locations for fishing, and sanctions and fines. The *ketua nelayan* (head of the fishers) in each hamlet ensures compliance with the area's practices. Conflict often emerges when someone breaches the *adat* by, for instance, using prohibited gear or entering another fishing zone without permission.

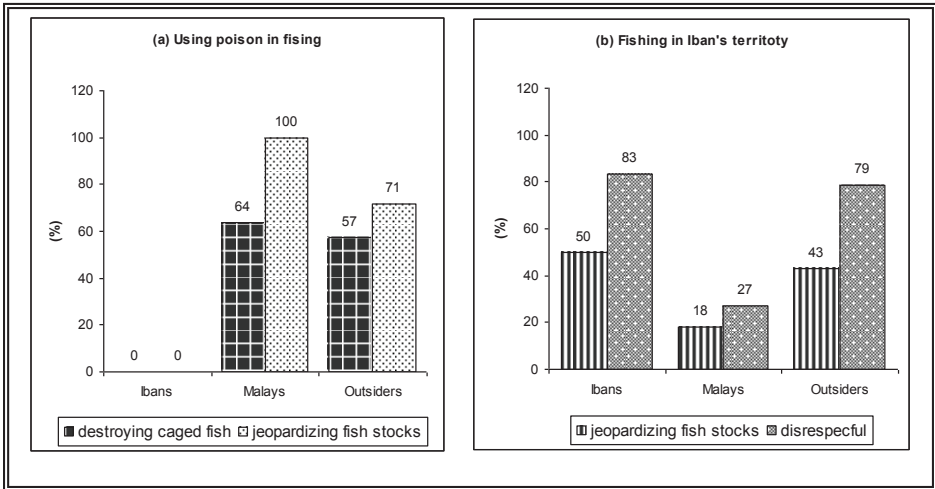
Actors, Impairments, and Interethnic Conflicts

Interethnic conflicts in Danau Sentarum have predominantly been between the Iban and the Malays in recent decades. Following the impairment approach, we distinguish between Actor A, who impairs another actor, and Actor B, who feels impaired. We specify A's actions that are experienced by B as impairment. We seek B's perspectives on why such actions are felt as impairment. Furthermore, we seek explanation on the factors or conditions that induce A's actions (sources of impairment). Table 1 summarizes the most significant interethnic conflicts in DSNP.

The use of chemical poisons by the Iban was the major concern among Malays. They perceived this practice to be very destructive because it killed all fish along the watercourse, including caged fish in downstream settlements. A respondent reported three times (1990, 1994 and 1997) during the past two decades when poisoning caused major problems; another, more recent incident was mentioned by Malay respondents during interviews and focus group sessions. Poisoning indeed has a long history in Iban tradition, though the traditional poison, *tuba*, is far less harmful than the commercial poisons frequently used today. Whereas the Malays considered poisoning very dangerous, the Iban commonly saw it as an acceptable method rooted in their tradition and customary laws. An Iban respondent argued, "The use of poison is not dangerous at all for fish stocks because we only use it during a certain period of the year and not on a continuous basis. Poisoning is our tradition that we inherited from our ancestors."

A second interethnic conflict relates to fishing by some Malay, particularly those who live in the upper river basin close to Iban settlements. An Iban respondent said, "We often encounter the Malay fishing in our area without prior permission from our customary

Figure 2. Perceptions of actors on interethnic conflicts between Malays and Iban



leader. They do not respect our territory and also they endanger our fish stocks. We often confiscate their fishing equipment and enforce fines according to our customary laws.” Fishing by Malays in Iban utilization zones was perceived as impairment by the Iban. The Malays said they had to fish far from their own hamlets because of the difficulty of catching fish and the decreasing amount of fish in recent times. This condition had led them to fish farther and very often to enter the Iban utilization zones.

Figure 2 summarizes the perceptions of each stakeholder group, including the perception of outsider groups, and reveals the very large discrepancy in perceptions between the Iban and the Malays. For example, all Malay respondents said that using poisons jeopardized the fish stocks, and 64 percent believed that it destroyed their caged fish (Figure 2a). The Iban respondents did not share this view. The perceptions of outsiders were similar to those of the Malays: 71 percent considered poisoning dangerous for fish stocks and 57 percent said that it damaged the Malays’ caged fish.

Furthermore, the perceptions of stakeholders on the second conflict case, where Malays entered Iban territories, also varied considerably (Figure 2b). For instance, 83 percent of the Iban perceived such entry as a disrespectful act and 50 percent as a threat to the fish stocks in their territories. However, some Malay respondents considered it acceptable: they said they had to fish there because of the lack of fish in Malay territories. Some Malay respondents acknowledged that their fishing in Iban territories was indeed a disrespectful act (27 percent) and could jeopardize fish stocks (18 percent). However, they felt that they had no other choice and therefore they continued to fish there. Outsiders perceived this conflict as mainly the result of disrespectful acts by the Malays, who were jeopardizing the Iban fish stocks.

Actors, Impairments, and Intra-Ethnic Conflicts

Table 2 summarizes four types of intra-ethnic conflict. In the Malay settlements, certain types of fishing gear, particularly *jermal* (small mesh funnel nets), *pukat* (gillnets)

Table 2. Intra-ethnic conflicts in DSNP

<i>Conflict case</i>	<i>Actor A</i>	<i>Impairing behavior of Actor A</i>	<i>Actor B</i>	<i>Explanation of why B perceives A's behavior as impairment</i>	<i>Source of impairment</i>
1	Malay	Using "destructive" fishing gear	Malay	Jeopardizing fish stocks	Differences in customary laws
2	Malay	Fishing in another's zone	Malay	Disrespectful of one's utilization zone, jeopardizing fish stocks	Unclear boundaries of fishing zones, decreasing fish stocks (scarcity)
3	Malay	Logging in another's zone	Malay	Threat to conservation initiative	Unclear boundaries of forest zones
4	Iban	Logging in another's zone	Iban	Disrespectful to one's utilization zone, threat to future access	Unclear boundaries of forest zones

and *rabai* (multiple hooks), were considered harmful for fish stocks because they caught fish of all sizes (including small species and juveniles) and were forbidden. A few hamlets, however, did not have such customary laws. Conflict often emerged when two hamlets shared the same river or lake but had different laws.

Another intra-ethnic conflict in the Malay area was fishing in another hamlet's utilization zone without permission. This type of incident was frequently reported, as illustrated by a respondent in Leabo:⁵ "People from Laje often come to our area without permission. They fish here as if this lake and river belongs to them. We often warn them not to come again but they just ignore us. In the past, we had to confiscate their fishing gear and canoes. We even burned them." The fishing practices of Laje people were perceived as impairment because they did not respect Leabo's fishing zone. More importantly, the Leabo people were concerned about their fish stocks if Laje people continued to fish there. The incidents derived primarily from unclear fishing boundaries. Another stated reason was the low fish catches, which led many people to fish outside their utilization zone. Numerous respondents complained that fish stocks had decreased dramatically. This scarcity issue was also discussed during a multi-stakeholder workshop, and many attributed it to the increased human population, overfishing and use of destructive fishing gears. Evidently, because of the scarcity perceived by many fishers and the increasing number of households (see Indriatomoko, this volume), the issue of fishing zone boundaries has become more important and often the source of prolonged disputes.

The third type of conflict relates to forestry. In 2003, two Malay hamlets, Pangemo and Gantuno, became embroiled in an intense conflict. Gantuno, which was committed to conserving its forest, observed that the timber company working with Pangemo had cut trees in the Gantuno forest area. Pangemo said that the company only operated within

5 All hamlet names used to illustrate conflict cases are pseudonyms.

its own utilization zone. The two hamlets established a joint team of representatives to survey the area under dispute. After weeks of debate, the boundaries were finally clarified; the result being that the timber company was found to have logged in Gantuno's forest. A fine of 20 million Rupiah (approximately US\$2,000⁶) was subsequently imposed on Pangemo.

A community leader from Gantuno explained why logging was perceived to be an impairment to the conservation initiative that he promoted:

We in Gantuno are committed to not selling our forest to any company. We do not want to follow others who auction their forests. We will conserve it for our future generations, children and grandchildren. It is our last resort and we do not want to destroy it. If we log our forest today, in the future we will have difficulties in finding timber for housing, canoes, fish cages and furniture. We felt threatened when the company working with Pangemo entered our forest without permission and cut our trees. We could not accept that and we decided to stop them by force.

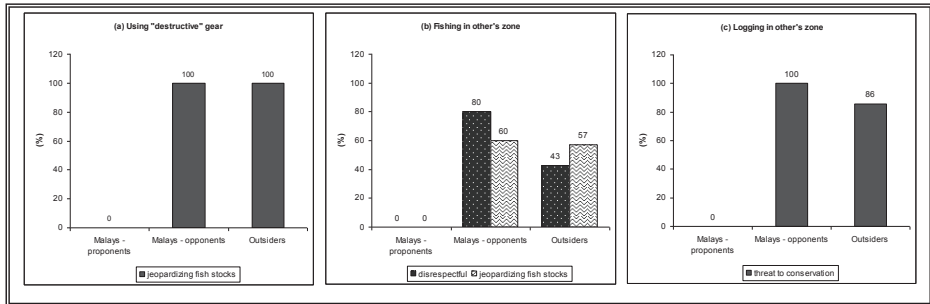
Respondents stated that unclear forest zone boundaries were the main source of this conflict.

Figure 3 illustrates how stakeholders perceived the three cases of intra-ethnic conflicts in the Malay settlement described above. For example, the perception of fishing gear differed significantly (Figure 3a). The opponents (the impaired actors) of such gear considered it a "threat" (100 percent); proponents obviously did not share this view. Outsiders (researchers, park rangers, and NGO and district forest service personnel) also considered the use of such gear unacceptable on the grounds that it jeopardized fish stocks. For the second intra-ethnic conflict case (Figure 3b), the opponents perceived fishing in another's zone as impairment because it was disrespectful (80 percent) and it jeopardized fish stocks (60 percent). Most outsiders also perceived this practice as unacceptable. Finally, in the case of forestry conflicts (Figure 3c), all opponents perceived logging as a threat to conservation. Similar to the perceptions of opponents, most outsiders perceived logging as a threat to conservation.

The fourth case of intraethnic conflict was between two neighboring Iban hamlets, Peleju and Malele, which had entered into agreements with various timber companies. The problem emerged when Malele accused Peleju of felling trees in its utilization zone; Peleju denied the charge of trespass. Meanwhile, community members from Malele confiscated all logging equipment and requested Peleju to cease activity immediately. Several attempts to resolve the conflict failed, and logging was halted for several months. The forest boundaries could not be resolved even after months of negotiation. Our interviews revealed that the people of Peleju thought Malele residents were jealous because they had not received assistance from the company to renovate their longhouse. Malele said that Peleju had breached the boundaries and that compensation must be paid for all trees taken from its forest. For both sides, claiming forest area and maintaining their claims were important to securing future access to the forest resources. A respondent

6 Based on the exchange rate in June 2009.

Figure 3. Perceptions of actors on intra-ethnic conflict among Malays



in Malele said,

The logging company that got the permit from Peleju entered our forest without permission. We fear that they will continue to log our forest if we do not stop them immediately. The result will be devastating as we will lose our forest for nothing and our future generations will also lose their access to the forest. For this reason, we will have to stop them.

The concerns about logging were based on Malele residents' belief that their utilization zone was not respected. Their inability to stop the logging would strengthen Peluju's claim to the area, given the significance of land clearing in claims to land, in Iban tradition. Similar conflicts have occurred in many other hamlets throughout DSNP. One of the respondents explained

In the past these two hamlets never fought each other. We originated from one family. Now, because the possibility to cut trees from the forests is open, we start to dispute the boundaries. Every hamlet wants to claim a bigger area to get more money from selling the trees. In the past we never thought seriously about boundaries because it was difficult to log the forests and people were afraid of being caught by the military.

Discussion

This study shows that the impairment model, previously applied in natural resources management only theoretically (see Yasmi 2007; Marfo 2006), can be used for analyzing conflict cases and identifying impairments, sources of impairment and actors in a field study. We can draw several lessons from our work. First, the impairment model seems to allow us to identify conflict explicitly. For example, in the interethnic conflicts between the Malays and Iban, we could identify the specific actions that were considered impairments (e.g., using poison that destroys fish stock) and led to conflict. The impairment approach bases the analysis on an actual behavioral situation, whereas conventional approaches pay more attention to underlying differences. The interethnic conflict can be partially

explained by the differences in customary law between the Iban and the Malays (see Coser 1956; Fisher and Ury 1981; Pruitt & Rubin 1986; Bartos and Wehr 2002), but such differences are normal and do not lead to conflict unless they result in impairing actions. The impairment model helps clarify when a particular conflict actually emerges – that is, only after the impairment is felt. Thus the impairment model – while not necessarily replacing conventional approaches – adds value to our analysis by making the distinction between conflict and nonconflict situations more explicit. It should not be considered superior to other approaches but rather complementary to the recent rapid stakeholder and conflict assessment and system model approaches introduced by Hjørstø et al. (2005) and Pinzón and Midgley (2000), respectively.

Second, this study shows that differences per se are not conflict but, rather, a reflection of the underlying sources of conflict or the antecedent conditions, as described by Fink (1968) and Dadrian (1971). Differences trigger certain actions, and only after such actions are experienced as impairment does conflict emerge. From this study, it becomes clear that natural resource conflicts are triggered when differences like customary laws and interpretation of boundaries clash. The dimensions of conflict are broad and not limited to interests per se (Daniels and Walker 2001). Given the complex institutional arrangements and the diversity of values (both material and cultural) attached to natural resources management, the sources of impairment and the range of underlying sources and actors associated with conflict are diverse. This study and others (Daniels and Walker 2001; Marfo 2006) show that a particular actor can engage in conflict with various other actors at the same time, as when ethnic groups clash over resources at the same time as hamlets within each group come into conflict. Hence, our finding is consistent with the majority of other studies that natural resource conflict usually involves multiple actors (Doornbos et al. 2000; Adams et al. 2003; Jamal and Eyre 2003).

Finally, while there is no panacea, what is needed to resolve conflicts is elimination of the impairments, which means paying attention to the underlying sources and conditions that trigger impairing behavior. In the case of DSNP, this may mean, for example, political efforts to ensure that customary laws and boundary interpretations are complementary and support each other. To achieve this objective, stakeholders must be willing to work in partnership, engage in mutually agreeable joint processes and jointly define their roles and responsibilities. Government officials, park managers or local NGOs could play facilitative roles to reconcile conflicts, and traditional leaders may represent particular hamlets' views in negotiations to reconcile many conflicting rules and regulations. Apart from policy-level actions, there are implications for practical resource management as well. The biggest question that needs critical reflection is how can we enable or stimulate stakeholders to use their capacities to cope with impairment and its sources creatively and effectively. Given the various impairments and their sources, to what extent can stakeholders maximize internal resources to cope better with conflict? And finally, when and how should they seek outside help from mediators or facilitators? Perhaps the co-management arrangement currently being proposed can be productive in DSNP (see Yuliani et al. 2008), and lessons can be drawn from other co-management experiences in Indonesia (e.g., Kusumanto et al. 2005; Tomich and Lewis 2001; Yasmi 2003; Yuliani et al. 2008) and elsewhere (Diaw et al. 2009; Fisher et al. 2007; Hartanto et al. 2003; McDougall et al. 2008). More research is clearly needed.

Conclusions

The “impairment model” seems to offer significant potential for analyzing natural resource conflicts from both theoretical and empirical points of view. This study indicates that conflict can be distinctly identified based on the empirical assessment of impairments, rather than differences. Instead of analyzing conflict in terms of differences in interests, perceptions or goals, the impairment model helps to distinguish conflict clearly from its antecedent conditions through three empirically distinct features: actors, impairments and sources of impairment. As shown throughout the paper, resource use conflicts involve different constellations of actors and may revolve around a number of impairments, such as using poison in fishing, logging in another’s zone, and using destructive fishing gear. The common sources of such impairments in DSNP are conflicting customary laws, resource scarcity, and unclear territorial boundaries (with the insertion of powerful outside actors being an additional catalyst in some cases). Cultural and religious differences and historical animosities add another layer of meaning to the impairments that emerge. The impairment model adds value to existing conflict models by providing clearer distinctions between conflict and nonconflict situations. However, more application of the impairment model in natural resources management contexts is needed to explore its full potential.

The presence of conflict over resource use with different kinds of impairments, actors and sources suggests the need to develop mechanisms for effective conflict management that can respond to such dynamics. Conflict among different groups over unsustainable resource extraction is one of the critical challenges in managing national parks for biodiversity conservation. One implication that can be drawn is that establishing a national park should take into account the needs and aspirations of local communities. Any initiative for biodiversity conservation is likely to fail if local people’s needs are not adequately addressed. In this context, the impairment approach offers an advantage: it allows us to anticipate conflict. If one knows what people consider impairment and the sources of such impairment, we should then be better able to address natural resource conflict in a timely manner, before it escalates.

Acknowledgments

This study was carried out when the first author was working for Wageningen University and CIFOR at the time, and now works for RECOFTC in Bangkok, Thailand; the second author works for CIFOR, in Bogor, Indonesia. Financial and logistical support was provided by both organizations for which we are very thankful. We are indebted to Heiner Schanz, Bas Arts, Doris Capistrano, Linda Yuliani, Rahayu Koesnadi and Yayan Indriatmoko. Jefri of Park Management of TNDS (BKSDA), Valentinus Heri of the NGO, Riak Bumi, and Gusti Anshari and Zulkifli of another NGO, Konservasi Borneo, helped in many ways. We also thank the two anonymous reviewers for their constructive critiques. Finally, this study would not have been possible without the help of many communities in Danau Sentarum National Park; what we present here draws heavily on their knowledge.

References

- Adams, W.M., D. Brockington, J. Dyson and B. Vira
2003 Managing Tragedies: Understanding Conflict over Common Pool Resources. *Science* 302:1915-1916.
- Adger, W.N. and C. Luttrell
2000 Property Rights and the Utilization of Wetlands. *Ecological Economics* 35:75-89.
- Aglionby, J.
1995 The Economics and Management of Natural Resources in Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia: A Collection of Papers. Indonesia-UK Tropical Forestry Management Programme, Project 5: Conservation. Asia Wetland Bureau, Bogor.
- Anshari, G., A.P. Kershaw and S. van der Kaars
2001 A Late Pleistocene and Holocene Pollen and Charcoal Record from Peat Swamp Forest, Lake Sentarum Wildlife Reserve, West Kalimantan, Indonesia. *Paleogeography, Paleoclimatology, Paleoecology* 171:213-228.
- Anshari, G.Z., Zulkifli and N.W. Handayani
2005 Aturan-aturan Tradisional: Basis Pengelolaan Taman Nasional Danau Sentarum. Wana Aksara, Banten.
- Bartos, O.J. and P. Wehr
2002 *Using Conflict Theory*. Cambridge: Cambridge University Press.
- Bernard, R.
2002 *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Lanham: AltaMira Press.
- Castro, A.P. and E. Nielson, eds.
2003 Natural Resource Conflict Management Case Studies: An Analysis of Power, Participation and Protected Areas. Rome: FAO.
- Colfer, C.J.P. and R.L. Wadley
1999 Assessing "Participation" in Forest Management: Workable Methods and Unworkable Assumptions. CIFOR Working Paper No. 12. Bogor: CIFOR.
- Colfer, C.J.P., A. Salim and R.L. Wadley
2000 Understanding Patterns of Resource Use and Consumption: A Prelude to Co-Management. *Borneo Research Bulletin* 31:29-88.
- Coser, L.A.
1956 *The Functions of Social Conflict*. New York: Free Press.
- Dadrian, V.N.
1971 On the Dual Role of Social Conflicts: An Appraisal of Coser's Theory. *International Journal of Group Tensions* 1(4):371-377.

- Daniels, S.E. and G.B. Walker
2001 *Working through Environmental Conflicts: The Collaborative Learning Approach*. Westport, CT: Praeger.
- Dennis, R.A., A. Puntodewo and C.J.P. Colfer
1998 Fishermen, Farmers, Forest Change and Fire. *GIS Asia Pacific* 4 (1):26-30.
- Dennis, R.A. and E. Erman
1999 Mapping Community Resource Use Zones in the Danau Sentarum Wildlife Reserve, Indonesia: A Tool for Protected Area Management. Proceedings of the 13th Global Biodiversity Forum, San Jose, Costa Rica. Switzerland: IUCN.
- Dennis, R.A., A. Erman and E. Meijaard
2000a Fire in Danau Sentarum Landscape: Historical, Present Perspectives. *Borneo Research Bulletin* 31:123-137.
- Dennis, R.A., A. Erman, F. Stolle and G. Applegate
2000b The Underlying Causes and Impacts of Fires in South-East Asia. Site 5 Danau Sentarum, West Kalimantan Province, Indonesia. Bogor: CIFOR.
- Diaw, M.C., T. Aseh and R. Prabhu, eds.
2009 In Search for Common Ground: Adaptive Collaborative Management in Cameroon. Bogor: CIFOR.
- Doornbos, M., A. Saith and B. White, eds.
2000 *Forests: Nature, People, Power*. Boston: Blackwell.
- Dudley, R.G.
2000 The Fishery of Danau Sentarum. *Borneo Research Bulletin* 31:261-306.
- Erman, A. and V. Heri
2005 Registrasi Kawasan Kelola Rakyat Dan Identifikasi Kebutuhan Masyarakat Dalam Pengelolaan Sumberdaya Alam Di Kawasan Taman Nasional Danau Sentarum. Riak Bumi, Pontianak.
- Fink, C.F.
1968 Some Conceptual Difficulties in the Theories of Social Conflict. *Journal of Conflict Resolution* 12 (4):412-460.
- Fisher, R. and W.L. Ury
1981 *Getting to Yes: Negotiating Agreement without Giving In*. New York: Penguin Books.
- Fisher, R.J., R. Prabhu and C. McDougall, eds.
2007 Adaptive Collaborative Management of Community Forests in Asia: Experiences from Nepal, Indonesia and the Philippines. Bogor: CIFOR.
- Food and Agriculture Organization (FAO)
2000 Conflict and Natural Resource Management. Rome: FAO.
- Giesen, W. and J. Aglionby
2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.

- Glasl, F.
1997 Konfliktmanagement: Ein Handbuch fuer Fuehrungskraefte, Beraterinnen und Berater, 5. erweiterte Auflage (<http://home.tonline.de/home/Prospectus/Escalationtable.html>) (25 March 2001).
1999 *Confronting Conflict: A First-Aid Kit for Handling Conflict*. Gloucestershire: Hawthorn Press.
- Gubrium, J.F. and J.A. Holstein
2001 *Handbook of Interview Research: Context and Method*. Thousand Oaks, CA: Sage Publications.
- Guest, G., A. Bunce, and L. Johnson
2006 How Many Interviews Are Enough? An Experiment with Data Saturation and Variability. *Field Methods* 18 (1):59-82.
- Hartanto, H., M.C. Lorenzo, C. Valmores, L. Arda-Minas, L. Burton, and A. Frio
2003 Learning Together: Responding to Change and Complexity to Improve Community Forests in the Philippines. Bogor.
- Harwell, E.
1997 Law and Culture in Resource Management: An Analysis of Local Systems For Resource Management in the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. Bogor: Wetlands International.
- Hjortso, C.N., S.M. Christensen, and P. Tarp
2005 Rapid Stakeholder and Conflict Assessment for Natural Resource Management Using Cognitive Mapping: The Case of Damdoi Forest Enterprise, Vietnam. *Agriculture and Human Values* (22):149-167.
- Holstein, J.A. and J.F. Gubrium
2003 *Inside Interviewing: New Lenses, New Concerns*. Thousand Oaks, CA: Sage Publications.
- Jamal, T. and M. Eyre
2003 Legitimation Struggles in National Park Spaces: The Banff Bow Valley Round Table. *Journal of Environmental Planning and Management* 46 (3):417-441.
- Kyburz-Graber, R.
2004 Does Case-Study Methodology Lack Rigour? The Need for Quality Criteria for Sound Case-Study Research, as Illustrated by a Recent Case in Secondary and Higher Education. *Environmental Education Research* 10 (1):53-65.
- Kusumanto, T., L. Yuliani et al.
2005 Learning to Adapt: Managing Forests Together in Indonesia. Bogor: CIFOR.
- Laurence, W.F.
1999 When Bigger Is Better: The Need for Amazonian Mega-Reserve. *Trends in Ecology and Evolution* 20 (12):645-648.

- Marfo, E.
2006 *Powerful Relations: The Role of Actor-Empowerment in the Management of Natural Resource Conflict*. PhD thesis, Wageningen University.
- Mayring, P.
2000 Qualitative content analysis. *Forum: Qualitative Social Research* [On-line Journal]. Available at <http://www.qualitative-research.net/fqs-texte/2-00/2-00mayring-e.pdf>, accessed July 2006.
- McDougall, C., H. Ojha, M. Banjade, B.H. Pandit, T. Bhattarai, M. Maharjan, and S. Rana
2008 *Forests of Learning: Experiences from Research on an Adaptive Collaborative Approach to Community Forestry in Nepal*. Bogor: CIFOR.
- Ministry of Forestry of Republic of Indonesia
2006 Taman Nasional di Indonesia (<http://www.dephut.go.id>) (8 August).
- Moeliono, I. and L. Fisher
2003 Research as Mediation: Linking Participatory Action Research to Environmental Conflict Management in East Nusa Tenggara, Indonesia. In: A.P. Castro and E. Nielsen, eds., *Natural Resource Conflict Management Case Studies: An Analysis of Power, Participation and Protected Areas*. Rome: FAO, pp. 60-79.
- Myers, N.
1985 Tropical Deforestation and Species Extinctions. *Futures* 17 (5):451-463.
- Pimm, S.L., M. Ayres, A. Balmford, G. Branch, K. Brandon, T. Brooks, R. Bustamante, R. Costanza, R. Cowling, L.M. Curran, A. Dobson, S. Farber, G.A.B. da Fonseca, C. Gascon, R. Kitching, J. McNeely, T. Lovejoy, R.A. Mittermeier, N. Myers, J.A. Patz, B. Raffle, D. Rapport, P. Raven, C. Roberts, J.P. Rodriguez, A.B. Rylands, C. Tucker, C. Safina, C. Samper, M.L.J. Stiassny, J. Supriatna, D.H. Wall and D. Wilcove
2001 Environment: Can We Defy Nature's End? *Science* 293:2207-2208.
- Pinzón, L. and G. Midgley
2000 Developing a Systemic Model for the Evaluation of Conflicts. *Systems Research and Behavioural Science* 17:493-512.
- Pruitt, D.G. and J.Z. Rubin
1986 *Social Conflict: Escalation, Stalemate, and Settlement*. New York: McGraw-Hill.
- Tomich, T.P. and J. Lewis
2001 Putting Community-Based Forest Management on the Map. ASB policy brief 2, Altern. Slash-and-Burn Program, Nairobi.
- Wadley, R.L.
1997 Circular Labor Migration and Subsistence Agriculture: A Case of the Iban in West Kalimantan, Indonesia. Ph.D. dissertation, Arizona State University.
- Wadley, R.L., R.A. Dennis, E. Meijaard, A. Erman, V. Heri and W. Giesen
2000 After the Conservation Project: Danau Sentarum and Its Vicinity – Conditions and Prospects. *Borneo Research Bulletin* 31:385-401.

Yasmi, Y.

2003 Understanding Conflict in the Co-Management of Forests: The Case of Bulungan Research Forest. *International Forestry Review* 5 (1):38–44.

2007 Institutionalization of Conflict Capability in the Management of Natural Resources: Theoretical Perspectives and Empirical Experience in Indonesia. Ph.D. thesis, Wageningen University.

Yin, R.K.

1994 *Case Study Research: Design and Methods*. Thousand Oaks, California: Sage Publications.

Yuliani, E.L., H. Adnan, and Y. Indriatmoko

2008 The Use of Appreciative Inquiry as a Tool for Enhancing Adaptive Capacity in Natural Resources Management. Paper presented at International Association for the Study of the Commons conference, Cheltenham, UK, 14-18 July.

9. ORCHIDS AS A CATALYST FOR CONSERVATION BY THE LOCAL COMMUNITIES OF DANAU SENTARUM

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Conservation is often seen as a threat to people's rights and access to resources, and material development (e.g., infrastructure, industries) appears to governments and most local people as the only way to improve their welfare. Consequently, conservation and development have been placed in opposition. This situation prevails in Danau Sentarum National Park (DSNP) (Heri et al., this volume), as well as in many other protected areas around the globe (Chatty and Colchester 2002; Veit et al. 2008). To bridge the gap between conservation and development, economists have developed many concepts, including ecological economics and payments for environmental services.

In our view, however, development can be designed to match conservation objectives and need not be narrowly seen as material development only, and conservation can also be designed to provide long-term benefits for the people. This concept is similar to the Rights-Based Approach (see Campese et al. 2009). DSNP has great potential to test this view. Its natural beauty, high biodiversity, traditional fishery and local people's cultures are treasures that can be managed sustainably for the benefit of local people. One of its natural wonders with the most potential is the wild orchid. Based on the park's geographical and biophysical characteristics, at the beginning of our study we predicted that scores of wild orchid species are living in the park. Yet they had not been studied in detail, and the potential of orchid conservation for the benefit of local people had never been explored. Previous studies have discovered many new species in the park, with the notable exception of *Orchidaceae*. There were only 13 orchid species listed in Giesen (2000), who did a vegetation inventory there.

This study has two interlinked objectives: first, to identify and record wild orchid species in DSNP and surrounding areas, and second, to explore how orchid conservation might benefit local people. Part of a larger project conducted by CIFOR and Riak Bumi Foundation since 2005, we aimed in this work to promote good governance of areas protected under decentralization and to look for conservation schemes that could improve local people's livelihoods and provide long-term benefits (see Yuliani et al. 2008a).

Orchids: Importance and Threats

Orchids are significant scientific, conservation, economic, and genetic resources. Orchidaceae is the largest family of flowering plants (Angiosperma), comprising 796 genera and approximately 17,500 species (Allaby 2001).¹ Based on DNA studies, orchids are an ancient family whose most recent common ancestor lived in the Late Cretaceous, 76 million to 84 million years ago (Ramirez et al. 2007). National, regional, and international orchid societies actively promote conservation of these plants, conduct studies, and build databases.

On the economic side, wild orchids command a high price in domestic and international markets, and orchid export is a big business. For example, one Bornean endemic orchid, *Bulbophyllum beccarii*, which is protected by Indonesian law, trades illegally in Indonesian cities for prices between IDR 600,000 and 1,500,000 (US\$60 to \$150).²

High selling prices have encouraged overexploitation and smuggling, particularly since many wild orchids cannot be cultivated in nurseries, due to environmental conditions in nurseries differing from those in the wild. In one of several cases of large-scale wild orchid smuggling from Indonesia's forests, 1,500 lady's-slipper orchids were illegally exported from Indonesia to the United States in the early 1990s; the perpetrators were caught by U.S. authorities (Trade and Environment Database, no date). In another case, in 2007, smugglers carrying 332 kg of wild orchid clusters from Maluku were detected at a port in the province (Holle 2007).

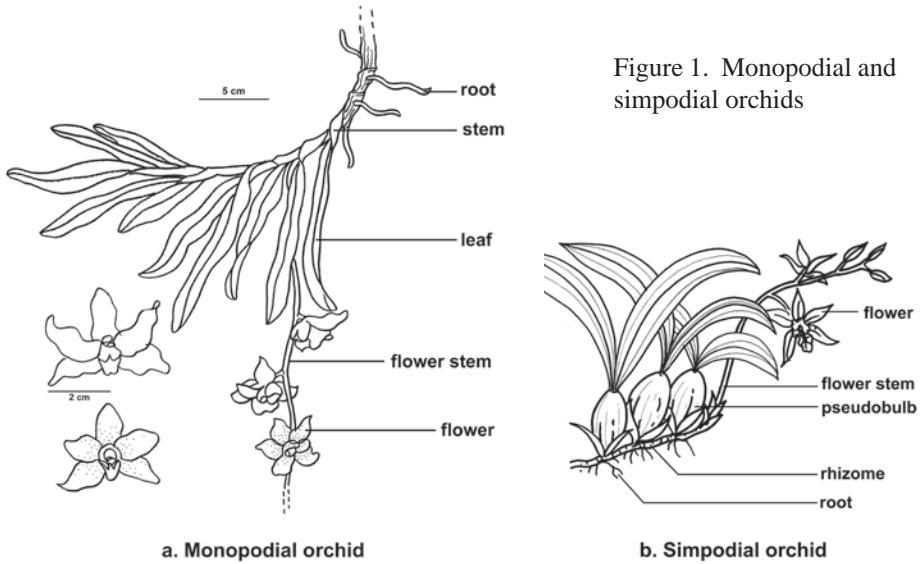
Wild orchids are a genetic resource used to produce new strains and particular characteristics, such as long-lasting flowers. Orchids also have cultural significance and have been appreciated for centuries: orchid motifs were worked in gold on Javanese historical ornaments (Hasrinuksmo 2004), and the blades on Indonesian *keris* (ceremonial knives) from the Kediri Kingdom (1042–1222) were decorated with orchid shapes thought to be *Vanda batmanii* or *Vandopsis lisosiloides* (Suronegoro 1984). The cultural significance of orchids often escapes the attention of conservationists, policy makers, researchers, and community-facilitating NGOs.

A lack of understanding among local stakeholders about the many values of wild orchids and the importance of their conservation has led to overexploitation and smuggling, most often by outsiders, leaving no or very few benefits for local communities. Forest-dwelling villagers in Jambi are paid only US\$0.75 for selling two or three stems of the giant orchid³ (*Grammatophyllum speciosum*), whose price in the Indonesian ornamental plant market is around US\$10 to \$20. Orchids growing on tree trunks and bark are worth US\$750 to \$1,500, but the trees are cut down and burned, as are the orchids, from a lack of understanding of their value. The large-scale conversion of forests to other land uses, such as monoculture plantations, intensive farming, and mining, could even lead to the extinction of certain species.

1 The precise number of species is unknown because of taxonomic disputes. Kew Royal Botanical Garden lists 880 genera and 22,000 species.

2 Data were collected in 2006–2008. Between then and when this article was written, in 2009, the USD-IDR exchange rate fluctuated. All calculations here use the exchange rate US\$1 = IDR 10,000. Prices in 2006.

3 Also known as tiger orchid, sugar cane orchid and queen of the orchids



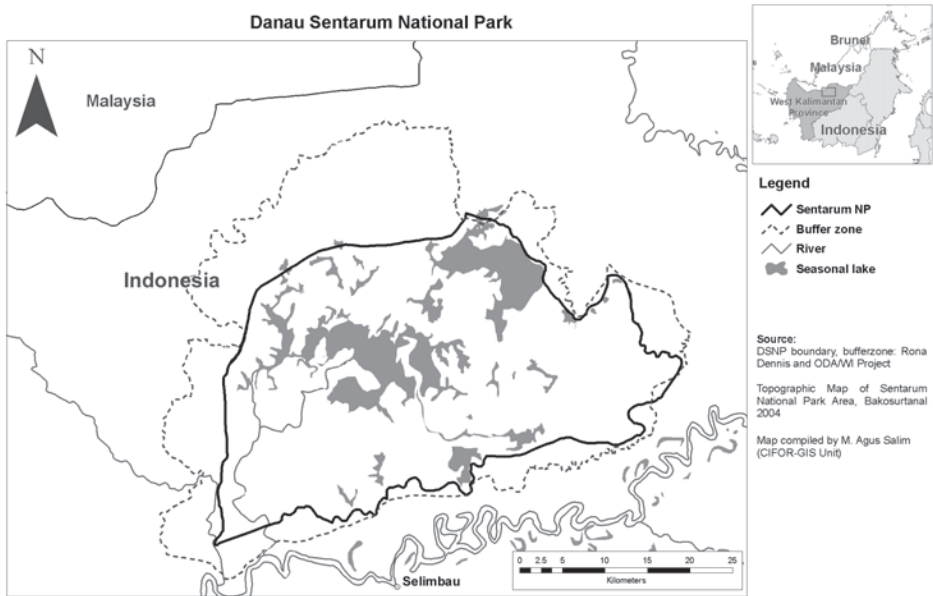
Orchid Biology

Orchids are cosmopolitan (Arditti 1992), found in almost every type of habitat ranging from the tropics and temperate zones to the fringes of the Arctic circle and places close to Antarctica. Most genera and species, however, are found in moist places in the tropics. The majority of orchid species are epiphytic (adhering to trees), with a small number being terrestrial (growing on the ground). Epiphytic orchids can survive with little precipitation or even in drought conditions because they take moisture from the surrounding air and store water reserves in their pseudobulbs, containers that form in the stems. Orchid roots have a symbiotic relationship with fungi (*mycorrhiza*), which helps them absorb nutrients from the surrounding environment.

Orchids are divided into two groups, based on their growth patterns: monopodial and simpodial. Monopodial orchids grow from a single main stem and continue to grow in one direction. Simpodial orchids have limited growth, and the next growth stage is to the side, through a stem shoot.

Some orchid species have been used as medicinal plants. The first publications on Indonesian plants, in the 1800s, describe most orchids as medicinal plants rather than ornamental plants. On Java, for instance, *Platanthera suzane* has been used as a remedy for skin ailments (Suryowinoto 1982). In Jambi, the giant orchid *Grammatophyllum speciosum* is used as a jaundice medicine, and in Poso, powdered orchid seeds are used to cover old and new wounds.

Figure 2. Map of Danau Sentarum National Park and its surrounding area



Area Description

Danau Sentarum is a wetland comprising 83 seasonal lakes interconnected with swamp, swamp forest, and small islands (Jeanes 1997). The lakes are submerged for eight to 10 months a year, and dry for the remaining two to four months. Relative humidity in the region ranges from 40 to 95 percent, average annual rainfall is around 3,900 mm in the park and 4,500 to 6,000 mm in the surrounding hills and mountains, which constitute the park's water catchment areas (Giesen and Aglionby 2000); midday air temperatures range from 30° to 36°C in the shade (Jeanes 1997). These conditions are favorable to the growth of wild orchids.

Giesen (2000) categorized wetland vegetation in DSNP as dwarf swamp forest, stunted swamp forest, tall swamp forest, riparian forest, hill forest, heath forest, secondary shrub, burned area regrowth, floating meadow, and lakebed vegetation. This classification of vegetation types was also used by Dennis et al. (2000) in her research. Our original plan was to document the orchid species in each of these vegetation types, but further investigation led us to identify 10 different categories more relevant to orchid growth, as follows⁴:

Rocky hilltop. The peak of Tapah Hill (elevation 330 m) has extreme conditions⁵: a rocky substrate low in nutrients, 100 percent sunlight in some places, high winds and heavy rain with no trees to reduce its intensity. Dwarf trees grow between rocks. Levels

⁴ Floating meadow and lakebed vegetation ecosystems were not orchid habitats, and two ecosystem types (secondary shrub and burned area regrowth) had similar environmental conditions and vegetation.

⁵ Environmental conditions for each ecosystem type explained here are based on qualitative conditions. We did not conduct any quantitative measurements. Secondary data were insufficient.



a. Hill forest



b. Lowland forest



c. Tall swamp forest



d. Putat swamps forest



e. Riparian forest



f. Lakes and waterways



g. Garden

Figure 3. Representative examples of ecosystem types in and around park:

Figure 3, cont.

h. Dry farming land

i. Open areas



j. Rocky hill top



of human activity in this ecosystem are lower than in the other ecosystem types.

Hill forest. This forest grows on gradients of 30° to 40°, dominated by large trees with diameters of more than 1 meter (Yuliani et al. no date). The forests in the hills have escaped logging because their steep slopes make them inaccessible. Light intensity is low, and sunlight does not reach the forest floor. Levels of human activity are relatively low because of the distance from habitation. Some hills are protected by customary rules because they are considered sacred or subject to landslides and erosion.

Lowland forest. The lowland forest (elevation about 20 m) remains flood free throughout the year and is dominated by dipterocarps (tropical rainforest trees). Levels of human activity vary from low to medium. Some of the lowland forests in our study were abandoned logging areas (both legal and illegal), but succession has taken place and their conditions are similar to forest where no logging has occurred. In some places where trees were cut down, or on former logging bicycle trails,⁶ sunlight reaches the forest floor for a few hours a day.

Swamp forest. This type of forest comprises various tree species from clumps to giant trees. Sunlight intensity is low and levels of human activity vary from low to moderate.

Dwarf swamp forest. Also called *putat* swamp forest, this type is marked by clumps of vegetation in the middle of lakes and dominated by *putat* trees (*Barringtonia acutangula*, also known as freshwater mangrove, Indian oak or Indian *putat*), which

⁶ In this area, logs are transported from the forest to the waterways by bicycle (see Heri et al., this volume, for details).

grow 3 to 5 m above the swamp bed and are partly buried during the rainy season. Levels of human activity are relatively low, but the conditions are unfavorable for orchids, with direct sunlight and rainy season flooding.

Riparian forest. Similar to swamp forest, riparian forest has more sunlight and more open places. Levels of human activity are moderate to high.

Garden. These areas are planted with rubber and various local fruit trees such as rambutan (*Nephelium lappaceum*) and cempedak (*Artocarpus integer*). Sunlight is less than 50 percent. Levels of human activity are quite high and include the clearing of plants deemed weeds.

Dry farming land. This land is usually planted with dryland rice and crops such as chili pepper and eggplant (aubergine). Sunlight reaches 100 percent. Levels of human activity are extremely high, with clearing and preparing land for planting by burning and weeding.

Open areas. These places include former illegal sawmill sites, ex-logging camps, log landings, old logging roads and recently cleared roads. They receive 100 percent sunlight, and rain falls straight to the ground, causing runoff and high levels of erosion. Levels of human activity are low to moderate in the former logging areas, and high on recently constructed roads.

Lakes and waterways. These areas are inundated with water eight to 12 months a year. No literature has mentioned the presence of hydrophytic orchids, but Danau Sentarum's unique ecosystems prompted us to consider the possibility of there being hydrophytic, terrestrial, epiphytic and saprophytic orchid species that are adapted to flood conditions.

Methods

Research Methods

Orchid documentation and identification were carried out by cruising the 10 land cover types. We chose the cruising method because orchids have an uneven distribution. An original research objective was to estimate orchid density by habitat type, but this was incompatible with the objective of documenting as many species as possible: the selection of locations with many orchids would compromise any density calculations.

Cruising took place in sites deemed to represent orchid ecosystems as described above and involved circling lake edges and exploring the networks of small rivers where we thought orchids would be growing. We conducted field research from February 2006 to December 2008 in 11 locations: Piam, Enggang, Patung, Kedebuk, Senara, Sumpit, Tapah Hill, Engkarit, Baung, Ketutung and Siluk.⁷

The core team consisted of a wild orchid specialist (Prasetyo), a community facilitator (Zulkifli), a field guide and community members who were orchid lovers. In accordance with the documentation objective, all the orchid species we found were recorded and photographed, and any unidentified specimens not in flower were taken to Bogor and kept until they flowered. Species documentation involved noting the genus and

⁷ We used pseudonyms to guard the orchids from smugglers and to protect the privacy of the people we studied.

nearest possible species and photographing all plant parts, but particularly the flowers. Most identification was done in the field. However, if further identification was required, specimens were taken to Bogor to await flowering, and identification and cross-checks of species and synonyms took place in the Orchid Division of the Bogor Botanical Gardens and involved studies of literature (Vermeulen 1991; Chan et al. 1994; Wood and Cribb 1994; Wood 1997, 2004; Siregar et al. 2006) and discussions with wild orchid experts.

Species identification also occurred outside the orchid expedition; the team monitored learning processes and changes in hamlets where studies and training had already taken place. Each visit brought more species. Villagers who had had training would report each new species they found, including several they had saved from flooded areas.

Training and Social Intervention Methods

The umbrella framework of our research was to discover conservation approaches beneficial to communities by using participatory action research (PAR). We had two functions: as facilitators of learning processes and as researchers observing processes (Yuliani et al. 2008a).

Training was an important entry point for involving remote communities in orchid conservation. Our aims were to improve their knowledge and skills in identifying and caring for local orchids and to conserve the orchids while generating long-term benefits for the communities. Prior to training, villagers were generally unaware of the high value of orchids to people all over the world. Orchids were sometimes left on trees that were about to be removed and then crushed, burned or destroyed by bulldozers during road and large-scale plantation development.

Training was conducted in two ways. First, we invited people interested in learning about orchids to join the fieldwork for species identification and documentation. In this way, our research ran in parallel with training for communities on recognizing species and understanding the environmental conditions required by each species. If epiphytic orchids had fallen to the ground or into the water, for example, local people replanted and maintained them in their hamlets, where they could be used in species identification training.

Second, we offered training in settlement areas to involve more community members in orchid cultivation, using materials commonly found around the villages and places with the light intensity and humidity favorable to orchid growth. We also taught people how to plant orchid seedlings that were grown in bottles⁸. The objective was to allow communities to learn the complex and different cultivation systems used internationally so that they would have the necessary expertise to conserve the orchids in their region.

Training took place in four Iban Dayak villages (Piam, Kedebuk, Patung and Enggang) and one Malay village, Sumpit.⁹ Each village had around 20 participants, adults

8 Growing orchids seeds in closed bottles, using artificial growth media, is a common method of orchid cultivation.

9 Ethnic Malay settlements inside DSNP are usually situated beside rivers and lakes and get full sunlight throughout the day; they are therefore unsuitable for growing orchids. Consequently,

Figure 4. Number of new orchid species documented on each field trip

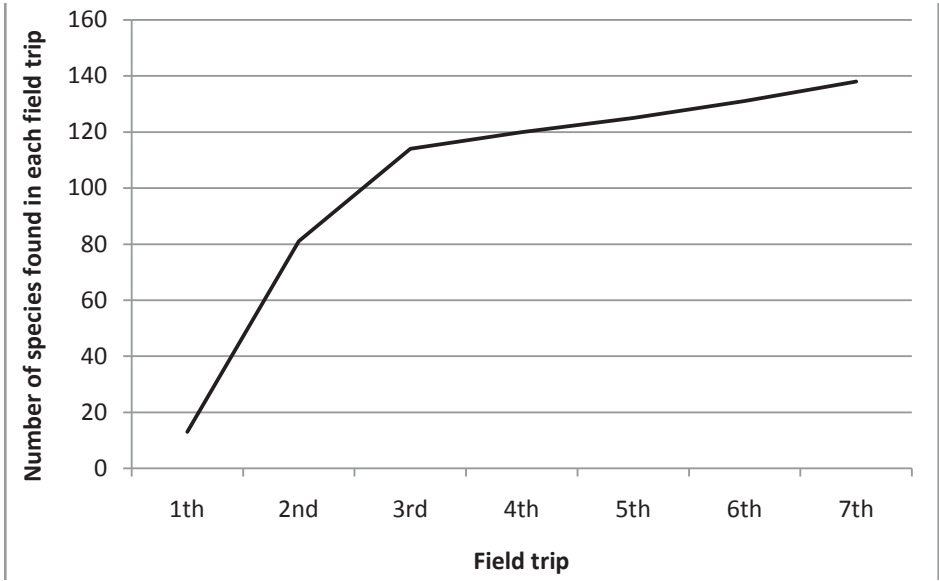
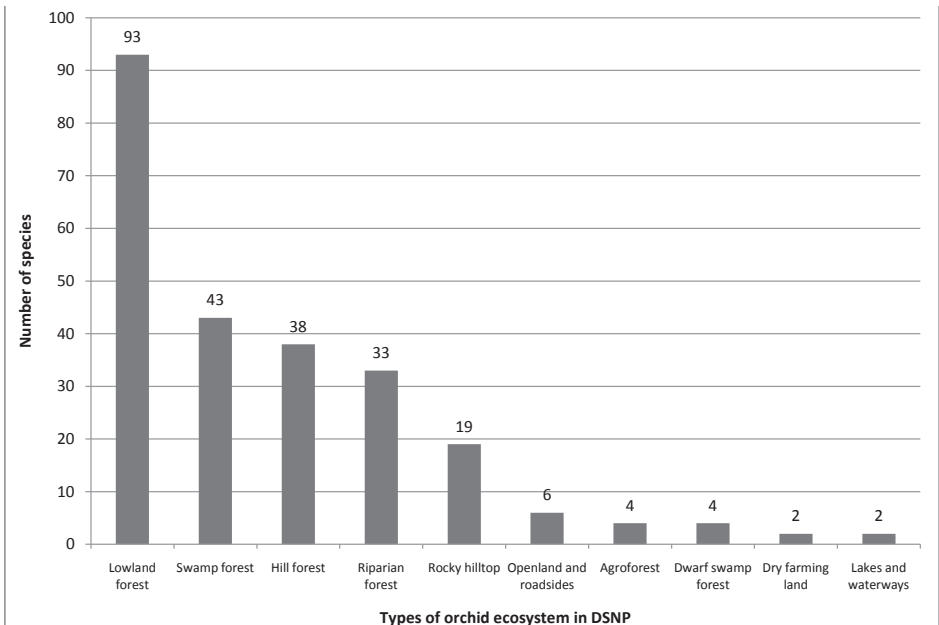


Figure 5. Number of orchid species found, by ecosystem type



and children, with an equal balance of men and women – important to help ensure equity among social groups in acquiring information, knowledge and new skills. Involving children was also an important strategy, since they are the decision-makers of the future and are highly motivated to learn.

A community can carry out a self-organized movement if it believes in the values and benefits of that movement. For that reason we also researched what benefits communities could secure from efforts to conserve orchids and their habitats. Here we interpret benefits not just from an economic viewpoint, but also from cultural, health, and learning opportunity perspectives. Participatory research and social intervention were undertaken in parallel, and focused on potential (or assets) using an asset-based paradigm. So that communities gained in self-respect and were willing to encourage change without depending on facilitators, we used the appreciative inquiry approach developed by Cooperrider and Srivastva (1987).

Outcomes

We found that the Danau Sentarum wetlands are highly rich in orchid species. During the two-year study period, we identified 138 orchid species from 47 genera (see Appendix 1). The most prevalent genera were *Bulbophyllum* (29 species), *Dendrobium* (22 species) and *Eria* (11 species). We also found species of high value in international trade from the following genera: *Bulbophyllum*, *Coelogyne*, *Dendrobium*, *Dimorphorchis*, *Grammatophyllum*, *Phalaenopsis*, *Taenia*, *Spathoglottis* and *Vanda*.

Terrestrial orchids encountered were from nine genera: *Arundina*, *Bromheadia*, *Claderia*, *Nephelaphyllum*, *Neuwedia*, *Macodes*, *Plocoglottis*, *Spathoglottis* and *Taenia*, and epiphytes were from 38 genera: *Adenoncos*, *Acriopsis*, *Agerostophyllum*, *Appendicula*, *Brachypeza*, *Bulbophyllum*, *Claderia*, *Cleissostoma*, *Coelogyne*, *Cymbidium*, *Dendrobium*, *Dendrochillum*, *Dilosia*, *Dimorphorchis*, *Diplocaulobium*, *Dipodium*, *Epigenium*, *Eria*, *Flikingeria*, *Grammatophyllum*, *Kingidium*, *Liparis*, *Oberonia*, *Phallaenopsis*, *Polidota*, *Plocoglottis*, *Pomatocalpa*, *Renanthera*, *Robiqueta*, *Sarcanthus*, *Thaenopyllum*, *Thecopus*, *Thecosthele*, *Theleasis*, *Trixpermum*, *Trichoglottis*, *Trichotosia* and *Vanda*. We also discovered one unidentified species of saprophytic orchid, and suspect there are many others in DSNP, since saprophytic orchids are only visible when in flower.

The abundance of orchid species in DSNP was apparent from the additional numbers encountered on each field trip, as shown in Figure 4. Fieldwork aimed specifically at identifying and documenting orchids involved four trips (1–4). Though the next three trips (5–7) focused on providing training and facilitation, new species continued to be discovered. We believe that intensive fieldwork will continue to unearth even more species.

The following sections describe our findings in each ecosystem type, in order of the number of orchid species (see Figure 5).

Lowland Forest

Lowland forest has more orchid species – primarily terrestrial orchids – than the other ecosystem types, despite its sometimes-medium levels of human activity. Epiphytic orchids (seeds and adult plants) that fall to the forest floor also survive and grow here, even in logged-over lowland forest where succession has taken place (old secondary forest). The chance of survival is much lower if epiphytes fall in a swamp forest. Examples of epiphytic orchids that fell to the forest floor and survived are the giant orchids *Grammatophyllum speciosum*, *Arachnis*, *Liparis*, *Polidota*, *Bulbophyllum* and *Dendrobium scundum*. These species are sunlight-loving epiphytes but can survive around bicycle trails. The bodies and leaves of epiphytic orchids that fall to the forest floor bend toward sunlight, and the forest canopy is more open around the trails. These orchid species proved highly adaptable, able to survive even in areas where selective logging has taken place.

Swamp Forest and Riparian Forest

Swamp forest and riparian forest also have relatively high numbers of species, with sometimes more than 10 species found on a single tree. The light intensity, humidity and average air temperatures in these forests are favorable for orchids. However, the terrestrial and saprophytic orchids were absent because these two ecosystems are flooded during the rainy season, with water depths fluctuating between 20 and 400 cm following rainfall, and epiphytic orchids that fall from trees die when submerged. Studies in swamp forest and riparian forest during the rainy season revealed differences from studies conducted during the dry season. In the dry season we often discovered epiphytic orchids that had fallen to the ground when their host branches snapped. These orchids had adapted by pointing upward to seek sunlight (positive phototaxis) and opposing gravity. Their efforts to survive came to an end, however, with the arrival of the rainy season and the ensuing floods.

Hill Forest

Fewer orchid species were found in hill forest, even though hill forests are more protected from human activity. Many epiphytic orchid species grow at the tops of trees, however, and thus were out of sight. During a hill forest study we discovered a large downed tree with several species of epiphytic orchids on its upper branches. This finding suggested that many other epiphytic orchids live unseen, seeking sunlight in the uppermost branches of trees. It also explained why we found fewer orchids in these relatively undisturbed forests than in the more disturbed lowland forests.

Hill forest is relatively dark because its large trees stop sunlight from penetrating to the forest floor. The low light intensity precludes terrestrial orchids except for the few species that require little light, such as *Macodes*, *Nephelaphyllum pulcrum* and *Taenia paucifolia*, or can adapt to shade, including *Filkingeria* and *Bulbophyllum* spp. Individuals that have adapted have thinner bodies and darker leaves and stems than specimens of the same species that live with more light.



Figure 6. Orchid on water

Rocky Hilltop

This ecosystem type had the lowest levels of human disturbance, but harsh and extreme environmental conditions. Weather conditions change frequently and rapidly, even in a matter of hours. This limits orchid distribution and explains the low number of species found. Stunted forest grows on the peaks with a rocky, moss-covered forest floor. The moss can hold rainwater, which puddles on rocks. With enough space, orchids grow well in these mossy places, but orchids growing from cracks in the rocks are short bodied, yellowish and hard because of the extreme conditions.

Open Areas and Roadsides

In open areas, we encountered only six orchid species, all tolerant of full sunlight, wind, high rainfall and soils of low nutrient content. The orchids were usually found growing between the ground and timber leftovers, in cracks in rocks and even in the middle of the road, where they escaped being run over by cars and trucks. The orchid *Dipodium pictum* was often seen along and in the middle of logging roads, using the nutrients from decaying wood. In temporary log pools, *Grammatophyllum speciosum* plantlets measuring 20 cm to 1 m were discovered among the logs; the distance between each plantlet was around 2 m. Four more species found were *Acriopsis javanica*, *Arundina graminifolia*, *Bromheadia finlaysoniana* and *Spathoglottis plicata*.

Garden and Dry Farming Land

We expected many orchids in gardens shaded by rubber trees but found only four species. Villagers tend their crops by weeding and using herbicides, thus limiting orchid growth. In informal discussions, we discovered that community members considered orchids weeds, to be pulled up, burned or sprayed. Dry farming land had only two orchid species. These fields have full sunlight and undergo routine cultivation, as do plantations.

Dwarf Swamp Forest

We encountered only four orchid species in dwarf swamp forest, on the periphery of land where water did not reach the treetops. Areas near dry land still receive orchid seeds from the nearby trees. One of the four species was a unique species of root orchid, *Taeniophyllum* sp. It is biologically unique in that it has no leaves; it photosynthesizes from the chlorophyll in its roots.

Lakes and Waterways

No literature had made any mention of hydrophytic orchids. So while crossing a lake, we were surprised to find *Cymbidium finlaysonianum* growing on a rotten tree trunk floating in the water. The specimen had taken root in a crack in the wood and appeared healthy, growing upward despite floating in the water (Figure 6). This species usually lives as an epiphyte attached to tall trees, with much less moisture than it had floating on the water. We also found *Bromheadia finlaysoniana*, a terrestrial orchid, growing well in areas often flooded to depths of up to 1 m. It seems these orchids are highly adaptable to water. Though the two species cannot be considered hydrophytic orchids, these findings would make an interesting subject for further research.

Orchid-Based Learning and Change

In all training sites, inhabitants were generally eager to learn new things about orchids. They had seen orchids around them but been unaware of their names, uses and value. After undergoing training, elders, adults, and primary school children have been surprisingly motivated to plant. On their way home from school, children in Piam collect fallen orchids for planting practice. All materials are available on site: they plant the orchids in tree branches instead of plastic pots, use moss or fern roots for the planting medium instead of coconut fiber, and use rattan rope, plant roots, fishing line and plastic string to hang the “potted” plants.

Our observations and informal discussions with community members stimulated greater interest in orchid conservation, allowing local people to appreciate more fully the beauty of their flowers. Awareness that the forest supports flowers of such beauty opened their eyes to its many forms of valuable life. This realization catalyzed a significant change in individual behavior but has not yet created a “social change movement” or effected any significant change in communal behavior.

The high prices for orchids made some people, especially those searching for

substitutes for illegal logging,¹⁰ expect quick cash incomes from selling the orchids and even consider harvesting them from the wild. The community members quickly took a number of actions in relation to ownership status. They marked orchid host trees with crosses, showing that the orchids in these trees belonged to members of the hamlet. Anyone needing to fell any of those trees has to ask permission from the hamlet head, customary head and orchid “owner.”

People are now more likely to preserve orchids and their host trees. If they want to cut a tree, whether to use the wood or to clear the land for farming, they consider alternatives if the tree is host to many orchids. Because they realize that the orchids on wild trees may be very valuable, however, a significant danger is that they might begin large-scale collecting of forest orchids. Some people are aware that this situation could fuel competition and lead to overexploitation.

To prevent this, we talked about orchids as a natural heritage and cultural resource. We strove to instill pride in orchids and their habitats as part of the communities’ natural heritage (see Prasetyo and Zulkifli 2009). Consequently, the people agreed to make their forests an ecotourism attraction or destination. The approach helped encourage a new paradigm among communities, followed by community collective action.

Communities that had previously considered orchids and other forest products only from a short-term economic angle (harvesting and selling) are now more inclined to consider long-term benefits, including such abstract benefits as cleanliness and health,¹¹ knowledge, learning opportunities, recognition from outsiders, and so on. They are encouraged to make shared agreements and rules to protect forests with orchids. They can explain orchid species and their protection to visiting researchers, NGO staff, government officials, and donors.

Yet there are still some challenges. The people believe that the government does not give them sufficient help in developing ecotourism and, instead, is allocating forestland for large-scale monoculture plantations. Maintaining their own interest and adherence to their plans presents another challenge – a chicken-or-egg question. People may protect their natural heritage more if ecotourists value it, but these visitors will come only if the destination is worthwhile and the experience is comfortable and enjoyable. Two prerequisites for the development of tourism are improving the capacity and skills of local stakeholders and building knowledge about the meaning and implications of ecotourism.

Training in orchid identification and growth characteristics was also conducted in a larger town, Selimbau, on the Kapuas River in the DSNP buffer zone. Training in cultivation techniques, however, was not given, for two reasons. First, unlike the

10 The training began at the time of the government’s drive to halt illegal logging. Community members who had previously worked for illegal loggers were looking for other income sources.

11 The people in Piam used to use the space underneath their longhouse for keeping animals, and for domestic wastes – which could become a source of disease. After learning about the ideal habitat for growing orchids, they converted the space underneath the longhouse for orchid cultivation, making the space clean and healthier. People from other villages were impressed by the cleanliness and different atmosphere (fresh and green environment) that resulted from orchid cultivation, and took up the practice in their villages (see Prasetyo et al. 2007).

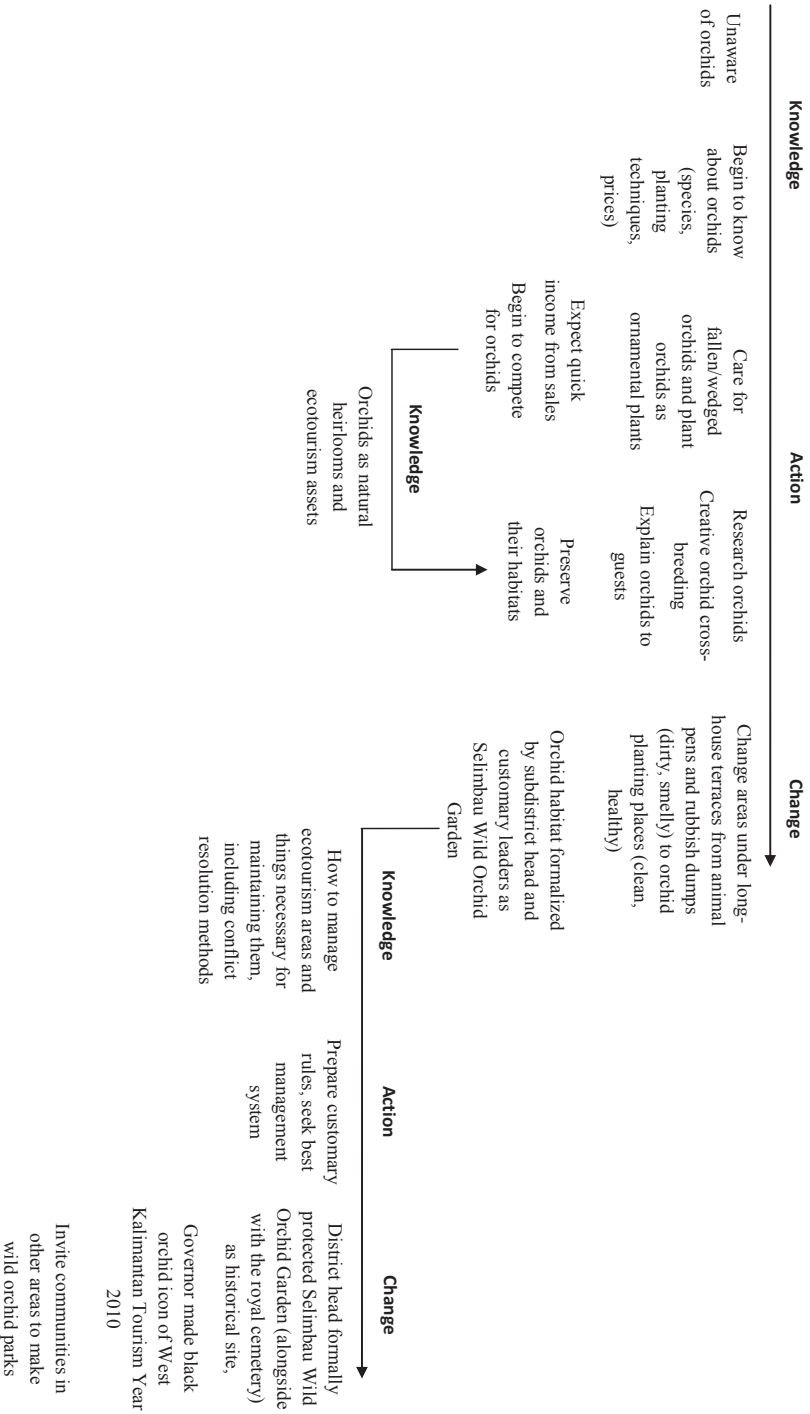


Figure 7. Orchid-based learning: from knowledge to action and change

Box 1. Example of negotiation and participatory processes in the protection of wild orchid habitats.

In Selimbau, the bottom-up processes began when a training participant discovered a 5 ha field of black orchids, and invited people in the town to protect the orchids and their habitat. The community then held a meeting to discuss steps to protect the orchids and their habitat. They then established *Kelompok Wisata Anggrek Danau Sentarum* (KWADS or Danau Sentarum Orchid Tourism Group) to manage the site, and prevent theft and exploitation.

KWADS then met the subdistrict and village heads to submit its proposal to protect the orchid habitat. After negotiations with land owners, the boundaries of the protected orchid habitat were marked with tags. In April 2008, the field of black orchids was formalized as the Selimbau Wild Orchid Garden through a customary ceremony led by the government and community customary leaders.

Selimbau Wild Orchid Garden is envisioned as an ecotourism destination. The population hopes to link with other ecotourism interests such as lake recreation and arowana breeding, as well as historical tourism relating to the Selimbau Sultanate, the oldest kingdom in Kapuas Hulu. Remaining historical artifacts are being inventoried for development as tourism assets, and the Netherlands Government is even prepared to return artifacts from the Selimbau Sultanate if a museum is built in Selimbauⁱ. Selimbau people on their own initiative shared knowledge with the people in the adjacent village, Benuis. As a result, the people of Benuis agreed to protect 200 ha forest for orchid ecotourism, and refuse conversion into a large-scale plantation.

Reports about the orchid garden in local and national newspapers have spread the word; and not long afterwards, the governor of West Kalimantan included the black orchid in the logo of Visit West Kalimantan 2010ⁱⁱ and the District Head formally protected the garden as a historical site through decree No. 158/2009.

A good thing is always accompanied by risks and challenges. Visits to and coverage of the same hamlets/sites can result in other hamlets' potential being neglected. Therefore, there should be efforts, especially from the DSNP Office and NGOs to give equal opportunities to other hamlets. Another risk is that many people have tried to steal or persuade local community members to sell the orchids. This was a test of KWADS' resilience, and it seems the members have maintained their convictions and are planning to build a fence and schedule patrols.

ⁱ Source of information: the Secretary of customary institution, personal communication (2009)

ⁱⁱ Source: the Secretary of KWADS, personal communication (2009)

remote hamlets inside the park, Selimbau enjoys easy access by both river and land transport, making possible the collection of wild orchids for sale. Second, Selimbau has an approximately 5-ha field of black orchids in a cemetery complex from the Selimbau Kingdom. Orchid fields like this are unique and have not been found inside DSNP. Training here therefore emphasized management of the orchid field together with the royal cemetery ground.

Working as facilitators, we used various methods to catalyze learning.

Active learning. Communities learned about orchid species, growth

characteristics and habitat preferences from direct observation in the field. They also learned about the flowers and vegetative and generative reproductive organs of orchids, breeding and cross-breeding techniques, favorable sites and plant medium fertility.

Learning from others. In learning forums about ecotourism and ecoentrepreneurship, community members shared their experiences, successes and failures. This sharing of knowledge and experiences enriched every participant's understanding, and they could choose which ideas were appropriate for their circumstances.

Creating scenarios. Communities were invited to create scenarios of orchid management and calculate the risks and benefits of several management and land-use options, such as collecting and selling wild orchids, cultivating wild orchids for sale, conserving orchids in the forest and clearing orchid habitat for rubber or oil palm plantations.

Appreciative inquiry and asset-based thinking. Many rural people lack self-confidence in their ability to improve their communities and lives; we might say they have a victim mentality. Appreciative inquiry and asset-based thinking approaches were used to encourage self-confidence, empowerment, creativity and the capacity to identify economic and noneconomic potential in their environment and become drivers of social change (Yuliani et al. 2008b).

Those approaches contributed to several positive outcomes. Some people put forward new ideas relating to orchid conservation, such as cross-breeding. Some brought wild orchid species from the forest to their villages and sowed the seeds in their house lots. Some also began growing orchids on trees in their gardens, where the plants were easier to maintain, to enhance their homes and show to guests. Others chose to specialize in conserving very valuable, rare and beautiful moon orchids (*Phalaenopsis* species), which are prized worldwide; having the ambition to become a specialist is in itself an achievement. Some people began to reflect on their previous land-use systems and the effects of clearing the forest for rubber.

We were surprised by the large number of people involved in the learning processes who were highly motivated and on their own initiative disseminated their new knowledge and reflective thinking to visitors and people in other hamlets. This high level of learning, sometimes called triple-loop learning, can encourage social change (see Armitage et al. 2008). People who secured new knowledge and ways of thinking were eager to disseminate what they had learned to other communities. Some people from other hamlets came in order to learn, and, as a result, settlements in which we had not facilitated any meetings became interested in orchids: they converted the spaces under their longhouse terraces from rubbish dumps and animal pens to orchid nurseries and began protecting orchid host trees and natural orchid habitats.

The protection of wild orchid habitats involves negotiation between stakeholders (individuals and groups) who feel they "own" host trees and/or land, participatory processes in preparing customary rules, and bottom-up processes for determining land use (see Box 1). Lack of attention from the government was no longer seen by the community as a problem. Instead, they organized themselves to ask for formal recognition of orchid habitats in their village.

The orchid conservation learning steps and their relation to social change

processes (from knowledge to changing paradigms and community collective action) are summarized in Figure 7.

Conclusions

Species diversity is high in and around Danau Sentarum National Park. Orchid species diversity is determined by biophysical conditions in each ecosystem as well as human land management practices. Several orchid species are amazingly tolerant and adaptable and can still grow even under extreme conditions.

In lowland forest, swamp forest, hill forest, on riverbanks and even on rocky outcrops, orchid diversity and density are higher than in open areas and places under intensive human management. Even in logged-over forest, more species and higher densities were found than on farmland and rubber plantations; biodiversity in general and orchids in particular are threatened by monocultures and mining. With sufficient knowledge about orchids – their beauty, their importance as natural heritage and their potential for ecotourism – local communities and business practitioners could contribute to enhancing biodiversity. The number of species found on every field trip in our fieldwork suggests that there are still many new, as yet unidentified, species. The further research needed to document all the orchids in the region represents another opportunity for local people to benefit by becoming field assistants, interpreters and guides.

Through orchid-based learning, appreciative inquiry, and an asset-based approach, people's perception that conservation is an obstacle to development and an impediment to community livelihoods can change. Conservation practices can become a source of pride for local communities and change a passive, victim stance to a sense of empowerment; people gain self-confidence and self-motivation and are able to organize various activities that drive change.

Lessons that combine technical information, scenarios comparing benefits and risks, beauty, pride of place, and cultural and natural heritage can encourage rapid learning about conservation and enhance social capital. Such approaches can also help people think more holistically and systemically about long-term benefits and risks, take pride in their natural heritage and develop a greater appreciation of nature.

Participatory action research can be carried out in a cost- and time-efficient manner with minimal facilitation and external intervention, if we are sharp and prudent in seeing and using opportunities and do not rigidly cling to theory. Outcomes that are timely and relevant to the local and national context are possible when we are responsive and flexible. It is vital to work together with local communities that show high levels of interest and motivation, and build their capacity as local champions of conservation.

A network involving villages, researchers, park management staff, NGOs and international organizations is another key to success. People in these villages have more opportunities to exchange information with the outside world, take part in various learning events in other places and host visits from researchers and journalists. Management of DSNP and its environs as a natural laboratory and ecotourism destination requires cooperation between the park office, local communities, district government and NGOs, plus good governance at all levels, involving all stakeholder groups.

Community-based orchid conservation is a common practice in many parts of

the world, including Asia, Australia, Europe, Latin America and North America; people in the northeastern region of India, for example, have a tradition of conserving wild orchids based on religious beliefs and herbal medicine (Medhi and Chakrabarti 2009). In Indonesia we are still struggling with the skeptics. However, we have proven that orchid conservation is an innovative way to benefit local communities and help build good governance, with participatory and bottom-up decision making. In other countries, establishment of community nurseries, ecotourism and management groups are indicators of success. We would argue that in the Indonesian context, success will be apparent in the communities' and other stakeholders' ability to be resilient, face challenges and threats and reframe challenging situations into opportunities.

Acknowledgments

The author wishes to thank the Ford Foundation, CIFOR, and EU-Gemconbio for their funding support for the research. The author deeply thanks Moira Moeliono and Carol Colfer for their guidance and consistent support throughout the research and write-up; Doris Capistrano, Bruce Campbell, and Terry Sunderland for their institutional support; the people in our research locations and in various offices; Entim Fatimah and colleagues in the Orchid Unit of Bogor Botanical Garden, Jeffrey Wood and Phillip Cribb from Kew Garden for sharing their knowledge during species identification; Agus Mulyana, Yayan Indriatmoko, Dina Hubudin, Charlotte Soeria, Heru Komarudin, Titin Suhartini, Bagus Hargo Utomo and all colleagues on the team for their wonderful support and friendship; Valentinus Heri, Seselia Ernawati, Pak Itam, Jefry Irwanto, Jefry Dahrin, Bambang Dahat and everyone in Riak Bumi Foundation and Danau Sentarum National Park Authority for being wonderful friends.

The views expressed in this paper, however, are those of the authors alone and do not represent the views and policies of the donor agencies and CIFOR.

References

- Allaby, M.
2001 *Flowering Plants: The Monocotyledons, Vol. 9, Plants and Plant Life*. Danbury, Connecticut: Grolier.
- Arditti, J.
1992 *Fundamentals of Orchid Biology*. New York: Wiley.
- Armitage, D., M. Marschke and R. Plummer
2008 Adaptive Co-management and the Paradox of Learning. *Global Environmental Change* 18:86-98.
- Campese, J., T. Sunderland, T. Greiber and G. Oviedo, eds.
2009 *Rights-Based Approaches: Exploring Issues and Opportunities for Conservation*. Bogor: CIFOR and IUCN.
- Chan, C.L., A. Lamb, P.S. Shim and J.J. Wood
1994 *Orchids of Borneo, Vol. 1: Introduction and a Selection of Species*. Sabah Society and Bentham-Moxon Trust.

- Chatty, D. and M. Colchester, eds.
2002 *Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement, and Sustainable Development*. Oxford: Berghahn Books.
- Cooperrider, D.L. and S. Srivastva
1987 Appreciative Inquiry in Organizational Life. *Research in Organizational Change and Development* 1: 129-69.
- Dennis, R.A., A. Erman and E. Meijaard
2000 Fire in the Danau Sentarum Landscape. *Borneo Research Bulletin* 31:123-137.
- Giesen, W.
2000 Flora and Vegetation of Danau Sentarum: Unique Lake and Swamp Forest Ecosystem of West Kalimantan. *Borneo Research Bulletin* 31:89-122.
- Giesen, W. and J. Aglionby
2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.
- Hasrinuksmo, B.
2004 *Ensiklopedi Keris*. Jakarta: Gramedia Pustaka Utama.
- Holle, M.H.
2007 332 Kg Bunga Anggrek Langka Gagal Diselundupkan ke Jepang. *Detiknews.com*, 15 February.
- Jeanes, K.
1997 Guidelines for Conservation Management: Danau Sentarum Wildlife Reserve, West Kalimantan. Pontianak: Directorate General of Forest Protection and Nature Conservation of Indonesia Ministry of Forestry, Overseas Development Administration (ODA), Wetlands International Indonesia Programme (WIIP).
- Medhi, R.P. and S. Chakrabarti
2009 Traditional Knowledge of NE People on Conservation of Wild Orchids. *Indian Journal of Traditional Knowledge* 8 (1):11-16.
- Prasetyo, L.B., E.L. Yuliani, Y. Indriatmoko, S. Ernawati, and V. Heri
2007 The Use of Space Underneath Longhouses for People's Health and Conservation (Pemanfaatan Ruang di Bawah Rumah Panggung untuk Kesehatan dan Konservasi). CIFOR-Riak Bumi Newsletter No. 1, July. Bogor: CIFOR and Riak Bumi.
- Prasetyo, L.B. and M.S. Zulkifli
2009 Wild Orchid: Natural Heritage That Deserved Protection (Anggrek Alam: Warisan Alam yang Perlu Dilestarikan). *CIFOR-Riak Bumi Newsletter* No. 4.
- Ramírez, S.R., B. Gravendeel, R.B. Singer, C.R. Marshall and N.E. Pierce
2007 Dating the Origin of the Orchidaceae from a Fossil Orchid with Its Pollinator. *Nature* 448 (30 August):1042-1045.

- Sharples, A.
1936 *Diseases and Pests of the Rubber Tree*. London: MacMillan and Co., Ltd.
- Siregar, C., A. Listiawati and Purwaningsih
2006 West Kalimantan Wild Orchid (Anggrek Spesies Kalimantan Barat). Pontianak: Lembaga Penelitian dan Pengembangan Pariwisata Kalimantan Barat.
- Suronegoro, T.
1984 *Vanda batemanii* Lindl. has been immortalized since the Kediri Kingdom (*Vanda Batemanii* Lindl. diabadikan pada jaman Kerajaan Kediri). Paper read at the 8th meeting of the Indonesian Orchid Society, 19-21 December, Yogyakarta.
- Trade and Environment Database
No date Orchid Smuggling and Conservation. <http://www1.american.edu/TED/orchid.htm>
- Veit, P.G., R. Nshala, M.O. Odhiambo and J. Manyindo
2008 Protected Areas and Property Rights: Democratizing Eminent Domain in East Africa. Washington, DC: World Resources Institute.
- Vermeulen, J.
1991 *Orchids of Borneo, Vol. 2: Bulbophyllum*. Bentham-Moxon Trust.
- Wood, J.J.
1997 *Orchids of Borneo, Vol. 3: Dendrobium, Dendrochilum and Others*. Sabah Society and Bentham-Moxon Trust.
2004 *Orchids of Borneo, Vol. 4: Revised Classification and Selection of Species*. Sabah Society and Kew Publishing.
- Wood, J.J. and P.J. Cribb
1994 *A Checklist of the Orchids of Borneo*. Kew Publishing.
- Yuliani, E.L., Anggana and I.Z. Farid
nd Vegetation Analysis in Danau Sentarum Forest. Unpublished report.
- Yuliani, E.L., Y. Indriatmoko, V. Heri, S. Ernawati, L.B. Prasetyo, and M.S. Zulkiflie
2008a Promoting Good Governance in Managing Danau Sentarum National Park through Adaptive Collaborative Management Approach. In: B. Manos and J. Papathanasiou (eds.), *Governance and Ecosystem Management for the Conservation of Biodiversity*. Thessaloniki: University of Aristoteles.
- Yuliani, E.L., H. Adnan, and Y. Indriatmoko
2008b The Use of Appreciative Inquiry as a Tool for Enhancing Adaptive Capacity in Natural Resources Management. Paper presented at International Association for the Study of the Commons conference, Cheltenham, UK, 14-18 July.

10. POSSIBILITIES AND PERCEPTIONS OF A COMMUNITY MICRO-HYDRO PROJECT IN WEST KALIMANTAN

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Logging remains one of the largest threats to the forests of Danau Sentarum National Park (DSNP). National and international companies are not solely responsible; local communities also extract timber, whose sale often provides a better income than other options and is sometimes the only income-generating opportunity available for rural people. Conservation groups have collaborated with rural people to find alternative sources of income. In DSNP, organizations have partnered with many communities to manage the nearby forests and create other methods of income generation. The most recent attempt in DSNP included the construction of a micro-hydro dam (Pembangkit Listrik Tenaga Mikro-Hidro) that could benefit all the stakeholders involved in the project, from NGOs and conservation groups to the local people.

This paper explores the micro-hydro electricity development project at Sungai Buntal,¹ focusing on the development process, the transfer and transmission of knowledge between the facilitating organizations and local community, and local perceptions of renewable electricity, development and conservation. The data upon which this preliminary study is based were gathered during fieldwork at Sungai Buntal in August 2008. People in each household were interviewed about micro-hydro development, electricity, and the environment. Additional data on the construction of the project were derived from both structured and unstructured interviews and communication with researchers and workers from two agencies that participated in the development, Yayasan Riak Bumi, a Pontianak-based NGO, and the Center for International Forestry Research (CIFOR) in Bogor. Yayan Indriatmoko was present in the community throughout the process and helped facilitate the development project. His knowledge and contributions to this paper have been invaluable, and much of the information on the actual development process, the micro-hydro project and the Buntal longhouse comes from him.

1 In this paper, village names and the names of community members are pseudonyms.

Background

Danau Sentarum National Park lies within the district of Kapuas Hulu in West Kalimantan, nearly 700 km up the Kapuas River from Pontianak, the provincial capital. The region is distinguished by interconnected seasonal lakes and seasonally flooded tropical forests (Wadley 2007). The area was established in 1985 as the Danau Sentarum Wildlife Reserve (Giesen 1987), became Indonesia's second Ramsar site (a wetland of international importance) in 1994, and was upgraded to a national park in 1995 (Wadley 2006a). In 2001, Colfer and Wadley (2001) concluded that Danau Sentarum was a "paper park," whose only effective management was being carried out by local indigenous communities.

CIFOR has conducted research in DSNP since 2004, but some of CIFOR's researchers have worked in the park since 1993. The goal of CIFOR's projects in DSNP has been to assess the participation in sustainable resource management of various stakeholders, including local communities, the government, conservation organizations, timber companies, and others. These reports have highlighted the long-term commitment necessary to create management plans that work within the resource users' frameworks. In DSNP, the primary users of forest resources include the Malay, primarily fishing people who live on the edges of the lakes and rivers, and the Iban, who reside upstream in the hilly and mountainous regions (Colfer & Wadley 2001). Colfer, a principal scientist and anthropologist at CIFOR, noted that at this point there are the beginnings of collaborative management in the park (Colfer, personal communication).

Conservation efforts within and around the park were complicated by the Indonesian economic crisis in 1997 and the power vacuum left after the fall of Suharto's New Order regime in 1998 (Wadley 2006b). During this period illegal logging expanded dramatically in West Kalimantan, and most of the timber and revenues were taken across the Malaysian border into Sarawak, and eventually to markets in Hong Kong, China, Japan, and elsewhere. In the late 1990s, the main players in the Upper Kapuas borderlands were not the Indonesian concessionaries, as during the New Order, but local communities and Malaysian financiers. The communities received money from the sales, but this money was usually less than one percent of the total revenues (Wadley 2006b).

After 2000, a shift in political power through formal regional autonomy enabled local communities to carry out most of the logging operations in the Upper Kapuas region through community cooperatives. The reform of forestry policies in Indonesia terminated many concessions for timber companies and allowed communities to form cooperatives and log their own lands. The goal of the cooperatives was to facilitate "joint development projects among the member communities," but Wadley (2006b: 119) noted that "the only activity that cooperatives have engaged in has been logging." Some cooperatives worked directly with Malaysian logging companies; others built their own sawmills and carried out their own operations. Logging in the region continued, but as time passed, many of the communities turned to oil palm development for income.

Various conservation groups and NGOs have begun collaborating with the local communities to find locally appropriate methods of forest management and develop alternative methods of generating income. Management planning is the undertaking of the Kapuas Hulu district government, but NGOs, research institutions and management

agencies all have been involved in the effort. In late 2004, CIFOR and Yayasan Riak Bumi initiated a participatory action research project to assess management in the park. CIFOR states that the project in DSNP was based on two goals: (1) to improve local people's livelihoods through pro-conservation, income-generating activities; and (2) to foster collaboration among stakeholders in the park.

In 2007, as part of the ongoing participatory action research project, CIFOR and Yayasan Riak Bumi facilitated the development of a micro-hydro dam at the Sungai Buntal longhouse, which is located within the buffer zone of DSNP in the Kapuas Hulu district. Because of the remote location, the longhouse—like many communities in the region—had no access to electricity from the State Electricity Company (Perusahaan Listrik Negara, PLN) and the national grid. The Buntal micro-hydro dam was a pilot project in the Kapuas Hulu Regency of West Kalimantan, and staff from CIFOR and Yayasan Riak Bumi believed that if successful, micro-hydro could provide electricity for other rural communities as well.

The stakeholders in this project collaborated so that each would benefit in various ways. CIFOR identified six reasons why micro-hydro electricity production could succeed (Indriatmoko 2008). First, micro-hydro was an appropriate technology for the area, which has rivers suitable for electricity production. Second, access to electricity would improve the livelihoods of the people located in the rural areas of DSNP and provide alternative methods of generating income. Third, micro-hydro technology would be simple and easy for local people to repair and maintain. Fourth, renewable, clean energy from the dam would avoid the carbon emissions generated by diesel generators and save the community money otherwise spent on diesel fuel. Fifth, the local people would have an incentive to steward the water and forests because electricity production would depend on resource conservation. The Buntal community had been logging the nearby forests, but the production of electricity by hydro depends on sufficient water levels. Continued logging in the area around Sungai Buntal could cause the water table to drop, thereby reducing the amount of electricity produced. And finally, external donors would fund the project, and the continued operation of the system would be maintained by charging each family a small monthly charge for electricity.² This would leave the local community with two options: either continue to log the surrounding forest, lose the electricity, and have to revert to the more expensive diesel generators, or preserve the forest and watershed so that electricity can be maintained for all families at a minimal cost.

Many organizations around the world support the development of micro-hydro electricity in Indonesia. This project was partially funded by the German embassy in Indonesia; other micro-hydro projects in Indonesia have been developed with funding from Coca-Cola Indonesia, the Government of the Netherlands, the United Nations Economic and Social Commission for Asia and the Pacific, the World Bank, and numerous agencies within the Indonesian government. The Kapuas Hulu district government also promotes micro-hydro developments and is planning projects for two other villages within DSNP.

2 The cost was estimated at Rp. 20,000 to 30,000 per month.

The dam at Buntal is the first project to promote micro-hydro electricity for conservation purposes in DSNP. Since its completion, other communities have shown a desire to develop systems of their own or have contacted the regional government or various NGOs to discuss future projects. One community was so impressed by the micro-hydro system at Sungai Buntal that the villagers constructed one of their own, without outside assistance. Although it eventually stopped working because of technical flaws, this story demonstrates the desire for access to electricity in DSNP.

Study Site

This article is based on research carried out at the Sungai Buntal longhouse. The Buntal Iban share most cultural traits with the Iban groups described by Derek Freeman (1992) and others (Sandin 1976; Sutlive 1978; Wadley 2002). They live in longhouses, single structures in which families, often closely related, inhabit separate apartments (Freeman 1992). Each household has responsibility for its own economic production and consumption, but can rely on other households for aid in the event of labor shortages or harvest failure (Wadley 2002). During the study period, the Buntal longhouse was a nine-household community with 43 residents, seven of whom were working in Sarawak. The Sarawak workers included both men and women, and recently some entire families had begun traveling together for wage labor work.

The economy of the Iban in this region is based on a complex system of agroforestry and swidden plots. Hill rice is the main component of the swidden cultivation system, cut from long-fallowed forest within longhouse territory. During the three-month dry season, when fewer agricultural tasks are being performed, fishing provides an important source of protein for the Buntal community. Most fishing and agricultural activities take place within the boundaries of the national park. Agricultural tasks have evolved over the years, as men have left the longhouse for wage labor in urban centers to supplement income to pay for children's schooling or other needs (Wadley 2002). The villagers have smallholdings of rubber that contribute a large portion of their income. This and other agricultural products, such as pepper, are sold in regional markets. For additional income the residents produce textiles, mats and non-timber forest products, such as honey, often for trade or sale through collaboration with NGOs.

Development Process

At the time of the study, summer 2008, there were four diesel generators in the longhouse, but their use had been restricted by rising fuel prices. Diesel fuel cost Rp. 11,000 (US\$1.15) per liter in Danau Sentarum National Park. A generator burned two liters of diesel fuel every two hours, and on an average night up to ten liters were used. The residents who owned diesel generators were struggling to pay for the fuel, so they were interested in installing a micro-hydro system at the longhouse.

The head of the Buntal subvillage (*kepala dusun*), the leader responsible for the administrative affairs of the longhouse and any communication with regional government officials, was Sanang. A vibrant and charismatic individual interested in progress, he was one of the few locals who had studied the Indonesian language in school and spoke it

fluently. He had participated in forest management training sessions and shared learning experiences³ focused on resource management and conservation involving CIFOR, the Indonesian Environment Information Center (Pusat Informasi Lingkungan Indonesia), and Yayasan Riak Bumi (Indriatmoko 2008). During the shared learning experience, Sanang met two men from West Java, Rasman and Rasiman, who had built a micro-hydro system in their village. In the early stages of the project, he flew to Bandung with staff from CIFOR and Yayasan Riak Bumi for a training session on the operation and design of the turbines for the hydro scheme, and he communicated directly with CIFOR and Yayasan Riak Bumi throughout the project design phase.

CIFOR's and Yayasan Riak Bumi's approach to resource management and development is based on adaptive collaborative management (ACM). The goal of ACM is to create open and sustained communication among the stakeholders of a particular project; they learn together about local resource management practices, assess the needs of the community and enhance the capacity of individuals to improve their lives. Stakeholders may include the local community, the regional government and conservation organizations. The different groups agree to "act together to plan, observe, and learn together from the implementation of their plans while recognizing that plans often fail to achieve their stated objectives" (Colfer 2005:4).

The ACM process begins with participatory action research, in which researchers collaborate with the community to plan improvements in local conditions, gain power and skills in dealing with others and enhance project sustainability by developing a self-monitoring system. This site-specific management technique involves an on-going process of observation, action, monitoring, reflection and new action (Colfer 2005). The ACM process also requires the transmission and transfer of knowledge from the facilitators of the development project to the members of the local community. Control over knowledge for operating and sustaining a development project shifts from the experts and scientists to the people whose lives are being affected, a shift referred to as "situating" knowledge (Campbell and Vainio-Mattila 2003).

To begin the development process at Buntal, CIFOR, Yayasan Riak Bumi and residents of the longhouse developed a proposal for funding that included the installation of the micro-hydro system and travel costs for the two villagers from West Java to instruct the participants about the technical and operational aspects of the project. The German Embassy provided the funding for the project, along with financial support from Yayasan Riak Bumi and CIFOR; the total project cost was around US\$7,000 (Indriatmoko 2008). The local community did not have to reimburse the donors, but each household pays Rp. 20,000, or about US\$2 per month into a fund for maintenance.

3 CIFOR's past research at the Sungai Buntal longhouse was based upon "shared learning experiences" in which researchers and the local people learned from one another about land use, forest management, conservation and sustainability. The main component of the shared learning experience is the use of the theories of social learning (see Roling and Jiggins 1998; Wollenberg et al. 2001a, 2001b). Social learning in resource management has been described as a continuous dialogue among scientists, planners, managers and users to explore problems and their solutions (Maarleveld and Dangbégnon 1999). One goal of the shared learning experiences and also social learning is to create an equal platform from which all stakeholders involved may negotiate.

The community cooperated with facilitators from CIFOR, Yayasan Riak Bumi, and Rasman and Rasiman, the two men from West Java, in designing, constructing, and completing the small-scale hydro system. In return, the Buntal community taught the men from Java about the production of forest honey and other non-timber forest products. Since many Buntal men were working in Sarawak, primarily women and children of the community led the development process. They were assisted by facilitators from Yayasan Riak Bumi and CIFOR. Together they divided the tasks among the villagers and assessed environmental conditions around the proposed dam site. The technical and operational knowledge was transferred to the local community from the two men from West Java. Rasman and Rasiman had had previous experience in developing micro-hydro electricity from a project they had installed in their village. The Buntal community chose Sanang and Belimbis as the primary operators of the system, but all the men were trained in how to maintain and operate the system.

Knowledge Transmission

For NGOs and conservation organizations, social learning and the transformation and transmission of knowledge are social processes that emerge as a product of continual dialogue between actors with varying access to power and resources (Winarto 2004). The Sungai Buntal community had direct access to those who held the knowledge of micro-hydro electricity; social learning and the ACM approach transferred that knowledge from those locations of power to the Buntal community. The transmission of knowledge between the facilitating organizations and the local community was a main component of the ACM approach. CIFOR facilitators and Yayasan Riak Bumi provided knowledge of the technical and theoretical workings of the project. The technical knowledge involved the everyday maintenance and operation of micro-hydro generation, and the theoretical knowledge focused on the drawbacks of continued logging and the potential benefits of the project to the local community. Buntal community members shared their knowledge of the local climatic and ecological conditions and discussed their concerns about the project. CIFOR researchers had carried out research and held social learning activities at the Buntal longhouse before this project, and so they had a foundation for understanding why the community wanted access to electricity.

CIFOR chose the adaptive collaborative management approach because it allows the community flexibility in improving the project's design to meet changing local conditions during and following the construction phase. The workers learned together as they tried to solve the technical problems of the project, thus transforming and transferring knowledge throughout the process. Speaking about the development process, Li (2005) maintains that while improvement schemes are destructive in some ways, they also produce new forms of local knowledge and practice. After the project was completed, all the people involved had acquired an understanding of the technology, and had gained skills in operating it. The operators now work on their own to solve technical problems as they arise without instruction from the facilitators of the project. For instance, they have repaired leaks in the dam and found ways to improve the water flow during the dry season.

The knowledge obtained by the Buntal community was a form of power. Having

acquired an understanding of micro-hydro development, they have become a regional resource for other communities that want their own micro-hydro electricity. Sanang has been asked by other village headmen to survey their lands for potential micro-hydro development sites, and two proposed micro-hydro projects in DSNP are based on the template provided by the Buntal project. Knowledge of alternative energy development has expanded outward from Sungai Buntal to other communities in the region. It is too soon to determine the larger implications of this development for the forests and the communities of DSNP.

The research for this paper, conducted in August 2009, explored how the Sungai Buntal community perceived the project and its benefit to their lives. It also revealed the paths of knowledge exchange between the facilitators of the project and the local community.

Local Perceptions of Micro-hydro Development

At the Buntal longhouse, light is not just a way to illuminate one's surroundings; it also has significance in the Buntal Iban social belief system. At each meal, Dutch-era oil lamps were lit, even when a light bulb was turned on. Every evening, as nighttime approached, kerosene lamps were lit in front of each household door, even if the apartment within was unoccupied, because the light from the burning lamp was believed to keep the *bilek* (living area) safe. The lamps burned throughout the evening until the last person on the *ruai* (veranda) went to bed. Inside each occupied *bilek* household, a lantern was lit until the following morning. Once the micro-hydro system was operating, light from the kerosene lanterns was replaced with the glow of light bulbs hanging from the rafters of the *ruai* in front of each *bilek* household. The lamp inside was also replaced with a light bulb, which remained lit until the following morning.

Light is also important for utilitarian reasons, to help residents of the longhouse produce handicrafts, rattan baskets, fabrics, and other items. Women are the main producers of crafts in the longhouse, and with the assistance of Yayasan Riak Bumi, they have begun selling textiles, woven mats, and non-timber forest products to buyers in Kalimantan, Java, and elsewhere. On a wooden loom, the women weave *tunan* or *pua' kumbu'*, which are textiles used for clothing or in ceremonies, as well as numerous *tikai* (floor mats) woven from rattan or other forest materials. Kelenjun, Sanang's wife, wove during her free time, which was most often at nighttime under the glow of a kerosene lantern. Tying intricate designs into the cotton fabrics in the flickering light is an eye-straining task. Kelenjun and other women in the longhouse said that electric lighting made weaving, cooking, and other household chores safer because they could see clearly what they were doing. During August, Kelenjun was weaving two *pua' kumbu'* to sell to buyers in Java, friends of Riak Bumi and CIFOR staff members. She believed that her sales would increase in the future and hoped that the extra income would pay for the health care she needed at the hospitals in Pontianak and Lanjak.

Health was a common topic of conversation in the longhouse, and many residents hoped that access to electricity would offer a healthier living situation. Sanang was aware of the negative effects of using kerosene lamps inside, such as increases in lung disease and asthma (Koshal et al. 1999; Shepherd & Perez 2008). Toxins from

kerosene and diesel fuel were not the only problem. The noxious pollutants in smoke from wood fires used for cooking in longhouse kitchens fill the interior space of the *bilek*. In the longhouse, rice is always cooked over a fire; a gas stove is generally used for frying fish or sautéing vegetables. Because women are responsible for cooking and have their small children with them as they prepare meals, both populations are vulnerable to the detrimental health effects of wood smoke (Smith 2008). Studies on micro-hydro development have observed no decrease in solid fuel use in communities with electricity, however, because people cannot afford the expense of electric cooking equipment, while wood is free from the nearby forest (Wamukonya and Davis 2001; Bhattacharyya 2006). A different reason for the continued use of wood fires in cooking was given by Kelenjun: “No, I will not cook with electricity. It would not taste good.”

The forest produced both firewood for fuel and plant materials for weaving household items, and many community members hoped that using natural resources to produce electricity would also sustain their savings. Sanang explained that because the micro-hydro electricity was virtually free, people could save money or use it for other things. Unggat agreed, adding, “Fuel is expensive and this saves us money.” Longhouse residents complained that the costs of fuel, clothing, and food kept increasing while the prices villagers received at markets for their own goods remained the same. They appeared to blame the government for this. Unggat angrily protested, “Corruption! Corruption! Corruption! Gasoline is expensive, rice is expensive, because of corruption.” Unggat argued that the government should step in and ensure that the price local farmers received for their goods, such as rubber, increased as well. He acknowledged, however, that electricity was good because people could work at night on crafts to produce more and increase their income, and the children could study without the noise of a diesel generator. Moreover, residents believed that increased productivity in the evening would allow the community additional time during the days for agricultural tasks and fishing, which might also increase their income. According to Li (1999:24), the Buntal community was using micro-hydro electricity as a “creative strategy to defend their livelihoods and advance their own agendas, attempting to turn state and ‘green’ discourse into their own ends.”

Residents in the Buntal longhouse complained that even if they could afford it, diesel fuel was often not available. Transportation options are limited in this remote location, and boats are the only mode of transport possible for much of the year. The cost of running motorboats long distances has caused the villagers to travel less often and time their trips carefully. Many residents of Buntal have children who attend school a few hours away in Lanjak or live in other parts of Borneo, and essential tasks such as going to a doctor or to markets also may require long journeys.

Travel throughout Borneo, Indonesia, and even mainland Malaysia has been a feature of the Buntal Iban culture. Historically, Iban men have practiced *bejalai*, a tradition in which a man leaves his home in search of wealth and adventure (Freeman 1992). Most often, the men work as unskilled wage laborers in Sarawak and Brunei, sometimes without Malaysian identity cards, thus risking encounters with police (Horstmann and Wadley 2006). *Bejalai* is still a common practice at the Sungai Buntal longhouse, but now some families travel together, sometimes for up to 10 months at a

time. Some community members expressed the hope that the additional income from activities made possible by electricity would allow the men to stay in Buntal.

Other residents hoped that modern technologies would allow them access to regional, national and global information without having to leave the longhouse. Unggat anticipated increased access to modern technologies and communication sources, such as television and cell phones. He hoped that information obtained from television or from speaking with relatives living in Malaysia would allow the community to determine the national and international prices for their goods. Unggat believed that if they knew the latest prices of rubber on the world market, they would have more power in bargaining with middlemen at regional markets. The Buntal Iban also produce honey that is prized in Pontianak and throughout Indonesia for its high quality and medicinal properties. Their honey is often sold through collaboration with NGOs in Pontianak. Residents wanted to get more income from the sale of their honey and believed that access to communication technologies would provide the catalyst for this change.

Some residents were interested in access to communication sources just for the simple pleasure of watching the evening news or movies. The younger residents in the longhouse enjoyed watching soccer games and Indonesian sitcoms on television. When electricity was turned on, television became the most prominent form of entertainment. However, television may have inadvertent consequences. Rao (2008) argues that increased access to television in India has prompted a drastic increase in consumption because rural viewers' lives are shaped by life on the screen. In particular, this research finds, children watch television shows and sporting events and develop a desire for the goods advertised. Western items displayed on television during shows or commercials are especially appealing to the younger generation, even though they are unavailable.

Environmental conservation was the last topic that the Buntal villagers touched on in our conversations about electricity and the development project. The facilitators of the project informed them that the electricity output of the micro-hydro system would depend on the amount of water in the river. More electricity can be produced and the system sustained for a longer period of time with more water running in the river. Together with the local community, the facilitators designed forest management plans regulating the cutting of trees in the forests near the river. People are not allowed to remove trees from these areas, and strict measures were put in place to discourage logging in forests in the watershed above the Buntal River.

The operators of the micro-hydro mentioned forest conservation as a major benefit of the micro-hydro project. The discourse used by the community in describing the benefits and drawbacks of the micro-hydro development project often mirrored that of the facilitators, and it was difficult to distinguish in which direction knowledge was being transferred. The operators of the system often spoke of environmental conservation and the benefit of having a clean energy source, and the facilitators would mention that the system would reduce carbon emissions and improve forest conditions. However, most residents were primarily concerned with how the project would directly improve their incomes, their children's education, and their access to lighting and television.

Conclusions

Conservation groups and NGOs are using the development of micro-hydro electricity in DSNP as a means to collaborate with local communities in hopes of accomplishing numerous goals. Income-generating activities such as oil palm plantation development and logging continue to pose threats to the health of the park's forests. One hope is that a cheap and renewable energy source will provide rural communities, such as the Buntal Iban, with social and economic incentives to maintain their forests. The expectation is that alternative methods of producing revenue will grow with access to electricity, creating an economic incentive to stop logging. Developers and local people also believe that there is a direct correlation between access to a clean energy source and better rural livelihoods. For instance, micro-hydro electricity is replacing many diesel generators and kerosene lamps, thereby lowering the levels of indoor air pollutants.

For the facilitators to determine how the micro-hydro project would enhance the livelihoods of the local community, they had to understand the perceptions of the local people. Having previously established a relationship with the Sungai Buntal community through social learning activities and other events at the longhouse, the facilitators believed the project was locally viable. The positive perceptions of the local people were vital to the success of the development project and its continued maintenance. If the community believed that the micro-hydro electricity system would benefit their lives in the long term, and not require major changes in their daily lives (Kottak 1990), they would be motivated to maintain the system and also be deterred from logging the area. Therefore, the relationship between the facilitating organizations and the local community prior to the development was crucial.

The social interactions between the researchers and the local people transferred and shaped perceptions, creating new knowledge for all involved. Residents of the longhouse learned that preserving their forests had benefits not only locally, but globally as well. During interviews, the responses of certain community members touched on global issues of how clean energy would reduce carbon emissions and global warming—issues that one informant said he learned through interactions with researchers. The social learning experiences and the development project helped create new relationships between the local community and their environment.

An understanding of local people's perceptions shaped the facilitators' views on how rural electrification could benefit other local communities in the park. Discourse is augmented, created and refined during interactions between developers and the local community. This knowledge and discourse are crucial to future projects. Development agencies can use the perceptions of rural communities of the benefits of rural electrification to promote micro-hydro projects to donor agencies, governments, and other funders.

At this writing, at least two more micro-hydro projects are underway in DSNP, and more are scheduled for the near future. It will be interesting to observe how regional and national governments respond to the ever-increasing ability of rural communities to generate their own electricity. Many communities, such as the Buntal Iban, produce just enough electricity for themselves; other systems in Indonesia are producing extra electricity to sell to neighboring communities or to the state-owned electric company.

The political implications of energy sovereignty will be a test for national and regional governments. Dove (1996:51) points out that “when forest dwellers develop a resource for market, and when and if this market attains any importance, central economic and political interests assume control.” Could the same be true for energy production in rural communities? Will the project make the Buntal more susceptible to outside control, or will it give them increased autonomy and better opportunities?

References

Bhattacharyya, S.C.

- 2006 Energy Access Problem of the Poor in India: Is Rural Electrification a Remedy? *Energy Policy* 34: 3387-3397.

Campbell, L.M. and A. Vainio-Mattila

- 2003 Participatory Development and Community-Based Conservation: Opportunities Missed for Lessons Learned? *Human Ecology* 31 (3):417-437.

Colfer, C.J.P. and R.L. Wadley

- 2001 From “Participation” to “Rights and Responsibilities” in Forest Management: Workable Methods and Unworkable Assumptions in West Kalimantan, Indonesia. In: C.J.P. Colfer and Y. Byron eds., *People Managing Forests: The Links Between Human Well-Being and Sustainability*. Washington, DC, and Bogor: Resources for the Future Press and CIFOR.

Colfer, C.J.P.

- 2005 *The Complex Forest: Communities, Uncertainty, and Adaptive Collaborative Management*. Washington, DC: Resources for the Future Press.

Dove, M.R.

- 1996 So Far from Power, So Near to the Forest: A Structural Analysis of Gain and Blame in Tropical Forest Development. In: C. Padoch and N.L. Peluso, eds., *Borneo in Transition: People, Forests, Conservation, and Development*. Kuala Lumpur: Oxford University Press.

Freeman, D.

- 1992 *The Iban of Borneo*. Kuala Lumpur: S. Abdul Majeed & Co.

Giesen, W.

- 1987 *Danau Sentarum Wildlife Reserve: Inventory, Ecology and Management Guidelines*. Bogor: WWF/PHPA.

Horstmann, A. and R. Wadley

- 2006 Introduction: Centering the Margin in Southeast Asia. In: A. Horstmann and R. Wadley, eds., *Centering the Margin: Agency and Narrative in Southeast Asian Borderlands*. New York: Bergahn Books.

- Indriatmoko, Y.
2008 *Mengubah Air menjadi Api: Upaya Masyarakat Rumah Panjang Sungai Pellaik membuat Pembangkit Listrik Tenaga Mikro-Hidro*. CIFOR-Riak Bumi 3.
- Koshal, R.K. et al.
1999 Demand for Kerosene in Developing Countries: A Case of Indonesia. *Journal of Asian Economics* 10:329–336.
- Kottak, C.P.
1990 Culture and “Economic Development.” *American Anthropologist* 92 (3): 723-731.
- Li, T.M.
1999 Marginality, Power and Production: Analyzing Upland Transformations. In: T.M. Li, ed., *Transforming the Indonesian Uplands*. Amsterdam: Harwood Academic Publishers.
2005 Beyond “the State” and Failed Schemes. *American Anthropologist* 107 (3): 383-394.
- Maarleveld, M. and C. Dangbegnon
1999 Managing Natural Resources: A Social Learning Perspective. *Agriculture and Human Values* 16:267-280.
- Rao, V.
2008 The Technology of Cultural Change in Rural India. Background note for *World Development Report 2008*.
- Roling, N.G. and J. Jiggins
1998 The Ecological Knowledge System. In: N.G. Roling and M.A.E. Wagemakers, eds., *Facilitating Sustainable Agriculture*. Cambridge: Cambridge University Press.
- Sandin, B.
1976 *Iban Way of Life* (transl. Tusun Pendiau). Kuching: Borneo Literature Bureau.
- Scott, J.C.
1998 *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Shepherd, J.E. and F. Perez
2008 Kerosene Lamps and Cookstoves—The Hazards of Gasoline Contamination. *Fire Safety Journal*. 43: 171–179.
- Smith, K.E.
2008 Wood: The Fuel that Warms You Thrive. In: C.J.P. Colfer, ed., *Human Health and Forests: A Global Overview of Issues, Practice and Policy*. London: Earthscan.
- Sutlive, V.H.
1978 *The Iban of Sarawak*. Arlington Heights, IL: AHM Publishing Corp.

Wadley, R.

- 2002 Coping with Crisis— Smoke, Drought, Flood, Currency: Iban Households in West Kalimantan, Indonesia. *Culture & Agriculture* 24:26-33.
- 2006a Wildlife Diversity on the Periphery of Danau Sentarum National Park, West Kalimantan, Indonesia. *Borneo Research Bulletin* 37:157-174.
- 2006b Community Cooperatives, “Illegal” Logging and Regional Autonomy in the Borderlands of West Kalimantan. In: F.M. Cooke (ed.), *State, Communities and Forests in Contemporary Borneo*. Canberra: ANU E Press.
- 2007 The Complex Agroforests of the Iban in West Kalimantan, and Their Possible Role in Fallow Management and Forest Regeneration. In: M. Cairns (ed.), *Voices from the Forest: Integrating Indigenous Knowledge into Sustainable Farming*. Washington, DC: Resources for the Future Press.

Wamukonya, N. and M. Davis

- 2001 Socio-economic Impacts of Rural Electrification in Namibia: Comparisons between Grid, Solar, and Unelectrified Households. *Energy for Sustainable Development* 5 (3):5-13.

Winarto, Y.T.

- 2004 *Seeds of Knowledge: The Beginning of Integrated Pest Management in Java*. New Haven, CT: Yale University Southeast Asian Studies.

Wollenberg, E., J. Anderson and D. Edmunds

- 2001 *Pluralism and the Less Powerful: Accommodating Multiple Interests in Local Forest Management*. Jakarta: CIFOR.

Wollenberg, E., D. Edmunds, L. Buck, J. Fox, and S. Brodt

- 2001 *Social Learning in Community Forests*. Bogor: CIFOR and the East-West Center.

11. “PAPER PARKS” AND THE SOCIAL LIFE OF CONSERVATION: LESSONS FROM DANAU SENTARUM

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The “Social Life” of Conservation

Biodiversity conservation is a human endeavor: initiated by humans, designed by humans, and intended to modify human behavior to achieve a socially desired objective (Mascia et al. 2003)

This article focuses on collaborative conservation and the experience of three teams that, beginning in 1991, worked with local Malay and Iban communities to manage the flooded and lowland tropical forest area in Danau Sentarum National Park in West Kalimantan, Indonesia. Relations between conservation workers and communities are discussed, and social capital among conservation workers emerges as a critical feature in conservation success. Central points of the article are (1) the social embeddedness of conservation practices; and (2) the inadequacy of a “best practices” approach because personal characteristics, experiences, and networks have such long-lasting impacts on conservation success.

The contribution of social science to conservation has tended toward one of two

¹ Carol J. Pierce Colfer is the corresponding author; Reed Wadley, who initially envisioned this paper and wrote the first draft, died prematurely of cancer in June 2008.

general trajectories, which come together from time to time. The first involves the study of local resource management or ecological knowledge; it involves finding ways to enhance such practices and associated knowledge and make them compatible with conservation concerns (e.g., collaborative or co-management à la Brown 2003 or Brosius et al. 2005), or testing whether the people in question are really conservative of their resources. The latter has occasionally fed into the resurgence of preservationism, with local people seen as a problem to be removed—the “fortress conservation” of Brockington (2002).

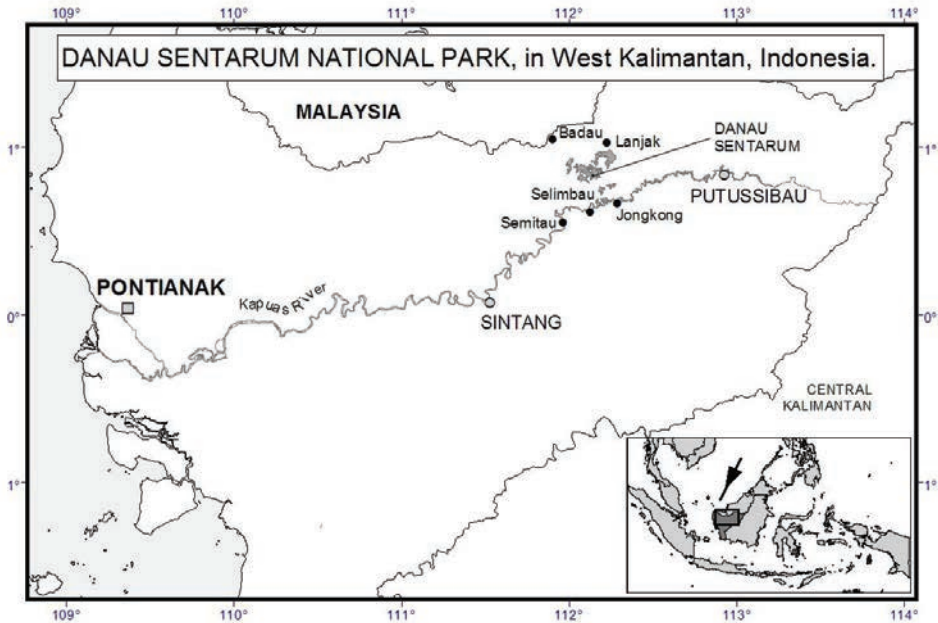
The second of these two trajectories focuses on conflict over natural resources (political ecology; e.g., Nygren 2004). Here, work has tended to range between two camps as well – from advocacy for local people, to provide them with more voice in the competition among stakeholders (Li 2007), to the largely academic camp, unfortunately less accessible to most conservationists (e.g., Tsing 1993, 2005). This paper is neither about conflicts between people and nature, nor about the interactions between people and more powerful outsiders,² but about relationships between conservation workers and local people, and between the conservation workers themselves.

Conservation management entails the management of the social relations surrounding natural resources (Brechin et al. 2003; Wadley and Colfer 2004; Natcher and Hickey 2002; Wollenberg et al. 2005). The notion of social capital is useful in developing strategies to manage such social relations (Pretty and Smith 2004). However, inadvertently paternalistic, we have tried to “build social capital” among local stakeholders without fully acknowledging our own roles in that process. We have ignored the fact that conservationists automatically become part of the social world from which social capital is built, thereby leaving unexamined a key pillar of successful (or unsuccessful) conservation practice.

As Mascia et al. (2003:649) put it, “conservation policies and practices are inherently social phenomena, as are the intended and unintended changes in human behavior they induce.” But all too often, “human dimensions” in conservation practice are relegated to those elements outlined above – local ecological knowledge/practices, negative human impacts, issues of resource conflict, or building local capacity. We have ignored another “plainly obvious” but vitally important dimension: human interaction *within* conservation practice, the intimate social relationships among people engaged in conservation projects. These have a fundamental role to play in the success or failure of conservation programs and thus deserve more attention. Many conservationists strive for an objectivity that discourages examination of human relations, perhaps in recognition of the fact that true objectivity is impossible when humans study humans. This difficulty does not, however, excuse us from making the effort.

Social capital refers to “features of social life—networks, norms and trust—that enable participants to act together more effectively to pursue shared objectives” (Putnam

2 One reviewer identified some potential root causes of the problems discussed in this paper: unequal power relations, perceived moral superiority of some conservationists, short term involvement with a corresponding minimal sense of responsibility toward local people, the view of communities as sources of data rather than as people with their own interests, and the sometimes extreme goal orientation of projects, which pressure researchers to provide tangible results immediately.



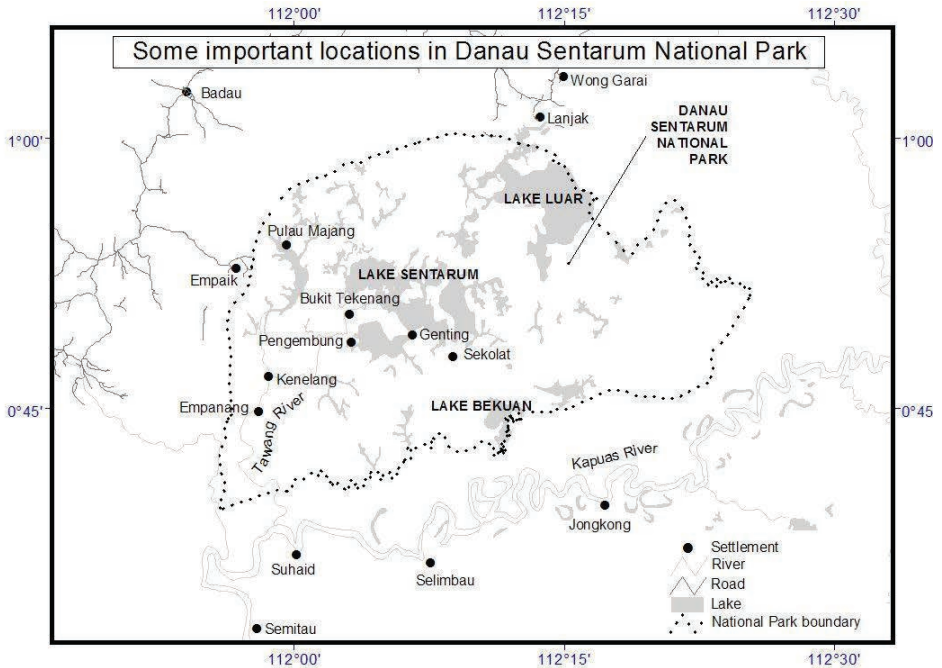
1995:664-665). With a focus on the “institution” side of human sociality, we may inadvertently assume that the people involved are interchangeable without any change to on-the-ground social relations (e.g., Salafsky et al. 2002). Fukuyama (2005:112) sums this up nicely, referring to

...the frequently dysfunctional character of ‘best practice’ mentality, where a practice that works in one part of the world is immediately publicized and set up as a model for other parts of the world. Successful programs [often involve] what James Scott (1998) labels *metis*—the ability to use local knowledge to create local solutions.

We somehow lose sight of the socially embedded nature of our own human activity when issues of material resources surface (Uphoff 1996; Fukuyama 2005; Lowe 2006). Seixas and Davy (2008: 99), in a recent study of successful conservation projects in 2002 and 2004, observed

...that CBC [community based conservation] and ICDP [integrated conservation and development program] initiatives opportunistically evolve in a multi-level world, in which local communities establish linkages with people and organizations at different political levels, across different geographical scales and for different purposes.

Their study found numerous examples of the kinds of involvement described herein for our network of researchers and activists, contributing to the success of their



cases. In general, we share Seixas and Davy's (2008) conclusion that there is no right recipe for good conservation practice, that one needs a varying mix of ingredients: (1) *involvement and commitment of key players, including communities*; (2) funding; (3) strong leadership; (4) *capacity building*; (5) *partnership with supportive organizations and government*; and (6) economic incentives, including alternative livelihood options (emphasis added).

Here, we examine the social life of conservation, drawing on our collective and long-term experience in Danau Sentarum National Park (DSNP). In particular, we focus on DSNP teams' relations with local communities and interactions with other conservationists. We are particularly interested in how the nature of such social relationships affects conservation outcomes. We argue that the trust, interpersonal networks and reciprocity between and among conservation personnel and local stakeholders have been largely overlooked in conservation work and yet can be crucial to conservation success. Ideally, these characteristics would be part of all professional working relationships.

Study Site

Danau Sentarum Wildlife Reserve was established in 1985 (Giesen 1987), became Indonesia's second Ramsar site in 1994 and was upgraded to a national park in 1999 (Giesen and Aglionby 2000). Still, most management has been undertaken by local communities (Colfer et al. 1996; Dennis et al. 2001; Indriatmoko 2008). The park comprises around 1,320 km² (Whiteman and Aglionby 1997; Wadley et al. 2000), with

unclear boundaries and a buffer zone. Indriatmoko's 2007 census (unpublished data) showed a population of 10,300 living in the park, 93 percent being Malays, the remainder mostly Iban.

Major threats to the park include uncontrolled logging, possible dam construction and oil palm development, gold mining and transmigration schemes. In 1992, the first project team, under subcontract to a consulting firm, began formal collaborative management of the reserve, under the Indonesian Agency for the Conservation of Natural Resources (KSDA) and Asian Wetlands Bureau (AWB). During the project's five years, three consecutive teams of researchers led larger, shorter-term teams. In September 2007, 10 years after the project officially ended, the government funded a management unit and developed a participatory management plan.

The conservation project began with a strong emphasis on collaboration. Team 1 moved to Danau Sentarum in June 1992 and initially encountered fantastic but real fears from the communities – that the researchers were seeking shrimp with diamond eyes, or a local virgin to kill and bury under the field center's house posts, or that they planned to build a bridge over Danau Sentarum (quite an improbable engineering feat). Working closely with communities, they established a field center, studied the two main local systems, and began comanagement. Less than a year into the project, however, Team 1 resigned over difficulties with their NGO employer.

Team 2 focused primarily on protecting the area *from* local communities, spending little time in the field and emphasizing ecological matters to the near exclusion of local communities. One member of Team 3 emphasized marketing of alternative income-generating opportunities for the community; the other focused on local ecology and a management plan. Rona Dennis, the remote sensing and GIS adviser, remained with the project throughout. Based in Bogor, she spent considerable time mapping in the field.

Conservation Teams and Local People

Three significant events pertaining to local resources and territorial claims affected relations between conservation teams and local people. Nevertheless, it is often the day-to-day interactions that more fundamentally create both problems and enduring links with local communities.

Land Claims

In June 1992, Team 1 and AWB colleagues visited DSNP to choose a field center site. Anxious to avoid Indonesia's recurrent territorial conflicts and cognizant of the common negative repercussions of conservation projects for communities, they visited several sites, discussing land tenure everywhere. The team was surprised when no conflicts appeared to exist and no claims on lands were expressed—given the frequency of such problems in Indonesia (and elsewhere). The only expressed interest was in fishing, the Malay communities' principal livelihood.

A month later, Team 1 was invited to a multistakeholder meeting at Selimbau's floating hotel on the Kapuas River, near the county-level military, police and government

officials' offices. The team was immediately subjected to a prolonged and vituperative verbal attack (very unusual in Indonesia) by a locally respected man who accused them of trying to steal land that belonged to his family.

The team's genuine commitment to protecting local people's rights, combined with their mandate to build a field center in an unclaimed area, constituted a difficult ethical dilemma. Legally, the central government had the right to build a field center, even though communities in Indonesian protected areas typically have overlapping claims that the researchers considered legitimate. The team explained their point of view, and the group sent them to consult with district officials. On the team's return, the aggrieved man dropped his claim, apparently willingly, and the stakeholders involved subsequently worked cooperatively and apparently happily with the team. The low-key, rational way the agreement was negotiated helped establish these good relations. Local stakeholders realized the team was not intent on enforcing national policy at all costs and was seriously interested in both human welfare and effective conservation.

Territorial Mapping

Between 1994 and 1997, the project's mapping team followed up on the discovery of a sophisticated system of customary land tenure. They conducted discussions about boundaries with local fishing communities and created village sketch maps to understand better local people's use of natural resources (cf. Momberg et al. 1996; Sirait et al. 1994). The community mapping team, including local staff, accurately captured the complexity of these boundaries. Mapping identified conflicts between communities, and sometimes led to conflict resolution; some communities physically marked their boundaries; and suspicions surfaced about project motives in some communities, especially those with valuable forests.

In total, more than 85 *wilayah kerja* (village work areas) were mapped, and the team created a GIS. These boundaries, digitized and linked with other spatial data sets, provided a powerful platform for understanding local land-use dynamics. The team protected the communities' intellectual property rights, refusing to share the data with third parties. This became even more important during the peak of illegal logging in the late 1990s and early 2000s, when Suharto's control had evaporated and new systems of government were not yet in place, creating an opportunity for external entrepreneurs to exploit local forests.

Interethnic Conflict

In 1994, the use of artificial chemical poisons by Dayak communities resulted in a major loss of fish, both wild and caged. A settlement between Iban and Malays was brokered by the vice-governor, police, fisheries and conservation services and the project. High-level political intervention helped reach a settlement; the vice-governor traveled to the reserve for the signing. The agreement was based on *adat* (customary) law, on the premise that it could then be enforced by local communities rather than depend on police intervention. The project acted as an influential mediator, although subsequent research indicates that significant poisonings did recur on two occasions (Yasmi et al. 2007).

Day-to-Day Successes and Strains

Community-project relations evolve over time, in the course of day-to-day interactions. The process of working with communities may alternate between moments of elation and inspiration, dismay and regret.

On the beneficial side, community concerns began to evaporate as the team worked with groups to plan monitoring of timber companies, coordinate customary regulations in various microcatchments for better fisheries management, discuss how to limit in-migration during the dry season and conduct a study of floating gardens as a means to improve poor Malay diets and related poor health (Dudley and Colfer 1993). The communities recognized the team's serious concern for their welfare.

In 1995, several community members were appointed by the Conservation Agency (KSDA) as honorary rangers, giving them recognition and status within their community and perhaps moderating their ambivalence toward the project. A subsequent socioeconomic rapid appraisal uncovered a strong community interest in health centers, schools and credit. Various activities were arranged in the field center that exposed outsiders to communities and the reserve. All the efforts – meetings, conferences, a library, sports days, dances, TV viewing – to engage individuals and build social capital proved worthwhile.

But these positive interactions were interspersed with more disruptive ones. The researchers found that small personal mistakes could have long-term and serious consequences, and that their relationships with community members needed continual monitoring and enhancement. Commonly, disruptions between conservation workers and communities arose from everyday human foibles, like fatigue and irritation. In August 1992, for instance, Carol Colfer wanted to accompany a local Malay woman on her agricultural rounds, to get a better sense of women's views. Colfer's assistant wanted to accompany her. Fearing that the woman would be inhibited if a local man were present, Colfer persuaded him to stay behind. Things were progressing well when suddenly the assistant and several other men arrived to help. Soon it became clear that the men were going to take over the conversation, as Colfer had predicted; she stormed off in an angry huff, even though she knew her abruptness was inappropriate. The woman, with whom she had been building a relationship, avoided her for the remainder of her stay there, considering her unpredictable and rude; the distrust of this woman, a respected community member, surely did nothing to improve the project's standing in the community.

In 1993, following Team 1's departure, new consultants were appointed. Although Team 1 had made considerable strides in overcoming local people's fears and developing the project, they had been able to work directly in only five villages. Team 2 largely ignored the communities and did not consider them conservation managers. By April 1994, when Julia Aglionby, an environmental economist, arrived, significant levels of distrust regarding the project had built up. She visited all villages within the reserve and the proposed extension, appraised community use of resources and mapped the territories they managed.

She found a resurgence of rumors—for example, that the project was digging out the hill behind its field center to find gold and would fill the holes with skulls.

Communities wanted nothing to do with the project. This distrust came to a head at a Pontianak workshop attended by DSNP village heads, when a document was distributed that accidentally described the Iban as *kejam*, a word that can be and was interpreted as “savage.” Iban leaders met with Aglionby privately and demanded a trial; otherwise there would be killings. The Indonesian civil servants took the threat seriously, convening an *adat* (customary) court that afternoon. Project personnel apologized profusely, a sentence was handed down, and the fine was paid. The matter having been settled, no further mention of this incident was made, in accordance with Iban tradition.

Social Capital among Conservationists

Although relations between communities and conservation workers are important, the interactions among conservation workers have received even less attention in conservation efforts. Here we show how social capital—an inherently variable and unpredictable element in social life—among conservation workers can affect conservation success. We begin with a story about fatigue and miscommunication, then address trust, administrative constraints and capacity building.

Although the project plan was to involve eight Indonesian civil servants in DSNP management, Team 1 initially supplemented their own labor with that of speedboat drivers and community members. Nine months into the project, the field center had been built, and several young, enthusiastic Indonesian researchers were hard at work. One night, the team leader lay in his bunk—Team 1 lived on a 10m *motor* (boat)—tired from a long day, waiting for the field center’s generator to be turned off so that he could sleep. Nine o’clock—the agreed-upon hour—passed but the noise of the generator continued. After another half-hour of exhaustion and frustration, unable to sleep, he got out of bed, pulled on his clothes, and stormed up to the field center, where he found the researchers talking, working and laughing. In a fit of pique, he upbraided them for interfering with his sleep, stormed back down to the generator and abruptly turned it off.

The next morning brought disaster. Two of the new arrivals had been working and found themselves suddenly immersed in darkness when the generator went off. They considered this a serious affront to their dignity and were ready to pack their bags and leave. Immediately. Colfer writes,

At this point, the poignancy of the situation overwhelmed me. We finally had the co-workers we had wanted, and these two were unusually fine people. But difficulties caused by fatigue and cross-cultural miscommunication were threatening it all. ... The last thing we wanted to do was drive them away, by accident. My tears seemed to convince them that we actually were genuinely contrite, and they began slowly to forgive us (2006:109).

Incidents like that – so common in international conservation efforts – can truly endanger a conservation effort. By demonstrating their regret, however, the team ultimately forged stronger ties with these volunteers. One now works for KSDA, with significant responsibilities for DSNP, the other worked for years at Wetlands International, and both have maintained their commitment to conservation.

Trust is an integral part of the social capital we consider crucial for effective conservation actions (cf. Berkes 2007b). It is central to effective collaboration and has serious effects on team members' motivations. It can also be destroyed much more easily than it can be established.

Team 1 entered Danau Sentarum in June 1992 with great enthusiasm about community involvement in conservation and the opportunity to work with an NGO that they thought was sincerely motivated. Their trust quickly began to erode. The project site was 16 hours of rough travel by car and speedboat from Pontianak, the nearest place to communicate with the home office and receive funds. The team would develop proposals and requests for funding; the Bogor office would agree to send the money within a month. A month later, only half of the money would be there, or none at all, and meanwhile, the team had made commitments and hired people on the basis of the approved budget. Throughout 1992 and 1993, Team 1 repeatedly used personal funds to make up the difference and pay local people their promised wages.

During the fall of 1992, on each visit to Pontianak, the team leader would ask the home office about the researchers' own salaries and be told, "Yes, they've been sent to the U.S. bank." In December 1992, the researchers discovered that only one remittance had gone out—five months previously, in July. They had been working (and in fact funding parts of the project) *pro bono* since then.

Month followed month and the team's trust in their employers eroded further. They threatened to quit. Promises of improvement were made. In April 1993, Colfer became ill and returned to the United States. Still no administrative improvements were made. Finally, the members of Team 1 reluctantly submitted their resignations, with heavy hearts; they worried about conservation outcomes and community enthusiasm should a "fines and fences" approach follow—a concern that proved justified.

The loss of trust had resulted in the loss of the two central conservation workers. But administrative constraints alone can also be a stumbling block. AWB, the NGO, was subcontracted by a for-profit consulting firm; relations between these two entities were not cordial. As a result, the field team was denied essential support while the two Java-based institutions quarreled. Moreover, the team, suspected of accounting irregularities actually committed by the NGO, was subjected to requests for "mileage" for speedboat travel and receipts from illiterate local people—all of which detracted from progress on conservation.

Relations between the project and the national park authorities also encountered landmines. The first KSDA director helped the team work through the bureaucracy and avoid costly mistakes – such as calling the field center a building, which would have involved the Public Works Department (then a corrupt institution). By calling it a field post, the team avoided paying additional "charges."

The second KSDA director was a bright young scientist who had had a series of run-ins with other international workers. He initially took a very aggressive stance, demanding to know what Team 1 had accomplished in its first four months. The team complied, mentioning also the problems obtaining funds and reminding him gently that they were alone in the field, despite the promise of eight KSDA collaborators.

With his gradual realization that the team was working to accomplish project

goals under difficult conditions, he became an advocate, even coming to the field and sending some of his junior staff to work there. Although Team 1 worked with him for less than a year, the trust they developed has endured.

A subsequent team member had a less successful relationship with him, however. This wildlife volunteer wore shorts and sandals not just in the field, but inappropriately at the KSDA office. When he inadvertently took the project car that a senior KSDA official wanted to use, he was denied permission to stay in the field. His lack of awareness of cultural norms cost the team a valuable and much-needed human resource.

The evidence of genuine concern for local people contributed to and strengthened some local individuals' long-term commitments to conservation and resulted in effective capacity building. One group of local project employees formed their own NGO, Riak Bumi. Another now works with Flora and Fauna International and has served as a periodic consultant. A community leader from Pulau Majang has maintained his concern and conducts "shared learning" meetings on collaborative conservation throughout Indonesia. There are many other such examples.

Conclusions

The formal DFID-KSDA project to manage Danau Sentarum only lasted five years (1992–1997), but low-level inputs continued. Local actors, Indonesian researchers and bureaucrats, and international researchers have retained their commitment and enthusiasm for DSNP conservation and for people's well-being.

Riak Bumi's continued involvement is one indicator that conservation concerns remain alive – that Danau Sentarum is more than a paper park. Others include routine contributions to keep a community newsletter going; five-year pledges to contribute funds to Riak Bumi; a popular book (Colfer 2006) whose royalties, although small, went to Riak Bumi; and the creation and showing of CIFOR films, *Cerita Pak Burung* and *Danau Sentarum National Park: The Abandoned Paradise*, to national and international audiences.

A group of early researchers produced a special issue of the *Borneo Research Bulletin* devoted to DSNP (Volume 31, 2000); these special essays are its successor. Research has been conducted on hunting (Wadley et al. 1997), illegal logging (Wadley 2000), fires (Harwell 2000; Dennis et al. 2005), criteria and indicators (Colfer and Byron 2001), land cover change (Dennis et al. 2001) and more. New researchers work with communities, conduct ecological studies, train villagers and coordinate multi-stakeholder management planning (e.g., Indriatmoko et al. 2007; Yasmi et al. 2007; Indriatmoko 2008; Prasetyo 2008; Mulyana et al. 2008; Yuliani et al. 2008a,b).

The vibrancy of this continued involvement builds on relationships of trust, reciprocity and sociability both with local communities, but perhaps more significantly, among those working on conservation. The significant actors became friends, linked together by common concerns, and draw others into the network of concerned researchers, students, activists and officials. Those who grew to love the area and its people retain a commitment to work toward protecting it for the people who live there now, for the generations to come and for the human race as a whole.

Converting this informal but powerful network into a set of "best practices"

seems unrealistic. There is growing evidence of the significance of both individual action and multilevel linkages in successful collective action and conservation. Krishna (2002) quantitatively examined social capital's role in development in 69 Indian villages, concluding that despite social capital's significance, *agents* to link communities with outside sources and actors were more important (see also Uphoff 1996). Kubo (n.d.) examined three cases of community forestry in Asia, similarly concluding that personal agency was the most critical component. There are powerful arguments for demanding a commitment to responsible and empathic behavior from conservation workers as part of our professional skills set.

Simply recognizing the long-lasting power and significant impacts of personal connections among conservation workers could go a long way toward better conservation practice. Conservation project personnel should be strengthening their social capital with other stakeholders who can sustain long-term initiatives.

Although threats to DSNP continue—dams, oil palm, transmigration, logging, population growth—the park has not been destroyed. In fact, the level of uncontrolled logging has declined, the dam has not been built, nor has the landscape yet been converted either to oil palm on a massive scale or a huge transmigration site. The capabilities and commitments of local communities and bureaucrats continue to be strengthened through collaborative efforts in and around the park and through their participation in forums like the forest governance and learning groups and the shared-learning workshops (similar to learning networks; Berkes 2007a; 2009 in press). Without continued involvement by such a network, it seems clear that DSNP would have suffered more dramatic damage than it has.

References

- Berkes, F.
2007a Chapter 2: Adaptive Co-Management and Complexity: Exploring the Many Faces of Co-Management. In: D. Armitage, F. Berkes and N. Doubleday eds., *Adaptive Co-Management: Collaboration, Learning, and Multi-Level Governance*. Vancouver: University of British Columbia Press.
2007b Community-Based Conservation in a Globalized World. *Proceedings of the National Academy of Sciences (PNAS)* 104 (39):15188-15193.
2009 Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management* 90:1692–1702.
- Brechin, S.R., P.R. Wilshusen, C.L. Fortwangler and P.C. West, eds.
2003 *Contested Nature: Promoting International Biodiversity with Social Justice in the Twenty-first Century*. Albany: State University of New York.
- Brockington, D.
2002 *Fortress Conservation: The Preservation of the Mkomazi Game Reserve Tanzania*. Oxford, Bloomington, Dar es Salaam, Tanzania: The International African Institute, Indiana University Press, and Mkuku Na Nyota.

- Brosius, J.P., A.L. Tsing and C. Zerner
2005 *Communities and Conservation: Histories and Politics of community-Based Natural Resource Management*. Blue Ridge Summit, PA: Altamira Press.
- Brown, K.
2003 Three Challenges for a Real People-Centred Conservation. *Global Ecology and Biogeography* 12:89-92.
- Colfer, C.J.P.
2006 *Vignettes from a Year in Borneo: Local People and Conservation*. <http://www.lulu.com>.
- Colfer, C.J.P. and Y. Byron
2001 *People Managing Forests: The Links between Human Well-Being and Sustainability*. Washington, DC: Resources for the Future and CIFOR.
- Colfer C.J.P., R. Wadley and E. Widjanarti
1996 Using Indigenous Organizations from West Kalimantan. In: D. Michael Warren, Peter Blunt, and David Marsden, eds., *Indigenous Organisations and Development*. London: Kegan Paul, pp. 228-238.
- Dennis, R., C.J.P. Colfer and A. Puntodewo
2001 Forest Cover Change Analysis as a Proxy: Sustainability Assessment Using Remote Sensing and GIS in West Kalimantan, Indonesia. In: C.J.P. Colfer and Y. Byron, eds., *People Managing Forests: The Links Between Human Well-Being and Sustainability*. Washington, DC: Resources for the Future and CIFOR.
- Dennis, R., J. Mayer, G.B. Applegate, U. Chokkalingam, C.J.P. Colfer, L. Kurniawan, H. Lachowski, P. Maus, R. P. Permana, Y. Ruchait, F. Stolle, S. Suyanto and T. Tomich
2005 Fire, People and Pixels: Linking Social Science and Remote Sensing to Understanding Underlying Causes and Impacts of Fires in Indonesia. *Human Ecology* 33 (4):465-504.
- Dudley, R.G. and C.J.P. Colfer, eds.
1993 *Conservation Sub-Project Quarterly Report and Attachments*. Bogor, Indonesia: Asian Wetlands Bureau (Indonesia Tropical Forestry Management Project).
- Fukuyama, F.
2005 *State-Building: Governance and World Order in the Twenty-First Century*. London: Profile Books.
- Giesen, W.
1987 Danau Sentarum Wildlife Reserve: Inventory, Ecology and Management Guidelines. Bogor: WWF/PHPA.
- Giesen, W. and J. Aglionby
2000 Introduction to Danau Sentarum National Park, West Kalimantan. *Borneo Research Bulletin* 31:5-28.

- Harwell, E.
2000 Remote Sensibilities: Discourses of Technology and the Making of Indonesia's Natural Disaster, 1997-98. *Development and Change* 31 (1):307-340.
- Indriatmoko, Y.
2008 Mengubah Air Menjadi Api: Upaya Masyarakat Rumah Panjang Sungai Pelaik membuat Pembangkit Listrik Tenaga Mikro-Hidro [Change Water into Fire: Efforts of the Sungai Pelaik Longhouse to Generate Micro-Hydro Electrical Power]. *Mendorong Konservasi yang Bermanfaat Bagi Masyarakat Lokal* [CIFOR-Riak Bumi Newsletter] 3.
- Indriatmoko, Y., L. Yuliani, Y. Tarigan, F. Gaban, F. Maulana, D.W. Munggoro, D. Lopulalan and H. Adnan, eds.
2007 *Dari Desa ke Desa: Dinamika Gender dan Pengelolaan Kekayaan Alam*. Bogor: CIFOR.
- Krishna, A.
2002 *Active Social Capital*. New York: Columbia University Press.
- Kubo, H.
No date Analyzing Community Forestry through the Agency Perspective. Unpublished manuscript.
- Li, T.M.
2007 *The Will to Improve: Governmentality, Development and the Practice of Politics*. Durham, NC: Duke University Press.
- Lowe, C.
2006 *Wild Profusion: Biodiversity Conservation in an Indonesian Archipelago*. Princeton: Princeton University Press.
- Mascia, M.B., J.P. Brosius, T.A. Dobson, B.C. Forbes, L. Horowitz, M. McKean, and N.J. Turner
2003 Editorial, Conservation and the Social Sciences. *Conservation Biology* 17 (6):649-650.
- Momberg, F., K. Atok, and M. Sirait
1996 Drawing on Local Knowledge: A Community Mapping Training Manual with Case Studies from Indonesia. Jakarta: Ford Foundation, Yayasan Karya Sosial Pancur Kasih and WWF Indonesia Programme.
- Mulyana, A., H. Adnan, Y. Indriatmoko, A. Priyono, and M. Moeliono
2008 *Belajar sambil Mengajar: Menghadapi Perubahan Sosial untuk Pengelolaan Sumber Daya Alam* [Studying while Teaching: Confronting Social Change for Natural Resource Management]. Bogor: CIFOR.
- Natcher, D.C. and C.G. Hickey
2002 Putting the Community Back into Community-Based Resource Management: A Criteria and Indicators Approach to Sustainability. *Human Organization* 61 (4):350-363.

- Nygren, A.
2004 Contested Lands and Incompatible Images: The Political Ecology of Struggles over Resources in Nicaragua's Indo-Maiz Reserve. *Society and Natural Resources* 17:189-205.
- Prasetyo, L.B.
2008 Apakah Pendanaan Proyek Konservasi Berjalan di Arah yang Benar? Ide-ide Inovatif untuk Sistem Pendanaan yang Tepat Sasaran [Is Funding for Conservation on the Right Track? Some Ideas for Improvement]. Paper presented at International Association for the Study of the Commons conference, Cheltenham, UK, 14-18 July.
- Pretty, J. and D. Smith
2004 Social Capital in Biodiversity Conservation and Management. *Conservation Biology* 18:631-638.
- Putnam, R.D.
1995 Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America. *Political Science and Politics* 28 (4):664-683.
- Salafsky, N., R. Margoluis, K.H. Redford, and J.G. Robinson
2002 Improving the Practice of Conservation: A Conceptual Framework and Research Agenda for Conservation Science. *Conservation Biology* 16 (6):1469-1479.
- Scott, J.C.
1998 *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press.
- Seixas, C.S. and B. Davy
2008 Self-Organization in Integrated Conservation and Development Initiatives. *International Journal of the Commons* 2 (1):99-125.
- Sirait, M., S. Prasodjo, N. Podger, A. Flavelle, and J. Fox
1994 Mapping customary land in East Kalimantan, Indonesia: A tool for forest management. *Ambio* 23 (7):411-417.
- Tsing, A.L.
1993 *In the Realm of the Diamond Queen*. Princeton: Princeton University Press.
2005 *Friction: An Ethnography of Global Connection*. Princeton: Princeton University Press.
- Uphoff, N.
1996 *Learning from Gal Oya: Possibilities for Participatory Development and Post-Newtonian Social Science*. London: Intermediate Technology Publications.
- Wadley, R.L.
2000 Community Cooperatives, 'Illegal' Logging and Regional Autonomy: An ACM Field Report from Kapuas Hulu, West Kalimantan, Indonesia. Bogor: CIFOR.

- Wadley, R. L. and C. J. P. Colfer
2004 Sacred forest, hunting, and conservation in West Kalimantan, Indonesia. *Human Ecology* 32 (3):313-338.
- Wadley, R.L., C.J.P. Colfer and I. Hood
1997 Hunting Primates and Managing Forests: The Case of Iban Forest Farmers in Indonesian Borneo. *Human Ecology* 25:243-271.
- Wadley, R.L., R. Dennis, E. Meijaard, A. Erman, V. Heri, and W. Giesen
2000 After the Conservation Project: Potential Tools for Conservation Work among Mobile Peoples. *Nomadic Peoples* 7 (1):52-73.
- Whiteman, A. and J. Aglionby
1997 The Utilisation of Socio-Economic Data for Conservation Management Planning: A Case Study from Danau Sentarum Wildlife Reserve in West Kalimantan, Indonesia. *Commonwealth Forestry Review* 76 (4).
- Yasmi, Y., C.J.P. Colfer, L. Yuliani, Y. Indriatmoko, and V. Heri
2007 Conflict Management Approaches under Unclear Boundaries of the Commons: Experiences from Danau Sentarum National Park, Indonesia. *International Forestry Review* 9 (2):597-609.
- Yuliani, E.L., H. Adnan and Y. Indriatmoko
2008 The Use of Appreciative Inquiry as a Tool for Enhancing Adaptive Capacity in Natural Resources Management. Paper presented at International Association for the Study of the Commons conference, Cheltenham, UK, 14-18 July.
- Yuliani, E., Y. Indriatmoko, V. Heri, S. Ernawati, L.B. Prasetyo, and M.S. Zulkiflie
2008 Promoting Good Governance in Managing Danau Sentarum National Park through Adaptive Collaborative Management Approach. In: B. Manos and J. Papathanasiou (eds.), *Governance and Ecosystems Management for Conservation of Biodiversity*. Thessaloniki: Gemconbio Project, EU and Aristotle University of Thessaloniki.

RESEARCH NOTES

BARIO DIARY JUNE 3-JUNE 27, 1966

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Author's Introduction

This account was written during a trip from Bario to Marudi in June 1966 as part of a diary kept throughout thirteen months in Sarawak. I was just finishing doctoral research in Southeast Asian History at Cornell University. My subject was the relationship between the Brookes and the Iban people, later published as *Rajahs and Rebels: the Ibans of Sarawak under Brooke Rule, 1841-1941*.¹ My research, funded by the London-Cornell Project,² concerned mainly the Second and Third Divisions, so the Bario trip was somewhat off subject. My wife and I did it mainly because we wanted to see the Kelabit country, and it turned out to be one of the most memorable parts of our time in Sarawak.

In retrospect, a number of things about this account are of some historical value. To be sure, I was no expert on either the Kelabit or the Orang Ulu, and this is obvious at times. I was 29 years old and opinionated, and these shortcomings are apparent in places. Nevertheless, the diary provides an unusual, possibly unique, snapshot of the region through which my wife and I walked.

We came at an interesting time. Confrontation (*Konfrontasi*) with Indonesia was still underway, and there was a unit of Gurkha troops in Bario when we arrived there. The integration of Sarawak into Malaysia was just beginning and the imprint of Brooke rule was still obvious. The Kelabit people, too, were in a state of transition, and it seemed that they were meeting this challenge with shrewd selectivity, taking what they wanted, such as education, but trying hard and apparently successfully to retain their robust identity. They had, for example, accepted Evangelical Christianity, but they had not abandoned long hair or alcohol, at least not entirely.

As the diary shows, the relationship between the British armed forces and the

1 Initially published by Macmillan (UK) and Cornell University Press (US edition) in 1970. A new edition for which I have written a new introduction is forthcoming, to be published by the Universiti Malaysia Sarawak.

2 The London-Cornell Project funded social science research in Southeast Asia and China by students from Cornell University and the London University complex. Support for foreign area research was easy to come by at the time, thanks largely to the Cold War, but the Project lasted only a few years.

local people was genuinely cordial. This was of course partly due to the positive heritage of both Brooke and postwar British colonial rule, and *Konfrontasi* itself was certainly benign as wars go. But it was also clear that the British were managing the relationship well, doing everything possible to make their presence an asset rather than a burden on the inhabitants. It all seems amazingly positive judged in the light of more recent “low intensity” conflicts, from Vietnam to Afghanistan.

I described the Kelabit-Penan relationship as condescending on the Kelabit side, going so far as to suggest that it resembled in some ways the attitude of whites toward blacks in the old American South. This may have been an overstatement, but there was some truth in it. I wonder if this situation has changed in the last 44 years, as external pressures have increased on both groups.

We had planned to walk out from Bario to the nearest navigable headwaters of the Baram. However, the British military did not want us to see their secret operation at Kuba’an, so they gave us a helicopter ride to Pa Tik, saving us a three-day walk, and we hiked from there to Long Sait, via Long Lellang. The rest of the trip was by river. We had timed our visit to see a *tamu*, a government-supervised meeting at Lio Mato between Penan nomads and traders, and this turned out to be one of many memorable experiences along the way.

The Sarawak Museum was sponsoring my Iban research, and Tom Harrisson, then in the final days of his curatorship, had notified the Kelabits and the British that we were coming. We found that the Kelabits were not shy about discussing Harrisson and his relationship with them, warts and all, as the diary attests. They clearly appreciated the multi-faceted personality of this larger-than-life personality, regarding him with a mixture of awe, affection and exasperation.

We learned—again—that an association with the Sarawak Museum automatically led to acceptance in any area of the state, regardless of the sometimes arcane nature of one’s research, or even if, as in our case, we wanted only to meet the local people and learn something of their history and current circumstances.

To our surprise, much of the area we walked through was secondary growth and had apparently been more densely settled and farmed at some time in the past, or so we were told. We encountered relatively little old growth forest, and some of that was being cleared for shifting cultivation. We saw no evidence of major logging along our route, although we knew from our guides that some was already happening not far away. We passed near the proposed Pulong Tau National Park and perhaps through a portion of it. A more recent account of the area is in Jayl Langub’s “Penan and the Pulong Tau National Park: Historical Links and Contemporary Life,”³ and I should note here my gratitude to Jayl for reading my draft and helping me with some badly needed revision and standardization of ethnic terminology.

The pictures accompanying this article were processed at the Borneo Studio at 47 Carpenter St. in Kuching, which did the best black and white processing, especially printing, that I have ever encountered anywhere. I carried two 35mm cameras, so a good record of the trip exists in both color and black and white. I would welcome correspondence with anyone who is a subject of the pictures or knows anyone who was.

I plan to make sure that all my Sarawak photos will in the future be made accessible to the people of Sarawak.

The diary suggests some interesting questions. Did the departure of British military forces create difficulties for the Kelabits and others, who, as of 1966, were benefiting economically from their presence? Has Iban expansion into the Baram, discussed at the end of this account, continued? How has wholesale logging – including construction of logging roads – changed the lives and welfare of the population? Have the Kelabits been able to maintain what seemed to me to be a remarkably benign engagement with the potentially disintegrating risks and challenges of modernity?

The text presented here is much as it was written on the trail in 1966, aside from corrections of misspellings, egregiously poor wording, and needless repetition. All wholly new material in the text is in brackets. My erratic use of “Punan” and “Penan” has been corrected. A very few brief passages about irrelevant subject matter, such as the political situation in Sarawak in 1966, have been dropped, together with a small amount of material that might, even 44 years later, be offensive to individuals who are still living.

Bario Diary June 3-June 27, 1966

June 3, Bario.

The World Within⁴ has changed. This I had expected—nevertheless the degree of shiny modernity here comes as a shock. The overall impression is one of a vigorous people who have taken Progress by the horns and made the most of it, retaining all their self-respect and discipline in the process. Thanks to Dick Goldman, a US Peace Corps Volunteer at Marudi, we were met by the brother of the local Upriver Agent (URA), Paran Ribu (or Frederick, or Frederick Sagau; this is his old name before his son was born) and by a girl named Freda Kedung who is teaching here but who is actually from Long Lellang. We are staying at Frederick Sagau’s house—a separate affair, really quite spectacular, located not far from the main Bario longhouse.

The main Bario longhouse itself has been rebuilt although it stands in the same location as the old one. Now it has a shiny new tin roof—and a stretch of *lawn* all around – and the underneath looks as if someone dusts under it every morning. A greater contrast to the average Iban set-up simply could not be imagined. The house of the URA where I am staying—his name is Ngaraway (or Brauk) Ulun—is made of sawn planks (there is a sawmill here), some of them huge. It has two storeys, running water (rain catching in old oil drums transmitted via plastic hose) and is completely spic and span – but downstairs the hearths are still in the middle of the floor. Plenty of people still look spectacularly traditional as far as earrings etc. are concerned.

The plane arrival drew a huge crowd—the airstrip runs down the middle of the flat Bario plain—on one side a Royal Navy helicopter unit and Gurkha HQ and on a hill in back a new camp being built, employing 100 local people, to consist of no fewer than

4 A reference to Tom Harrison, *World Within: A Borneo Story*: Cresset, London, 1959.



Photo 1: Bario's Connection with the World Without: The Twin Pioneer flight that brought us from Lutong via Marudi arrives at Bario. The lady wearing the sun hat and copper earrings is Sinah Bala Tu'uh, wife of the headman of Bued Main, Bario.

eighty long tin huts. After the plane landed and we got off, everyone crowded around and peered inside it—great fascination. Much of the prosperity is no doubt a result of Confrontation. To get here [Frederick's house] we walked about fifteen minutes along a bicycle path, past many square wet rice plots they are now preparing to plant again.

The flight up was great fun. We wondered whether we were going to leave Lutong—one engine seemed to be acting up—but all went like clockwork. It is only twelve minutes to Marudi where almost all the seats were removed from the plane and most of the passengers got off. From then on we were over jungle all the way, with an occasional glimpse of twisting brown river far below. The country gets increasingly rugged—we had good views of the crazy twin peaks Batu Lawi (like two great fingers) just before we popped over the edge, or so it felt, and there was Bario.

The *penghulu*, Gerawat (Gerawat Aran, former name Ngimat Ayu), was there to meet the plane—I delivered Tom Harrison's message although they were well aware that he was coming (probably well after we have left, due June 11).

Yes it is COOL here—though hot enough walking in the sun. Fantastic plump bananas and juicy oranges quite unlike anything else to be found in Sarawak. Also at Brauk's house where we now are—a *jamban* (toilet) equipped with toilet paper, and a gas lawnmower parked under the house! We are lodged on the second floor in considerable style. A girl whose relationship I haven't figured out saw my cigar and brought up a glass saucer for an ash tray. Things are well looked after and they don't want holes burned in their best mats and mattresses. Also it may be that the Borneo Evangelical Mission (BEM), which has swept the board here, has put them off tobacco as well as drink.

[Wrong—see below]

Lovely people on the plane—here you see that this is still the place where the twain meet. There was a barefoot type with a long bony Kelabit face, long hair and straw hat. Another got on with his wife who was slightly alarmed. She had to get Barbara (Pringle) to help her with her seat belt. Once in the air the men at least enjoyed it thoroughly, identifying rivers, etc.

With a little serious thought it is obvious we will NEVER be back to Marudi by the seventeenth no matter what route we take out, so we are canceling our Lutong-Brunei flight—anyway we can do it by bus.

Great dogfight howls from the longhouse just beyond us. That hasn't altered. (But the dogs are strictly OUTSIDE.)

Smoking is going to be a slight problem? I didn't dare throw my cigar out the window, the lawn is so neat!

This afternoon about two p.m. (after lunch) we proceeded to the school (population now 185, goes up to Primary Six with nine teachers. and no fewer than five trained! (which is incredible) to see a presentation. The current Gurkha battalion headquartered here and soon leaving, was giving a table, some chairs and 1,000 exercise books to the school and they had a full-scale Gurkha pipe band on hand. The kids answered with *their* band—drums and bamboo pipes and flutes—a thoroughly odd-sounding ensemble, but probably not so funny as bagpipes are to them. What a business—Gurkhas in bearskins parading around in the middle of Borneo.

The children are very handsome but girls especially very shy. Plenty of old beads on hand, and beadwork still being done.

Photo 2. The Bario School. The girl at the extreme left, second row, is Ujan Forrest, from Ramudu, Bario, now living in Canada with her Canadian husband. The girl on the right, front row, with headband, is Sigang Rineng of Ramudu, Bario.



The old penghulu, Lawai, was at the presentation, all covered with medals. Really great. He is from Bario Longhouse—the new penghulu is not (although he is from one of the four others now settled nearby). He had no use for our idea to walk out. Why walk when you can fly?

June 4, Bario.

Last night we went to the (British) forces' officers' mess at the invitation of an artillery type named Dy Thomas, who is the local Welsh flag waver, Ancient Pistol style. It was a very civilized set-up as always. Dislike leeching off the military but I do hope to borrow a long-sleeved shirt else I'll freeze on the way out. Besides the Gurkhas (departing)—that is infantry—there are army air corps, artillery, navy (the chopper squadron) and odds and ends. Most supplies are still air-dropped in from Labuan—a Beverly [transport aircraft] was in this morning—since although the runway could be extended the ground isn't hard enough to support heavy aircraft frequently. This air drop business has been a boon locally since fuel drums can't very economically be taken out of here to be reused—the Kelabits have gobs of them and use them for everything from rice bins to water systems.

A cool, buggy night—mosquito repellent did for the latter, but one cotton blanket was not quite enough for the former. This morning, we walked over to the *penghulu's* house to see about getting out of here by foot. So far, so good. There will be a lot of people in tomorrow—Sunday—and he thinks maybe some from Pa Tik who could take us that far. The route as outlined by Mr. [Michael] Fogden⁵—and the *penghulu* agrees—is: Bario—Kuba'an (up to two days), to Pa Tik (one day), to Long Lellang (3 days), to Lio Mato (3-4 days). To hire guides costs \$4 per day⁶ per man and he says we don't have to pay their way back—he thinks it's best to get new people from each major stop.

The penghulu, formerly Ngimat Ayu, now Garawat Aran thanks to birth of a child, is very young, affects dark sunglasses and a beret constantly, has a little English but much prefers Malay. He is an “adopted son” of TH [Tom Harrison] (and was preparing *borak* [rice beer] for when TH and Lord Shackleton⁷ arrive on the 11th.) He obviously takes his job very seriously—had just been to a *penghulus'* conference. He does read and write at least a little. Has a very pretty, very pregnant wife. He is not from the main Bario longhouse but from a resettled 22-door house from Pa Main—moved in due to Confrontation and the advantages of settled life and *sawah* here—no wet rice at Pa Main, *padi bukit* only.

The house is now in two sections on either side of a small bay or inlet off the main Bario plain but this is temporary and they will all be together when the new house is built—a site is already selected. He is getting the army to bring *belian* [ironwood] for the new house from Long Banga and elsewhere by chopper—there is none in Bario (too high).

5 An ornithologist doing research at the Sarawak Museum; today a well-known wildlife photographer.

6 All figures in the text are Malaysian currency. The rate then was 3\$M=1\$US.

7 Edward Shackleton, then the British Minister of Defence for the RAF.



Photo 3. Bario in 1966.

I asked if they had trouble getting enough land here—he said no, there was plenty for now, but they aren't so sure for the future. The lower end of the Bario plain over which we flew, largely uncleared, is apparently too swampy to farm. Nevertheless, this settlement has comfortably absorbed the four longhouse communities moved here due to Confrontation and now all are within at most 40 minutes walk of each other. Besides the penghulu's house from Pa Main, which calls itself Pa Main Bario, there was an earlier group from there—came here one year before them—known as Pa Ramapoh (on maps it's Pa Rampoh).

Then there is a house from Pa Mada (just in back of Brauk's little palace where we are ensconced)—the family of Lian Labang (of the Sarawak Museum) is there. Then there is another lot from Kuba'an. These people still have a house standing but empty at Kuba'an which is away from the border from here! Total here: about 80 doors now.

The house that was strafed by the Indonesians less than a year ago was at Pa Umor—quite close to here. Seems funny that they didn't hit Bario instead—all those fat helicopters lined up together. Maybe they feared retaliation?

Vast amounts of pineapple and other fruit around the Pa Main sections—even though they are temporary—and they have *atap* [thatch] shingle rather than tin roofing like the main house—the same general air of discipline and prosperity prevails. In the penghulu's house—he served us Milo while we talked—the hearths run right down the center, with bamboo cakes of the famous Kelabit salt suspended above (most of it comes from Indonesia—the best—and costs 25 cents a katty).⁸ There are three-sided partitions, open toward the center, on either side of this main drag for living, sleeping etc. This

8 One katty (*kati*) is about one and one-third pounds.

house is made of materials from the old Pa Main structure which were lifted over here by helicopters! All pigs, buffaloes etc. are penned or otherwise controlled. Throughout you get the impression that these people are real *farmer*—and vegetable gardeners—in a way which certainly very few other natives in Sarawak are. Admittedly the environment (flat land and cool) permits it here.

We then had a lovely walk around taking pictures etc. Passed several lots of Indonesian Kelabits [Lun Dayeh] returning home for the planting season. They make up the bulk of the 100-odd labor force employed in building the new 80-hut army base here!! They make \$4 a day and before they leave spend it at the co-op store, mostly for clothes—but we saw one man carrying a large dishpan on his shoulder. They don't look a bit more “traditional” than the local folk—but poorer. I suspect mission influence is as strong or stronger on that side. The huge, spotless *tawa* [veranda] of the main Bario longhouse of 18 doors is papered with hellfire and damnation mission propaganda, in Malay. The most hair-raising poster of all, which graphically illustrates the two paths leading to fiery damnation and eternal bliss respectively, was printed in Kalimantan Barat. (I later discovered this is a Hong Kong reprint of the Indonesian original distributed by BEM—but BEM is distinctly embarrassed by it! Excuse is that the people themselves love it.)

The education set-up is really incredible. The school (mentioned earlier) has nine teachers, five of them trained, for 190 kids, up to Primary Six. But on top of that – Kelabits make up the second most numerous group in the Marudi Secondary School after the Chinese. (There are really *more* of us [proportionately] than Chinese, the penghulu explained, since there are far fewer of us to begin with.) Frederick (Paran Ribu) estimates 80 Kelabits have gone to secondary school so far—the total Kelabit population according to the penghulu is 2,700. Last year 52 children at Bario school took the common entrance (to secondary school) exam and 27 passed! (Compare this with Belaga!)⁹ There is a Kelabit named Henry Lian¹⁰ at Ohio State [University] studying economics. Many of these, especially in upper grades, are from areas other than Bario. Total Bario population is 700 plus, 800 counting a somewhat more distant (one hour away) settlement at Pa Ukat which is part of the Bario “scheme” we were told. Altogether 80 doors in five houses—communities.

Linguistically—these people can understand the Murut language. “Lun Dayeh” is a blanket term which includes both Kelabits and upriver Muruts.¹¹

Clearly these people have the idea of progress—getting it across, the usual *bête noire* of development—is no problem whatever. So much so that it is almost impossible to think of them in the headache-ridden category of the “less developed native.” Why and how? J.K. Wilson would flip.¹²

9 We had visited Belaga earlier in the year.

10 Henry Lian later visited us in Cincinnati.

11 I was not aware of the finer points of local ethnography when this was written. Linguistically and culturally, the Kelabit seem virtually identical with the Lun Bawang in the north and the Lun Dayeh across the Sarawak-East Kalimantan border—see Cristina Eghenter and Jayl Langub, “Past Meets Future: A Trans-Border Forum for a Sustainable Future for the Highlands of Borneo” in *BRB* (2008) Vol. 39: 286-294.

12 John Kennedy Wilson was a locally famous Scot who retired from Sarawak Government

They are tremendously good carpenters. There isn't a sloppy, un-solid bit of construction to be seen.

They are big people—giants by local standards. This is especially noticeable in the solid, often statuesque women. “It’s the first place where I feel like a shrimp,” says Barbara. Maybe it’s all the vegetables in the diet—and there certainly have been plenty in ours—and a vast amount of gardening going on—or maybe veg-raising is something recent? They trade fresh fruit—pineapple—to the army for ration goodies such as some high-powered C-ration-type cookies we were served for breakfast. A 4H organizer would simply be out of work here—it really would be coals to Newcastle!

Kelabit tekonyms would be a trial. All have at least three totally different names during their lifetimes—changes occur at the birth of a first child, a grandchild and maybe others.

Just now—a church service (or rather prayer service) is underway downstairs over Frederick’s young (14 months) son who had been sick but seems to be better.

Department of interesting sights—little kids playing with blowpipes! Other little boys with hair cut long—and little girls wearing necklaces of valuable old blue and yellow beads. I find the elongated ears less attractive especially on the little tots carrying around a pound (slight exaggeration) of metal rings in each.

There is evidence that the Bario co-op store has prospered partly from Indonesian trade. It comes from 1) the cross-border trade in Indonesian salt—since Malaysian dollars are presumably no good over there, anyone returning there must trade here first—get his dollars converted to goods—and 2) the Indonesian labor working on the army camp.

The Kelabit attitude toward the Malay language is wholly friendly—as it is with almost all, if not all, of the Orang Ulu of Third and Fourth Divisions. Nearly all now speak a little, while the Iban sensitivity [to the encouraged use of Malay under the new Malaysian government] is wholly lacking. Moreover it is good standard Malay with a broad “a”—no doubt much influenced by *bahasa Indonesia*. The first teacher at Harrison’s Pa Main school—the original Kelabit school started in ’46—was in fact an Indonesian originally from East Timor who is still teaching Malay at the Bario School—his name is “Guru Paul.” (We met him next day at the penghulu’s for lunch—it turns out that he was originally from Pulau Roti, came to Kalimantan in 1941, and was brought here (Sarawak side) by TH to help build an airfield. Then he was a schoolteacher at Pa Main for two years—TH paid his salary for this period—before it became a government school. He speaks good standard *bahasa Indonesia* and says that is what he teaches the kids—or you can call it *bahasa kebangsaan* [national language] [which, of course, it is for both countries.]

June 5, Bario.

There is a constant breeze here which as much as the coolness makes the climate delightful.

Last night Frederick put on a party for us. It turns out they are *not* teatotalers

service and at this time was running his own development scheme in the Julau area of the Third Division, stressing self-help and adherence to local, in this case Iban, values; we had visited him a few months previously.



Photo 4. Penghulu Gerawat Aran (raising glass), Freda Kedung and Frederick (Paran Ribu) host a party for the Pringles and members of the British military at Bario.

after all! *Borak*, beer and whiskey and brandy—some of it supplied by army guests but most by our hosts. God knows where all the \$ comes from. It was a fun evening terminating with a variety of dancing—the British army types (also navy and air force) have caught on to some of the local steps very well. As usual our lack of twist skill was painfully apparent. Learn your native dances before you go abroad.

This morning Freda came by and took us over to see the old penghulu's jars, after a chit-chat. He (Lawai) is [an] old rogue with a great twinkle in his eye and a throaty, wicked chuckle. The jars were in a sort of side room, somewhat discolored by malaria spray—really only two big brown *tajaus* with dragons in rather higher relief than the usual Dayak [Iban] specimens, plus some smaller, rounder jars also with dragons. The slightly smaller, darker of the big ones used to eat children—anyway they disappeared and blood was found on its rim—until someone broke a big chip out of the rim which made it harmless. You could see the old man feels *very* strongly about his jars. I asked if he had any plates and he said no, TH had taken them all to the Museum together with some other big jars—this with a definitely reproachful tone! Also said TH wanted to take some of the other jars but Lawai wouldn't let him. His wife is a lovely old figure, still with jet-black hair.

Then we attended the BEM [Borneo Evalegical Mission] church service held on the huge, broad-plank floored *tawa*. I expected a marathon session but it was very short and straightforward—three hymns, a scripture reading, a very short sermon delivered by a young, very modern style (catechist?) named Tiri—he may be our guide from Pa Tik. [He was not but we met him at Pa Tik—see below.] Aside from him nearly all the pillars of the church are the most traditionally attired people, including TH's friend Lawn Nibu [? Lawan?] who read some of the prayers. The whole longhouse



Photo 5. Borneo Evangelical Mission (BEM) service at the main Bario Longhouse.

attended but the vast *tawa* still looked quite empty. Undoubtedly this Bario longhouse has about four times as much space per person as the average Iban or Ulu Rejang Kayan establishment—it is just vast.

I created one distraction by taking pictures, but didn't feel too bad since a bunch of kids were running hilarious footraces up and down the veranda throughout a good bit of the service—no one minds. After it was over the Upriver Agent made an announcement—the district officer is coming up; all *tuah kampongs* [literally, 'village'; in this case 'longhouse headmen'] will please be on hand. Also a photographer is coming up to take identity card pictures. Then there was a good bit of talk about people washing above the point where water has been diverted from a small stream into the longhouse for drinking purposes: this is *not* approved of, but apparently some people had been doing it anyway.

Then we walked over to the new penghulu's house for lunch (the service was just Bario Longhouse—each of the five has its own service). There was a family there from Indonesia and we had quite a chat. Their home is at Long Rungan where there are two houses of five and eight doors. The man—quite young—had been here to work for only a few weeks. He called himself a Lun Dayeh—but added that he was, of course, the same as the local Kelabits. Hair European style like all the Indonesian lot we've seen. Can reach their home in two days from here pushing hard. Asked if the government knew they came here—said normally yes—you are supposed to get a pass from the [Indonesian] army! (or a permit). If you stay longer than the time allowed, they will take away half your *barang* when you return. So he just told his headman and not the army this time.

They have a "private school" at their longhouse—up to three years. Their

children go to Pa Upan where there is a “government school,” six hours away. At Tarakan, two hours by boat,¹³ there is an SMA (*Sekolah Menenga Atas*—senior middle school)—there are children from the area there but none from his longhouse. Said none had gone to university outside—people are too poor for that and the government doesn’t pay their way. (Note of surprise that I even suggested such a thing.)

They have two types of Christians—two different missions. There is only [one] European left that he knows of—one “Tuan Putu” at Long Bia—doesn’t know his nationality but he’s been there for a long time.

This afternoon we moved over to Freda’s place, home of councilor Raja Ngatan, now in the U.K. on a brief stay of some sort. Shortly before, our army friend Hugh Welby-Everard came over with a message—we are *not* allowed to go to Kuba’an but they might be able to get us a chopper ride to Pa Tik—this would be OK—we’d be well on our way to Long Lellang which is the place we’d really like to see. This means we won’t need guides from here—we apologized to the Penghulu.

The Kuba’an folk who resettled here left behind an empty house—there is a “jungle force” there—Gurkhas and European officers—and plainly something they don’t want seen. This restriction has nothing to do with Indonesians. Even local people are not allowed to spend the night at Kuba’an although they are allowed to walk through without stopping. All very mysterious.¹⁴ Maybe they have a secret weapon—super Gurkhas? From all accounts the ordinary ones are super enough. Anyway we have to see the Battalion IO (Information Officer?) in the morning and maybe he will clarify matters. The Army has been very good to us. Main friends: Hugh Welby-Everard, 129 Lt. Battery RA BFPO 628; Capt Dy Thomas, 38 Lt. Battery RA BFPO 605 (which is here—the other is in Kuching).

Rice here is all single-cropped. They grow a six-month maturing strain. No doubt they could double crop with new strains if population growth ever demanded it—at present it doesn’t. The planting season is August.

The main Bario longhouse is only two years old. The people worked together on it—moving from one *bilek* [family room] to the next. This explains the uniform construction of Kelabit houses in contrast to the sloppy individuality of Iban building. And it bears repeating that the carpentry is always excellent.

June 6, Bario.

Barbara has developed a slight tummy ache so we turned down a chopper ride to Pa Tik—we will do it tomorrow or the next day depending on when something leaves. Not well to be out in the boonies unless all is definitely well.

Choice bit of gossip—we heard that TH had a Kelabit wife. She still lives here. He wanted her to go to Kuching at one point but ordered that she must wear Kelabit dress

13 He might have meant two hours by small plane.

14 Jayl Langub notes: “This was where British commandos trained the local Border Scouts (Kelabit and Lun Bawang) to accompany British SAS to patrol along the Sarawak-East Kalimantan border during *Konfrantasi*—I was told this by a distant cousin from Ba Kelalan who was one of those trained at Kuba’an by British commandos.”



Photo 6. Our host and hostess in Bario, Napong Aran and “Auntie” Sina Napong Aran, with Barbara at the Bario airport. British Gurkha troops are visible in the background unloading supplies.

—she didn’t want to—so here she is. Feelings here on the subject of TH are decidedly mixed.

Lovely red and black baskets here are entirely made on the Indonesian side.

The next day we left for Pa Tik. We were sorry to leave Bario in such a rush. The last night we had a lovely chat with Freda’s “Auntie” Sina Napong Aran (which just means wife of Napong Aran). She is a good authority on damn near everything—the daughter of the penghulu who preceded Lawai and his ex-sister-in-law (that wife died and Lawai’s current spouse is new). She is an old friend of Tom Harrison’s—about whom she also has mixed feelings—regards him as a man of unreasonable suspicions and unpredictable rages—fair enough. Told how at one great party she plastered him on the head with buffalo dung, whereupon he threw her in the river—“things always used to be like that”—but having been a rip-roaring pagan she is now an equally thorough Christian and never misses a prayer meeting or a grace before a meal. Told how he (TH) used to fly into rages when people cut their hair short or had their ears sewed up, or became Christians which all did sooner or later. Of course TH’s influence against the missions has been nil. It is true incidentally that he never learned to speak the [Kelabit] language—if he had even a little they would have credited it as this *always* makes an impression.

Big excitement about five a.m. a buffalo fight! For awhile we were afraid they’d knock the house over. One belonged to Ngalawan Raja, Frederick’s father-in-law, who most indignantly claimed his buffalo had been attacked! Huge snortings and cavortings and lots of longhaired Kelabits running around under the house ineffectually prodding

at the combatants with long poles. They finally broke it off more or less of their own accord. Freda gave a running translation during—as from N. Raja—“if he does this again I’ll shoot the s.o.b.” or words to that effect. If it had been my house I’d have been sorely tempted to shoot something or someone. Auntie’s flowers which surround the house miraculously survived with only minor damage.

Auntie also confirmed what I suspected—that the present Bario wet paddy plots are indeed far larger than the traditional Kelabit ones which were little squares only—these are quite a respectable size.

She says formerly they didn’t grow more than a few vegetables—no coffee until quite recently—in other words most of the agriculture is Progress indeed.

She doesn’t understand why Europeans come and go so much. And why the ones who really get to know the country always leave. Also voiced fears—echoed by another young visitor—about consequences of the end of “colonialism.” She said the others (Chinese and Malays) are not patient (*sabar*) with us, as the Europeans are.

The Kelabits are happy enough in their green little nest at Bario but they fear for the future.

It is well realized that the full withdrawal of the [British] Army would be a disaster. Hopefully that won’t come for a while and then not all at once. The military have been a bonanza—jobs, a market for fruit, etc., a source of scrounged everything from chopper rides (numerous) to oil drums. The Border Scouts are another positive aspect of *Konfrontasi*. There are five from Pa Tik, where I am writing. Pay starts at \$150 [fifty US\$ at the time] and a sergeant gets \$250. That is pretty damn good for hereabouts.

June 7, Pa Tik (Ulu Tutoh). [including a flashback to our last day in Bario]

We dropped in here about 11 this morning—over the last blue-green ridge and there it was far below. Another inside-an-Easter egg scene. But this time only one longhouse of 14 doors and far further off the beaten path than anything we’ve seen [elsewhere] in Sarawak. The setting is alpine—gorgeous—though the actual elevation is only about 1,500 ft. and the cool of Bario is somewhat lacking. About half these people were resettled here from Kuba’an two years ago. They have both wet and dry rice—all but three doors have some *sawah* [wet rice] and they are building more—with quite impressive terracing—I watched this afternoon. It is a real *gotong rojong* [self-help] operation. Good to see they actually do happen. These people are in a temporary longhouse but quite solid, and the same air of Kelabit thoroughness and efficiency prevails—although things in general are more primitive than at either Bario or Long Lellang. The TK [*tuah kampong*] figures we can get people to go with us to Long Lellang as it is the pig hunting season. He reckons three nights out.

In addition to misty mountain vistas there is a lovely clear stream to bathe in, with big boulders in it—and pools deep enough for real over-your-head swimming even now when the water is low.

Aren’t choppers lovely? Our RN [Royal Navy] Wessex (machine W—“whiskey”) took five minutes to cover what takes three days by foot! There is actually an air strip here—the people of Pa Tik built it themselves so the mission could fly in—but the mission now comes once every few months—“if needed.” Doesn’t seem like they’re



Photo 7. Dapat Aran and his wife at Pa Tik.

getting their labor's worth. Shortly after we were delivered—our flight was on its way to mysterious Kuba'an—an army light aircraft took off and landed again. Apparently they use the strip to practice on.

The Pa Tik people are decidedly pukka Kelabits. The headman, Lapong Bala, wears a *chawat* [loincloth], bemedaled *penghulu*-type shirt, and a lovely orangish bearskin (?) hat or cap. There is another even more picturesque character named Dapat Aran (our host here – his son is Tiri, who preached at Bario)—who claims to be related to Tom Harrisson's Kelabit wife. Michael Fogden and Lian Labang [a Museum employee] were here and went down the Tutoh. It took them four weeks to reach Marudi including a week's wait for water to go down at Long Magoh (I think). Dapat Aran and his wife were eager to have their pictures taken. [see result above] She is almost as good as he is, with a lovely big string of old green-blue beads. My guess, purely from the color, is that they are Persian in origin.¹⁵

It will be three nights in the woods from here to Long Lellang, we are told. But for all but one night there are huts of some sort already built. A *sulap* [lean-to] must be made only on the last night out. [Wrong, as things turned out.]

15 The photo suggests that the beads in her necklace were probably of Chinese, Indian or Southeast Asian origin, not Persian (from Barbara Pringle).



Photo 8. Our first night on the trail: from left to right, Dapat Aran, Barbara and Tengong Na (Penan) setting up our shelter.

June 8, Long Ar (enroute to Long Lellang).¹⁶

At the end of the first of what may be three days of hiking, or four, in the woods—there are no longhouses enroute—our guide-bearers are Dapat Aran, another Kelabit from Pa Tik, Naka Ulun, and a young Penan named Tengong Na who speaks only a little Kelabit plus his own language. We are in a rather flimsy lean-to and hope it doesn't rain hard. The Penan and Naka Ulun have gone off hunting pigs and Dapat Aran is puttering around. Far overhead a largish aircraft is circling—we can't see it for forest—making air drops somewhere? Kuba'an?

So this was our introduction to all the joys of real jungle life including leeches—there were plenty of them, but after the first few you don't mind so much—as Michael Fogden said it's mostly the idea that bothers, plus the bloody ones in one's shoes. It was a rather easy day—we didn't leave until 9:30 after endless preparation. My (our) backpack was divided into two loads and itself ignominiously carried in a Kelabit basket.

The Penan and Naka Ulun have just returned with a lovely string of fish and large amount of leaves which may fortify our rather inadequate roof?

The route today was amazingly level, up the river that Pa Tik is on, over what seemed to be a considerable width of riverside bench land most of the way, through not very large jungle. Dapat Aran said that this had all been farmed at a time when the local population was much larger before epidemics cut it down. That ties in with Tom Harrisson's theory. It is certainly all empty now.

¹⁶ *Long* in this part of Borneo means 'the point where a tributary enters the main river' (hence Long Lellang translates as 'the mouth of the Lellang'), and is often found in place names.



Photo 9. Following our “trail” across a newly cleared but not yet burned hill rice field.

We stopped at around 1:30. Tomorrow we may push for a somewhat longer day but today it didn’t seem wise to push it. Barbara’s Gurkha jungle boots were a good bit of scrounging—they pretty well keep the leeches out which my excellent tennis shoes don’t although they are super in every other respect. One can see Fogden’s point that the main trouble is getting them [our guides] to hurry up enough. We probably could have made Pa Labid without killing ourselves. [Wrong again.]

Dapat Aran also told us with a great tone of approval about TH’s campaign to get the Kelabits to keep their hair long etc.—how he would get angry when someone cut off their long ears. He is very proud of his own tiger teeth ear ornaments—actually spotted [clouded] leopard? we bought a very nice pair last night from the Pa Tik *tuah kampong* for \$30—probably exorbitant—he wanted \$40.

June 9, Long Labid.

Long Labid means ‘The mouth of the Labid.’ Pa Labid means ‘the river Labid’ and is the origin of the name “Kelabit.”

A rather harder walk today. We left Long Ar at 7:00 and didn’t drag in here until 4:00—enough for the Pringles you bet! The first bit was hard climbing out of one watershed, then down another tributary of the Tutoh, first rather rough going often through stream beds large and small, then over a rather flattish riverside bench land stretch. Through damp, dark forest all the way. Leeches worse than yesterday. I really got

chewed, but as long as they don't get infected it's really only a nuisance.

Here at Long Labid there is a substantial *kubu* [stockade; it also means 'fort' in a more formal sense]—on stilts, about 20 by 30', with a good solid roof, built for traveling district officers. In the old days government officials traveled part way from Long Lellang to Pa Tik by boat and this was one end of the boat stretch which went up the Tutoh from here to just opposite Long Lellang, then by foot across into the Akah drainage. We'll have to walk the whole bit. According to Dapat Aran they used to keep a boat here. He explained, and it is clearly true, that since there has been air service to Bario, the government is no longer ordering the Kelabits to keep these trails up and they have gotten into an awful state of disrepair – it really will be unpleasant in two or three years.

We've got our guides sorted out. Dapat Aran (Gramps) is a bit vain and somewhat undependable—he told us the walk from Ra'an Bui to here was two hours, when in fact it was twelve! [His version may have true for a Kelabit?] The other Kelabit [Naka Ulun] is more considerate and dependable and has been consistently helpful. The young Penan—who we reckon can't be more than fifteen—stays very much in the background but, as might be expected, he is very competent at this sort of work and sturdy as a rock.

Our diet is rice, cooked each evening and eaten cold at breakfast and midday. Up to now we've had smoked pork (from wild pig) carried in bamboo containers—really good stuff—for noon, and fish caught each day for evening. Gramps got a big one today. You can see why these people are healthy. We haven't had a protein-less meal in Kelabit country. Hot meals in the evening only.

Pity the poor peasant in his shack—until you don't have a shack even—then any shack—such as this one—looks ridiculously luxurious. What bliss to be above the ground merely, in these parts. Last night, on small logs, too close to earth for comfort, looked to be a bad one. But it rained only after about seven, thank God. And we got a fairly good sleep although you had to turn over every half hour to exchange one set of knobby lumps for another. Tomorrow may be the least comfortable of all.

Minor discomforts today—leeches on the testicles! Twice. Horrendous little buggers—black with yellow stripes. Our guides smear themselves with mosquito repellent—and that plus bare feet keeps them to a minimum. Barb's Gurkha boots are cleverly constructed so the lace holes lead nowhere. My tennis shoes once again proved hopeless with leeches, but comfy for walking even when wet.

June 10, Ra'an Salam.

Today started inauspiciously with a hair-raising wade across a swollen Sungai Labid—it rained hard last night for about two hours, tho in our little *kubu* we slept well. After the wade however things went well enough—the trail was no worse than yesterday after all—a longish flattish stretch, albeit with the usual abundance of quagmire, rotten slimy logs over streams, windfalls, etc. Then a good stiff climb and descent—into the main Tutoh again here at Ra'an Salam. We are in a paddy barn with a good solid roof, so nothing to fear in case of rain. The Tutoh is already quite a respectable river here.

There is an old longhouse site (across the river)—people who have since moved

to Long Lellang, which Gramps says we should reach by midday. Total walking time to here about nine and a half hours—that includes the usual stops plus a rather longer one about 2 pm to eat fruit—the orange-brown kind, about apple size, with rather thick spongy rind—you split the whole thing open to get at the segments inside. Good and welcome—as that portable rice really is too dull to face alone and we’ve run out of pork. Did have some fish left over from yesterday for lunch.

Today we had a prayer meeting before leaving—wondered what it was all about—Gramps explained later it was to ask God to help with the pig hunting. He and Naka Ulun have been taking turns going ahead to look for pigs but had no luck yesterday—and apparently God is on the side of the pigs because they didn’t have any luck today either. The Penan joined in although since he doesn’t have a shotgun he doesn’t hunt and—perhaps as the youngest—gets stuck with the heaviest load and the larger end of the K.P. [kitchen] chores.

A couple of showers along the way. We encountered one good flock of monkeys—they went crashing off through the trees making a great Bandar Log din [cf. Rudyard Kipling’s *Jungle Books*].

This place (Ra’an Salam) is well-equipped—there is a boat, and a fishing net, some pineapple planted around. The boat is mainly to get across the Tutoh which is well beyond wading—haven’t figured out how we’ll get the boat back here once across. And Gramps found a whole basket full of pork rinds in the attic—the answer to his prayers. Anyway they were very good after being toasted over the coals, together with some large grass-like vegetable. These people do eat greenery whenever it is available. There is also a little kerosene and a lamp which Naka Ulun has just set up for me to finish writing by. He has been the hero of the trip—unfailingly kind and helpful—he helped both Barb and I across that river this morning, and then the Penan as well, who apparently does not swim.

Dapat Aran has a message to Tom Harrison. Sends greetings etc. Hopes he will visit them from Bario. He ordered them to make a *padang* [a field or open space for community activities]—they have done so. Dapat Aran would like it very much if he would also send them a wireless such as Long Lellang has, for admin purposes. (He also expressed a wish for a sawmill the other day)—and the *tuah kampong* would like some machinery so the people would not have to build *sawahs* by hand.) They would also like some of their young men to go to school in Australia.

Total cost [of our] walk, Pa Tik to Long Lellang: 6 days’ wages 3 men = \$72 + 3 = M\$75 (no change). [about US\$25]

June 12, (Sunday) Long Lellang.

This place is all that [US Peace Corps Volunteer] Dick Goldman said it was. It is quite extraordinary how people living in such extreme isolation, at the head of one of the most difficult navigable rivers in Sarawak, should have so lifted themselves by their bootstraps. It was the older generation, who were themselves raised in 100% Kelabit style, who have achieved this. I wonder if the younger ones—the ones who are now at Bario and Marudi and Miri in school—will be able to keep the ball rolling. Or will the inevitable (?) period of culture shock and dismay set in? So far there are certainly *no*



Photo 10. Long Lellang Longhouse in 1966.

signs of this.

You have to see this to get the mission business in perspective. Unattractive as the Bible thumpers may be [to some educated westerners], they have given people a faith essential to life in such circumstances at a time when the old religion was clearly no longer a possible alternative. The new religion is identified with progress—which inevitably means what is unfairly labeled as “westernization.” It is *this* which these people wanted and which they have geared their whole lives to achieve—the record in education is just one symptom. A Bungan¹⁷-type reformation of the old ways, which essentially caters to a conservative drive, would not have filled the bill, I don’t think.

Long Lellang, 20 plus doors, is the closest we’ve seen to a real old-style Kelabit house as described by TH—at least at the older, wealthier end of the spectrum. It is 14 years old, although I believe additional sections have been added. The Long Lellang people think the Bario longhouse is very odd indeed, with its *tawa* in the center, *bilek* [family rooms] and *dapur* [kitchens] on either side. Most of the doors here retain the basic old style set-up with a single long partition (*pipih*) [wall] down the middle only, and no real division between the *bileks* within, although now there are partitions. The effect is like a double *tawa*—one outside and one within through the middle of the living quarters. We are lodged in a unique loft over our host’s section of the *tawa*.

Huge excitement—choppers just sighted—thought to be coming to pick up two British Army SAS “Special Air Service” men who have been over here hearts-and-minds-ing. The whole longhouse goes charging out to the *padang*—small child abandoned in the rush crying loudly. But it was a false alarm—they were Whirlwinds (RAF) not the

17 “Bungan” is a simplified version of traditional religion, designed in part to compete more effectively with Christianity, which spread in upriver areas of Borneo after World War II.

navy Wessex types expected—and passed right over.

Barbara has just gone to the women's church service, which is separate from and precedes the full-scale joint service—ten and eleven a.m. respectively. One of the local women is leading it.

After the main service—it was a full hour this time—longer than Bario. Again the service shared by about four people—the man who gave the sermon, obviously a professional (a Lun Bawang, it turns out, from Lawas District), lots of preaching mannerisms, dramatic pause and beatific smile. Occasional bouts of scripture in Malay. Many references to Sodom and Gomorrhah.

I suppose the very simplicity (no priestly hierarchy, minimum of training and maximum of lay participation) is one secret of Evangelism's success in these parts. It has enabled the church to become a truly local affair with the utmost speed—whereas the [Roman] Catholics will obviously be dependent on Europeans far longer. None of the people we've seen conducting services has had more than a couple of years in Lawas [the missionary training center] and none has had any English. And a great deal of the prayer reading etc. is done by *laymen*. All can participate.

Barbara observes also that the mission has either not tried or not succeeded in ramming too much foolishness down the throats of the Kelabits. None of the SDA [Seventh Day Adventist] foolishness about not working on Saturday—a hideous inconvenience for students and government people etc. The drinking-smoking ban—if indeed smoking *is* banned—is observed with a degree of laxness. At Bario, as we've seen, some people do drink. Here drinking appears to be out. When the *tuah kampong* gave a party the other night for the two British soldiers currently here they drank coffee (not *borak*) out of a huge old Chinese jar! And we had a little dancing last night on nothing stronger than Milo. It didn't seem to dampen anyone's spirits at all.

The hymns are rather dolorous—but so is all traditional Kelabit music [that we've heard] and the old songs have survived—at least something [of them]. We heard a tape last night of some Border Scouts singing a headhunter's ditty, full of typical Kelabit good-humored exaggeration. Sunday, the day of rest, is not absolute. There have been *three* church services or prayer meetings thus far, but also lots of minor puttering around the house—fixing up the chicken wire which totally surrounds the pig-less, chicken-less underspaces, or bringing in armloads of *rotan* [rattan] for mat-making. The Long Lellang mats, made of a special type of *rotan* abundant here, are justly famous and are traded from here all over the Baram. This is man's work—the big mats—done mainly on the *tawa*, sell for \$40 for an average mat—one month spare time work.

The current Long Lellang population was resettled here from four different sites, before the war [World War II], by the Brooke Baram District Officer, Hudden, who was later killed by a mixed group of Penans and Ibans in the Ulu Baram during the war. The reason [for the resettlement] was pure administrative convenience, apparently. This means the old longhouse we stayed near at Ra'an Salam is more than 25 years old.

Shortly after we got here yesterday—around noon—we went over and saw the Long Lellang headman, Bala Ribu, who has a spacious establishment of his own built separate from the main house. Chit-chat about things in general. You get the impression that the people here are a little fed up with being at the headwaters of the Akah, even

though it may have made them the best boat builders in Sarawak. At one point he remarked that “it’s only throwing away money” to use engines up the Akah—so great are the risks. The alternative land route—land to Long Sait and then down the Baram—is almost as attractive despite the two-day walk. It takes more than 20 gallons of gas to make it from Long Akah [upstream] to here. Only five or six gallons to go down.

Besides the school there is a separate church or prayer-house here (connected by a walkway to the *tawa*)—also a *rumah sakit* [clinic]—though no dresser—a new one from this house is being trained in Marudi, and one of the army men who is a medic reports he found the stock of drugs untended and in a complete shambles. Also good teachers’ quarters but Glenn Lisah, our host, an early BLTC [Batu Lintang Training College] grad, prefers to live in the longhouse in Henry’s old *bilek* (Henry has moved to Bario where we met him. Henry’s wife is his—Glenn’s – niece. Ditto Freda and Raja Ngatan’s wife.) The school is up on a big hill in back of the longhouse—it has two storeys, goes up to Primary Four, and two teachers. Then kids go on to Bario (where there are about twenty from Long Lellang) then to Marudi secondary where there are ten plus and eventually maybe to Tanjong Lobang [in Miri] where there are now two from here.

It turns out that our young Penan guide from Pa Tik, Tengong Na, has a brother in school at Pa Tik. The local Penan situation is weird. According to all info, *all* Baram Penans are now Christians, including those further downstream. The mission, headquartered in Lawas, has worked hard at it in this area—preaches to them in Penan. Government pays the Kelabits to board them [while attending the Long Lellang school]—\$10 per month per student—this is supposed to include some clothing as well as room and board—it is paid to the host families. Efforts continue to get them to settle down. We should see some at Long Sait where there are also Kenyahs, and between here and there as well. This lad, Tengong Na, has worked for a Chinese timber firm at Long Seridan.

The army boys have a low opinion of the Penans—say they are generally poor physical specimens, diseased, dirty, etc. They hang around Kelabit houses in this area and do odd jobs—get all their trade goods, etc. through the Kelabits. How much this point of view reflects Kelabit bias—and like all longhouse folk they are highly condescending about the nomads—I don’t know. Certainly many of the Ulu Rejang lot are fine physical specimens.¹⁸

Last night a Penan came here with news that a man had injured himself—head wound from a stick of timber, while boat building. It turns out that this was a Kelabit from Long Lellang who created a local scandal by marrying a Penan girl and—told he couldn’t bring her to the longhouse—moved into the Penan settlement—about 1½

18 I was confused about the Penan/Punan, Rejang-Baram ethnographic puzzle. Jayl Langub notes that “The Punan Bah of the upper Rejang may be considered a subgroup of the Kajang peoples (with linguistic and cultural affinity to the Melanau of the Lower Rejang) comprising the Kejaman, Sekapan, Lahanan and of course the Punan Bah; the Punan Vuhang are another group (two groups of not more than 200 individuals, slightly more across the Indonesian Borneo side) living up the Linau, tributary of the Balui close to the Sarawak-East Kalimantan border; they were hunter-gatherers very much like the Penan, but speak their own language.”



Photo 11: Corporal Fred Fox, British Army Special Air Service, making an umpteenth unsuccessful attempt to reach Kuba'an on his radio from the *tawa* at Long Lellang.

hours fast walk from here, where he now lives in his own Kelabit-style house. One of the Army boys—Bryan—immediately left with the Penan who brought the news to see how bad he really was—if very bad they would have radioed for a chopper to evacuate him for medical treatment. As it turned out he only had a bad cut. The Penan who brought the message was healthy enough looking, with a mouth full of gold teeth. Youngish kid.

Little side benefits of Confrontation—the army maintains caches of chopper fuel at various jungle outposts for emergencies. It is really just refined kerosene—great for lamps. It goes bad after a few months—“unserviceable” —

and since it must all be air dropped they give the old stuff away to the locals! Distribute it around.

The cattle here—there are a half dozen or so running around—were all brought down from Bario—led!! over those trails!! School kids also come here by foot from Bario on vacations—takes 6 days! They do it alone—so we are told—except if the river is high at Pa Labid—where we had our deep wade—in which case someone goes to meet them there.

June 13, (Monday).

Rain today—and all last night as well. Glad we decided not to push on.

Last night we played the ring game—a new Kelabit tradition. It begins with all the children in the house trooping up and down the *tawa* singing—everything from hymns to Red River Valley, sometimes by pairs, sometimes to the slow single-file dance we did at Bario. This goes on for about an hour. Then everyone sits in a circle holding a piece of string with a ring on it—the one who’s “it” has to stand in the middle and try to figure out who’s got the ring – if they succeed in grabbing the string and trapping the ring the person who has it at the time is then “it” and goes to the center. All this to singing. Fred and Bryan are old hands at it. This went on till well after midnight with late breaks for popcorn and bananas.

All this followed an exhibition of dancing (*ngajat*) by the school kids who

Photo 12. Kelabit girls doing beadwork on the *tawa* (veranda) at Long Lellang.

are taught this—much hilarity at the expense of the less skilled.

There are 17 Penan kids here in the school, boarding (see above). Aside from the fact that they are bigger (older) there seems to be a distinct physical difference. They look Chinese — rounder, flatter faces than the Kelabit kids.

Whenever one of them danced, we were inevitably notified that this was an “*orang penan*.” There is no doubt that they are accorded near untouchable status by the Kelabit. The kids are definitely less well dressed. It’s a good thing there is not any marked color difference.

Gramps et al. departed back for Pa Tik this morning after farewells all around. He came up to our attic nook and repeated his plea for wireless, dresser and school at their place. Old rogue. Also would still like another watch to replace the one he lost en route. The local folk think this is very preposterous-funny.

This afternoon Barbara taught everyone how to play shuffleboard using her walking stick with a cross piece nailed on it and a jar lid. This was a great hit—four hours later the kids were still playing. The *tawa* floor is beautifully finished considering it’s all hand work—nice smooth broad planks. Which with all the rain coming down people have been scrubbing all day—lots of water available.

We were told at breakfast that people here frequently farm only once in two years since they have no trouble getting enough for two years in one crop—and no way to sell the surplus. Of course there is lots of land here—gobs. Normal fallow period is six to seven years. If so, it must be true—as they claim—that the land is not only plentiful but *good* [soil] as well. There is a good bit of fairly level stuff hereabouts—for example, no trouble building a mission landing strip near the longhouse—yet only one *sawah* [rain-irrigated rice field] just being made now. Clearly there is no need if they can do this well on hill padi. The terms *lading* [unirrigated, slash-and-burn hill rice field] and *sawah* are used here instead of the Iban *padi bukit* and *padi paya*. (And of course with





Photo 13. Kelabit Girls at Long Lellang.

the Kelabit a *sawah* is more than just a boggy spot worked the same way as a hill plot would be.)

Case in point. Glenn's family first farmed four years ago. Just two people—his father and mother-in-law—made the *ladang*. They got enough rice to last six or seven years—still have two granaries full—feeding a family of nine.

This is highly unusual, except here. At the moment in the Baram there is widespread padi shortage from Lio Mato down. "Those people are farming every year and they never have any rice."¹⁹

Our last night at Long Lellang featured a farewell feast for us and the two soldiers held on the *tawa*. The main dish was a "house pig" shot with one of the SAS men's Armalites for the occasion—not nearly as good as the wild pig! "Auntie"—our real hostess—Freda's Aunt—gave Barbara some nice beads—so with what we bought we are well-beaded up.

June 14, (Tuesday), Penan "Sulap" Sungai Lellang.

An easy three-hour walk here from Long Lellang—which by the way is *not* at the mouth of the Lellang at all, but at Long Datih. Comparatively level, well kept up trail. No doubt much of this land could be used. Our guides were Maia Raja (older man), Nubong Raja (in photo with kids) plus a girl.

It is plain that these Penans are suffering from the effects of painful transition from nomadism to settled status. Coming on to this settlement with our three Kelabit guides was like going from the big plantation house to visit the black workers down

¹⁹ This comment may have been from Charles Agan Raja, agricultural technician at Long Akah, whose name is at the top of the diary page, although it is not totally clear.



Photo 14. A Penan Family at Sungai Lellang, just in from the Forest.

on sharecroppers' row in the old American South. These people have been settled here for about five years—are growing some rice—and living in what can only be described as two large shacks. Between them is a smaller shack—a church! There is also a separate lean-to shelter for the dogs.

They have all been BEM for some years. It is certainly the most primitive settlement we've seen in Sarawak and there is an air of distinct depression. Dogs, cats, and at least one small pig frequent the house. A good deal of what may be skin disease or just plain dirt. There are eight families here—this figure may include the strayed Kelabit who married a Penan girl mentioned above—he is here. They still spend a good deal of their time in the jungle gathering *jangkar* [a

kind of wild rubber?] etc. They are making blowpipes for use as well as for sale although they have some shotguns.

The attitude of our Kelabit guides is a mixture of amused and appalled condescension toward these poor neighbors although they are polite enough. They trade with them and give them cast-off mats and work to do, and of course a number of kids from here are in the school at Long Lellang although not all by any means. They speak Penan—most of the Penans do not for the most part speak Kelabit. We passed a number of their lean-tos along the trail to here. There is a distinct physical difference—they are smaller, with rounder faces and sharper features, and are quite unlike our Penan Lusong friends on the Rejang side.

The larger of the houses, which we are in, has two *bilek* compartments walled off in the very center surrounded by a rough, plank-floored platform. One side of this only has three hearths. There is another family living space—no more than 8 by 12 feet—in one corner. The smaller house lacks the center *bilek*—just one big room. I couldn't determine how many families were in it. There seem to be lots of kids although we've been told the Penans aren't multiplying. Little boys in *chawat* and long hair.

We will stay here [Sungai Lellang] overnight and go on to Long Sait tomorrow.

Photo 15. Penan child at Sungai Lellang eating sago and pig fat with the special utensil used for this purpose.

We are carrying various letters for people up and down the Baram.

Nubong Raja says all the Penans in the Baram speak the same language. None of the ones here speak any Malay. It is the first time we have been completely cut off from direct communication with people.

I photographed an old Penan lady coming in from the jungle with a largish monkey, a pet. It later turns out that she has another pet—a huge (I'd estimate 800 lbs.) wild boar which she breast-fed as a piglet, apparently let go to



roam when he got too big—but he returns to be fed every evening. Everyone else is scared stiff of this monster—he showed up just at twilight—and we were constantly warned not to go out without a large stick to whack him with.

There was a prayer service this morning, before dawn. The interior of that pathetic little lean-to church lighted by a burning brand —*damar* [wild resin] maybe. These people do not, so far as we could see, have even a single kerosene lantern.

June 15. Long Sait.

A six-hour walk here today—good trail but the first bit was very hilly and about the most tiring walk we've had as we went from river to river. Finally culminating in a long, more gentle descent down Sungai Sait toward the Selungo on which Long Sait is located. It is quite a bit lower here and noticeably hotter. We are out of Kelabit country all right.

On the way over we passed numerous *sulaps*—lean-tos—of Penans, one of which still had families in it. They are constructed just large enough to hold three adults plus cooking pots, varying baskets etc., bamboo tubes of this and that—there can't be a

bit of spare floor space left over. The last lot we passed was from S. Krong where there is another semi-permanent base—but not as solid even as S. Lellang.

No one seems to know how many families there are here at L. Sait—*banyak*—[many]. I'd say maybe ten. There is a *tuah kampong* although they've been here only two years. These people are plainly a good bit ahead of the [Sungai] Lellang lot—more amenities and a few boats around (some Kelabits also keep a boat here and there are Kenyahs from Lio Mato farming here). We passed a Penan hill rice plot on the way in—felled but not yet burned—ENORMOUS trees. The last bit of walk, by the way, was the first consistently big, majestic forest we've seen on the trip—this is the stuff these people are teething on to grow their first rice.

However, the meal we got after our arrival consisted of *obi kayu*—cassava—dipped in *minyak babi*—wild pig lard which the Penan make and sell to the Kelabits. Pure starch dipped in lard! It is a good, sweet-smelling lard alright. At Sungai Lellang it appeared people were living *entirely* on cassava. Nubong Raja says there isn't much wild sago around there. All in all, it appears that efforts to push them into rice cultivation haven't yet paid off enormously.

More blowpipe making here—and also more mat making—the famous black-and-white Penan mats—although I fail to see what all the noise is about. They make them with diamond-shaped patterns—black squares alternating with white and black and white mixed. The typical Rejang pattern—see our basket which Benedict Sandin called *tongkat langit*—is nowhere in evidence.

The government wanted to collect all the Penans at L. Sait according to Nubong Raja—but they don't want to, no doubt because the hunting and gathering which is still their mainstay would suffer badly.

Tomorrow we hope a couple of the Kenyah farming here will paddle us to Lio Mato.

All trails beyond L. Lellang—beyond Ra'an Salam in fact—have been much better – good in fact.

Kids from here are in school at L. Lellang. A total of three only from L. Sait in school—two at L. Lellang and one at Lio Mato.

June 16, Lio Mato.

The Penans of L. Sait have no radios—not even one. There are about six families there—maybe the same at L. Krong. A young, bright-seeming kid conducted morning and evening church services in the room where we slept. Roof partly sheet tin provided by government when they “settled.”

We paid our Kelabits—\$48 for the two days including their return trip—that's at \$4 per day per man (or girl). They were very good guides—Nubong Raja in particular a rock—and always cheerful. They gave us leaf-wrapped packages of rice and left about 6:30 this morning, well before we did. Before this, the previous eve, N. Raja had gotten us in touch with some Badang Kenyahs—some of about 200 who are farming in S. Selungo—and we arranged for a ride down. Left about 8:30 after a chat with the Kenyah *tuah kampong*—I'm not sure if he's head of the local people who live in solid farm houses while working here—or of his own Baram longhouse 20 minutes below Lio Mato.

Photo 16. Nyamo' Kenyah headman William Nyagong at Long Sait.

He is a Nyamo' Kenyah named William Nyagong—seemed very sharp indeed—and young. We rented his prahu—\$20 a day—paddled by two Badangs—eldest rather reminiscent of Dapat Aran, named Belulok. They had an easy go of it down the Selungo—a delightful little river about Entabai sized—water nice and high as it rained hard all last night—harmless fun little rapids—bright sun alternating with cool spots with water dripping from trees. Took only about two hours to reach the *kuala*—but the Baram was raging high and it took two hours of poling, paddling and clutching at bank rocks, bushes, stumps, etc. to make it to Lio Mato—distance certainly not over two miles. God what a job getting around this country must have been before outboards.



Lio Mato is gorgeous—a classic hand-hewn *kubu* [fort] set on a hill overlooking the rapids-filled converging sections of the Baram, with high hills beyond—a Badang longhouse about ten minutes walk down on the same (left) side. Airfield across river but choppers land in the schoolyard. One came in shortly after we did and disgorged a squad of Gurkhas plus Border Scouts—they vanished and another smaller helicopter then landed and unloaded a Gurkha (not British) officer—really a character—he seemed mildly astonished to see us but too busy to be concerned.

The first person we met was the school headmaster, Tony Ngau Jalong from whom we literally begged a meal—he lives with his boarders but feeds at the home of the *ulu* dresser—which is just off the *kubu*. The *kubu* is a real upriver period piece, largely empty, and we are in a large top-floor room with gorgeous views looking up the Baram out of the gun ports. Steep hills on either side going down, but with patches of burned but not yet felled hill rice clearing. Lots of cassava around—the clearings we saw close up looked really worn out.

However the school is a magnificent operation—more than 145 kids, 114 boarders from up and down river, all very neatly laid out—the best feeding and rooming accommodation we’ve seen in such a situation—the whole set-up miles ahead of Belaga in facilities and flavor—they go up to Primary Six here. One of Tony’s teachers is a Sarawak junior from Tanjong Lobang. There is only one trained teacher.

All the males here—except the headmaster—seem to have their hair still cut long—including the URA [Upriver Agent], the *ulu* dresser, and virtually all the little Kenyah school kids who are cute as buttons.

June 17, (Friday) Lio Mato.

A lovely morning here with mist slowly lifting on the mountains. Surely this must be the most beautiful government post in Sarawak. The *jamban* [outhouse] we are using behind the *kubu* has a breathtaking view upriver!

Last night we went over to the longhouse, which is Badang Kenyah, actually two longhouses in parallel with a splendid house separate off one end for the penghulu, Tama Bulan, six minutes walk from our *kubu* accommodations. The longhouse is solid but definitely dark and dirty compared to the Kelabit set-ups. Very few people are here at the moment—many at the farms we passed coming down Sungai Selongo. Two traders are up from Long Akah for the *tamu* (although no sign of the Penans yet)—one Chinese and one a Kenyah, a brother of the Temenggong [Oyong Lawai Jau] (maybe an “ali-baba” arrangement). Their reps had goods spread out at either end of the veranda. We hope to get a ride to Long Akah with one of them, hopefully by Monday or so.

We are being fed by the family of the *ulu* dresser, chipping in tinned stuff bought from the L. Akah traders. These people are all BEM like the Kelabits and L. Lellang—L. Sait Penans. Roman Catholicism doesn’t begin until around Long Moh going downriver. There are some Bungan there (middle Baram) as well—and some houses half Catholic, half Bungan according to Tony. Barbara stayed in the *kubu*—probably prompted by my arrival, there was a little dancing—the same procession walking around the passageway we’re familiar with from L. Lellang. But also three nice *sapi* were produced and played—one elaborately carved. This is the three-string Kayan “guitar,” Kenyah also?

The government boat arrived yesterday about three p.m. with SAO [Sarawak Administrative Officer] Kiprawi, various others, and Hedda Morrison²⁰—they didn’t seem exactly overjoyed to see us already here! It looks like the old human thing of hating to see others share your idyll.

An interesting twist at the longhouse last night—one of the “girls” turned out to be a boy—took the lead in a good deal of the dancing. Wears his hair male style yet very effeminate—tho is apparently accepted and condoned. Dressed in a male pattern sarong but the total effect was female.

June 18, (Saturday).

A flock of Penans arrived at last this morning from L. Lamai. They appeared on the bank across the river, were ferried over in one of the trader’s boats—are now

20 Noted photographer and wife of Sarawak official Alastair Morrison.



Photo 17: *Tamu* at Lio Matu—Penans from Sungai Silat trading parangs they have made to other Penans while SAO [Sarawak Administrative Officer] Kiprawi (at left) supervises. Penan-made mats and a bundle of Indonesian batik are also visible.

ensconced in the top of the *kubu*, in the big room next to our little one, along with a Kenyah trader and Hedda Morrison. They look very much like the Long Sait people and emit a distinctive smell of cassava and pig fat.

We have the *tamu* mechanics somewhat better sorted out. According to SAO Kiprawi, they won't begin trading until all are here—whenever that may be (the official dates for the *tamu* are June 17-19). Then the SAO watches the weighing of their *damar*, *jangkar*, [varieties of wild resin and rattan] etc. and makes sure they don't get cheated which Kiprawi assures me they would be otherwise—"these traders are a dirty lot." This group of Penans appears to have brought only *damar*, no mats yet.

The Silat River Penans brought in *parangs*, mats, and small knives they had made. The latter are being sold to the Penans here! Both traders who have been participating to date are natives—one a Kayan from Sungai Akah, who is trading in the longhouse. He is related to T. Oyong Lawai Jau (probably through his wife who is Kayan—he's Kenyah). He has a couple of Akah Penans with him to interpret, etc. None of the Akah Penans have arrived yet. The other man here in the *kubu* is a Kenyah. There is also a Chinese trader (Hokkien from L. Akah) located in the longhouse at the moment, but he is selling only to the longhouse folk. Although better stocked, he is doing nothing like the business the Kayan is—they are at opposite ends of the verandah.

The Penans always deal with the trader—there is no competition—with the man they know. Those here so far are dealing with the *kubu*-based Kenyah (who is not doing any longhouse trading). The two traders in the longhouse have a large range of stuff to sell to longhouse folk—tinned goods, beads, candy, sarongs, all sorts of utensils and household goods. But the Penan trade goods are limited—rice, pots, knives, a little



Photo 18. Kenyah schoolboys making shields in art class at the Lio Matu School.

cloth. I saw one man looking at some medicine.

The Penans go outside and build little fires to cook—several were doing this along the path to the longhouse. They are very good humored about being photographed! Most do not speak *any* Malay—although one girl does. All the babies and lots of little dogs along—the dogs look *very* healthy. The people do not look *unhealthy*—although there is a good bit of dirt and skin disease.

We hope to see some trading but have decided to leave Monday come what may. Going with traders is out—they would be dawdling along at every longhouse down the river—and we'll probably try to hire our own boat which Tony assures us won't be hard.

SAO Kiprawi, a Kuching Malay, seems like a sharp enough character. Explained to us how he came from cross river [the old Malay quarter] in Kuching and therefore didn't mind rural assignments such as this, but that some *Kampong Datu* [upper class] Malays would refuse a Baram assignment. Then a large number of Penans came into the room where we were speaking and he excused himself saying he couldn't stand their smell!

It is Saturday and the little Kenyah schoolboys have a free day—they are always busy, making *parang* (this is learned in "art" class, together with shield making, from a longhouse artisan) or fishing, or floating down the river on rafts, or playing soccer which they adore.

June 19, (Sunday).

The end of the *tamu*. A good bit of fun trading this morning. We were wrong

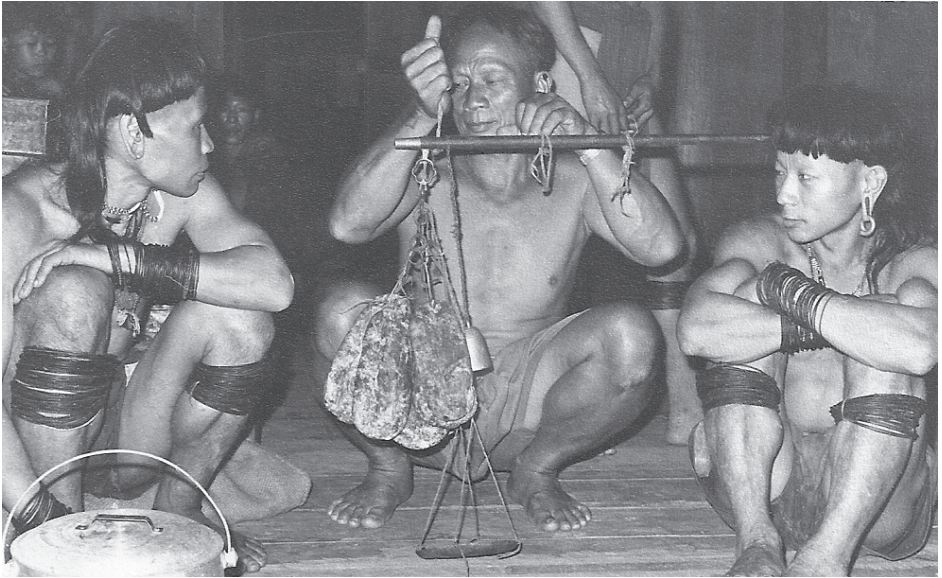


Photo 19. Abang, a Kenyah trader working for Tama Weng Tinggang, weighs wild rubber at the *tamu*.

about the L. Lawai people—they did bring some nice mats, which were gradually hauled out yesterday afternoon. In fact we bought two—one black & white and one black-red-white and a carrying basket for \$13, \$15 and \$4 respectively. We were confused as to whether we could buy directly from the Penans or not. H.M. [Hedda Morrison] advised that the Kenyah trader, Abang, had first rights so we held back—according to Kiprawi needlessly—so bought from the trader instead (except the basket) and they lost the markup which he got—and the *tamu* is supposed to protect the Penans. Oh well.

The big lumps of *damar* and *gettah* (*nyatoh*) [varieties of wild rubber] were left outside the *kubu* and weighed there. Other stuff all came inside—first they sold, then they took goods up to the value they'd accumulated—except one man at least who has an account with the trader working toward purchase of a new shotgun.

But aside from this kind of trading the Penans also had some cash they've apparently gotten from the army at Long Banga—that is also blamed for the poor turnout now, as compared to other years.

SAO Kiprawi keeps a record of virtually all transactions, assisted by a man from the Baram District Council, and by his driver (an Orang Ulu adopted by a Malay, Dato Zen Gallau [or Gallan], who has become a Muslim, and the man from the DC also collects shotgun taxes. The Baram Penans do not pay door taxes—note the contrast with the Rejang side where of course there are no *tamu* either. The dresser was busily taking TB smears while all this was going on. He has been doing a land office business with the Penans.

Lots of people getting shotgun shells. Great excitement among the ladies when some bras were produced late in the game. Many of these Punans bought (for about \$6)

parangs which the trader had bought from the Silat Punans who made them for \$5 only a few days before.

Someone got \$30 for two porcupine gall stones about the size of chestnuts. This sort of thing—monkey gall stones also come high—can fetch up to \$300 a *tahil*.²¹ Kiprawi noted that it is on such items that government supervision is needed else the Penans would indeed be robbed—they'd probably part with them for a box of shotgun shells worth \$10.

A much lesser show in the afternoon down at the longhouse with a bare handful of people from Long Sait.

Tony's kids danced last night—good show—at the school but he kept them up too late.

This morning he took us to the Penghulu's [Taman Bulan's] house for a very good chicken-rice broth brunch, preceded by rather sour yeasty *borak*. It turns out the Penghulu is RC [Roman Catholic] and so are three other doors in the otherwise BEM [Borneo Evangelical Mission] house—while we were there a couple went through a “betrothal ceremony”—this was BEM! The place was full of visitors.

June 20, Long San.

About five hours' driving time from Lio Mato to here today. We hired the boat at the Badang house last night, after an endless debate—the Kenyahs (or at least the Lio lot) have a slow-motion quality which at times can be most aggravating. There was a crisis before we left this morning—Tony got a message by wireless from the BEM missionaries at L. Lama saying his sister in school there was sick and would have to go to hospital in Miri but they wanted him to come down to accompany her. So he came as far as Long Jeh, two hours down, where he discovered that his parents had already left having overheard the wireless message! The entire countryside listens to the administration radio which can be pulled up on many home sets.

A lovely river but it kept getting bigger and bigger—rapids all the way, and the boat alarmingly tippy. The Baram is enough river for me—although water *perfect* just now—not too big and not too small. I want no part of the Akah thanks. The only bad place was from L. Apo to L. [blank] because we kindly gave a ride to a chappy who turned out to be drunk as a lord – the whole boat reeked of *borak*—and he insisted on telling me all his troubles in bad Malay through the middle of the worst rapids, not even looking where we were going.

Long Jeh—it is huge—about 50 families in four longhouses, plus a great clutter of rice barns and other outbuildings. Houses arranged in two rows, one above the other.

What we paid to get here:

gas	7 tins at \$10 (2 to get down, 5 to return)	\$70
wages	2 men 3 days @ \$4 per	24
motor	\$3 per day (new 20 hp)	9
boat	\$1 (not worth that!)	3
	total	\$106

21 A *tahil* is a unit of measurement for gold, a little over one avoirdupois ounce.

And at that they tried—vainly—to get more out of me after we got here.

Long San is, of course, the home of Temenggong Oyong Lawai Jau and Stephen Wan Ullok among others. We stopped here more to rubberneck than anything—were shown through a most impressive mission (RC) set-up—then introduced to the woman who raised Wan Ullok—we'd said we were friends. In an end *bilek*, just being built.

Then I went down to L. Akah bazaar (nine doors—five minutes downriver). A young sharp-seeming Chinese wanted \$180 for a charter boat to L. Lama! Four hours! We've since found a Kenyah here who says he can take us all the way to Marudi for that in one day. We leave at six am tomorrow we hope. (We did—and made it in one day easily.)

L. San is every bit as clean as the Kelabit set-up, with a lovely grass and boulder covered bathing place. The longhouse is just downstream from (across the Sungai San) the RC mission complex of school (Primary Six), hospital, church, etc. The Temenggong's *bilek* is [in] the middle of the house, has two stories (i.e. no conventional pig space below—they are all fenced out) and concrete foundations and lower walls with louvered windows. Yet the people are still not noticeably more “westernized” here—although the effect of good mission education shows clearly on the kids—still plenty of long hair on men of all ages from toddlers—still farming dry rice mainly. A lovely clean verandah with women making hats etc.—the inevitable men repairing fishing nets. The Temenggong's *bilek* has the upper walls off the veranda elaborately carved with Orang Ulu designs—each panel identified by artist—two are Indonesian Kenyahs, the other three Sarawak Kenyahs and Kayans. He is not here now—of course, probably rarely is, and many are away at their rice field clearings (*tebesan*).

June 22, Marudi.

Our driver was as good as his word. Left L. San at 7 am yesterday, arrived L. Lama about 11:15, got here about 3:45. 28 hp engine on a good small boat. Joseph Apoi, the driver, seems a loner—bragged about only he would dare make such a long trip without another crew member. Former Border Scout, speaks a little English. Cost \$180.

Thank heaven the trip wasn't any longer. In the process of a little socializing last night at L. San I'd finished off most of Barbara's *borak* as well as my own—we were now in Roman Catholic territory and drink has reappeared—and I felt decidedly hung over. The weather alternated between frying hot sun and cold windy drizzle. During a brief lunch stop at L. Lama, we met one of the BEM mission people (female) who seemed very pleasant. She confirmed that the hellfire and damnation posters are Indonesian—said the mission isn't too happy about them being plastered everywhere but the people love them.

She said the Borneo Evangelical Mission people on the Indonesian side were Americans, something called the Christian Missionary Alliance.²² Isn't sure if they still have people there but thinks maybe. The Sarawak Lun Bawang first got the gospel from Indonesian Lun Dayeh Christians pre-war—then the BEM started in Lun Bawang country.

22 The Christian and Missionary Alliance is a global organization still operating at this writing.

The river flattens out rapidly below L. Akah. Longhouses (mostly Kayan below L. Akah and before L. Lama) frequently an hour apart even at our rapid pace. Below L. Lama there are Kenyah houses again, the river is really quite dull.

So our great adventure is over—our one bit of really into the *ulu* travel. It was certainly enormous fun.

Here, in the Baram, one senses more than anywhere else the endless implications of huge rivers, great distances, and scattered isolated peoples. This district is an empire in itself. You can get utterly lost and absorbed in it—although it is in every sense a small minority of Sarawak, much less of Malaysia. It would take months to cover the whole thing even in the most superficial way.

Here as in Second Division the impact of the Chinese has been minimal—or rather it has been commercial and not agricultural. They are traders and timber tycoons, not colonists. Even bazaars above Marudi are minimal—about 15 doors at L. Lama, then nothing until the last nine-door bazaar at L. Akah (and two of them are *orang ulu* shops, one owned by a brother of Oyong Lawai Jau and the other by Tama Weng Tinggang's family—the Temenggong's SUPP rival. Representatives of both these shops were at the *tamu*. As a result the Baram is undoubtedly "less developed." I found myself thinking that this is what the Rejang would have been like had the Chinese not come in such numbers.

We have of course seen nothing of the Ibans here—they are in the Tinjar and Bakong mostly.

Dinner with Dick Goldman and another bright seeming PCV Stu Currens last night, after a beer with the Kelabit penghulu, who is down on business. Much interesting stuff from them. Stu says Long Moh is still by far the most traditional Kenyah "house" in the Baram. Actually *seven* longhouses. I'm sorry we did not stop there. Gobs of heads around and some people who still follow the *adat lama*, [traditional religion] as well as Bungans and Roman Catholics.

They are concerned at the very small number of Kenyah and Kayan girls who are getting on to secondary school. This is in marked contrast to the Kelabits whose girls are getting educated. Apparently they (the K and K girls) or their parents prefer the traditional longhouse virtues—skill at dancing, singing etc. But they foresee problems because plenty of the boys *are* getting educated—they plan on careers elsewhere and they realize that a traditionally reared Kenyah girl, however fine she may be in the longhouse, will not be a very satisfactory wife in Kuching or elsewhere. So it is likely that there will be more educated young men marrying non-Kenyahs.

Most of the Kayans and Kenyahs who get educated are aristocrats or upper middle class. There has been only one of *ulun* [slave] origin in the Marudi Government secondary school in the last two years.

Impressions of the trip:

The enormous difference in seeing your jungle from above (from the air) and on the ground—where you can never see the shape of the country.

How very unexotic jungle is—mostly just like any other woods, only wetter.

The lovely scene at Bario when the weekly “Twin Pin” lands. The tremendous air-orientation of the Kelabit highlands.

The solidity of Kelabit construction.

The hill-girt valley that Pa Tik lies in, reminding me of West Virginia.

The Penans, attempting so many enormously difficult new undertakings yet seeming calm and cheerful.

Why the mission (BEM) has succeeded: it is the only constant source of outside attention—that people know will be here year after year—besides an overburdened government. At a time when the Penans clearly sense that they must begin to come to terms with the rest of the world, this is something to cling to—however intrusive the BEM and missionaries in general may sometimes seem to *us*.

The brilliant blue-green hills of Lio Mato.

The hell of getting up a rain-swollen river without outboards.

The extraordinary greasy slipperiness of Borneo paths.

Penans making cooking fires off the path at Lio Mato while at the *tamu* - so clearly more at home just a little back in the woods.

Wading across a rain-swollen Pa Libid before breakfast with an all-day walk ahead.

Smoked wild pig meat carried in little bamboo tubes. The speed and skill of our guides at making fires and other basic camp craft.

The emptiness of the Baram yet also the feeling (Marudi and above) of integration, community. Not the series of separate provinces you sense as you progress up the Rejang. (Main cause, fewer Chinese.)

The total cost of our 18-day trip, about M\$900. Of this \$286 coming down the Baram (two days).

June 23, Marudi.

Both our Peace Corps friends and the bright, well-educated young Assistant DO, Awang Saffri (Kuching Malay), dispel any ideas that Iban expansiveness is no longer any problem. It is, very much, in the Baram. The pressure seems to be growing – both to come in from the other areas (still allowed on agreement of Residents if sufficient reason can be shown) and to move from Iban areas here (Bakong, Tinjar, etc) into Kayan and Kenyah land. I spotted a fat file labeled “Iban Affairs” in A. Saffri’s office—didn’t get to look at it.

There have been incidents reflecting communal tension. The Ibans are regarded here as land hungry and aggressive people. The Peace Corps people say their education record is not good. Clearly it is feared that in the future they may use their superior political force within the state to force relaxation of migration control. Already the pressure is getting political. “We are all Malaysians now and should be able to live anywhere” is one new Iban line. The old colonial no-questions-asked flat dictation of who lives where won’t go. (A good answer to the above line would be—OK—in that case we’ll allow unlimited Chinese expansion into Iban native areas. Except of course the Chinese aren’t quite as “Malaysian” as everyone else.)

Population as of 1962 – latest figures available [given to me by the Baram District Office in writing]:

Summary Population 1962 Baram District

Race	No of Long Houses	No. of Doors	Population
Malay	7 kampong	220	1,680
Kenyah including Badang	27	668	3,767
Kayan	17	630	5,205
Dayaks [Iban]	60	142 ²³	8,833
Kelabit	16	282	1,717
Sebob	5	85	864
Berawan	3	68	474
Long Kiput (including Binawa Moslems) ²⁴	1	29	192
Bisaya Bukit	1	19	117
Chinese	6 places (bazaars)	---	4,236
Penan settled	8 places	146	984
Nomadic Penans	17 ”	279	1,636
TOTAL			29,705

Note that the Ibans are now already the largest single group and just about equal Kayans and Kenyahs combined.

June 24 (Friday), Marudi – Miri.

Just watched the “Twin Pin” leave for Bario. In a few minutes we’ll be riding the same plane down to Miri. Surely there can be no more romantic flight to anywhere than the Bario Friday event. Long may it wave.

Marudi is a sparkling little town, a fit center for a beautiful river—clean, prosperous, heads up, conscious of the Baram tradition and proud of it. We’re very glad we didn’t have to dash through. Since Miri became the regional headquarters in the 1920s and since there was never much “development” in the Baram, Marudi preserves better than anywhere else—except maybe Simanggang which certainly isn’t as pretty—the classic outlines of the Charles Brooke Division headquarters. The *kubu* shown

²³ Clearly a mistake—Saffri couldn’t give the right figure. [note in original]

²⁴ Includes Moslems at Kampong, Binawa? Abang Joahan said yes but I wonder. [note in original]

in *Pagan Tribes of Borneo* still stands on its little hill, site of the famous early peace-makings. Only change: many more desks inside. Moving upstream, the old cadets' house is now the resthouse (where I write) and beyond that—beyond a new water system plant—is the old Residency, now the district officer's bungalow.

Downstream (all this is on the right side of the Baram ascending) is the bazaar, very new (all postwar) and *flush*—undoubtedly the best stocked, shiniest outstation bazaar we've been in, clean and bright, arranged in three blocks around a square in the middle of which is a nice open market with eating stalls etc. The fourth side of the square, on the river bank, contains road and river fueling facilities plus a customs godown. Just off the square downstream is a handsome 48-year old Chinese temple, decorated with gilded carvings and paintings and well maintained. There is an attractive Malay kampong *hilir* [downstream]—although it's not called that—with *lawns* and neatly trimmed everything—quite unique in Sarawak in our experience—a veritable suburbia—and just inland from the bazaar a Kampong China—Malay-style houses but set far closer together than Malays would ever put them. We couldn't figure out just who these Chinese are.

In the back of the resthouse-*kubu* area is the airport—would that they were always so convenient—and beyond it by about half a mile the new government secondary school—now up to junior (Form Three) only but soon to be expanded up to Form V. A new junior secondary school is already in operation at Lama.

[The Baram portion of the diary ends here; the next day we flew to Niah via Miri, and then departed Sarawak via Brunei.]

ETHNIC MINORITIES IN LATE TWENTIETH CENTURY BRUNEI: A SURVEY OF ERRORS AND IMBALANCES IN FOREIGN ANALYSIS

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The idea of drafting a survey of errors in writings on the ethnic minorities of Brunei was first prompted by a discussion of errors in the ethnography of Sabah which appeared in the journal a few years ago (Appell 1991, 1992). No apology should be necessary for dealing similarly with a territory like Brunei Darussalam, however modestly proportioned it may be (total population, including transients, in 1981, 192,832; by 1991, 260,863). But in identifying mainly factual errors of history and politics I will be hard put to it to emulate the sophistication of George Appell's commentaries. It is to be hoped that any insights which may arise, regarding especially the political context of academic and media errors on Brunei, will in some degree compensate. Even to divert errors from becoming established as "certified knowledge" through authoritative repetition (Appell 1991: 85) would be no small gain.¹

By way of introduction to the scene in question, let us propose that a provision of the 1959 Constitution of Brunei (State of Brunei 1959) and the 1961 Citizenship Enactment (State of Brunei 1961b), which seem almost quaint in retrospect, was their recognition of no less than seven distinct indigenous ethnic groups of Brunei with a legal status above the also-Bornean Iban, let alone the non-native Chinese. Even the rural subgroup of Muslim Malays, the Kedayan, were enumerated separately—albeit in their case possibly in order to preempt any pretension to equality of corporate ranking with the Bruneis of the riverine capital. At any rate, the perception of "quaintness" relates to the fact that at the time of Independence in 1984, the Sultanate began to define and prescribe the national identity in terms of an ideology called "the Malay, Islamic and monarchical state," which left no room for pluralism, whether political (democratic organization), religious (multiple faiths), or racial (ethnic identification other than "Malay"). Yet it is not ruled out that a vision of long-term absorption had existed earlier, separate enumeration in 1961 being not so significant, ultimately, as the classification of all seven groups as "groups of the Malay race." Already by 1971 the presentation of Census statistics was starting to lump all the "authentic indigenous" into a single category of "Malay." On the other hand, the potential of Islamic proselytization to accelerate the augmentation of the "Malay" population far

¹ To some extent Kershaw 1998a was already responding to "error and misunderstanding," in setting out to create a solid basis of understanding of ethnic ranking in the face of the kind of ignorance or distortions which will be dealt with in a more concerted way in the present paper. Some questionable assertions were identified, however, in a review article, Kershaw 1998b, whose focus was Saunders 1994; Horton 1995; and Singh and Sidhu 1997. A small number of criticisms relating to their presentation of minority affairs are repeated in note 9, below.

beyond historic trends may well not have been clearly foreseen – as also the coming of Islamic revival was not foreseen, with its capacity to both demand and sanction more energetic forms of *dakwah* towards the “tribes.” At any rate, a condition of rapid social transition, combined with change in state goals and definitions, was undoubtedly prone to engender ambiguities and confusion in relation to both fact and moral judgment.²

In this varied light, and assuming authoritarian restraints on free expression and dispassionate research by Bruneians, there would be a premium on conscientious research and publication on ethnic matters by any foreigners whose physical location and intellectual equipment proved suitably enabling. The foundation of a Brunei university in 1985 seemed particularly propitious, since the progress of education in the territory had previously lagged behind regional levels, and one could anticipate the bulk of academic staff in the early years being recruited from outside, among them some historians and social scientists. At the same time, the “rise of independent Brunei” qualified the state for coverage in annual academic surveys of the region, while the emergent image of the Sultan as “the richest man in the world” might stimulate foreign writers to try their hand at least at pot-boiling biography. The very paucity of published sources, primary or secondary, on Brunei would surely be spotted, among certain academic or journalistic circles, as a lacuna worth filling. The more open questions would be whether that lacuna might in itself pose discouragement or raise a barrier to excellence for a first-time investigator, and whether the Brunei state would contrive to extend its restrictions and control of information beyond the ranks of its own citizens, thus raising a serious obstacle to the building of a foundation *de novo*.³

As the topics selected for this study were nearly all chosen because of discovered cases of error in their treatment, it should not be expected that the study will be characterized by a tangible logical progression from one topic to another, or salient coherence among them. At best, it may be possible to hypothesize common (and instructive) causes of the errors in the work reviewed, although imprecise use of the concept of “Malay identity” in both internal and external context—an area fraught with inherent ambiguity and the potential for ideological manipulation—may offer temptations for slightly more confident explanation.

2 A succinct introduction to the role of Islam under MIB, and generously funded “outreach” to potential converts (there were 420 recorded conversions in 1991 alone), is given by Horton 1996: 56-63. The absence of a place for non-Malays in the new state ideology was also identified and discussed by Braighlinn 1992: 86 (n 28, n 29), Kershaw 1998a: 95 (n 36), and, in due course, Reid 2001: 312-313.

3 It is rather remarkable, however, that legal detail such as the classification of ethnic groups is not a state secret, but perfectly accessible in Enactments published singly or in law collections by the Brunei government. Yet some writers have reported the scene as if they had met obstacles to simple inquiry. For the basic information for readers of this paper, the seven indigenous groups which have citizenship rights by operation of law are: Brunei, Kedayan, Tutong, Belait, Dusun, Bisaya, and Murut. I like to call these the “authentic” indigenous. The Ibans and Penan, being regarded as immigrants in fairly recent times from outside the four districts of modern Brunei (i.e. indigenous to Borneo rather than Brunei), are allowed “operation of law” only if they and both their parents were born within Brunei’s borders. For extended discussion see Kershaw 1998a. For comparison with the Chinese, see note 29, below.

Suppression of Ethnic Entities

“Suppression” is a strong word, which might not come to mind at all without an awareness of an implicit imperative to that effect in the national ideology. Very conceivably, foreign writers echo official presentations of national population and culture without realizing that they are serving an agenda of the state with regard to native minorities earmarked for absorption as Malays. The most striking example which I have noticed of an ethnic group being “written out of the record,” or at least being redesignated, concerns first the virtual, then the explicit, equation of the Bisaya-Dusuns of modern Brunei with the Kadazan-Dusuns of Sabah (Avé and King 1986: 13, 81), or with the Muslim Kedayans of Brunei itself (Avé and King 1986: 6, map).⁴ Then, six articles in the “authoritative” annual *Southeast Asian Affairs* from Singapore⁵ prompt a query about the authors’ reasons for either playing down or completely omitting minority affairs, likewise two in *Asian Survey* (Brown 1984a; Burton 1990), although of the former six, only two actually seem to be acting as mouthpieces for official insinuation that indigenous society is 100% Muslim and the intensified promotion of Islamic commitment especially justified by that token (Abu Bakar 1989: 92; Zainal 1990).⁶ Lastly, in uncanny confirmation of George Appell’s prediction of the rise of “certified knowledge,” two British academics whose window on Borneo was none other than, respectively, the Departments of Geography and Social Administration of Universiti Brunei Darussalam, virtually replicated the positions of Avé and King (1986) on the ethnic groups of Brunei in excluding “Dusuns” of any type while renaming the Kedayans (somewhat more justifiably) as simply “Malay” (Cleary and Eaton 1992: 95, incl. map). This work of human geography cannot claim exemption from the requirement of precision on the grounds that ethnic minority phenomena are outside the scope of such a book, for the authors make a point of describing Borneo’s ethnic diversity. While it may indeed be “very difficult to give precise estimates for different groups” (Cleary and Eaton 1992: 94), some intelligent calculation is possible, for instance of Bisaya-Dusun percentages.⁷ And surely the inclusion of the Bisaya-Dusuns is important in any account of

4 On the map the whole of the coastal strip from Tutong to Belait, and the middle reaches of the Tutong River, are marked as “Kedayan” only. For a carefully researched, alternative statement of Bisaya-Dusun strength, see Martin 1995—highlighted in more detail in note 7, below. In a later, single-author work, King (1993: 57) correctly treats the Dusuns of Brunei as entirely distinct from the peoples similarly labeled in Sabah, pointing out the lack of any meaningful distinction between them and the Bisayas of either Brunei or eastern Sarawak, while, however, making the highly curious assertion that “Tutong” is a Brunei Malay synonym for these Bisaya, alongside “Dusun.” This is not what we read in a publication of the following year (King 1994: 195), where the Tutongs are treated as an entity quite distinct from the Dusuns (albeit already, apparently, themselves “absorbed into Malay culture,” like the Belaits), and we are even alerted to the existence of a misapprehension that the Dusuns are the same as Tutongs (King 1994: 192).

5 By Siddique (1985); Abu Bakar (1989); Zainal (1990); Doshi (1991); Mani (1993); Thambipillai and Hamzah (1995).

6 However, Abu Bakar does acknowledge the presence of non-Muslim *bumiputeras* in his reference to the willingness of a political party (BNUP) to admit such persons as members (see p 95).

7 Cf. Martin 1995. with his clearheaded calculation of ethnic numbers by speakers of each native tongue. Dusun and (separately counted) Bisaya speakers, totaling together 15,600, would

modern Brunei, not only on account of their history as the erstwhile definitive population of Brunei (more widely than Tutong District, as today),⁸ but also given the repressive thrust of the state ideology vis-à-vis non-Muslim native minorities, which might become a factor for alienation, at the least, among these relatively numerous-and-concentrated, involuntary candidates for Islamization and exchange of ethnicity.⁹

Definition of “Malay”

Even when an observer consciously addresses the impact of Islamization on non-Muslim indigenes, there is still a potential for confusion in the definition of “Malay,” etc. ISEAS-based Sharon Siddique explored the implications of Islamization most intensively in her annual surveys of the years 1985 and 1991 (Siddique 1986, 1992). Basically, the 1985 survey makes up for any lack of expressed “empathy” in the report for 1984 (Siddique 1985). The only slight criticism that might be advanced is that in discussing the State Information Director’s scenario for “non-Muslims,” the writer first uses this term in a way that seems to exclude Chinese (who are referred to as “non-Malays”—thus by elimination the “non-Muslims” are the indigenous non-Muslims); but a few lines later refers to “non-Malay Muslims” in a context which indicates that it is the Chinese that are here meant (logically, since the Chinese are neither Malay nor Muslim—i.e. not “Muslims who are not Malay” [*non-Malay* Muslims], such as the Indian Muslims, but not “Malays who are not Muslim” [*non-Muslim* “Malays”] either—again there is an implied category of indigenous non-Muslims against whom the Chinese are here in part offset, yet unfortunately, in this context the residual label for such non-Muslims is “Malay”, and this usage may seem to play into the hands of those who justify Islamic revival for the whole of society by pretending that assimilation is virtually complete anyhow! Siddique 1986: 46.). The first three pages of Sharon Siddique’s survey of Brunei in 1991 (Siddique 1992: 91) focus on Islamization/MIB, and she highlights immediately the issue of the impact (said to be “unclear”) of MIB on non-Muslims, but again seems to regard all census “Malays” as Malay Muslims, citing Neville (1990). She does, however, then almost immediately

constitute 5.35% of all “authentic indigenous,” amounting to 291,750 (i.e., not including Ibans and Penans). This may not seem a large segment, but it must be remembered that in the district of Tutong the various dialect branches of the language account for almost the whole of the population of the middle reaches of the Tutong River.

8 For elaboration of this historical dimension, see note 18, below.

9 Some of the weaknesses discussed in this paragraph were also in evidence in the works reviewed in Kershaw 1998b. As it happens, Saunders 1994 (and repr. 2002) was very sparse on minority matters except the Chinese, so there is little likelihood of error in that general area anyway. I could just repeat (from Kershaw 1998b), a query as to why Kedayans are classified among the “other indigenous,” like Ibans. With reference to Horton 1996 I might reiterate the point that the Dusuns of Brunei are not Kadazans. On the other hand, University of Malaya authors Singh and Sidhu (1997) deserve full critical exposure, again, for their assimilation of all native groups to the category of “Malay” (as if the 1981 Census was sociologically correct); silence on the Dusuns in particular, except when making a single reference to their leader in 1961-62; and the assertion that no Chinese are citizens, indeed that only 10% could even travel abroad! My calculation of the proportion of ethnic Chinese residents with Brunei citizenship in the 1980s was 20.38%.

acknowledge that there are several non-Malay ethnic groups among the census “Malays,” which she lists loosely (Siddique 1992: 92).¹⁰ From the other series of surveys, Brown, in the article already cited, at one point uses the term “Brunei” interchangeably with “Malay” (Brown 1984a: 204),¹¹ while in turn “Muslim” seems to indicate all indigenous (contrasted with, and divided by Islam from, the Chinese) (Brown 1984a: 206).¹² And Ranjit Singh (1986: 172), on what appears to be the same wavelength as Brown, uses the term “Brunei Malay” (privileged, majority ethnic group) contrastively with “Chinese” (underprivileged minority), as if referring to all indigenous, with the apparent implication that there is no heterogeneity in the native population.

In the light of these examples, it would surely pre-empt all confusion if the term “Malay” (or “Malay Muslim”) were reserved for indigenous Muslims, and never applied to non-converts. (As for “Brunei”, this should only be used in its original and narrow ethnic sense—where, of course, it still has utility, as in discussions of traditional and neo-traditional ranks: cf. Brown 1995).¹³ The freer and all-embracing use of the term “Malay,” derived from the constitutional category but imitating census usage since 1970, goes beyond the amorphous concept of a common archipelagic race to imply an advanced state of cultural assimilation to a Bruneian norm. Such an implication was not yet justified around 1990 by empirical evidence, but certainly served the objective of those State agencies which were working to achieve it.

Five or six years into Brunei’s Independence, my observation was that the term *orang Brunei* had begun to do service as the term for what English calls “Bruneian,” that is, any citizen or permanent resident of the state. Unfortunately, the Malay language lacks an equivalent of the convenient English suffix “-an” to indicate country of membership as distinct from one’s race. In consequence, *orang Brunei*, in this sense of “Brunei citizen” and equivalent to the English usage (among locals and expatriates) “Bruneian,” was not too easy to differentiate from, indeed was apparently acquiring overtones and unspoken connotations of, membership of a “Malay people of Brunei” (*orang Melayu Brunei*), as the *orang Brunei* sub-group or *puak* of the 1961 indigenous saw their culture, religion and language (at least a semi-standard *bahasa Melayu Brunei*) spread out among the population synchronically with government promotion of an inclusive, *puak Brunei*-convergent national identity.¹⁴ Herein lies a paradox if it be assumed, on the one hand, that “Bruneian”

10 However, while Tutongs and Belaits are omitted from this itemized list of “the Malay majority”—perhaps because considered as Muslim (and closer to “real Malays”?)—Kedayans, bizarrely, are named, as if not part of the group of “local Malays,” also included **separately** in the list.

11 When “Malay” means “indigenous Muslim,” it is not equivalent to “Brunei,” for where are the Kedayans and Tutongs in the latter category?

12 On pp. 205 and 206, educated opinion is cited as the opinion of “Bruneis,” which either inaccurately infers that no Labuan Malays and Eurasians, or Kedayans, or Tutongs, etc., have made their way to the top of the bureaucratic elite, or represents a usage of “Brunei” which here embraces all the indigenous minority groups, perhaps even regardless of religion.

13 And for further analysis see Section 3, below.

14 That being a Malay also means being a Muslim is a matter of almost universal definition in the Malay world since the Golden Age of Malacca. By this standard, to call every native Bruneian a “Malay” gives him the tacit status of a “Muslim-in-waiting,” at least, and delegitimizes any

originally lacked any other connotation than citizenship and place of residence but had become politically functional in terms of the state's nation-building assimilationist agenda post-1984, whereas, on the other hand, in the period around 1961, even alongside the tabulation of groups eligible for automatic Brunei citizenship, the way was being prepared for closer association with a much larger "Malay family," by robust promotion of use of the standard Malay language in the Peninsular mold and negotiations for some form of political merger. At that time the Brunei concept of "Malay" (or at least one such concept) was distinctly reaching out beyond Brunei's borders to embrace a much wider community. However, after the late Sultan Omar Ali Saifuddin, with strong popular support, rejected membership of Malaysia, but the leaders of the new Federation for several years harbored irredentist resentments about that rebuff, the wider Malay identification initially evoked became distinctly dysfunctional for official Brunei aspirations. Not, be it noted, that even before the failure of merger with the mainland, the Sultan had been keen on the alternative scheme, the Pan-Borneo Federation promoted by Sheikh Azahari of the Brunei People's Party. At any rate, ambiguity remains inherent or has become more so in a term which is again being molded towards an inclusive scope—albeit latterly in a way which takes the artificial, micro-territory of modern Brunei as its sole zone of application and basis of legitimation, in place of either northern Borneo or the wider Archipelago.¹⁵

The most surprising, and almost egregious, example of analytical assimilation of non-Muslims to the category of "Malay", even for early eras, is in fact seen in a Brunei University study of demography, on the very page on which it is admitted that the definition of "Indigenous" (not, however, the definition of "Malay") has varied between censuses:

The Brunei population has been predominantly Malay for many centuries and the population continues to be largely Malay in spite of the influx of immigrants from 1947 to 1960 (Niew 1991: 4).¹⁶

efforts at ethnic cultural preservation in advance.

15 For a complementary presentation of the perspective of this paragraph, but excluding "the wider Malay family," see Kershaw 1998a: 99-101. The most able ideologue of the contemporary Brunei regime, Pehin Udana Khatib Badaruddin (Deputy Minister of Religious Affairs at the time of writing, 2010) traces his "Malay world" credentials back to student days in Singapore and early flowering as a Malay nationalist poet, prior to Al Azhar. He was active in the *Dunia Melayu* movement around 1990, apparently seeing Brunei as a potential role model for the revival of authentic political structures and pan-Malay literature, yet also not unconscious of the degree to which the interests of Brunei monarchy and a sustainable Brunei sovereignty prescribed maintaining a certain distance from Malaysian Malay intellectuals and their political masters, and making a subtle or not so subtle distinction between Malays of Brunei and other kinds of Malays. Reid (2001: 312-313), too, has made a succinct point about the contradiction between the Malay-world identification of 50 years ago and a concept of "Malay" which, as expressed in M.I.B. today, presupposes a set of cultural characteristics which sets Brunei quite deeply apart from its neighbors.

16 Interestingly, the published census for 1986 on which Niew bases his work (Negara Brunei Darussalam 1989) does resurrect the Dusuns and Muruts ("lost" since 1981) as separate groups in its table of "Working Population by Sex, Community and Major Occupation 1986" (p. 67), and informs us in footnotes to tables on pp. 41, 42, 45 and 48 that the "Malay" figures include Dusun and Muruts.

Even the Sultan's public relations consultant, Lord Chalfont, is more open to diversity than this, for despite the Sultan being, purportedly, the father figure of the Islamic "family" which constitutes his nation (Chalfont 1989: 14), we are informed, in connection with welfare services, that

several indigenous peoples, such as the Murut and Dusun, still live in the interior. The country has not forgotten them in its hectic programme of modernization and development—local hospitals and flying doctor services operate in the interior along with libraries and the other amenities of a lavish welfare state (Chalfont 1989: 17).

Superseding Native Historical Narrative

One way in which the erosion of indigenous identities can be promoted is by downgrading separate ethnic histories, especially those which point to an erstwhile era of political autonomy. Some of the early work of the leading theorist of the social structure of Brunei seems to introduce an ambivalent note, albeit quite unintentionally, as a byproduct of a research method and a particular methodology. In the initial search for data on traditional offices, questionnaires were distributed to the holders of the office of *Menteri Darat*, "to determine if the office had a history that would be worth exploring in actual interviews" (Brown 1976: 46). No traditions were reported, and from this the researcher concluded that the offices of rural, non-Brunei notables were "non-enduring," especially within families, i.e. "mostly created for their holders and not filled when they die." This lack of permanency was found to be in dichotomous and critical contrast with the hereditary nature of the offices of the Brunei nobility (as Brown perceived it), and on this foundation was apparently constructed the stratification theory for Brunei which posits a crucial, defining link between ethnic power and the durability of offices. That is, the rural ethnic minorities have no "enduring" offices because it is in the interests of the dominant ethnic group to avoid establishing hereditary centers of leadership in the subject areas.

It is not completely clear whether the questionnaires were simply sent out, or administered in the framework of an initial face-to-face meeting. If the former, then it is surprising that the answer "No traditions" could be taken as firm evidence of the non-durability of the offices of rural notables. Even if the respondents thought it proper to reply in detail to any such form if not emanating from the government, in what way did they conceive the term "tradition"? Even if the question was elaborated to indicate that it was information about inheritance from father to son that was of most interest, it would have diverted attention from the characteristic Brunei practice of appointing from kin-groups whose forbears have held the traditional offices. The offices of *Menteri Darat* might well "skip a generation" in one family, and pass, say, to a nephew of the latest holder, before returning to a son or grandson when one such had achieved sufficient maturity and standing to exercise the responsibilities of the office with conviction. Not the least among the evidence for this institution is the fact that it was the normal practice (or certainly has been in the twentieth century) with regard to Brunei nobility appointed as *Cheteria*, and the class of *Pehin*, also! (What are literally hereditary without break are the status of *Pengiran*

Anak and *Pengiran*, and it is true that only a member of this class, descendants of royalty, can become a *Cheteria*.) There were very particular reasons for upholding the institution of modified inheritance in the more remote areas. So far from there being a threat to control in the rise of a local notability, it was only by working through locally respected families that the Sultanate could exercise a modicum of control. It is also very much to the point that an understanding of administrative requirements is most typically developed among the sons of households whose leader is a title-holder or *Penghulu*. No doubt, local status was partly a function of the fact of office-holding itself by earlier members of a kin-group; no doubt, also, loyal attitudes would be likely to have been cultivated in these very kin-groups in the course of time; but it is striking that the Sultanate saw no danger in this degree of institutionalization.¹⁷

The moral for the historiography of Bruneian minorities is that while they have certainly been subject to the Sultanate for centuries, Brunei power did not penetrate on anything like the scale of the twentieth century bureaucratic model. Consistently with the feudal nature of the Brunei realm, power over the more peripheral minorities was diluted by distance, or exercised intermittently. But to play down the degree of ethnic autonomy in relatively recent historical times has a kind of consistency, indirectly, with another proposition derived from the observation of hereditary rank among the dominant group. This is the view that hereditary rank is necessary to the inculcation of a myth of immigrant origin and conquest (by the Bruneis, in this case), but by that very token is likely evidence of the fact that the dominant group were not immigrants at all! (Brown 1976: 47-48; 1973)

Be the origin of the Bruneis as it may, it shall not escape remark that once the notion of conquest is dismissed, it becomes more difficult than ever to postulate an autonomous Bisaya kingdom which the Bruneis overwhelmed and displaced, rather than a diffuse and acephalous “indigenous society,” which developed its structural sophistication, including monarchy, from within its own resources and could sooner or later aptly be called “Malay.”¹⁸

For complete avoidance of misunderstanding on the subject of downgrading separate ethnic histories, I conclude this section by drawing attention to one particular presentation of the Brunei origin myth by Donald Brown which in no way plays down the un-Malay (apart from un-earthly!) origins of the ruling line (Brown 1984c). The founders were Bornean natives (more readily identified as Murut than Bisaya), who called themselves “Bruneis” once they had established their capital on the Brunei River, not “Malay.” The latter nomenclature relates, apparently, only to a later phase: the conversion of the ruler to

17 The perspective of this paragraph owes a very great deal to the research of Eva Maria Kershaw, which we hope to be publishing in a future study, Kershaw, E.M. and R. Kershaw, eds., Forthcoming. Section 7, below, is devoted to the responses to Donald Brown’s work by Victor T. King (King 1994), starting with the question of Brunei-bestowed ranks.

18 On “the other city” at war with the Bruneis in 1521, see Nicholl 1980: 38-39. If the Bruneis did emerge by some process of asymmetrical schismogenesis, it remains curious that subsequently the assimilation of the rest of the root society to the Bruneis’ religion has taken so long—indeed seems to have owed its significant strides more to the technological and bureaucratic advantages bestowed by the British than to innate capacities of earlier times. On the historic slowness of the spread of Islam in Brunei territory, see Népote 1985.

Islam under the influence of Johor, whence also he obtained Malay-style regalia. And from this it ought to be possible (I would think) to be open to the separate ethnic histories of those parts of the population whose ancestors did not *masuk Melayu*: unless, that is, local ancestry ceases for any reason to be highly regarded.¹⁹

At all events, the *Sha'er Awang Semaun* (and its commentator, Brown) do not regard the Bruneis as immigrants. Rather strikingly, however, their political culture has an exogenous complexion, which for my taste either suggests an immigrant origin for the core population at the capital, or if not, an eagerness for a distinguishing, external authentication which at the same time (again, my instinct) still carried an imperative of countervailing emphasis on native authenticity in an environment dominated by competition for power between several “authentic” groups. The recent international academic debate on the nature of Malay identity, in case it is in need of restimulation, would do well to focus on the dynamics of cases of accommodation, or continued attachment, to local cultural norms and identities even as populations were being recruited into “Malayness” and calling their states *Kerajaan*. The perpetuation of the ethnic label, “Brunei”, right down to the Nationality Enactment of 1961, in apparent connection with a perceived need to maintain an ethnic hierarchy even while neighboring groups such as the Kedayan were being invited into a semblance of fraternal unity (democratic elections were, after all, looming!), is a scenario which may merit further applications of reflection and analysis.²⁰ Such analysis must proceed independent of assumptions and models derived from the politics of the Malay Peninsula, ancient or modern.²¹

Diversions from an inclusive plural nation

The plural nation can be discredited by commentary or forestalled by laws. The first approach (denial that the native minority groups, in plural aggregate, are part of the contemporary nation) can nevertheless go hand-in-hand with awareness that diversity exists.

19 Once a group such as the Dusuns of Tutong accept, as they had by the 1980s, that no one can be the ruler of Brunei unless he is a Muslim (and, hence, “Sultan”), the portents are hardly good for their ultimate survival, even as a subgroup of “the Malays,” however defined.

20 Since 1984, evidently, unity is engendered more coercively, and the Sultan asserts his “Bornean” credentials simply by claiming, through official historiography, that the structure described or prescribed by MIB has lasted since time immemorial, and that the “Malay” ethnicity of the people is not (and never was) internally differentiated, let alone challenged, by any rival or alternative native identity outside it. Kedayans now find themselves tacitly cast as a role-model in convergence, instead of being classified separately in a hierarchy – with all the dysfunctional consequences which that may have had for the Brunei state when PRB/TNKU was recruiting guerilla fighters in the rural areas!

21 The “debate” to which I have referred has left a small number of landmarks, such as work by Barnard (ed. 2004); Milner (2008). Kershaw (2008) offers some first thoughts on the latter and on its antecedents. I think it is fair to say that Milner, possibly influenced by the Peninsular “experience,” places his whole emphasis on how new-Malays cling to residues of their ancestral culture and identity (cf. passages in Chapter 7), without exploring any legitimizing adjustments on the part of their prestigious Malay rulers-cum-dominant group if the latter are ultimately themselves of autochthonous ancestry, as is found in Borneo.

In the quotation in Section 2, above, where Chalfont makes it clear that State welfare is not bestowed as of right, he and his firm (Shandwick plc. of London) showed themselves to be well aware of diversity, even while also understanding the view of their Brunei elite informants that non-Muslim Bruneians cannot be considered as members of “the nation” of modern Brunei as it is now being promoted. Here we may possibly speak of “imbalance” but not “error.”

Another book which shows traces of elite sponsorship—the most substantial opus to emerge from Universiti Brunei Darussalam since its establishment—tacitly confirms and approves the same paradigm of the national identity, if only by its almost complete silence on the late Sultan’s vision of the nation-that-should-be as he struggled to wrest power from the British Residency (Hussainmiya 1995). While the PRB rally in 1960 in support of the Ibans is noted (Hussainmiya 1995: 285),²² the editorial sympathy of the local English-language press is not (cf. *Borneo Bulletin* 1960). Since editorial opinion at the *Borneo Bulletin* typically reflected British Residency/High Commission thinking at that period, it seems clear enough that the restrictions in the proposed Nationality Enactment reflected Brunei elite thinking, opposed by the British authorities as well as PRB. The late Sultan’s political biographer notes the existence of a more liberal British view in June 1959, but mocks it as a case of the ingrained British proclivity to interfere, improperly, in the “sovereign rights of Brunei” (Hussainmiya 1995: 203).²³ On the other hand, no rationale whatsoever is offered of the Brunei Government’s stand—in spite of a subtitle which evokes a nation in process of invention and arouses expectations of some effort of analysis and definition in this respect, including exclusions.²⁴

With reference, now, to legal discrimination, in other words, differential rights among non-Muslim indigenes, it is true that up until 1960 (Jones/State of Brunei n.d.) the category of “Other indigenous” included Dusuns as well as Ibans, but it is crucial to recognize that, with the demarcation of a core of “most authentic citizens” in 1961, groups such as the Dusuns were placed above the Ibans and Penans in a number of ways. Whatever pressures they may be subjected to, subtly or blatantly, to embrace Islam today, the Dusuns are indubitably citizens, contrary to a claim from a lecturer in the Department of English, Universiti Brunei Darussalam,²⁵ and they do not have to convert in order to join the Army,

22 And see note 3, above, on the legal status afforded to the Iban in the event—a victory for Malay conservatism, as we are about to see. Also commentary in note 27, below.

23 It is not made clear why the British had no right to attempt to influence the future political structure of Brunei at a moment when the 1905-06 Supplementary Agreement was still in force, and negotiations in progress, precisely, over what form of semi-independent polity the British government should surrender its authority to. Hussainmiya also omits from his documentary appendices the section on citizenship in State of Brunei 1954, which recommends that the Dayaks be recognized as indigenous Bruneians.

24 But one can readily understand why the subject of the Kedayans might be given little attention: if they were a key group in the Rebellion, this is hardly consonant with their recognition, today, as part of the Malay mainstream (Hussainmiya 1995: 39-40). For a broader discussion of Hussainmiya’s study, see Kershaw 2000.

25 “Non-Malays are constitutionally excluded from citizenship, even if they are indigenous to the territory (as in the case of the Dusun and Iban peoples)...” (Attwood and Bray 1989: 71-72). (Attwood

contrary to an opinion of Brown (1984b: 29) (let alone to join the Police). A discreet check of the identity of Royal Brunei Armed Forces sentries during Ramadan would almost certainly reveal that they are mainly unconverted Dusuns. Conversely, however, no person who is not from one of the basic seven groups of core indigenous (as, for instance, an Iban is not) may join the armed forces unless, apart from being born in Brunei (like recruits from the core indigenous), he is also

a non-indigenous Malay who professes the Muslim religion, conforms to Malay custom as practised in Brunei and is a subject of His Majesty the Sultan and Yang Di-Pertuan by virtue of any written law relating to nationality. (State of Brunei 1983, 2 [1].)²⁶

One of the best-guarded of many Brunei state secrets is the extent of military dependence on converted Ibans for filling the Other Ranks, especially today, at a time when interest in military careers has seriously slumped among indigenous male youths in general.

So the Ibans have turned out to be more vulnerable, in one way, to state-inspired cultural pressures, than groups which were admitted to automatic citizenship in 1961. This follows directly or indirectly from an Enactment which was and is perfectly clear in its allocation of differential status, as between the seven core groups and “Other indigenous”.²⁷

Another way of diverting attention, consciously or unconsciously, from the question of Iban status in Brunei is to go to the extreme of treating them as an essentially immigrant community—i.e., essentially transient, with a homeland to which they will return in due course. There is another demographic study based on the 1986 census, which evinces a greater degree of subtlety or sophistication (in fact, a greater degree of interest altogether) with regard to the “age-dependency ratio” among the Iban (Neville 1990: 33-41) than the study already cited (cf. Niew 1991: 46-53). At the heart of the “age dependency ratio” concept is the notion that if there is not only a “bulge” in the age pyramid at the young working adult level, but, moreover, a predominance of males over females at that level (with a fulfilled presumption that these males are indeed working), then the non-working children of that community are less “dependent”, i.e. are sustained by a larger work force and source of income (the ratio is said to have “declined”). Now, although Neville acknowledges the presence of a permanent core of residents, these are “reflected in the older age groups” (p. 35); and while, for women “agriculture is still a significant category of activity (which is often closely linked with their normal domestic routine)” (p. 40), this is not invoked as evidence of a settled population in rural areas. On the contrary, the presence of many females and a flourishing family life are seen as exceptional, historically, for “the more male-dominated migrant communities...in Southeast Asian countries” (p. 34)—and the rest

was the lecturer particularly responsible for this reference.)

26 This wording is unchanged from the original Enactment: see State of Brunei 1961a, 6 (1) (b).

27 It is true that the Ibans are listed in the First Schedule of the Nationality Enactment as “groups which are considered to be indigenous to Brunei,” but the same sentence continues: “within the meaning of this Enactment.” The whole point of the First Schedule, in conjunction with Articles 4 (1) (b) and (c) (ii), is that this type of “indigenous” has entitlements inferior to the seven core groups. Hence the appearance of the Ibans as “Other indigenous” in census statistics.

of the paragraph (pp. 34-35) in combination with Tables 5 and 6 can clearly be seen to be referring to the general Iban community, not merely to an immigrant component abstracted from the general community. Yet in reality the Iban population in 1986 comprised a settled (citizen and permanent resident) component of just over 50% of the total, at 5,807 as against 5,679 transients (Negara Brunei Darussalam 1989: 45). Only if one works mainly from, say, the table of "Working Population by Sex, Community and Major Occupation 1986" (Negara Brunei Darussalam 1989: 67) might one assimilate the non-migrants to the migrants, because the "Other indigenous" are classified together by race with no further subdivision by residential status.

The purpose of our exposition on this point, therefore, is to suggest that an "age dependency ratio" has no meaning where immigrant income is not contributed to the 50% of the community who are in fact settled, but is repatriated (if not spent in Brunei within the "bachelor establishments" of shanty towns). The predominance of immigrant males is surely economically significant within Brunei, if at all, only among the immigrant (and mainly urban-dwelling) component of the Ibans. The age structure and employment situation in the longhouses of Batang Duri (Temburong), Supon (Tutong), and Labi, Sukang, and Melilas (Belait) would be more germane to an understanding of "the condition of the Ibans of Brunei." This is, of course, the reflection of a non-demographer, working with his own premises and interests. Demographers will have to say whether the point raised has validity for their discipline.²⁸

"Yellow peril"?

If the fear of being swamped by the primaevial Bornean hordes has entered, as it were, the cultural genes of elite Bruneians, the format of Brunei Citizenship law betrayed even more the influence of Peninsular Malay fears of being swamped by the immigrant Chinese (though certainly the divided ethnicity and thus worrying "disunity" of the Bruneian indigenous supplied a sufficient local rationale). Paradoxically, as, by 1959, with the rise of multi-racial democracy, Malayan citizenship law had become much more liberal towards the Chinese than in 1948, Malaya and its successor Malaysia were set to become an anti-model for Brunei ideologues in this regard. Incidentally, this constitutes another reason why close identification with the "Malay family" outside Brunei's borders has not been an appealing proposition. The vaunted *ketuanan Melayu* of the Peninsular Malays often sounds like empty rhetoric. Being a good *orang Melayu Brunei* entails a strictly non-Malaysian view of political rights, both of the race vis-à-vis immigrant peoples and of Malay subjects vis-à-vis their traditional rulers.

Turning therefore to this immigrant or immigrant-descended minority of Brunei, even less privileged than the Iban: the most extraordinary "revelation" in post-Independence

28 But a further point, whose validity will not be denied, is that the condition of the Ibans can only be fully assessed when account is taken of the fact that the settled population of "Other indigenous" is itself divided between citizens and Permanent Residents. The figures are, respectively, 2,753 and 3,054 (Negara Brunei Darussalam 1989: 45). Thus, well over half of the settled Iban population could face obstacles to obtaining a livelihood outside the village on account of the employment and travel restrictions which they face.

reporting, regarding Chinese status, was that although Chinese applicants were encountering extreme difficulty in obtaining Brunei citizenship after 1984,²⁹ the problem was mitigated for the stateless Chinese (i.e. the group corresponding to the Permanent Residents),³⁰ by their enjoyment of British citizenship status, whereby they could fall back on British Passports for purposes of travel, though without right of abode in the United Kingdom (E.I.U. 1992: 45, and 1996: 64).

Ignoring, for a moment, some problematic figures cited by the E.I.U. on two occasions (diverging not only from the official statistics but among themselves), one can only speculate as to why and by whom the disinformation on citizenship status was put into circulation, and how it was possible after the perfectly open and objective declarations by both the British and Brunei Governments on the eve of Independence,³¹ which clarified a situation in which (a) the stateless Chinese had no claim whatsoever on British citizenship, not being born in a British colony; (b) even if—as was no doubt true in a few cases – they had been born in the then colonies of Sarawak and North Borneo, all such persons had been transferred, in principle, to Malaysian citizenship on Malaysia Day, 1963; and (c) the Brunei Government had no intention of liberalizing its Nationality Enactment to effect a similar, wholesale transfer of any remaining British citizens on its soil, or to admit British-protected persons to Brunei citizenship by some transitional formula of registration. Thus, the many Chinese holding British Protected Passports in combination with a Permanent Resident's pass retained their permanent residency, but henceforth would depend for travel on an International Certificate of Identity (ICI), issued by the Brunei Government. For a considerable proportion (a certain category) of these there has been the inconvenience of having to return to Brunei once a year to renew permanent residency, and many holders of ICIs meet disbelief and suspicion when applying for visas to enter foreign countries, especially when they are Brunei-born.

Meanwhile, the situation would appear to have been aggravated—according to my observation—by a new rule on acquisition of citizenship by naturalization, the only route for Chinese applicants not born in the country. Whereas the written law on nationality continues to specify a twenty-year residence record in the previous twenty-five, the Sultan delivered an intriguing, not to say sensational, speech to the Chinese community eight months after Independence, in which the requirement was stated to be twenty-five out of thirty. This was picked up and reported as an official change in

29 The position since 1961 being—it would be helpful to point out—that Chinese can only become citizens by naturalization or registration, except that the status of citizen, if once achieved by one of these routes, was heritable by the children of a male citizen, by operation of law.

30 Who at 14,016 were 35% of the total Chinese population (including foreign citizens) of 39,461 in 1981, or 63% of the 22,059 settled Chinese, as I calculate based on Negara Brunei Darussalam 1989 and Negara Brunei Darussalam n. d.

31 Cf. a debate in the House of Lords, reported in *Borneo Bulletin*, 24 February 1979; the full details of the Independence Agreement, reported from Britain in *Borneo Bulletin*, 24 March 1979; statement by the Information Director, Pehin Haji Badaruddin bin Pengarah Haji Othman, in *Borneo Bulletin*, 26 March 1983. Also, an accurate, if sparse, account is given by A Correspondent in Bandar Seri Begawan 1984: 69.

the law by at least three foreign commentators,³² yet the local English weekly, *Borneo Bulletin*, did not report any change, and the government newspaper *Pelita Brunei*, while certainly addressing the question of Chinese rights, apparently did so in order to insist that no change was being planned.³³ Nor was there ever any gazetted amendment to the law in the following years. However, even if this was originally an error by the Sultan's speech-writer, there is no doubt that National Registration officials would have taken note (if they saw the reference in the Brunei press) and might well have begun to apply, or stood ready to apply, this "new rule" because it had the apparent status of a royal pronouncement (*titah*), overriding gazetted legislation. It would be a supreme irony if they had not picked up the reference in the local press, yet saw it in a misled foreign journal and from such a source became aware of "a change in the law" that needed to be acted upon! They could even have been put on guard to a paranoia-provoking distortion of the numbers of Chinese in Brunei (by understatement) in their own government's published statistics—compared to a shocking "60,000 by unofficial estimate" (Mulliner 1985: 218).

The earliest appearance of this figure that I have noticed is in the *Far Eastern Economic Asian Survey*, and found an even higher level of 66,000 at the Economist Intelligence Unit seven years later (E.I.U. 1992: 45), but fell back again, for the same agency another four years on, to around 40,000—i.e. in line with the government's count (E.I.U. 1996: 64, 77).³⁴ Of the sources cited in this paragraph, only the *Asian Survey* article spells out that the official figures must be regarded as mendacious (Mulliner 1985: 218). The Economist Intelligence Unit remains most notable for attributing British citizenship to 60,000 of its discovered Chinese in 1992, while maintaining the more modest, yet still extraordinary, claim of 10,000 in 1996.³⁵

32 Starting with A Correspondent in Bandar Seri Begawan 1984, who is quoted by Mulliner 1985: 218, and apparently echoed, at an unknown number of removes, by E.I.U. 1992: 45; 1996: 64.

33 Two issues of the government newspaper were involved: *Pelita Brunei* 1984a, 1984b. The second of these sources—the Editorial—very specifically refers to a time requirement laid down by the Nationality Enactment, with no hint of any amendment. It does also stress that the Enactment has its own "essence and philosophy" against which Chinese applicants should measure themselves, but the meaning appears to be that this is the background to the existing time requirement, not that the requirement had been found to be in need of tightening because of a stricter definition of cultural compatibility. It could also be noted that at the Chinese Chamber of Commerce Sultan's Birthday Banquet the previous year, the Sultan had given an understanding that the conditions would not change: see *Pelita Brunei* 1983, and commentary on it in Kershaw 1984: 77.

34 The most precise figure available is the 41,401 given for 1986 in Negara Brunei Darussalam 1989: 41. As before, we will note that this figure includes the many Chinese expatriates (from Singapore, Malaysia, Hongkong, etc.) working in Brunei.

35 A more legitimate sensation to write about—because true, though affecting very few—would have been the "totally stateless": those who did not even have permanent residency, and were thus, in effect, fugitives from the law as non-holders of any identity card. As for the stipulation "twenty-five years out of the last thirty," in search of even a very slight gleam of truth in this regard, one might consult the report of a confidant of the late Sultan that in the Anglo-Brunei constitutional negotiations of March 1959 it was initially agreed that aliens should be admitted as citizens if resident for the past

While perhaps one should not expect the highest academic standards from commercial organizations based abroad, whose customers are similarly unmotivated in that direction, cases of distortion by foreign staff employed for a number of years by UBD seem much more surprising. In an elegantly crafted study of the history of the Chinese in Brunei, Tan Peck Leng of the Department of History discerned the origins of citizenship in the Immigration Enactment which came into force on 1 January 1958 (Tan 1992: 128).³⁶ This is a very valuable insight. Right of permanent residence was granted to Chinese on the basis of a seven-year residence record in the previous ten. This was not, however, turned into an offer of citizenship at that time, she correctly avers. Nor were hopes much better satisfied at the time of Independence in 1984, she continues, when the qualifications for citizenship were “maintained” at the level of a language test, with a ten-year residence record in the previous fifteen for locally-born Chinese, and a twenty-year record out of twenty-five for non-locally born. Nevertheless, apart from the slight divergence of the residence requirement for Registration, as here stated, from the published Nationality Enactment,³⁷ a query has to be raised as to why the Brunei Government is said to have “maintained” a rule for which no concrete starting point is specified. It seems bizarre, and difficult to credit, but the study contains no reference to the Nationality Enactment which first bestowed citizenship on the Chinese, however sparingly.

At the same time, another UBD source, based in the Department of English (Dunseath 1996: 283), quotes Tan approvingly and equally sees no reason to mention the Nationality Enactment: indeed he fills the gap in Tan by stating that the Immigration Enactment itself bestowed citizenship! Comparable echoes of error are heard from elsewhere in UBD (Gunn 1997: 7-8).

Chinese language

Obliquely relevant to Chinese status is, of course, also the question of the autonomy and integrity of their language. This is not the only aspect of Brunei’s life and times to have “attracted little interest outside the country,” but a start has been made by the British lecturer just cited, who used a questionnaire to elicit information about language use in Chinese families. He recognizes the potential impact of political and educational factors, among several others, in weakening language maintenance even for a community segregated from the Brunei Malays by a complex of cultural attributes and a non-cognate language. But although the survey begins with a word about the establishment of a national education policy based on the twin language media of English and Malay at the time of Independence (Dunseath 1996: 280), we are very clearly given to understand that the Chinese schools, being privately owned and run, are not subject to government regulations in this respect: the further spread of Mandarin as a *lingua franca*

twenty-five years or for twenty-five years in a preceding period of not above thirty (Mohd Jamil 1992: 79).

³⁶ As she was using *Borneo Bulletin* as her source, the author gives as the date of promulgation what was in fact the date of coming into force of legislation enacted late in 1956 (see State of Brunei 1956).

³⁷ It should be twelve out of fifteen years.

of the Chinese seems plausible, in the writer's judgment, not only because of its growing importance in the Chinese diaspora, but because of its central role in Chinese schools. And the role in question is none other than that of medium of instruction (Dunseath 1996: 286, 295, 299).

As with the case of the imaginary population statistics at *The Economist*, one can only speculate as to the reasons for such a distorted picture being projected. Even were an expatriate's job security in the Bruneian education system a point of anxiety (banish the thought!), there should be no squeamishness about mentioning the "mastery" of Chinese private education by the Minister of Education at the turn of the decade, for it was a political coup of which, by the Minister's own lights and from a Brunei nationalist perspective, he had every reason to be proud. At any rate, the interests of accuracy in future historical research may be sufficiently served if we sketch the following outline of events and their interconnections, spanning the mid-1980s to early 1990s (based, in the first stages, on the reporting of Chinese school managers and headmasters in personal communications): (a) an apparent, "modernizing faction" in the management of the flagship foundation, Chung Hwa Middle School, introduced a system of twin streams—an English stream alongside the traditional Mandarin stream—and in due course strongly promoted the new one; (b) protagonists of Mandarin in other Chinese schools, or certain friends of theirs in Sarawak, launched an attack on the "betrayal of Chinese education" in the Chinese press of Sarawak; (c) armed with such clear proof of "foreign interference" and a "security risk," the Minister moved swiftly to appoint, under his ill-defined powers, Malay headmasters from the government system, starting with Chung Hwa Middle School; (d) the imposition of the government's bilingual (i.e. Malay/English) system, step by step, starting from Primary I, followed within a couple of years; (e) the fact that a similar policy was being imposed on the English-medium mission schools at the time, along with Malay headmasters seconded from the government system, did facilitate the "assimilation" of the Chinese schools to government directives, but the internal politics of Chinese school management undoubtedly provided the proximate cause, and explains the remarkable speed of events.³⁸ Whatever the precise balance of causes, it could scarcely be doubted that there were consequences in store for the future use of Mandarin in Brunei—and that that "way ahead" would not be quite as adumbrated in the UBD-based survey.³⁹

38 However, I believe that the fact that the chief champion of the English-medium for Chinese students enjoyed well-established credibility as a spokesman for the Chinese community generally, and at the same time (both as cause and effect) was in a confidential relationship of mutual benefit with the Minister, gave the Minister access to reliable and reassuring intelligence as to the limits of tolerance on the Chinese side.

39 The above criticism has been made rather emphatically because the objection that the researcher was ignoring the impact of the newly enforced policy was raised by a well-informed temporary resident of Brunei at the conference in Kota Kinabalu, 1992, at which the original draft of his paper was presented. Although future historians will find no reference to the early stages of this drama of Chinese education in any of the Brunei press, it could not be unknown to a research specialist on Chinese language at the time.

Becoming Malay, as prescriptive norm

Another British scholar who has felt moved to take his distance, in a mild way, from the pioneering work of Donald Brown, is Victor T. King, writing in 1994 at the University of Hull. However, at once it must be stressed that whereas I disagree with Brown's perception of discontinuity of Dusun offices in local families, King states with an unequivocal approval that Brown "demonstrates that, although the position of *mentri darat* appears to be an office, like all others, it is, in fact, a 'commission': the appointment is usually for life and specifically created for an individual" (King 1994: 183); "it was not in Brunei's interest to establish a stable and secure rural leadership" (King 1994: 193). The affirmation of the credibility of Brown's position on this matter seems just a little curious, given that one salient purpose of the paper is apparently to say that Brown did not pay sufficient attention to the position of the non-Muslim indigenes within the system of Brunei-bestowed ranks, and thus finished up with a far too narrow conception of Brunei society. What Brown should have realized, according to King (1994: 185), is that in receiving offices and ranks from the dominant Bruneis, the non-Muslim indigenes were to all intents and purposes members by incorporation of "Brunei society," not simply subjects of a "Brunei empire."

One would like to ignore this as a mere semantic quibble, but, in fairness, three points could be made: (a) Brown is talking about local office holders who were mainly not Muslim, and by their language and ancestral custom in no way identifiable as Bruneis; (b) Brown does not deny, indeed he emphasizes, that these local title holders were beholden to the Sultan for their local positions and thus in effect part of a system of Bruneian political hierarchy, though not of Brunei society in the ethnic-Brunei sense; (c) King's theory of a "multi-ethnic Brunei society" thus depends most of all on Brown's work itself, alongside a few others', though with some judicious rephrasing of the concepts, including the extension of the scope of "Brunei," not only to outside Kampong Ayer but out beyond the present limited borders of Brunei Darussalam to embrace large areas that were historically within the Brunei imperium.

A more fundamental purpose, or, at any rate, outcome, of King's "fresh look" at Brown's material seems to be that of demonstrating historical continuity in terms of, first, the rise of a Brunei form of Malay culture, upon the establishment of a Sultanate by native Borneans on Brunei River (King 1994: 185); then, its inexorable expansion by assimilation of more natives to the original core (King 1994: 178, 185) to the point where whole ethnic groups and languages disappeared and are disappearing (King 1994: 187-195)—this historical process having been inaugurated in earlier times by the mechanism of selected local leaders often becoming Muslim (King 1994: 185, 190, 191), but being now speeded up under a concerted thrust for assimilation by the "Malay Muslim Monarchy" of independent Brunei Darussalam (King 1994: 178-179). The difficulties which I have with this historical aggregation are (a) that if local leaders were encouraged to convert to Islam they would by definition have lost their cultural identity and leadership role in the framework of tribal custom, which is scarcely consistent with the aim of the Sultanate to control the tribe through such local appointees; (b) in instances where the whole of a tribe eventually assimilates and becomes Malay (a phenomenon of which King finds several examples in the old Brunei imperium, notably, but not only, the Melanau), the theory

that these tribes are part of “Brunei society” on terms of retaining their distinct cultural identity becomes redundant, for a qualitatively different phenomenon has intervened, in the form of such assimilated groups becoming self-identifying members of “Brunei-Malay society” if not quite “Brunei society” in the Kampong Ayer-focused sense; (c) we meet no suggestions as to how soon and by which modalities the conversion of key leaders was followed by mass conversions—in some cases but not all; and (d), although modern “nation building” could in a sense be said to be aiming for the same result, the methods and pace are quite revolutionary, and cannot properly be called a continuation or extension of an historical tendency. The equivalent in Marxist terms is the shift from historical dialectic to Leninism.⁴⁰

That King possibly does not see a significant difference between the pluralistic “Brunei society” of his initial argument and a totally Malay society (whether produced by slow “historical process” or modern state intervention) is a thought that is rather prompted by his citation of a study of ideology, where this refers to non-Muslim Bruneians as a target for total assimilation (Braighlinn 1992: 19). Although quoting the 44-word passage word for word, King (1994: 186) at first invokes it as supporting the Brown/King “inclusive” conception (the plural but stratified one) of Brunei society. I am in a position to say that no such thing was in the mind of the author. Moreover, a dispassionate reading will surely confirm that the author’s reference to “convergence,” past, present or future, was not intended as a reference to a permissive pluralism.⁴¹

Be this as it may, King does not seem to be so much in thrall to his Brown-derived, if slightly Brown-corrective, conception that he cannot indeed equate, or seamlessly elide, it with something that is surely quite distinct. It would be discourteous to suggest a failure of logical discrimination. Yet this would be less offensive than to ponder whether an agenda of the Brunei state has intruded into an exercise in anthropological theory-making, inasmuch as the elision in question serves the urgent imperative of the state to legitimate its nation-building by maintaining that Brunei history has always pointed precisely towards a “national destiny” of total assimilation, on the threshold of full realization by 1984, whereas the structure which King derived from Brown did not evince the built-in historicist dynamic which he seems to believe in simultaneously.⁴²

40 That Malay culture has been able to exert some kind of magnetism over “pagan” groups, historically, at least within the scope of the prestige or political power of Sultanates, seems to be confirmed for west Borneo by Collins (2001). Evidently, if it could be shown that a factor in this was the establishment of missionary programs by historical Sultanates, then modern Brunei Darsusalam would not be as severely out of step with the past as I have just suggested.

41 Where I say that King “at first invokes it as supporting...,” I am taking his words “is reinforced” in the sense of “intellectually confirmed.” But if he also means “sociologically promoted,” the understanding that Braighlinn means the same as the Brown/King formulation is still in evidence where this is then described as the “more permissive mode” of the MIB ideology.

42 However, to say that King espouses a vision of historical inevitability might not be quite correct either, for it appears that in order for history to “complete its course” the ideology is equipped with a “more intolerant mode,” which “does translate into active strategies to incorporate the non-Malay ‘sub-groups’ into the dominant society and culture” (King 1994: 186). I also think

Ethnic rights and academic integrity

As I have suggested elsewhere,⁴³ the question of minority rights in Brunei is linked in less obvious ways to the general decline of democratic institutions since the 1960s—or as ideologues of MIB would have it, the restoration of authentic Brunei political forms after the British-imposed aberration of a Legislative Council. Where there is no “popular political process,” not only is there unlikely to be an ethnic political party to represent the citizen members of a particular group or groups: minority interests can never even be articulated through a class or ideologically-based party responsive to a district (but possibly ethnic) constituency. In a system of representative democracy it is difficult to imagine Iban longhouses converting *en masse* in return for an electricity generator, supplied by the government through the Ministry of Religious Affairs, as was happening in Brunei in the early 1990s. The generator would be promised by politicians in return for the longhouse vote!

Certainly the abolition of the Legislative Council in 1984 had future significance far beyond the boundaries of ethnic minorities. Most patently, it pre-empted the open articulation and integration of class interest in a society where economic inequality was more salient, and more clearly correlated with differential political power, than ethnic diversity would ever be. But with regard to the persistence of ethnic stratification or the progressive erosion of diversity, the abolition of the legislature cast a light of historical irony on the divisive Nationality Enactment, whose original intention was not to divide, as such, let alone erode, but to lay one of the foundation stones of democracy by defining a reasonably inclusive electorate—an electorate which would no doubt have utilized the potential for ethnic self-expression and self-defense among its constituent parts, despite the partial disenfranchisement of a couple of them. But when leading annual academic surveys leave even the historic abolition of a national legislature unmentioned, a fundamental aspect of the affairs of a “small and far-away country,” with wide ramifications, is obscured and the reputation of the media concerned sadly tarnished, even before they compromise themselves with small-scale, though cumulative and usually regime-serving, error in any other respect.⁴⁴

I detect an inference at one point that a historic symbiosis between the groups in the hierarchy has some life in it yet, and in some mysterious way is necessary and functional, not least to the dominant group; in other words, the assimilationist ideology could be at variance with historical dynamics! (King 1994: 185)

43 In the last two paragraphs of Kershaw 1998a: 102.

44 Neither Mulliner 1985 nor Siddique 1985 has any reference to the demise of the Legislature. The legislation abolishing (or, as it stated, “suspending”) it is Negara Brunei Darussalam 1984. This was not, of course, given any publicity in the government press, but *Borneo Bulletin*, 10 March 1984, slipped a condensed note, headed “Legco dissolved,” onto its back page—not without incurring a sharp “rap on the knuckles” from the Information Department, as one heard. It must be noted—and admitted—that the Legco here dissolved was not an elective body, but had been appointive since the abolition of elections under State of Brunei 1970. (An earlier, more short-lived abolition had occurred under State of Brunei 1963.) Also to be noted—and regretted—is the fact that Kershaw 1984 has no reference to what turned out to be the very last gathering of the Legislative Council for two decades, to pass the Budget for 1984, at the end of December 1983

And the most pregnant errors may be those which assist, if only by obscuring or denying, a species of “ethnic cleansing” that is being carried out under the aegis of revivalist Islam far more than a dated Malay nationalism. Possibly Islam possesses the ideological asset that it does not in principle recommend the existence of nations; the Malay people are tolerable, being Muslim, but Dusuns are certainly not; and their extinction is more comfortably justified as “God’s will” than as the ambition of a large ethnic group or nation which happens to be allied to absolute political power. Any academic friends of Malay nationalism may care to ponder whether it betrays its fundamental values by treating vulnerable minorities in its midst with the same cynical disregard as was once shown for Malay development, allegedly, by the European colonialists and the Chinese around the region. Why are Brunei Malays entitled to resist their historic submergence, whereas Brunei Dusuns must serve the aims of Malay resistance by swelling its ranks, at the cost of their own separate survival? Of course there is no imperative for every analyst to adopt a moral stand in such a connection, but one can at least plead for accuracy, and a rounded exposure, regarding a situation of accelerated change at the interface between Malay and ancient Bornean civilization—a perennially moving frontier which has both a well-documented historical existence and is now a conscious subject of social engineering by the Brunei state and its ideological apparatus.⁴⁵

In my perception two other prominent ethical issues emerge among the examples discussed in this paper. Annual surveys based overseas, within academic institutions or the offices of prestigious news magazines, have no right to trade on their reputations for reliability, in commissioning writers who lack the motivation or expertise to both collect and soundly interpret a range of data on a country in the year

(an omission due to editorial pressure to submit copy before the end of that year). (A photograph of the last Council, assembled on 21 December 1983, may be seen on the front page of *Pelita Brunei*, 28 December 1983.) On characterizations of popular legislatures as an alien import and imposition (an ominous portent for the fate of Legco, it may seem now), see Kershaw 1984: 76. Eventually, in 2004, the Legco was reinstated, but at the time of this writing (early 2010) remains a nominated body.

45 Further to a comment in note 21, above, on Milner (2008), Chapter 7, relating to assimilation in Borneo, it may seem a little anachronistic to call for this kind of recognition from a debate which only took off in the late 1990s, whereas the present study deals with realities and their reporting a decade earlier, or two decades before Milner’s new publication. Still, the latter is more than anything else a historical study, whose author did not lack time for information gathering, reading of academic secondary sources, and analytical reflection on the “flagship” Sultanate with its pretensions to reinvent Malay nationalism. Not the least of the available fruitful sources on Brunei elite and state goals for the future of the native minorities are publications by a Bruneian sociologist (notably Hashim 1984, 2003). Latterly equipped with a Ph.D. from the University of Malaya (on which Hashim 2003 is based) and a post as *Prof. Madya* (Reader, in British terms) at UBD, this writer says of the Dusuns: “As for the Dusun ethnic group, the majority live in the interior of Tutong District. This group are still pagans, but practise Malay culture. A small number of them have embraced Islam. In their daily social mixing they use the Dusun language or dialect. The total numbers of this group are estimated at around 8,000” (Hashim 2003: 28. Transl. R.K.). The deficiency of the non-Muslim Dusuns in terms of the national identity being spelt out by MIB had been argued—in a spirit of admonition to the Dusuns themselves—by Hashim 1984: 10.

in question. Such shortcomings will often be connected with sheer absence from the country, yet the disability of residence abroad can be overcome to some degree, even to surprising degrees, by dedicated application to the task. Conversely, it has been found that residence in Brunei, even employment at the local university, is no guarantee of veracity. The second ethical issue arising is therefore whether university appointees are entitled to trade on the reputation of the academic profession for diligent pursuit of truth, when they were either not motivated towards their new subject (or even equipped to practice it competently); or were intimidated by the fear that the truth might be politically uncongenial to their very own employer, an absolute monarchy with an absolutist agenda for building a monolithic nation. Which of these factors were in play in the examples studied (or other factors entirely) can only be a subject for speculation, unless and until the writers reviewed deliver their own individual confirmations or refutations.⁴⁶

References

Abdul Aziz bin Umar

- 1992 Melayu Islam Beraja sebagai falsafah Negara Brunei Darussalam, In: Abu Bakar, ed. 1992, pp 1-21.

Abu Bakar bin Hamzah

- 1989 Brunei Darussalam: Continuity and tradition, *Southeast Asian Affairs* 1989: 91-104.

Abu Bakar bin Apong, ed.

- 1992 *Sumbangsih UBD. Esei-esei Mengenai Negara Brunei Darussalam. Essays on Brunei Darussalam.* Akademi Pengajian Brunei, Universiti Brunei Darussalam.

A Correspondent in Bandar Seri Begawan

- 1984 Bring on the reserves, *Far Eastern Economic Review*, 4 October: 68-69.

Appell, G.N.

- 1991 Errors in Borneo ethnography: Part I, *Borneo Research Bulletin* 23: 85-98.
1992 Errors in Borneo ethnography: Part II, *Borneo Research Bulletin* 24: 79-85.

Appell, G.N., ed.

- 1976 *Studies in Borneo Societies. Social Process and Anthropological Explanation.* De Kalb: Northern Illinois University Center for Southeast Asian Studies (Special Report 12).

Attwood, James and Mark Bray

- 1989 Wealthy but small and young: Brunei Darussalam and its education system, *Education Research and Perspectives* 16, 1: 70-82.

46 I have previously written of an apparent capacity of UBD to mold the minds of expatriates, or at least censor their public thoughts, in Kershaw 2000a, 2003 (the latter is the original English text of the former).

Avé, Jan B. and Victor T. King

- 1986 *Borneo: The People of the Weeping Forest. Tradition and Change in Borneo.* Leiden: Museum of Ethnography.

Barnard, Timothy P., ed.

- 2004 *Contesting Malayness. Malay Identity across Boundaries.* Singapore: Singapore University Press.

Borneo Bulletin

- 1960 Worthy of support (Editorial), *Borneo Bulletin*, 5 November.

Braighlinn, G. [pseud.]

- 1992 *Ideological Innovation under Monarchy. Aspects of Legitimation Activity in Contemporary Brunei.* Amsterdam, V.U. University Press (Centre for Asian Studies Amsterdam, CASA Comparative Asian Studies 9).

Brown, Donald E.

- 1973 Hereditary rank and ethnic history: an analysis of Brunei historiography, *Journal of Anthropological Research* 29 (2): 113-122.
- 1976 Social structure, history and historiography in Brunei and beyond, In: Appell, ed. 1976: 44-50.
- 1984a Brunei on the morrow of Independence, *Asian Survey* 24(2): 201-204.
- 1984b Patterns in Brunei history and culture, *Borneo Research Bulletin* 16 (1): 28-33.
- 1984c Brunei through the *Sha'er* and the *silsilah*, *Solidarity* No. 99: 10-15.
- 1995 Mechanisms for the maintenance of traditional elites in Brunei, to the eve of Independence, In: King and Horton, eds. 1995: 408-419.

Burton, Bruce

- 1990 Brunei Darussalam in 1989; coming of age within ASEAN, *Asian Survey* 30 (2): 196-200.

Chalfont, Alun

- 1989 *By God's Will. A Portrait of the Sultan of Brunei.* London: Weidenfeld and Nicholson.

Cleary, Mark and Peter Eaton

- 1992 *Borneo. Change and Development.* Oxford: OUP.

Collins, James T.

- 2001 Contesting Straits-Malayness: The fact of Borneo, *Journal of Southeast Asian Studies* 32 (3): 385-395.

Doshi, Tilak

- 1991 Brunei: The steady state, *Southeast Asian Affairs* 1991: 71-80.

Dunseath, Kevin

- 1996 Aspects of language maintenance and language shift among the Chinese community in Brunei: some preliminary observations, In: Martin, Ozog and Poedjosoedarmo, eds. 1996: 280-301.

Economist Intelligence Unit [E.I.U.]

1992 *EIU Country Profile 1991-92: Malaysia, Brunei*. London, EIU.

1996 *EIU Country Profile 1995-96: Malaysia, Brunei*. London, EIU.

Gunn, Geoffrey C.

1997 *Language, Power and Ideology in Brunei Darussalam*. Athens, Ohio: University Center for International Studies (Monographs in International Studies, Southeast Asia Series 99).

Hashim bin Abdul Hamid

1984 Tinjauan singkat mengenai identiti orang Brunei, *Beriga*, No. 2: 6-10.

1992 Konsep Melayu Islam Beraja: Antara ideologi dan pembinaan bangsa, In: Abu Bakar, ed. 1992, pp 22-31.

2003 *Islam di Brunei Darussalam: Satu Analisis Sosio-Budaya*. Brunei: Universiti Brunei Darussalam.

Horton, A.V.M.

1996 *Turun Temurun. A Dissection of Negara Brunei Darussalam*. Bordesley, Worcs., pub. by the author.

Hussainmiya, B.A.

1995 *Sultan Omar Ali Saifuddin III and Britain. The Making of Brunei Darussalam*. Kuala Lumpur: OUP.

Jones, L.W./State of Brunei

n.d. *Report on the Census of Population taken on 10th August 1960*. Brunei Town, State Secretariat.

Kershaw, Eva Maria and Roger Kershaw, eds.

Forthcoming *Writing an Identity. Content and conceptions of a Brunei-Dusun "Constitution" of 1981*. Phillips, Me., Borneo Research Council.

Kershaw, Roger

1984 Illuminating the path to Independence: political themes in *Pelita Brunei* in 1983, *Southeast Asian Affairs* 1984: 67-85.

1998a Marginality then and now: Shifting patterns of minority status in Brunei Darussalam, *Internationales Asienforum* 29, 1-2: 83-106.

1998b Constraints of history. The eliciting of modern Brunei, Review Article, *Asian Affairs* 29 (3): 312-317.

2000a *Academic correctness in der Monarchie: Die Universität Brunei Darussalam und ihre Forschung*, *Periplus. Jahrbuch für außereuropäische Geschichte* 10: 126-153.

2000b Challenges of historiography: interpreting the decolonisation of Brunei, Review Article, *Asian Affairs* 31 (3): 314-323.

2003 Academic correctness under monarchy: Universiti Brunei Darussalam and its research, *Borneo Research Bulletin* 34: 129-50.

2008 Contesting convention in Malay-world historiography, Review Article, *Borneo Research Bulletin* 39: 269-273.

- King, Victor T.
1993 *The Peoples of Borneo*. Oxford: Blackwell.
1994 What is Brunei society? Reflections on a conceptual and ethnographic issue, *Southeast Asia Research* 2 (2): 176-198.
- King, Victor T. and A.V.M. Horton, eds.
1995 *From Buckfast to Borneo. Essays presented to Father Robert Nicholl on the 85th Anniversary of his birth, 27 March 1995*. Hull, University of Hull Centre for South-East Asian Studies.
- Mani, A.
1993 Negara Brunei Darussalam in 1992: Celebrating the Silver Jubilee, *Southeast Asian Affairs* 1993: 95-109.
- Martin, Peter W.
1995 Some views on the language ecology of Brunei Darussalam, In: King and Horton, eds. 1995: 236-251.
- Martin, Peter W., Conrad Ozog, and Gloria Poedjosoedarmo, eds.
1996 *Language Use and Language Change in Brunei Darussalam*. Athens: Ohio University Center for International Studies (Monographs in International Studies, Southeast Asia Series 100).
- Milner, Anthony
2008 *The Malays*. Chichester: Wiley-Blackwell.
- Mohd. Jamil al-Sufri bin Umar
1992 *Liku-Liku Perjuangan Pencapaian Kemerdekaan Negara Brunei Darussalam*. Bandar Seri Begawan: Jabatan Pusat Sejarah.
- Mulliner, K.
1985 Brunei in 1984. Business as usual after the gala, *Asian Survey* 25 (2): 214-219.
- Negara Brunei Darussalam
n.d. *Summary Tables of the Brunei Population Census 1981*. Bandar Seri Begawan: Economic Planning Unit.
1984 *The Constitution of Brunei Darussalam – The Emergency (Constitution) (Amendment and Suspension) Order, 1984*, S.8 of 1984.
1989 *Brunei Darussalam Population Survey 1986. Demographic Report*. Bandar Seri Begawan: Statistics Division of the Economic Planning Unit.
- Népote, Jacques
1985 Brunei, *Archipel* 29: 75-80.
- Neville, Warwick
1990 The population composition of Brunei, *Singapore Journal of Tropical Geography* 2, 1: 27-42.
- Nicholl, Robert
1980 Notes on some controversial issues in Brunei history, *Archipel* 19: 25-42.

Niew Shong Tong

- 1991 *Demographic Trends in Negara Brunei Darussalam*. Brunei: Universiti Brunei Darussalam Educational Technology Centre.

Pelita Brunei

- 1983 Taraf Kerakyatan: undang-undang yang ada tidak berubah (Editorial), *Pelita Brunei*, 7 September.
- 1984a Masyarakat Tiong Hwa diseru: Sesuaikan diri dgn aspirasi Negara, *Pelita Brunei*, 5 September.
- 1984b Penghargaan serta harapan kepada masyarakat Tiong Hwa (Editorial), *Pelita Brunei*, 12 September.

Reid, Anthony

- 2001 Understanding *Melayu* (Malay) as a source of diverse modern identities, *Journal of Southeast Asian Studies* 32(3): 295-313.

Saunders, Graham

- 1994 *A History of Brunei*. Kuala Lumpur: OUP. (Repr. 2002. London: Routledge-Curzon).

Shamsul A.B.

- 2001 A history of an identity, an identity of a history: the idea and practice of Malayness in Malaysia reconsidered, *Journal of Southeast Asian Studies* 32 (3): 355-366.

Siddique, Sharon

- 1985 Negara Brunei Darussalam: A new nation but an ancient country, *Southeast Asian Affairs* 1985: 99-108.
- 1986 Brunei Darussalam in 1985: A year of nation-building, *Southeast Asian Affairs*: 45-51.
- 1992 Brunei Darussalam 1991: The non-secular state, *Southeast Asian Affairs* 1992: 91-100.

Singh, D.S.Ranjit

- 1986 Brunei in 1985. Domestic factors, political and economic externalities, *Asian Survey* 26 (2): 168-173.

Singh, D.S.Ranjit and Jatswan S. Sidhu

- 1997 *Historical Dictionary of Brunei Darussalam*. Lanham, Md. & London: The Scarecrow Press, Inc.

State of Brunei

- 1956 *An Enactment to Regulate Immigration into the State*, E.23 of 1956.
- 1959 *The Constitution of the State of Brunei*, S.97 of 1959.
- 1961a *The Brunei Malay Regiment Enactment*, 1961, E.1 of 1961.
- 1961b *The Brunei Nationality Enactment*, 1961, E.4 of 1961.
- 1963 *The Constitution (Amendment) Proclamation*, 1963, E.2 of 1963.
- 1970 *The Emergency (Council of Ministers and Legislative Council) Order*, 1970, S.59 of 1970.

- 1983 *The Constitution of the State of Brunei, 1959 – The Emergency (Royal Brunei Armed Forces) Order, 1983*, S.35 of 1983.

Tan Peck Leng

- 1992 A history of Chinese settlement in Brunei, In: Tan & others, 1992: 100-136.

Tan Peck Leng & others

- 1992 *Essays on Brunei History*. Bandar Seri Begawan: Universiti Brunei Darussalam Department of History.

Thambipillai, Pushpa and Hamzah bin Sulaiman

- 1995 Brunei Darussalam: after a decade of Independence, *Southeast Asian Affairs 1995*: 111-123.

Zainal bin Kling

- 1990 The changing international image of Brunei, *Southeast Asian Affairs 1990*: 89-100.

TENTH BIENNIAL MEETINGS

BORNEO RESEARCH COUNCIL 10TH BIENNIAL INTERNATIONAL CONFERENCE (BRC 2010) AT CURTIN UNIVERSITY SARAWAK MALAYSIA, MIRI

Overall, the conference was a success. The conference ran from 5 through 7 July 2010 and attracted around 92 participants/paper presenters in total for the 3 days. Attendance was somewhat less than at recent BRC conferences. It is believed the earlier date of the conference made a difference. International paper presenters and participants came from as far away as Russia, Australia, New Zealand, USA, United Kingdom, Japan, Hong Kong, and Indonesia, as well as from Brunei and throughout Malaysia. Local participants included civil servants and members of NGOs and the general public.

The Opening Ceremony was officiated by Deputy Chief Minister (I), YB Datuk Patinggi Tan Sri Dr. George Chan Hong Nam, Minister of Industrial Development and Minister of Tourism and Heritage, Sarawak (representing YAB Pehin Sri Haji Abdul Taib bin Mahmud, Chief Minister, Sarawak). [Tan Sri Dr. Chan also opened our 2000 BRC conference in Kuching, Editor] Bibi Aminah Abdul Ghani, the Conference Chairperson delivered the Welcoming Speech followed by an address by Professor Ian Kerr, Pro Vice-Chancellor and Chief Executive, Curtin Sarawak. Tan Sri George Chan gave his opening address and officially declared the conference open. Presentation of the BRC Medal of Excellence was given to Bob Reece during the opening ceremony of the conference. The Keynote Address was later delivered by Prof. Dr. Clifford Sather, the editor of the *BRB*.



Photo 1: The BRC 10th International Biennial Conference, group photo at the conclusion of the opening ceremony, 5 July 2010, Curtin University campus, Miri, Sarawak.

Courtesy Curtin University Sarawak.

Photo 2: Jayl Langub, from IEAS, Universiti Sarawak Malaysia, presenting a paper during the panel session on secondary burial, 6 July 2010.

Photo: Greg Acciaoli.



The conference consisted of 25 parallel sessions ranging from archaeology/anthropology, architecture, biodiversity/ecology, cultural heritage, marine resources, health/healing, history, human resources, ICT, language & language education, identity/social transformation, literature, property/land issues, security/unity, and tourism under the theme of *Borneo: Continuity, Change and Preservation* as a follow-up to the theme in 2008. We had 3 plenary panel sessions: migration, secondary burial, and language.

The BRC2010 team had chosen the *Bungai Terung* as the centerpiece of the BRC Conference 2010 logo because its rosette design is unique to Borneo and of relevance to a wide range of indigenous tribes and communities across Borneo, and it reflects well the Conference's overall theme of "Continuity, Change and Preservation."



On the last day of the conference, a half-hour session was dedicated to the memory of our late friend Dr. Peter Martin. This was done before the language panel session commenced. During that time, there was a call to support the Kelabit dictionary project that Peter had started.

Participants thoroughly enjoyed the conference and their stay in Miri, and are eagerly looking forward to the 2012 Borneo Research Council Conference. Prof. Sather stated that a verbal commitment was received from UBD to host the 2012 meetings which is now being

Photo 3: Dr. Peter Mulok Kedit, from the Tun Jugah Foundation, reporting on a study of Iban migration to Johore, panel on migration, 5 July 2010.

Photo: Greg Acciaoli.

followed up by the Council President. South Kalimantan is the only major division of Borneo that has not been the site of a BRC biennial conference and participants expressed a desire that a future conference might be held there. Prof. Clifford also proposed establishing a standing committee to advise on future biennial conferences, including in its makeup persons who have had experience organizing previous conferences.

(Bibi Aminah Abdul Ghani, Curtin University Sarawak Malaysia)



Photo 4: Before the language panel, from left to right: Clifford Sather, Bibi Aminah, and James McLellan.
Courtesy of Curtin University.



Photo 5: Group photo at the conclusion of the closing session, 7 July 2010.

Courtesy Curtin University Sarawak.



Photo 6: Conference dinner, 6 June 2010, from left to right: Victor King (Leeds), Datuk Abdul Rashid Abdullah (UNIMAS), Jacqueline Pugh-Kitingan (Kadazan Dusun Chair, UMS), and Dimbab Ngidang (UNIMAS).
Courtesy of Curtin University.

PROFESSOR BOB (ROBERT H.W.) REECE AWARDED THE BRC MEDAL

**Medal of Excellence awarded at the BRC Biennial Conference
Miri, Sarawak, 5 July 2010**



Professor Bob Reece addressing conference participants after receiving the BRC Medal of Excellence, BRC 10th Biennial International Conference, Miri, Sarawak. Photo: Greg Acciaioli.

The Borneo Research Council's Medal of Excellence was presented to Professor Bob Reece during the opening-day ceremonies at the Tenth Biennial BRC Conference held on the campus of Curtin University of Technology Sarawak, Miri. Bob is the eighth recipient of the award. The award was first established in 1990 and its previous recipients are: J. Derek Freeman, William Geddes, Datuk Amar Leonard Linggi Jugah, H.S. Morris, A.J.N. Richards, Bernard Sellato, and P.M. Dato Shariffudin.

Citation for the BRC Medal

The Board of Directors of the Borneo Research Council takes great pleasure in awarding the BRC Medal of Excellence to Professor Bob (Robert H.W.) Reece in acknowledgement of his many outstanding contributions to the study of the history of Borneo.

Bob began his career as a journalist in early 1969, writing principally as the Malaysia-Singapore correspondent for the Hong Kong-based *Far Eastern Economic Review*, and it was in this capacity that he first visited Sarawak in July 1969 after the May 13

riots had led to the suspension of elections there. Returning to the discipline of history after a journalistic interlude of four years, he subsequently received his Ph.D. in history from The Australian National University in Canberra in 1977. His dissertation research provided the basis for his first major publication on Borneo, *The Name of Brooke: The End of White Rajah Rule in Sarawak* (1982), an important scholarly work which was immediately recognized as the definitive account of a crucial historical juncture—the end of Brooke rule and the cession of Sarawak to the British Crown. He highlighted two principal themes: the inevitable decline of White Rajah rule under Rajah Charles Vyner

Brooke and the way in which the 1946 cession gave rise to a largely Malay anti-cession campaign consisting of elitist conservatives loyal to Brooke rule and English-educated pro-independence commoners who saw the return of the Brookes as a means of securing Sarawak's sovereignty.

Over the next three decades, while teaching at Murdoch University, Western Australia, Professor Reece has written extensively on a wide range of topics, including economic development (editing, with R.A. Cramb, *Development in Sarawak*, 1988), the role of the Malays in the political evolution of modern Sarawak (*Datuk Bandar Abang Hj. Mustapha of Sarawak: Some Reflections on His Life and Times*, 1991), an oral history-based account of life during the Japanese Occupation (*Masa Jepun: Sarawak under the Japanese 1941-1945*, 1998), botanical history (*A Botanist in Borneo: Hugh Low's Sarawak Journals, 1844-46*, 2002), and a popular pictorial history of the Brooke Raj (*The White Rajahs of Sarawak: A Borneo Dynasty*, 2004) which was also published in French. Together with Dr. Phillip Thomas, he edited facsimile reprints of Sarawak's first Malay-language newspaper, *Fajar Sarawak*, and the early pamphlet, *Hikayat Penglima Nikosa*, for the Sarawak Literary Society. He also contributed extensive introductions for the Oxford University Press reprints of classic Borneo writings of the nineteenth century: Carl Bock, Hugh Low, Henry Keppel, Charles Brooke, Harriette McDougall and Spenser St. John and was a major contributor to the *Encyclopaedia of Iban Studies* and the history volumes of the *Encyclopedia of Malaysia*. He has published extensively in the *Borneo Research Bulletin*, the *Journal of the Malaysian Branch of the Royal Asiatic Society* (*JMBRAS*) and elsewhere. His projected biography of Rajah Charles Brooke promises to be the crowning achievement of his contribution to Bornean historiography. A recent article in *JMBRAS* has given us a taste of what is to come.

In addition to his contributions to Borneo studies, Professor Reece is also well-known among historians for his studies of the Irish *diaspora* in Australia (notably, Irish convicts) and the history of Australian Aboriginal-European relations, a topic on which he continues to publish. These apparently diverse interests are linked by the common theme of British imperialism and the internal dynamics of the societies it created.

The premier historian of modern Sarawak, Professor Reece's writings are distinguished by their close attention to social and political context, their wit, lucid prose style, mastery of the art of narrative, and by their ability to vividly portray the life experiences of individual actors. As an historian of the modern era, his journalistic skills as an interviewer and investigator have also added invaluable depth and detail to the historical record. Indeed, he has been responsible for locating and preserving extensive private collections of letters, photographs and other materials in Rhodes House Library, Oxford, and Sarawak's own Pustaka Negeri. In all, his work as a scholar and teacher has greatly enriched our knowledge and understanding of Borneo's past and its continuing impact on the present.

(Clifford Sather)

BRIEF COMMUNICATIONS

LETTER FROM LUNDU

Otto Steinmayer
Department of English
Universiti Malaya

The semester at UM ended late, on 20 December, with a Department Meeting From Hell, and the next day I flew off to Sarawak to be with my wife and son for Christmas and New Year. Like last year's Letter, this year's was conceived and gestated in Lundu, but had to be to put on paper in Kuala Lumpur.

Charles Brooke described Lundu as "this most delightful of all abodes." I heartily agree with the then Rajah Muda, and in all but one of the Letters I have so far contributed, my aim has been to celebrate this pleasant corner of Borneo, and I have given my letters a bucolic (or perhaps *oryzotrophic*) tone. Yet, I have been employed outside Sarawak since 2009. I get to Sarawak whenever I can, which is not often. The Malaysian calendar may be chock-a-block with holidays, but few of them mate with Fridays or Mondays to make long weekends. Chunks of time pass between my actual steps on Lundu soil, and through these time-lapse views, change stands out more sharply than the continuities. At this writing, the striking changes are specifically political.

Parliamentary democracy was suspended in Sarawak, as in all Malaysia, in 1969 after the May 13th disorders. A Muslim-Melanau family took control of the state in the 1970 elections (a goal it had apparently planned for and aimed at over the prior ten years), and over the next four decades absolutely nothing of significance took place in Sarawak politics.

Until May 2010. Robert Lau Hoi Chew, BN parliamentary representative for Sibul, had died and his death brought about a by-election won by the opposition DAP candidate, Wong Ho Leng. It was an interesting campaign. You will find an excellent account on Wikipedia.

That I direct you to Wikipedia means something.¹ Surely one of the reasons why Sibul voters went over to the opposition was because Sarawakians have at last gained access to immense amounts of high-quality and accurate information about the affairs of their state. The power of the Internet as a political tool was proved in Malaysia's General Election of 2008, when the Barisan Nasional lost its two-thirds majority. Sarawak state elections must be held in the first half of this year, and those dissatisfied with the rule of Taib Mahmud have been putting out their message with vigor.

Government and big business strictly control what appears in the Malaysian mainstream media. Sarawak's MSM are even more opaque than those of *Semenanjung*, and many would claim that the MSM's chief purpose is to obscure and bewilder their readers.

The Internet cannot be so controlled. Dr. Mahathir—sniffing profit—declared that

1 Since I may have been the last Ph.D. in Classics from Yale to have done a dissertation "manually," i.e. without any but paper references, I expected myself to have prejudices. Times have changed, and I embrace the necessity I bowed to.

Malaysia would not censor the Web, and the powers lost their opportunity to install the hardware necessary for such an aim. Bloggers here are many, and fortunately they reach for high standards. Raja Petra Kamaruddin established the level of quality in his “Malaysia Today” site, and the best Sarawakian bloggers write towards the same high mark, striving to be accurately informed, thoughtful, and frank, though measured, in their language. Mr. Sim Kwang Yang, former DAP MP for Kuching, has attracted many talented writers to his “Hornbill Unleashed” website.

Of course, it’s easy to get onto the Net in the cities, or even the towns. In Lundu I have no problem finding wireless. Our house, however, stands about seven-eighths of a mile to the *ulu* of the end of the copper telephone cable. We can’t get a line and the official explanation is that “People Would Steal The Copper.”

“If this is done in the green, what shall be done in the dry?” Communication has never been easy in Sarawak. One might note that the incumbent government has shunned and discouraged any effort to let Sarawakians connect and so has neglected improving communications, despite advances in technology, for over 40 years.

Official history in Malaysia has always been exceedingly meager and subservient to the needs of the élite. Bloggers are now bringing the past into sharp focus through independent research and publication.

In February 2010 an unknown group broke on the scene and published a site called “Sarawak Report.” They caused a sensation. No one knows who is, or are, behind “Sarawak Report.” It would appear that they are members of the Sarawakian diaspora, highly educated professionals—among them most certainly lawyers and knowledgeable businessmen—established in Australia, Britain, the US, Canada and elsewhere, who use the transparency laws and free access to public information in those countries to investigate the financial dealings of the Chief Minister and his family. What “Sarawak Report” alleges has utterly astounded many of us.

Then on 16 November a station calling itself “Radio Free Sarawak” q. q.² began broadcasting on shortwave from London, well above any means of Sarawak government control. I tested the reception in Lundu, and RFS comes in clear as a bell.

People at home were reluctant to talk about politics. They quite naturally feel that it is an unsafe thing to do and they know it can be divisive. I respected their wishes and did not drag them into conversations.

In the same manner I don’t intend to continue this letter into any kind of political analysis. I would rather tell you what things feel like in Sarawak right now. Things feel very, *very* different now from what I’ve felt during my previous 25 years’ connection with Sarawakians. This is something new.

Change is not actually happening (at the instant I write), but the pressure for political change is building up every day. No one knows what direction things are going to take; everyone is sure that the pressure for change is building up, and that things are going to move, and when they move, massively. The ordinary Sarawakian now knows much, much more—ininitely more—about Sarawak’s ruling élite and their aims than they did even five years ago. The average Sarawakian, who most likely belongs to a people that holds to an egalitarian set of values, is not pleased with what he learns.

2 q.q. = *quod quaeras*, ‘which you may search for.’

DR. MARTIN BAIER AND THE KAYAN MENTARANG NATIONAL PARK. CORRIGENDA

Bernard Sellato
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A generous, thoughtful, and detailed, although generally misled and misleading, review in this *Bulletin* (vol. 40, 2009, pp. 297-308) by Dr. Martin Baier, who is a missionary and a German citizen, of two books concerning the Kayan Mentarang National Park unfortunately fails even to provide the books' correct references.

The Culture and Conservation in East Kalimantan Program (also known as *Kebudayaan dan Pelestarian Alam*), focusing on the forms of interaction between people and forest in Kayan Mentarang, ran from 1991 to 1997. It generated over forty field research reports, two video films, and a large number of publications in various journals—not to mention university degrees and/or later job opportunities for a number of its local participants.

A collection of 36 edited reports in Indonesian was released in 1995 as a set of five volumes. In 1999, a selection of 25 reports, abridged and further edited, was published as a thick volume in the Indonesian language. Finally, a dozen of those reports were published in English translation as another book in 2003—Dr. Baier apparently is unaware of the existence of this latter book.

The Kalimantan Resource Center, established in Samarinda to carry on with the program's documentation and publishing activities, separately released some ten volumes (1997-98) on languages, oral literature, history, and customary law, which were circulated locally.

A number of research visits, surveys, and mapping programs, with a mainly exploratory, ecological, earth-and-life-science, or community-empowerment purpose, took place in Kayan Mentarang National Park during and after the Culture and Conservation Program, but were not part of the program.

References

* Sellato, B. ed. 1995 *Culture & Conservation in East Kalimantan*. Jakarta: World Wide Fund for Nature Indonesia Programme, 5 vols. (A collection of 36 research reports on Kayan Mentarang Conservation Area; over 1,750 pp.)

The report entitled "The Ngorek: Lithic and megalithic traditions in the Bahau area and an interdisciplinary sketch of regional history," mentioned by Dr. Baier, is part of the above *Culture & Conservation in East Kalimantan* set of reports (vol. 3, 93 pp.).

* Eghenter, C., & B. Sellato eds. 1999 *Kebudayaan dan Pelestarian Alam. Penelitian Interdisipliner di Pedalaman Kalimantan*. Jakarta: World Wide Fund for Nature, 573 p.

* Eghenter, C., B. Sellato, & G. Simon Devung eds. 2003 *Social Science Research and Conservation Management in the Interior of Borneo: Unravelling past and present interactions of people and forests*. Bogor: Center for International Forestry Research, & Jakarta: WWF Indonesia, UNESCO, & The Ford Foundation, 297 p.

On the Culture and Conservation in East Kalimantan Program, see also:

* Sellato, B. 1995 "The *Culture & Conservation* program in the Kayan Mentarang Conservation Area, East Kalimantan, Indonesian Borneo," *Borneo Research Bulletin*, 26: 54-68.

Rejoinder: On My Late Iban Co-Author

Michael Heppell

Traude Gavin has raised three matters in her *BRB* Vol. 39 “Rejoinder: Brief Comments on *Iban Art* and *Women’s War*” (2008: 274-78) which warrant some comment. They concern the central question of whether or not the Iban conceived of their big cloths as having some kind of pictorial representation; the credibility of Enyan anak Usen, co-author of the book *Iban Art*; and a small matter of the provenance of cloths illustrated in that book.

Addressing the central question of pictorial representation in Iban cloth designs, Gavin’s contention is that the main concern of a *pua*’ design is the “decoration of a flat surface without leaving empty spaces rather than representational depiction.”¹ In her “Rejoinder,” Gavin wonders if I have read her book. For her, one instance of my apparent neglect is my reference to her barely using the Freemans’ field notes in the context of pictorial narratives, or, as Gavin argues, lack of them, in Iban cloths. I suggested the Freemans’ notes challenged Gavin’s own interpretation. I described one *pua*’ sketched by Monica Freeman and illustrated in *Iban Art* with a pair of female figures at the top, two pairs of male figures at the base and pairs of headless corpses in between.² According to Derek Freeman’s annotations, the design depicts Keling traveling through the heavens taking heads while Kumang weaves a cloth, the design of which had been revealed by Meni. Derek Freeman described this cloth as a pictorial representation and not as meaningless decoration.

In their notes, Monica wrote of the Baleh Iban: “The extraordinary designs on *puas* created by the women, represented stories of people, of head-hunters, of gods and spirits (*antus*) in the form of animals, birds, insects, reptiles, dragons, and serpents each having a special power of its own.” Again, Monica is writing about pictorial representation and not about decorative aesthetics.

The Keling and Kumang design recorded by the Freemans has named figures. Writing about Saribas cloths, Gavin, in her *Iban Ritual Textiles* stated that a number of anonymous informants had informed her or confirmed to her in a number of locations that representations of human figures in cloths were simply “cartoons.”³ Anonymous Baleh weavers regarded such cloths with “contempt and scorn.”⁴ A male weaver, Nicholas Bryan, from neighboring Saratok, supported her claims by telling her that designs with human figures were made in his longhouse on demand for Chinese traders, a surprising observation, given that Gavin had earlier written that weaving had virtually ceased in the Saribas area by the end of the Second World War, long before the start of a flourishing overseas market for Iban textiles.⁵ If these views are an accurate reflection

1 Gavin, Traude, *Iban Ritual Textiles*. KITLV Press, Leiden, 2003, p. 242.

2 Heppell, Michael, Limbang anak Melaka and Enyan anak Usen, *Iban Art: Sexual Selection and Severed Heads*. KIT, Leiden, 2005, p. 70.

3 Gavin, Traude, *Iban Ritual Textiles*. KITLV Press, Leiden, 2003, p. 247.

4 *ibid.*, p. 282.

5 *ibid.*, pp. 17-18. Krian weavers share the same traditions as Saribas weavers.

of Iban weaving, then Gavin's contention that figures (and other motifs) feature in designs simply for decorative functions, has credence. What Gavin must do, however, to substantiate her case, is to demonstrate why the Freemans were wrong in their annotation of the Keling and Kumang cloth and their general view that cloths told "stories." With the publication of *BRB* 40, Gavin also needs to deal with Vernon Kedit's analysis of high-ranking Stambak *pua'kumbu'* which, like the Baleh cloths, reveals a clear pictorial narrative, and supports the statement of another Saribas Iban, Empiang Jabu, who had earlier written that cloths tell stories.⁶

On the second matter, Gavin raises the issue of Enyan's credibility as, indeed, she had earlier done with Margaret Linggi.⁷ Enyan's observations on Iban weaving are important both to an understanding of Iban weaving and to the identification of *sungkit* designs, the accurate identification of which obviously is of great interest to Gavin. Her credibility, consequently, deserves some scrutiny.

In *The Women's Warpath*⁸, Gavin questions Enyan's interpretations and, in *BRB* 39, queries a long list of designs identified by Enyan.⁹ Gavin wrote¹⁰:

According to Heppell, his informant Enyan identified one motif (commonly referred to in the literature as a "dancing figure") as Meni, goddess of the waters and patron of weavers and dyers. However, during a later interview in Kuching in 1988, for which I was also present, Enyan identified the same motif as "scorpion" (*kala*). When I spoke to her again several years later, she claimed to not know the motif at all. It would seem that Enyan was just as much at a loss with regard to this elusive motif, and was merely groping for an explanation when pressed by overeager ethnographers.

Gavin, presumably after speaking to Enyan again, also wrote to me that Enyan knew nothing about weaving.

In my guise as an overeager ethnographer, something might be said about the methodology applied in collecting information from Enyan. Derek Freeman had told me that he intended to write a book on Iban weaving. As far as I was concerned, that was something he was going to do and, consequently, not something I would do. In 1984, I suggested to Enyan that she visit Australia because I thought she might enjoy the interest in weaving of many women in Melbourne. She lived in Melbourne in our house for just over 4 months. She wove for most of the day and talked non-stop about weaving

6 Jabu, Datuk Paduka Empiang, "Pua Kumbu – The Pride of the Iban Cultural Heritage," In: Lucas Chin and Valerie Mashman, eds., *Sarawak Cultural Legacy: A Living Tradition*. Atelier Society, Kuching, 1991, pp. 75-89.

7 *ibid.*, p.150. Gavin wrote that Linggi had made a number of "mix-ups" in her "catalogue" without identifying any of them. Gavin used this claim as a justification for totally ignoring Linggi's work.

8 Gavin, Traude, "Rejoinder to Heppell," *BRB*, 39, 2008, p. 276.

9 *ibid.*, p. 278.

10 Gavin, Traude, *The Women's Warpath: Iban Ritual Fabrics from Borneo*. UCLA Fowler Museum of Cultural History, Los Angeles, 1996, p.73.

whenever she had company. After a bit, Marguerite, my wife, and I decided to write down and tape record what she had to say. When we did not fully understand, we would ask for elaboration. It was Enyan who took the initiative to talk. As I had employment, Marguerite did most of the recording. One thing Enyan was particularly interested in was looking at Iban cloths. On many, she gave an explanation of what a design meant for her, explaining how individual elements contributed to a coherent whole. In the four months in Australia, she completed one *sungkit* and two *pilih* cloths as well as setting up a number of looms for *sungkit*, *pilih* and *ikat* cloths to demonstrate each process to interested people.

So, how does Enyan's credibility stand up to close examination? I came into contact with her through a Time/Life expedition which wanted to include weaving as a subject that would be photographed and written about in a proposed book on the Iban. I asked contacts I had in the Batang Ai about weavers and there was unanimous agreement that Enyan was the most knowledgeable weaver in their midst. Her people, therefore, endorsed her knowledge.

In *Iban Art*, Enyan was the author who provided the verses about threads and cloths. Gavin presumably found no informants, including Enyan on her visit to her, who narrated such verses; otherwise she would surely have included them in *Iban Ritual Textiles*. Verses included:

Ubong burak ketawa ganggak ganggak gaga gaga ke orang subak bungai ini
Ubong engkerebai ketawa nya lekai minta sepo ke orang tangkai bungai ini
Kayu beting ketawa nya rising minta sepo ke orang pating bungai ini
Ubong kunyit, nyabak sengit, minta sepo ke orang empenit buah becandi.

White threads laughing thunderously, happy that these flowers have been scooped up
 Red threads titter needing to gorge themselves on bundles of these flowers
 Scarlet threads snarl wanting to gorge themselves on stalks of these flowers
 Yellow threads wail plaintively desiring to gorge themselves on the fruits hanging below the
 high wooden bosses.¹¹

Kain beludu, tenun indu' antu, iya keh sebu buka indu' gamang;
Kain sungkit, munyi indu' papit, besarang pucok menuang;
Kain kebat, baka indu' sepatat, baka leplit, baka bintang, tumbuh atas remang;
Kain celum, baka indu' lidum, besarang pucok menuang.

Velvet skirt, woven by female spirits, who throng like bees;
 Embroidered skirt, sounding like insects making their nests in the crown of Octomeles trees;
Ikat skirt, like fireflies blinking like stars living above the high cirrus;
 Black skirt like hornets nesting at the top of Octomeles trees.¹²

Enyan's attribution of names to cloth patterns is a second area raised about her credibility. In *Iban Art*, we argued that different weavers could interpret the same design quite differently, using one example in which Gavin, Freeman, a donor to the Sarawak Museum, Edric Ong in the upper Baleh and Enyan gave different names to a particular

11 Heppell et al, op. cit., p. 43.

12 Ibid., p. 89.

design. We were very careful to attribute Enyan's identifications to her, so readers could make their own judgements about each attribution. In his recent article, Kedit is also very clear about the sources of his information about cloth names. In contrast, Gavin's informants remain anonymous. This becomes particularly noticeable, for example, when Gavin attributes Iban names to a couple of Kantu' skirts without apparently having visited any Kantu' settlements.¹³

It might be worth mentioning that Enyan grew up across the West Kalimantan border between the Delok and Leboyan rivers, an area in which *sungkit* weaving remained popular until recently.¹⁴ Enyan moved to Skim Skrang where she lived in a settlement with Skrang and Batang Ai Iban, frequently visited nearby Betong and Miri, where her daughter lived, and also visited the Ngemah and Katibas rivers. Like Gavin, she would have had every opportunity to talk to Iban weavers about cloths, and did so frequently.

Gavin is particularly concerned about Enyan's naming of *sungkit* designs. She writes: "Heppell's reliance on [Enyan's] interpretations is particularly disconcerting when they are applied to ancient *sungkit* patterns (plates 18, 57, 83) for which we are in dire need of reliable data."¹⁵ Gavin comes to this view not because she had found contradictory interpretations, but because she had found no informants who could give her any interpretations at all in her research predominantly in the Baleh and Saribas; not the Batang Ai where Enyan lived and which, according to Gavin and Barnes, was the center of *sungkit* production.¹⁶

Plate 18 has three motifs. The first is the "dancing figure" which I will return to shortly. The second, in Iban, is *Antu pala' beringka gitang ba dilang Antu Gerasi* and is the motif represented in plate 57. Enyan breaks this figure down to some individual elements, lending credence to her attribution.¹⁷ Other Batang Ai weavers have agreed with this identification. The attribution, however, is different for the Saribas.¹⁸ There is one common denominator, however, between the two attributions. They both feature the Great Ogre, Antu Gerasi. The third motif (also plate 63 on Gavin's list of Enyan's

13 Gavin, Traude, *The Women's Warpath: Iban Ritual Fabrics from Borneo*. UCLA Fowler Museum of Cultural History, Los Angeles, 1996, pp. 64-65.

14 Gavin, Traude and Ruth Barnes, "Iban Prestige Textiles and the Trade in Indian Cloth: Inspiration and Perception," *Textile History*, 30, 1, 1999, p. 86. Gavin and Barnes's assertions about the rivers which did not produce *pua' sungkit* must deal with the fact that Kantu' produced *sungkit* cloths which followed the same formula as the Iban. It seems probable that other Ibanic groups also did, as they certainly produced *sungkit* pieces. That would suggest that *sungkit* was very ancient, probably following *silak* in the development of techniques and preceding *pilih*, *ikat* and *songket*. That means that the Iban were weaving *sungkit* when they first crossed over the present border into Sarawak in the middle of the 16th century and all Iban groups in Sarawak would have known the technique.

15 Gavin, Traude, Rejoinder to Heppell, *BRB*, 39, 2008, p. 276.

16 Gavin, Traude and Ruth Barnes, "Iban Prestige Textiles and the Trade in Indian Cloth: Inspiration and Perception," *Textile History*, 30, 1, 1999, p. 86. They write that *sungkit* "appears to be limited to the Ulu Ai area."

17 Heppell et al, op. cit., p. 73.

18 Vernon Kedit, personal communication, who is writing on this subject himself. I do not want to steal his thunder by revealing who the figure represents.

praise names) Enyan calls *naga*. Again she names various elements in the coiled dragon including a net to make it invisible.¹⁹ In *The Women's Warpath*, Gavin shows a *pua'* *sungkit* cloth with the same motif which she calls *buah naga*.²⁰

If we continue with Enyan's identification of *sungkit* motifs, plate 59 shows a *buah bunut*. Gavin shows the same design and calls it *buah bunut* or *buah bintang bertabur*.²¹ Enyan called a slightly different *sungkit*, *bintang dara tumbuh di langit* or 'virgin stars sparkling at dusk in the heavens,' so there is a correspondence in terms of *sungkit* representing the heavens at night, representations which have meaning for agriculture and fertility. Plate 96 is another heavenly *sungkit* with a common Batang Ai design of the constellation, the Seven Sisters. We then come to plate 83, which Enyan calls Bong Medang. I later ascertained Bong Medang was another name for Pungga, a cousin of Keling and one of his strongest lieutenants. Pungga had a number of praise names, one of which is the one Enyan gave. Gavin shows a similar motif on the top row of a *pua'* *sungkit* which she calls Bong Midang.²²

Consequently, apart from the head tree which Gavin was not able to identify, there is a close correspondence between Enyan's and Gavin's attributions.

Finally, there are the "dancing figures." Gavin's account of the scorpion incident is correct. Enyan was at an international workshop in Kuching and was the only *ulu* Batang Ai weaver present among many from the Saribas and Baleh. She was standing in front of the *sungkit* cloth she had woven in Australia in 1984. As she explained later, she was *malu*—which in that context meant that she was embarrassed, concerned that she would be regarded as making inflated claims for a design she had woven.²³ She therefore said *kala* because it was nothing. In Australia, there was a small *gawai* in which Enyan revealed the names of the three cloths she had woven to an assemblage of Melbourne weavers and other people she had met. On the *sungkit*, there were 8 rows of figures—one row she called Antu Jawing; three, Bong Medang; two Dara Meni; and two were the head tree.²⁴

One might legitimately ask if there is a logic to having Meni represented on a *sungkit* cloth. Both in the Batang Ai and the Saribas, *sungkit* cloths were used to receive a newly taken head before being paraded up and down a longhouse gallery in the ritual *naku pala*. Meni is an underworld figure as also are *naga* (dragon) and *remaung* (tiger) which are frequently represented on *sungkit* cloths. The underworld is associated with fertility. Hence, many *sungkit* cloths have representations of the constellations which are associated with fertility through their role in the Iban agricultural calendar. The taking of

19 Heppell et al, op. cit., p. 78.

20 Gavin, Traude, *The Women's Warpath: Iban Ritual Fabrics from Borneo*. UCLA Fowler Museum of Cultural History, Los Angeles, 1996, p. 37.

21 *ibid.*, p. 36.

22 *ibid.*, p. 44.

23 Not to mention mentioning the name of a design she had woven. Marguerite and I, in contrast, were regarded as family.

24 The *pua'* is illustrated in Vale, Trevor and Michael Heppell, "Ritual Fabric of the Iban Dayak," *Tribal – The Magazine of Tribal Art*, 29, 2002, p. 79. Quite why I would want to press Enyan to name this motif has always mystified me.

a head is also strongly related with fertility as a number of authors writing on the Iban, including myself, have remarked. Consequently, having Meni represented on a sungkit cloth does not fly in the face of Iban logic associated with a cloth, the primary use of which was to receive a newly taken head.

Gavin has argued persuasively that the “dancing figures” are influenced by an old Indian printed design of dancing women. I have shown cloths with these “dancing figures” to Batang Ai Iban and they have been unanimous in calling the figures “*Iban*” or “*antu*,” without knowing who they represent. The Saribas identify the same motif as a human figure, though differently from Enyan.²⁵ Gavin, in contrast, having found no one to identify the motif, concludes that: “it appears that in the Iban case a figurative Indian motif was eventually reinterpreted as a decorative pattern.”²⁶ Which, of course, produces confirmation that Iban design is purely decorative.

Gavin gives a list of 16 incorrect attributions made by Enyan (plus plate 18 discussed above which did not make the list, but was obviously in doubt). The list appears devastatingly long. But before we write Enyan off, it might be worth examining how her identifications stand up to scrutiny:

- i. Plates 13 and 67 are called *ringka' antu pala' nyabak lelega' duduk atas bedilang*. Linggi shows the same design and gives the same praise name;²⁷
- ii. Plate 19 is called *nabau ngerarang menoa*, a common praise name for cloths with *nabau* designs. Gavin shows the same basic motif which she calls “serpent pattern (*buah nabau*);”²⁸
- iii. Plates 52, 53, 54 and 55 are called crocodiles. In one, they are basking on the shore eating bluebottles, a second is small headed and carrying heads at his waist, a third has them feasting on people and a fourth has them eyeballing each other. Gavin shows cloths which are less obviously crocodiles and calls them “crocodile pattern (*buah baya*).”²⁹ Empiang Jabu shows a cloth with two lines of crocodiles facing each other and a third in which they are swimming in opposite directions which she calls “colliding crocodiles.” Enyan consequently saw crocodiles doing something while Gavin sees only crocodiles in a design. The difference is stark. Even if Enyan was wrong in what

25 Vernon Kedit, personal communication, who will be writing on this subject and, again, I do not want to steal his thunder. I have no doubt about his attribution in both cases, given the purpose of these *pua' sungkit* in the Saribas.

26 Gavin, Traude and Ruth Barnes, “Iban Prestige Textiles and the Trade in Indian Cloth: Inspiration and Perception,” *Textile History*, 30, I, 1999, p. 95.

27 Linggi, Datin Amar Margaret, *Ties That Bind: Iban Ikat Weaving*. Tun Jugah Foundation, 2001, p. 85.

28 Gavin, Traude, *The Women's Warpath: Iban Ritual Fabrics from Borneo*, UCLA Fowler Museum of Cultural History, Los Angeles, 1996, pp. 34-35.

29 *ibid.*, pp. 39-41.

the crocodiles were doing, she clearly believed that the weaver was attempting to do more than simply weave a decorative pattern;³⁰

iv. Plate 56 is a jacket similar to the one collected by Hose in the Baram and illustrated in Haddon & Start.³¹ It has a crocodile surrounded by coils and is called “crocodile swimming up a backwater creating ripples.” Coils or zigzags are a typical way Iban show ripples in the water;

v. Plates 18, 57, 63, 83 and 96 are *sungkit* already discussed;

vi. Plate 68 is called “Keling’s sleeping platform.” I have not seen any other reference to this particular design, but similar sleeping platform motifs are common in the Saribas;

vii. Plate 71 is called “creeper motif.” Gavin illustrates two similar cloths: one she calls “interlocking pattern (*buah berasok*)” and the second “vine-like pattern (*buah berinjan* or *buah belulai*);³²

viii. In plate 85, four rows of figures are identified. I have not seen any other identification of these figures;

ix. Plate 97 is called “roots of the *nur* tree.” Again, I have not seen any other reference to this particular design.

So, to sum up Enyan’s performance, she seems on the mark in 12 of the plates. I have had independent verification of her skull tree identification. The jury is out on Meni, Keling’s sleeping platform, the four rows of figures, and the *nur* tree. That probably correlates quite well with Gavin’s own record in *Iban Ritual Textiles*, of identification of designs for which she would not have had access to the original weaver. She positively identifies the designs of at least 27 cloths in private or museum collections. Attributions like *buah engkeramba*, as Kedit points out,³³ and the “anthropomorphic figures and *gajai* pattern” are certainly likely to mystify Saribas weavers now ensconced in Sebayan. Add the vine and the “interlocking” patterns and the number in play increases.

Gavin’s third point was an apparent lack of provenance of the vast majority of the illustrations of pieces in *Iban Art* from anonymous private collections which were given “precise” rivers of origin. As I am sure Gavin is aware, the flow of artifacts to the international market usually starts with inland runners purchasing objects from longhouses or shopkeepers in small bazaars bartering consumer items for objects owned by their customers. Purchases directly from runners or such shopkeepers can reasonably reliably be provenanced to a river. That does not necessarily mean that a cloth was woven

30 Jabu, op. cit., p. 89.

31 Haddon, A.C. & L.E. Start, *Iban or Sea Dayak Fabrics and Their Patterns*. Ruth Bean, Carlton, 1982, p. 51.

32 Gavin, Traude, *The Women’s Warpath: Iban Ritual Fabrics from Borneo*. UCLA Fowler Museum of Cultural History, Los Angeles, 1996, pp. 47 and 49 respectively.

33 Kedit, Vernon, “Restoring Panggau Libau: A Reassessment of *Engkeramba*’ in Saribas Iban Ritual Textiles,” *BRB*, 40, 2009, pp. 222-223.

in that river area as cloths travel, particularly through marriage and inheritance.

To sum up the discussion on weaving, one of the purposes of *Iban Art* was to add the authors' weight to Linggi's, Jabu's, and the Freemans' view that Iban cloth designs contain a pictorial narrative of meaning to the weaver herself. Gavin argues a counter case—that Iban weaving is decorative and does not tell a story. As knowledge recedes with well-versed weavers passing on, there is a definite prospect that future researchers will be reliant on the written material now being produced. They will have a stark choice of opposites. Gavin's *gravitas* is enhanced by having well-respected scholars like Ruth Barnes adding their weight as joint authors of articles such as the one referred to which claims that the Saribas plundered their old *sungkit* cloths from the Batang Ai and that the dancing figures are simply some "decorative pattern."³⁴ We foreign researchers are reliant on our co-authors, informants, or their relatives for the data to interpret in our work. When our informants or their relatives stand up to be counted by presenting their own material, their contributions should not be despatched to the rubbish bin without reasoned consideration. I am sure that individually, Margaret Linggi and Enyan anak Usen, in their lifetimes, talked to many more weavers than Gavin and I have, combined. A new Iban contributor has recently entered the lists in Vernon Kedit. He still has a lot more to say based on the knowledge entrusted to him by now deceased weavers in his family. We should value and treat with academic respect what these experts have to say and encourage more of them to speak up and, as Kedit will do, correct our own failings and misinterpretations, which certainly will include mine.

34 Gavin, Traude and Ruth Barnes, "Iban Prestige Textiles and the Trade in Indian Cloth: Inspiration and Perception," *Textile History*, 30, I, 1999, pp. 86 and 95 respectively.

“WIJAYA”: WINNER OF THE SOUTH-EAST ASIA WRITERS’ AWARD 2010

A.V.M. Horton
*Bordesley, Worcestershire
United Kingdom*

“Wijaya” was the writer selected from Negara Brunei Darussalam to receive the “South-East Asia Write [*sic*] Award”¹ for 2010, in recognition particularly of his collection of poetry entitled *Renungan*, published by the Language and Literature Bureau.²

According to the *Borneo Bulletin*, the Award was established to promote the talents of ASEAN creative authors and to inculcate “a wider understanding and awareness” of the literary wealth of the region.³

“Wijaya” [pen-name] had already won several other prizes. He received the ASEAN Award for Services to Literature in 1990;⁴ on 1 August 1993 he became one of seven NBD writers to be recognized as a *Penulis Berjasa* by ASTERAWANI in cooperation with the Brunei Shell Petroleum Company;⁵ on 31 May he was bestowed ASTERAWANI’s *Pemikir Budaya* title;⁶ and he became a *Tokoh Berjasa DBP* in 2001.⁷ “Wijaya” now belatedly takes his rightful place alongside the giants of NBD literature who have been similarly recognized with the South-East Asia Award, such as (to name a few) “Muslim Burmat”⁸ in 1986; Awang Mohd Salleh bin Abdul Latif in 1990,⁹ “Shukri Zain”¹⁰ in 1991; “Yura Halim” (of whom, more anon) in 1993; and “Zairis MS”¹¹ in 2008.

Besides his poetry, “Wijaya” is prominent locally in education, culture, history, and religion; and, indeed, he has been active in these fields for seventy years and more. For

1 Is it not about time for this designation to be corrected by the relevant committee in Bangkok?

2 *PB (Pelita Brunei)* Sa.20.11.2010:10.** [** denotes polychrome illustration, * a monochrome one]. A sample of Wijaya’s poetry appears in *PB* 12.4.2000: *Aneka* section (*PBA*), page 9.

3 *Borneo Bulletin* (online edition), Sa.20.11.2010.

4 *PB* 14.11.1990:5.

5 *PBA* 18.8.1993:6. ASTERAWANI, established in 1962, is the Brunei Writers’ Association (*Angkatan Sasterawan dan Sasterawani Brunei*).

6 *PB* 11.6.1997:1.

7 *PB* 30.5.2001:12. “DBP” abbreviates *Dewan Bahasa dan Pustaka* or the Language and Literature Bureau of NBD.

8 The pen-name used by, as he now is, Dato Paduka AH Muslim bin Haji Burut (b. 1943).

9 See *BRB* 1991:124-7. He remains a distinguished columnist with the government newspaper, *Pelita Brunei*, to this day.

10 Otherwise YB Pehin Jawatan Luar Pekerma Raja DSU Dr. UHA Mohd Zain bin HA Serudin (b. 1936), Minister of Religious Affairs, 1986-2010.

11 Pengiran DSS Dr. Haji Mohd bin PH Abdul Rahman (b. 1948), Deputy Minister of Education from 24 May 2005 until 29 May 2010, when he succeeded Pehin Mohd Zain as Minister of Religious Affairs.

“Wijaya” is the pen-name concealing the identity of none other than **Yang Dimuliakan Pehin Jawatan Dalam Seri Maharaja [cr. 1992] Dato Seri Utama Dr. Haji Awang Mohd Jamil Al-Sufri bin Begawan Pehin Udana Khatib Dato Seri Paduka Haji Awang Umar DK DSLJ DPMB POAS PHBS PJK PJP PP PBLI Litt.D.**, founder and Director of the Brunei History Centre since 1982. He is almost certainly the most influential living historian of the sultanate.¹² On 24 September 2000, for example, Pehin Hussain, then Minister of Culture, Youth and Sport, proposed that all textbooks should be submitted to the *Pusat Sejarah* for approval before they could be printed or used in NBD schools;¹³ in other words, YD Pehin Jamil is officially responsible for the sultanate’s historical memory.

A member of a highly distinguished family, Inche Jamil bin Omar started life on 10 December 1921 at Kampong Sungai Kedayan. His father was a prominent religious official, rising to become YB Begawan Pehin Udana Khatib [cr. 1957] Dato Seri Paduka [cr. 1970] Awang Haji Umar bin Awang Rendah by the time of his death in 1977. His brother, YB POK Laila Wijaya DSS HA Sir Abdul Aziz GBE (b. 1936), was a cabinet minister for nearly twenty-two years from the start of 1984 until his retirement in May 2005. His sister, Dayang Hajjah Kadariah, was a specialist weaving teacher who received a Special Award for retired teachers on *Hari Guru* in 2005.¹⁴ His spouse, Datin Dayang Hajjah Siti Hara, is the daughter of a Pehin Orang Kaya Shahbandar¹⁵ (namely, AH Mohd Taha); together they have two sons, three daughters, and one adopted daughter.¹⁶ One of his daughters, DH Normah Suria Hayati (b. 1960), is currently (2010) Director of Agriculture in the sultanate.¹⁷

Inche Mohd Jamil was educated at Brunei Town Malay School (1928-35), the Sultan Idris Training College (1939-41 and 1948-9), Kanri Yosezyo Training Centre, Kuching (1944-5), Serdang College of Agriculture, Selangor (1950-1), and the City of Worcester Teacher-Training College, UK (1956-7). He became fluent in Arabic, English, and Japanese, besides his mother tongue (Malay).

His interest in politics was aroused at a young age. On 12 April 1946, for example, he was elected General Secretary of the *Barisan Pemuda Brunei* (BARIP), or Brunei Youth Front.¹⁸

A teacher from 1939 until 1947, Inche Mohd Jamil Umar was an assistant headmaster between 1948 and 1950. He was Organiser of School Gardening (1951-6),

12 Which is not to make any assessment of the *value* of that influence (*cf.*, in particular, the works of the late Robert Nicholl).

13 *PB* 4.10.2000:10.

14 *Borneo Bulletin*, Sunday edition (online), 25.9.2005:h1.htm.

15 The *POK Shahbandar* ranks at No 7 in Professor Brown’s list of *pehin menteri* (D.E. Brown, *Brunei: The Structure and History of a Bornean Malay Sultanate*, Bandar Seri Begawan: Brunei Museum, 1970; copy received by courtesy of Professor Brown), p. 201.

16 Mas Osman, *Biografi Penulis Brunei* (BSB: DBP, 1987), p. 146.*

17 *PB* Sa.24.4.2010:5. The other offspring include AH Ghazali, AH Hassanol As’-Shari, and DH Fatimah.

18 Pehin Mohd Jamil Al-Sufri, *Liku-Liku Perjuangan Pencapaian Kemerdekaan Negara Brunei Darussalam* (BSB: JPS, 1992), p. 7.

Adviser on Teaching Methods (1957-60), and Chief Inspector of the School Feeding Programme (1960). Meanwhile, in 1954, he became a member of the Brunei District Advisory Council;¹⁹ and in 1961 was appointed to the Brunei Scholarship Committee.²⁰

During the next decade he catapulted to real prominence: he was Director of the Language Board from 1961 until 1965 and of the Language and Literature Bureau (DBP) for ten years or so between the mid-1960s and mid-1970s, being retained as Adviser for a further four years until 1981. During this time he performed the Mecca pilgrimage (1961), was raised to *Dato* status (1965), and created a *Pehin* (1968).

Appointed *YD Pehin Orang Kaya Amar Diraja* on 14 March 1968,²¹ he advanced *YD Pehin Jawatan Dalam Seri Maharaja* on 25 August 1992.²² He also holds several datoships (DK, DSLJ, and DPMB) and various other medals (POAS PHBS PJK PJP PP PBLI). At least three honorary doctorates have been bestowed upon him by universities at home and overseas. He has lent his name to a local primary school.²³

As a historian his output has been prolific. Mention might be made here, perhaps, of *Sejarah Brunei*, which he wrote around 1958 in collaboration with the “Yura Halim” mentioned above;²⁴ *Chatatan Sejarah Perwira2 dan Pembesar2 Brunei* (two volumes, 1971, 1973); *Penyair Diraja* (1989); *Latar Belakang Sejarah Brunei* (1990); *Tarsilah Brunei: Sejarah Awal dan Perkembangan Islam* (1990); *Liku-Liku Perjuangan Pencapaian Kemerdekaan Negara Brunei Darussalam* (1992); *Tarsilah Brunei II: Zaman Kegemilangan dan Kemasyhuran* (1997); and *Sejarah Sultan-Sultan Brunei Menaiki Takhta* (2002). YD Pehin’s works on education include *Corak Pendidikan di-Brunei pada Masa Hadapan* (1982) and *Satu Pemikiran mengenai Corak Pendidikan untuk Brunei Darussalam Berasaskan Islam: Melalui Pengalaman dan Sejarah* (2009).

Now in his ninetieth year, YD Pehin’s intellectual energies are undimmed and he is as active as ever, whether as committee member, broadcaster, panelist in various discussion forums—or, indeed, as prize-winner.

19 *BGG (Brunei Government Gazette)*, 30.10.1954.

20 *BGG* 26.8.1961.

21 *BGG* 23.3.1968:56.

22 YD Pehin Mohd Jamil, *Tarsilah Brunei II: Zaman Kegemilangan dan Kemasyhuran* (BSB: Pusat Sejarah Brunei, 1997), inside back cover.* The *POKAD* ranks at No 15, the *PJDSM* at No 5 in Brown’s list (*loc.cit.*).

23 *PB* 1.12.1999:10; *PB* 11.10.2000:7.

24 “Yura Halim” is the by-line used by YAM Pengiran Setia Negara PH Mohd Yusuf bin PH Abdul Rahim (b. 1923), nobleman, civil servant, diplomat, historian, teacher, poet, essayist, playwright, businessman, the list goes on.

ANNOUNCEMENTS

BORNEO RESEARCH COUNCIL ELEVENTH BIENNIAL INTERNATIONAL CONFERENCE 2012

The Eleventh Biennial BRC Conference will be held at the Universiti Brunei Darussalam (UBD) in 2012. Planning is now underway and information, including dates and details regarding paper and panel submissions, will be forthcoming shortly. A call for papers will appear in the next issue of the *BRB*.

The conference will be hosted by the Faculty of Arts and Social Sciences, UBD, and a working committee headed by Dr. Adrian Clynes, Department of English Language and Linguistics, is currently engaged in planning.

For further information contact Dr. Clynes at <adrian.clynes@ubd.edu.bn>.

Languages and Peoples of Borneo A Proposed Volume in Honor of the late Professor Peter Martin

From Adrian Clynes and Peter Sercombe

Dear All,

We are writing to you as friends and colleagues of the late Professor Peter Martin. We are keen to celebrate his life and work through an edited volume that can honor Peter's substantial legacy as a friend to us and as a committed academic who was passionate about Borneo.

This message stands as a call for contributions under the broad heading of "languages and peoples of Borneo." We are keen that this volume [if it becomes a viable proposition] should have substantial academic merit, as an idea that may be submitted to potential publishers confident of its academic credibility.

While this call has come from "us," this is not to mean "we" feel the right to editorial roles. Should any one, or more, of you wish to coordinate this project, and have ideas as to how this project might be taken forward, then we would be happy to hear from you.

In the meantime, we are asking for:

1. An abstract for a chapter [of up to 8,000 words] under the broad heading: "languages and peoples of Borneo," to be submitted by the end of March 2011.
2. Notes of interest to edit this volume [should you feel inclined], bearing in mind this will be a significant commitment of time and energy for a year or 2.
3. That you forward this message to others who knew and worked with Peter in relation to his work in and on Borneo.

Best wishes,

Adrian Clynes (adrian.clynes@ubd.edu.bn) and Peter Sercombe (peter.sercombe@newcastle.ac.uk)

IIAS Summer Program

From **19-26 June 2011**, the International Institute for Asian Studies will organize a summer program in Leiden, the Netherlands, for MA and PhD students about **“Heritage Conserved and Contested: Asian and European Perspectives.”**

This first Summer Programme in Asian Studies aims to shed light on the various definitions, interests, and practices associated with the question of cultural heritage in Asia and Europe.

The program will be run by two world-renown scholars in the fields of cultural heritage theory and cultural Asian history, respectively: **Prof. Michael Herzfeld** (Harvard University) and **Prof. Nira Wickramasinghe** (Leiden University).

For information and registration, please visit www.summerprogramme.asia

BORNEO NEWS

BRUNEI DARUSSALAM NEWS

Mustafa bin Haji Murad, Yang Dimuliakan Pehin Khatib Awang Haji, named Imam of the Year 1431/2010, the first recipient of the award, *Anugerah Imam Cemerlang*, which carries a prize of B\$10,000, a certificate, a souvenir, and free medical treatment in any first-class ward in the sultanate (*PB R.14.7.2010:5***). Commenced his career in mosque affairs on 17 March 1983 and is currently on duty at the JAHB Kiarong (*PB R.14.7.2010:5***). *Mudim* 1983, *PK* 1996; winner of the National Quran-Reading Competition, 1996 and 1997; represented NBD in the International Quran-Reading Competition at KL for two consecutive years (*PB R.14.7.2010:5***) [AVM Horton].

YB Pehin Isa Ibrahim was appointed Speaker of the Legislative Council on 10 February 2011 (7 Rabiulawal 1432) in succession to YAM Pengiran Indera Mahkota Kemaludin Al-Haj (BBO Th.11.2.2011; BTO same day).

SABAH NEWS

Chong Ket Wah, Datuk Edmund (1956-2010). Sabah politician (M.P. for Batu Sapi); died in a road accident on Saturday, 9 October 2010 (*BBO Th.14.10.2010*).

Qualified mechanical engineer. Member of the Malaysian Parliament since 2004 (re-elected 2008) representing the PBS. Born in Sandakan, 9 April 1956; died at Kota Kinabalu, 9 October 2010. Survived by his widow and their four children (according to *Wikipedia/Facebook* and other news sources).

Kimin Mudin (d. 2010)

Sabah singer; died aged forty-six (*BBO Th.3.6.2010*). From Kampung Kelatuan, Papar; father of seven children; his most popular song, *Sayang Kinabalu*, became the theme tune for Sabah tourism in 2008; died on 2 June 2010 (internet source, posted by Sabahsongs, 4 June 2010) [AVM Horton].

The otter civet (*cynogalebennettii*), previously thought extinct, has been rediscovered in Sabah after a gap of more than one hundred years. The sighting was made in the Deramakot Forest Reserve via a remote camera trap set up by a biodiversity monitoring team of the Sabah Forestry Department and a German wildlife research institute (according to (*BBO Th.11.2.2011*)).

Kota Kinabalu: Atkinson Clock Tower. There were concerns in Sabah that the Atkinson Clock Tower was threatened by the proposed construction of a sixteen-storey commercial building in the vicinity. The wooden edifice, one of the few buildings in Sabah's capital to have survived aerial bombardment during World War II, was built in memory of Francis George Atkinson, the first District Officer of Jesselton, following his death from suspected malaria. The prime mover behind the project was his mother, Mary Edith Atkinson. The tower was one of the first heritage buildings to be protected under Sabah's Cultural Heritage (Conservation) Enactment of 1997 (*BBO Sa.2.10.2010*).

SARAWAK NEWS

The Borneo International Bead Conference, organized by Crafthub, Kuching, was held in Miri, Sarawak, 9-10 October 2010. Ten papers were presented, 5 by local presenters and 5 by international specialists.

Niah Caves. On Wednesday 27 October 2010 **Tan Sri Abdul Taib Mahmud** (Chief Minister of Sarawak) urged that the Niah Caves should become a UNESCO World Heritage Site. The Mulu Caves already enjoy this status. He was speaking in Miri while opening an International Seminar on Bornean Archaeology (*BBO* F.29.10.2010, citing a Bernama report).

Rajah Vyner Brooke and his termites. Rajah Sir Charles Vyner Brooke “was an ardent stamp collector. When he returned to his palace from a visit to England, he had a terrible surprise. Termites had invaded the cupboards in which his stamp albums were kept and had eaten, page by page and from cover to cover, thousands of his valuable stamps. The Rajah was so disgusted that he decided to give up collecting, realising that in the tropical climate of his kingdom in North Borneo it was too risky a hobby. What he could salvage of his collection was finally auctioned in London” (Spire 1962:150). It was added on p. 144: “That the highest value of North Borneo [at that time] has the inscription ‘Ten Dollaps’ [*sic*] is probably just the result of absent-mindedness when the lettering was made.” (E.H. Spire, *Stamp Collecting* (Collins Nutshell Books; Collins, London and Glasgow, 1962; 1967 reprint) [AVM Horton])

Dr. Vinson H. Sutlive has completed his two-volume study of the Iban *sabak*, or ‘lamentation for the dead,’ which is now being prepared for publication by the Tun Jugah Foundation, Kuching.

Dr. Clifford Sather presented a paper, “Speech in Ritual and Ritual Speech: The role of reported speech in Saribas Iban shamanic chants,” at the International Conference on Shamanic Chants and Symbolic Representation, November 26-28, 2010, organized by the Institute of Ethnology, Academia Sinica, Taipei, Taiwan. A collection of conference papers, including Dr. Sather’s, is scheduled to be published in 2011 in the journal *Shaman*.

Three faculty members from the Institute of East Asian Studies (IEAS), Universiti Malaysia Sarawak (UNIMAS), will present papers at an international seminar, “Radically Envisioning a Different Southeast Asia: From a Non-State Perspective.” The seminar is being held at the Center for Southeast Asian Studies, Kyoto University, Kyoto, Japan, 18-19 January 2011, and will be opened with an introductory address presented by Professor James C. Scott.

Professor Datuk Abdul Rashid Abdullah, Director of the Institute, will speak on “Engaging the State: Strategies and action of the indigenous peoples of Sarawak in dealing with authority,” **Dr. Daniel Chew**, “The Lun Bawang of central highland Borneo: Rebels, trade, and the Bible,” and **Jayl Langub**, “Territory is space of belonging: Engaging the state in Borneo.”

After the conclusion of the seminar, Daniel Chew and Jayl Langub will present papers

at another seminar, also at the Center for Southeast Asian Studies, Kyoto University, on 24 January 2011, “Chinese in Sarawak 1946-63: Education and belonging” and “*Tamu*: Trading at the edge.”

Datu Dr. Hatta Solhee was appointed Chairman, Board of Directors, Universiti Malaysia Sarawak with effect 1 May 2010. He took over from Tan Sri Bujang Nor who served as Chairman from 1993 to February 2010 [Daniel Chew and Jayl Langub].

Curtin University of Technology Sarawak has initiated a winter intersession program entitled “Peoples and Cultures of Borneo.” The first three-week program was held 21 December 2007 through 11 January 2008 on the Miri campus and involved 6 students and staff from Virginia Commonwealth University (VCU). During their stay, students visited Niah, Lambir, and historical sites in Kuching. **Bibi Aminah** is the Curtin University coordinator and more information on the program can be found on the Curtin University Sarawak website.

Barnes, Geoffrey Thomas (d. 2010), CBE. HM Overseas Civil Service in Hong Kong and Sarawak. Husband of Agnete (Nita); father of Michael, Andrew, Robin, Julia; father-in-law of Alison, Alice, and Susan; grandfather of Matthew, Leo, Thomas, Joseph, Amelia, Matilda; died on 11 February 2010, aged seventy-seven.

Harcourt, R.M. (d. 2009), Sarawak Oilfields Limited, 1947-51; lived in retirement in Taunton, Somerset (*Sarawak Association Newsletter* 2002:8); died during 2009 (according to the *Sarawak Association Newsletter* 2010).

Robinson, Dennis (d. 2010), died on 5 April 2010 aged ninety-two (*DT Th.22.4.2010:29*).

“British engineer who played a significant role in the development of Sarawak. Served in the Second World War in the Royal Artillery, spending three years as a Japanese POW on the Burma-Siam railway. Joined the Colonial Service in 1954 and built roads and bridges around the world, including Sarawak’s first major trunk road. Used to say: ‘The British Empire expanded because we have terrible weather back home.’ In 2002 published a book about his experiences, *A Mild Man in Borneo*. After retiring he spent much of his time in Kuching, capital of Sarawak” (*DT Th.22.4.2010:29*).

Worthington, Patricia (d. 2009), died at Hatch Beauchamp, Somerset, 26 November 2009, aged eighty-five; formerly of Clayhanger and Ilminster; Libya; Sarawak, Malaysia; widow of Ralph; “mother, grandmother, and great grandmother of David, Katharine, Helen, and John and their families” [AVM Horton].

BOOK REVIEWS

Laksono, P.M., Jajang Agus Sonjaya, Ons Untoro, Y. Tri Subagya, Almira Rianti, Aprilia Budi Hendrijani, 2006, *Pergulatan Identitas Dayak Dan Indonesia. Belajar dari Tjilik Riwut* [The Struggle for Dayak and Indonesian Identity. The Teachings of Tjilik Riwut]. Yogyakarta: Galang Press, 248 pp., ISBN: 979-24-9921-0.

This book, *Pergulatan Identitas Dayak dan Indonesia. Belajar dari Tjilik Riwut*, is a biography of Tjilik Riwut. It was written by a group of authors and edited by Pusat Studi Asia Pasifik (Center for Asia-Pacific Studies), University of Gadjah Mada, Yogyakarta, in collaboration with the publisher, Galang Press.

The book opens with two forewords, one by the Social Secretary of the Republic of Indonesia, H. Bachtiar Chamsyah, the second by the current Governor of Central Kalimantan Province, Agustin Teras Narang. Next follows a preface by Tjilik Riwut heiress, Mrs. Enon Riwing Toemon, a preface by the authors, an introduction, and five chapters (pp. 1-213). In order, these five chapters are: *Kasongan, Bukit Batu, dan Kalimantan* (Kasongan, Bukit Batu and Kalimantan); *Palangka Raya: Rumah Betang* (Palangka Raya: The Longhouse); *Membangun Identitas Dayak Lewat Tulisan* (Establishing a Dayak Identity through Writing); *Kenangan para Staf, Ajudan dan Kaum Muda* (Memories of the Staff, Adjutants, and Younger Generation); *Di Tengah Kerabat dan Keluarga* (Among Relatives and Family). It closes with a conclusion (pp. 217-228), a bibliography (pp. 229-234), including press articles and family manuscripts, a resume of Tjilik Riwut's life, a list of descendants, and brief profiles of the authors.

The authors state that Tjilik Riwut was a "common man who was uncommon." Tjilik Riwut was a common man because he was born a native of Southern Borneo in the small village of Kasongan (now a city) on 2 February 1918. He was an uncommon man because he became an important man in Indonesia's political history. He died in Banjarmasin's Suaka Insan Hospital on 17 August 1987 and was designated a *Pahlawan Nasional* (National Hero) in 1998. He is a renowned figure in Kalimantan not only because he was the first appointed governor of Central Kalimantan Province, but also because of his effort and hard work in establishing the province and making it an integral part of Indonesia.

The book traces the history of Tjilik Riwut's political and cultural life from 1939, during the period of Dutch colonial occupation, until his retirement. The key phrase in the title of this book is *Pergulatan Identitas*. The root of the word *pergulatan* is *gulat*, which, in the Indonesian language, means 'wrestle,' hence *Pergulatan Identitas* highlights his difficult struggle to define an identity for himself and his people. Being a Dayak at a time when Dayak culture was little known and, even worse, known through negative stereotypes, was difficult. Like other Dayaks of his time, Tjilik Riwut became one of those who experienced how difficult it was to deal with their ethnic identity within wider ideological, political, social, and cultural spheres. He realized that both his desire to preserve a Dayak identity and, at the same time, promote his Indonesian nationalism were two quite different things. Therefore, the authors use the word *pergulatan* in a rhetorical way to illustrate how Tjilik Riwut took an active part in gaining recognition of Dayak identity in Indonesia, by embracing "the opponents" (the Dayak themselves,

Indonesians, and the Indonesian government) as if in wrestling, and so integrating them into one another by nationalizing Dayak customs and traditions among Indonesians and by localizing Indonesia in Central Kalimantan Province among the Dayaks. The authors note that he not only applied this strategy in his political and cultural life, but also in his personal life. His wife, Clemetine Suparti (Ibu Pong), his soul-mate, was from the Island of Java. Java was a symbol of the central government of Indonesia since everything which related to the government then came from Java, hence the island came to symbolize Indonesia as a whole. Therefore their union was his way of nationalizing Dayak customs and traditions in Java (Indonesia) and of localizing Java (Indonesia) in Kalimantan.

Arguing along these lines, the authors begin by first focusing on Tjilik Riwut's origins and locate Kasongan and Bukit Batu as the places where his future concerns took form. Kasongan was the place where he was born and received his early education in a Dayak way of life; Bukit Batu was the place where he meditated in order to gain self-reflection, the place which inspired and empowered his soul to accepted his destiny to go to Java at the age of 18 and then, later, back to Borneo to create the province of Central Kalimantan.

The authors next present the strategies Tjilik Riwut pursued in creating an Indonesian Dayak identity. His efforts began when he was 28 years old. On 17 December 1946, Tjilik Riwut swore a loyalty oath to the Republic Indonesia, executing it in a Dayak traditional manner in front of President Sukarno, Vice President Mohammad Hatta, and the Governor of Borneo, Ir. Pangeran Mohammad Noor, at Yogyakarta (pp. 1-4). One of his most important efforts, which occupied his entire life, was to unify Central Kalimantan and to make it part of Indonesia by creating it as a separate province (23 May 1957). On 17 July 1957, Palangka Raya was established as the capital of Central Kalimantan. In establishing the province, Tjilik Riwut developed the "*betang* concept" as the basis of its socio-political structure. The authors explain that since the *betang* (longhouse) comprises more than one family, each with its own interests, the objective of the *betang* concept was similarly to develop a sense of communalism among the many different ethnic groups living in Central Kalimantan so as to overcome the differences and the tensions between them through joint deliberation, reflecting the unity of the whole.

Politically, Tjilik Riwut's first step was to join the Pakat Dajak party in 1939. In doing so, he sought to promote Dayak unity and gain recognition of Dayak customary law and cultural rights. The authors stress that even though Tjilik Riwut was determined to promote Dayak culture, he was not a separatist, but pursued the principle of *Bhineka Tunggal Ika* (Unity in Diversity) in both Kalimantan and Indonesia. The authors recount in detail how Tjilik Riwut succeeded in convincing Sukarno to choose Pahandut—the name of a small village before the founding of Palangka Raya—by appealing to the spirit of nationalism. Thus, he argued that it was the best choice to be the capital of Central Kalimantan Province because the village was without any trace of colonialism (i.e., prior to the creation of modern Indonesia, it had no previous history as a center of colonial trade and administration). Moreover, geopolitically, Pahandut was centrally located within the region and Tjilik Riwut was able to persuade the many parties in

Central Kalimantan to accept it as the provincial capital. At the same time, he began the process of localizing Indonesia in Central Kalimantan by bringing President Sukarno, its central symbol, to Palangka Raya. The authors explain that these successful efforts helped unify the Dayak people and strengthened the nationalistic spirit of the citizens of Central Kalimantan Province and their sense of connection with Indonesia.

As a writer, the authors show how Tjilik Riwut “wrestled” to gain acknowledgement of a Dayak identity using a series of pseudonyms drawn from Dayak mythology. In their bibliography they list 28 titles of works written by Tjilik Riwut (pp.231-234). These they divide into two periods. During the first of these, at the time of Dutch colonial rule, his writings were more concerned with social and political issues. During the second period, beginning with the Japanese occupation, he became more interested in Dayak culture and religion. It was then that he collected and wrote down accounts of Dayak customs and traditions. As the authors note, Tjilik Riwut also sought to erase negative images of the Dayaks by writing more generally on the Province of Central Kalimantan, its natural resources, and about Palangka Raya and its development. Tjilik Riwut’s books on these topics are *Kalimantan Memanggil* (Call from Kalimantan, 1958) and *Memperkenalkan Kalimantan Tengah dan Pembangunan kota Palangka Raja* (Introducing Central Kalimantan and the Development of Palangka Raja, 1962). The authors also note that Tjilik Riwut tried to enrich the Indonesian language by writing some of his books in both Ngaju and Indonesian. Among others are *Auh Oloh Balian Hapa Tiwah* (1962), *Maneser Panatau Tatu Hiang* (1965), and *Peladjaran Bahasa Dajak Ngaju (Bahasa Indonesia-Dajak Ngadju)* in 1970.

Chapter Three (*Membangun Identitas Dayak Lewat Tulisan*) describes the public career of Tjilik Riwut. Here the authors mention his use of a series of Dayak mythological pseudonyms such as: Sanaman Mantikei, Dereh Boenoe (*dereh*: stem; *Boenoe*: the name of a character in the Batang Garing myth), Kameloh, a woman’s name and that of a character also in the Batang Garing myth (Tjilik Riwut used this name in an article entitled *Waktu*, which refers to the stages of change in Dayak women’s ways of thinking); Njaru Menteng, and Rambang, which means ‘hesitate.’ In regard to the pseudonym *Sanaman Mantikei*, the authors explain that according to Ngaju legend, *Sanaman Mantikei* is a poisonous, highly flexible metal which is used for making *mandau* (swords). By using this pseudonym, Tjilik Riwut described himself as strong steel, able to withstand blows (suffering), having an adaptable, resilient character. The sharpness of the *mandau* also describes his sharp writings which are incisive and critical. The pseudonyms used by Tjilik Riwut in his nationalistic writings are Putera Kesatrija, Pentjinta Kemerdekaan, Sanaman Mantikei, Njaru Menteng, and Dereh Boenoe. As a writer, Tjilik Riwut also collected and rewrote Dayak animal fables. He used the animals’ world as a metaphor in his stories and, interestingly, he used the word *saudara* (brother/sister) to inspire values of social solidarity. In the pre-war Indonesian nationalist movement, the word *saudara* was used in a political context to emphasize companionship and the equality of human beings. After his death, his capacity for writing about Dayak culture was bequeathed to his daughter, Nila.

Regarding the personality of Tjilik Riwut, the authors portray him as a highly disciplined man, always on time, a hard worker, determined, courageous, diligent,

thorough, communicative and encouraging. In the view of his colleagues, Tjilik Riwt was an originator, a pioneer, an avant-garde, forward-looking man. He had an avant-garde perspective; always looking towards the future. To solve the problem of Dayak isolation, for example, he proposed a road from Palangka Raya to Sampit (to access the harbor) and construction of the Palangka Raya airport.

Tjilik Riwt had a close relationship with traditional Ngaju religion (Kaharingan) and, as the authors explain, led efforts to conserve the Kaharingan faith and secure its status as a recognized religion in the law. Indeed, there is a strong spiritual bond between Tjilik Riwt and the Ngaju people, so strong, in fact, that in death he has become a mythologized, spiritual figure for the Ngaju. It is believed that his soul is still in the earthly world and that he sometimes reappears in other forms. The authors portray Tjilik Riwt as the spiritual father of Central Kalimantan Province, a role model, symbol of a fighter against injustice (colonialism), a *putra daerah* (native son) who founded his own *daerah* (region) and constructed an ethnic identity for himself and his people.

The authors complete their portrait of Tjilik Riwt by viewing him as he was seen through the eyes of his family and relatives. Although austere and a workaholic, he was, nevertheless, warm and passionate and never forgot his family. The authors describe how Tjilik Riwt and his family put into practice the concept of a *betang* way of life, even though they did not live in a longhouse (*betang*). When faced with problems, they solved them in the *betang* way by deliberating together openly. His household consisted of his family, relatives (close and distant) and many animals.

Finally, as part of his personality, the authors note Tjilik Riwt's close identification with the number 17, which was a sacred number for him. It was also an important number in Indonesian political history, and, in the end, it was the date of his final departure. Tjilik Riwt died on 17 August 1987.

I found several errors and gaps in information in the book that I would like to respond to briefly here:

1. The authors describe Dr. Hans Schärer as a "Dutch preacher" (p. 18). Schärer was, instead, a Swiss ethnologist and a member of the Basler mission who worked among the Ngaju from 1932 to 1939 and in 1947.
2. There is a misspelled name: "Bekker" (p.19) should appear as "Bakker." Bakker was a Dutch missionary from Classis Amsterdam who lived in Kasongan from 1921 through 1939.
3. Referring to the pseudonym Nyaru/Njaru "Menteng," the authors define Menteng as a strong brave man, but can provide no definition of "Nyaru" (footnote 12, page 106). The difficulty here is that the authors interpret the name Nyaru Menteng as two names (*Nyaru* and *Menteng*), instead of as one name. The definition of Nyaru Menteng can be found in Nila Suseno's book *Maneser Panatau Tatu Hiang, Meyelami Kekayaan Leluhur*, on page 487: "*Nyaru Menteng* is a divinity who rules over warfare, the wind, thunder, lightning, and fire, and has responsibility for the safety and security of the clan." Hence, by using this pseudonym, Tjilik Riwt expressed his willingness to care for the Dayak people by means of his "divine powers."

4. Referring to the pseudonym Rambang (p.106). Again, a character named “Rambang” appears in Nila Suseno’s book *Maneser Panatau Tatu Hiang, Meyelami Kekayaan Leluhur* (pp. 432-436), in the story of *Pertempuran Pulau Kupang* (The War on Kupang Island) where a character named Temanggung Rambang is described as a hero, a brave man who fights in this war to defend Nyai Undang.
5. On page 107, the authors write that Boenoe is “the first man in the myth of Batang Garing.” Instead, he is the first man who descends to the earth (Kalimantan). In the myth of the creation of life (*Batang Garing*), the first man to be created is named Manyamei, the father of Boenoe.
6. The authors write that the Sala River is located on the upper course of Katingan River (p.168). Geographically, the upper Sala flows towards Bukit Batu and the lower Sala River empties into the lower middle course of the Katingan River, which is located in front of Kasongan city.

Pictures and political history source materials richly illustrate this book. For readers looking for detailed descriptions of various aspects of Tjilik Riwut’s political life, this book has a lot to offer. It includes extensive information on his political activities from the moment he entered politics by joining Pakat Dajak (1939), continuing through the Japanese occupation (1942-1945), and into the Indonesian war of independence period (1945-1949), when Tjilik Riwut took part in the retaking of Kalimantan. Although, as a biography, it contains less information concerning Tjilik Riwut’s cultural life, *Pergulatan Identitas Dayak Dan Indonesia. Belajar dari Tjilik Riwut* is nonetheless a great book from which to learn how to achieve, keep and respect one’s identity, both one’s ethnic identity as well as one’s identification with a nation.

(Junita Arnel Maiullari, Museo della Culture, Lugano, Switzerland)¹

¹ **Editor’ note:** The author of this review, Junita Arnel Maiullari, is herself Ngaju and a distant collateral descendant of Tjilik Riwut.

Baier, Georg Martin, 2008, *Dari Agama Politeisme ke Agama Ketuhanan Yang Maha Esa. Teologia Sistematika, Agama Hindu Kaharingan: Pembahasan Kemajuan Iman dan Kehidupan Agamawi Agama Hindu Kaharingan. Disusun Berdasarkan Buku Pelajaran Agama Hindu Kaharingan untuk Tingkat SMTP kelas I-III* [From a Polytheistic to a Monotheistic Religion (a religion of the one and only God). Systematic theology, Hindu Kaharingan religion: A study of the faith's progress and the religious life of Hindu Kaharingan, based on the Hindu Kaharingan schoolbook for Junior High School classes I-III], Untuk Kalangan Sendiri, 160 pp, 1 b/w plate; A4; metal spiral binding; price in SE Asia Rp. 65.000; in Europe and USA at least USD \$35.00.

Pour savoir de quoi sont faites ces conceptions que nous n'avons pas faites nous-mêmes, il ne saurait suffire que nous interroguions notre conscience; c'est hors de nous qu'il faut regarder, c'est l'histoire qu'il faut observer [...] (Durkheim, 1912:27-28)

This book is written by a German theologian and anthropologist, Dr. Martin Baier, who has lived in southern Borneo for many years, mainly among the Ngaju people. Here, he spent much of his childhood and, later, many years as a pastor, researcher, and teacher. Today he pays annual visits to Kalimantan where he teaches as a visiting lecturer at STT Petra, Samarinda. Dr. Baier shows his concern for the Dayak people by teaching and writing in Indonesian. His purpose in using the Indonesian language is to make this book accessible to Indonesians, and especially to Dayak scholars. In this way, he allows Dayak readers to share in the knowledge and discussions of their own culture that have been conducted mainly in foreign languages and introduces Dayak readers to the possibility of reflecting on their own traditions through the use of a historical perspective.

The point of departure of this book is the *Buku Pelajaran Agama Hindu Kaharingan tingkat SMTP kelas I-III* (Schoolbook of the Hindu Kaharingan Religion for Junior High School) written by the Majelis Besar Agama Hindu Kaharingan and published by the Ministry of Education in three languages: Indonesian, Ngaju, and Sangiang (sacred language). Dr. Baier's book analyzes its contents chapter-by-chapter using a historical-critical method. His focus, he tells us, is on two concerns: *Sejarah* (history) and *Penyesuaian dengan Ideologi Pancasila* (accommodation with the ideology of Pancasila). In Kaharingan's struggle to survive, accommodation was necessary. With some discreet manipulations (as part of a political strategy), Kaharingan, which was known to most Indonesian people simply as an *aliran kepercayaan* (a body of beliefs) was made into a modern religion. Hindu Kaharingan worship was modernized in two ways: 1) it was transformed into a monotheistic religion, and 2) entirely new regulations were added that are not rooted in Dayak culture (p. 120).

The book includes an extensive survey of historical sources tracing the development of the Kaharingan religion back to the 1840s. In my opinion, this is the most valuable part of the book. The author also criticizes misprints, inappropriate uses of Indonesian terms, and defects in the interpretation and translation of the *sangiang* sacred language into Indonesian.

Due to the fact that the book contains a critical discussion of an Indonesian

religion, i.e., Hindu Kaharingan, no Indonesian publisher dared to publish it. However, one publisher helped Dr. Baier with the layout and editing, so that he was able to make copies of it on his own. This turned out to be a blessing in disguise, as the book could then be sold at a low price affordable to many scholars. The book is available at Toko Buku GKE Palangka Raya, Jl. Diponegoro No. 3, Komplek Resort GKE, Palangkaraya 73111, Central Kalimantan.

Dari Agama Politeisme ke Agama Ketuhanan Yang Maha Esa comprises 160 pages and opens with a foreword (pp. 7-15) written by Prof. Drs. Kumpiady Widen, Senior Lecturer in Anthropology at the University of Palangkaraya. This is followed by a list of abbreviations, a preface, four chapters, a conclusion, a diagram, an index, and a bibliography.

The foreword introduces the reader to the political vicissitudes that the Kaharingan religion has undergone down to the present. During Indonesia's *Orde Baru* (New Order) era (1966-1998), Kaharingan and its believers were seen as obstacles to modernization (p. 9). In addition, laws and policies relating to development were often detrimental to the continued existence of Ngaju customs and culture. Nevertheless, the right of the Ngaju people to practice Kaharingan has been acknowledged and upheld by Indonesian law since 1945 (pp. 11-12).

"Kaharingan" is a relatively recent term. Damang J. Salilah is said to have presented it formally for the first time to a Japanese officer at Banjarmasin in 1945 (Ugang, 1983: 10). "Kaharingan" is the key word in Baier's book. Kaharingan itself is a system of beliefs and the religion of the Ngaju. There are a plethora of names used by the Ngaju to refer to Kaharingan, like *Gama Ono*, *Agama Kuno*, and *Agama Helo*. All have the same meaning: "ancestral religion that has existed since the creation of the world." Many efforts have been made by the *Majelis Besar Agama Hindu Kaharingan* (The Great Council of the Hindu Kaharingan Religion) to maintain the Kaharingan religion. Some of them are remarkable, such as the introduction of the Kaharingan religion into the school curriculum, from elementary school to university level. The Council also founded a *Sekolah Tinggi Agama Hindu Kaharingan* in 1986 (Academy of Hindu Kaharingan religion). In 2001, the academy's name was changed to *Sekolah Tinggi Agama Tampung Penyang Palangkaraya*.

On 28 April 1980, the Kaharingan religion was granted official status as an *agama suku*, an ethnic religion. Known before as merely an *aliran kepercayaan* (system of beliefs), Kaharingan was accepted as an official religion by affiliation with the Hindu Bali religion and officially acquired the "new name" of *Agama Hindu Kaharingan*. Henceforth, the *Majelis Besar Alim Ulama Kaharingan* (The Great Clergy Council of Kaharingan) changed its name by adding two "official" words: *agama* (religion) and *Hindu* and became *Majelis Besar Agama Hindu Kaharingan*.

With the fall of Suharto in 1998 and the beginning of a new "reformation" era, the state granted recognition of *agama suku* (ethnic religion) status to Confucianism as the sixth official religion after Islam, Protestantism, Catholicism, Hinduism, and Buddhism. In 2003, MBAHK submitted a demand to the government that Kaharingan be separated from the Hindu Bali religion and be accepted officially as the seventh recognized religion. However, this demand has yet to receive a government response.

In the preface, the author discusses problems related to sources of information on Ngaju culture and the fallibility of recent western writers. According to the author, one of the reasons for the superficiality of much recent writing is due to the relative ease of modern travel. Back in the nineteenth century, many westerners (scholars, soldiers, and missionaries) came to inland villages to learn about Dayak culture. Due to difficulties of transportation, many of them stayed for a long time, some even marrying native people. They had time to learn properly and, living among natives, many learned to speak native languages fluently and so had greater opportunity to collect accurate information. By the 1960s, it was much easier to reach Kalimantan and to find native people who could speak a little English. With limited time to explore and complete research, easier access to inland villages and natives who could speak English, many scholars dedicated only a short time to their field research. The disadvantages are potentially biased reporting or, worse, drawing false conclusions. These difficulties are especially acute in dealing with religious myths and correctly interpreting the sacred language.

With this in mind, the author reviews the information contained in Dutch-, German-, and English-language sources over the last 160 years. To avoid bias, he composes the four main chapters of his work in two parts, using smaller fonts for citations taken from the *Buku Pelajaran Agama Hindu Kaharingan tingkat SMTP kelas I-III*, and larger fonts for his own analysis, i.e. comparing these citations to show possible manipulations and misinterpretations.

In the first chapter (*Pendahuluan* or Introduction), Dr. Baier evaluates the Hindu Kaharingan religion schoolbook against the writings of a series of authors who studied, observed and wrote about Ngaju culture. Among these are J.F. Becker, the first observer to write about Ngaju religion in his study, *Het district Poeloepetak: Z. en O. kust van Borneo*. Becker lived for 13 years in Central Kalimantan (1836-1849). Others include Hardeland (who lived for 15 years in the Murong and Kahayan areas), Schwaner, M.T.H. Pereaer, F. Grabowski, Philipp Zimmermann, H.P.H. Tromp, K.Epple, J. Mallinckrodt, H. Witschi, Hans Schärer, Tjilik Riwut (who was an assistant of Schärer), F. Ukur, and A. Schiller (who lived for 10-12 months in the middle and upper Kahayan and in the middle Katingan areas).

The author notes that some changes in the Kaharingan religion were made for political reasons. Beginning in 1848, for example, historical sources indicate that in the Ngaju religion there were two supreme gods, one female and one male. However, during the New Order period, according to the state ideology, Pancasila, the co-existence of two supreme gods violated the principle of *Ketuhanan Yang Maha Esa* (belief in the one and only God). Therefore, the two supreme gods had to be merged to conform to the official religion, with the female supreme god becoming a manifestation of the male supreme God. Other rules and systems also had to be adapted to the political and economic situation. Thus Kaharingan, which was “only” an ethnic religion, became a recognized religion, Hindu Kaharingan, and an *agama helo* (old religion) became a modern religion.

The most challenging part of Baier’s book is chapter three, *Etika* (Ethics). The three subjects dealt with here are the *tiwah*, sacred fornication, and the status of the supreme god, Ranying Hatalla Langit. The author explores the documented history of

tiwah before 1870 and reveals facts which are quite difficult to swallow, especially for Ngaju readers, because of modern antipathy towards certain features of the ceremony. He records, for example, the act of *mangangkuit* (removing the soul from the body) performed on the *kabalik* (offering slave) as a part of the *tiwah* rite, and describes in detail how the *kabalik* was killed (p.98-99). In discussing this topic, which some Ngaju regard as a tabooed subject, it is important to stress the historical existence of these practices as part of an elaborate system of beliefs relating to the Kaharingan religion. That is why the author always introduces himself to a new class (in Kalimantan) as a German person whose nation killed 6 million Jewish people by poison gas. By introducing himself in this way, he tries to make his students understand that history contains many events, some good, but also some bad. Hence, in studying history and anthropology, the unpleasant, painful, or even disgraceful facts should also be acknowledged and taken into account. On the subject of sacred fornication, the author argues that this practice, which was reported to have been done by *balian* (women priestesses) and found in the area of south Paju Sepuluh, south-middle Barito (from Buntok, Kapuas), and in the middle and south Kahayan, was introduced by outsiders who came to Borneo as *ronggeng* (professional dancing or singing girls, sometimes also available for sex). However, *balian* in the Ot Danum, Katingan, and Paju Empat areas were ordinary women who lived as housewives (p. 104).

Finally, the last tough subject that the author discusses is the supremacy of the supreme God, Ranying Hatalla Langit. Eighty years ago, Ranying Hatalla Langit was said to live in the highest level of the sky, or in the seventh sky; therefore he rarely bothered about human beings. Instead, the deities and the *sangiang* (spirits) took on the task of helping humans. The praise, veneration, and hopes of humans were thus aimed less at Ranying Hatalla Langit than at the latter. The MBAHK curriculum, however, states that Ranying Hatalla Langit is the only one exclusively revered by humans, while the deities and *sangiang*, being only the spirits, received less respect (p. 116).

Concerning ethics, the author also writes about the behavior of westerners. Referring to the “famous” story of Wyn Sargent and her tribal (ex) husband (p. 24) and the story of one western female scholar who studied Ngaju culture in the 1980s (p. 24, 34), he stresses the importance of respecting local standards of morality and ethical behavior in Indonesia.

The author concludes his book by stressing that his work is meant to encourage Dayak and Indonesian scholars to reflect critically on Dayak Ngaju culture from what has been recorded over the last 160 years (p. 143). Since ethnic religions contain mysteries, most Indonesian/Dayak scholars tend to regard them as something whose past is hidden. However, history is always there and the author encourages us to emphasize the past and its significance to the present and for the future. It is said that “Criticizing a religion may disturb the religious peace,” especially if the criticism comes from an outsider’s perspective, but in my opinion there is a huge difference between criticizing a religion based upon hatred and criticizing it based upon concern. Indeed, for me as an Indonesian and a Dayak who tries to understand my culture’s roots, the greatest value of this book lies in its historical detail and in its honest discussion of the history of Ngaju culture, free from political bias.

(Junita Arnelde Maiullari, Museo delle Culture, Lugano, Switzerland)

Noboru Ishikawa, 2010, *Between Frontiers. Nation and Identity in a Southeast Asian Borderland*. Singapore: NUS Press; Copenhagen: NIAS Press. Maps, photographs, tables. Pp xvi, 268. ISBN 978-9971-69-335-8; and 978-87-7694-050-8.

This is a book of very special qualities, by an author who is at home as much in nineteenth century Sarawak as in the modern political and economic structures which have evolved from early Brooke rule—or, as is often the case, have been rudely substituted for what the Brookes established. Past and present are portrayed, and bridged, most convincingly by the many pages of archival research, sensitive ethnography and oral history from the notebooks of a husband-and-wife team, in the field, 1993–94, 2002, 2006 and 2007. And the spatial focus of this dedicated endeavor was a cross-section of the peninsula known as Tanjung Dato, i.e. the northwestern tip of Borneo: an area having the dubious distinction of being cut into two halves by an international boundary which reflects ultimately a demarcation between two European empires (at the Treaty of London, 1824) and is devoid of any cultural logic. The sheer doggedness of one jungle-bashing Dutch demarcation report (Illus. 3, p. 48) somehow symbolizes it. It is this illogicality that forms the conceptual starting point of the study, although one is immediately surprised by the book's title. Would not "Astride Frontiers" have expressed more pertinently the idea of a cultural community with feet in two modern states?

Perhaps the author wishes to point us subtly in the direction of the multiplicity of different demarcations, requiring choice and decision on a daily basis, sometimes in contradiction, by people inhabiting such a frontier zone. Certainly, as the book and its chronological progression advance, new complexities become so much the norm that the would-be starting point in a Malay society placidly allegiant to (thus not yet, in nation-state style, "torn between") the distant Sultanates of Sambas or Brunei fades from our view. Even at the outset we find that the people whose swidden agriculture ranged traditionally over the putative domains of two Sultans were not Malays anyway, but Dayaks. Malays were attracted from Sambas to the east coast of the peninsula by the Brooke regime, keen to add copra to Sarawak's export repertoire. Similarly immigrant, if from further afield, were the Chinese, whose "destiny" under the Brookes was as taukays from Singapore to open up pepper and coffee gardens, or as indentured and opium-addicted coolies from Dutch Borneo to labor on them. Meanwhile, the Dayaks were deprived of their customary land rights and pressured to become settled, and indeed a number of them did as well as the Chinese in the plantation role. Even more defiant of ethnic stereotypes was the way the Malay immigrants—bereft, after a couple of generations, of the leadership of the one-time *nakoda* (ships' captains) who had led the transition from trade in logs to coconut planting—themselves gravitated to hill-rice planting as logging dried up and copra proved unprofitable. Nor did coastal Malay communities take advantage of the rubber boom in the late 1920s, as their counterparts in the Malay States did—albeit they were partly discouraged by government adherence to the International Rubber Regulation Agreement.

What steadily emerges about this corner of Sarawak (where the fieldwork was mainly carried out, rather to the exclusion of Indonesian Borneo) is a picture of one variant of a classic plural society, so much cut off from the past of the area that this history is no longer a helpful reference point for twentieth-century analysis. One could

correspondingly query the relevance of the term “nation-building,” which, as commonly understood, may be a natural aspiration of the present-day Sarawak elite, heirs to the Brookes’ new “geo-body” [*sic*], but is surely premature if the realized, sociological existence of a nation-state is implied. Nevertheless, inasmuch as the aspirations and actions of states are an independent variable initiating change (especially in border zones, where modern states have an almost defining obsession about their sovereignty, as Ishikawa argues), this can be a relevant and productive framework. It is also an interesting perspective that where the society on one side of a border is disproportionately dedicated to revenue collection, it will have to enhance its border administration even more, to curb smuggling and evasion of a head-tax; or where it is disproportionately prosperous and has a strong currency, it will need to police labor migration from the other side. Ironically, it is the magnet of the modern Sarawak economy that has induced a new wave of Sambas population to move northwards (though not into Sarawak, residually speaking), whereby the peninsula has become a zone of common Malay culture where it did not really have that nature in the past. However, even such a strong magnet cannot override the appeal of the Indonesian nation-state as the irresistible focus of its citizens’ identity (p. 199). Ultimately, therefore, an international boundary does divide, and thus upholds the states on either side, however much Ishikawa in some respects seems more prone to highlight their mutual subversiveness at an interface, or the permeability of such a zone for cultural-cum-cognitive interactions and unification. Page 204 offers one of the less ambiguous statements inclined towards the former position.

Among many examples of empirical excellence are the exploration of the impact of the Brunei Rebellion (1962) on inter-family and cross-border relations to this day. Given the writer’s superior skills as historian and ethnographer, the heavy theoretical interpolations seem an unfortunate distraction, if not actually detracting from his achievement. Presumably, at these points, Ishikawa has an audience in mind which may find the empirical content a distraction! The present reviewer is not an enemy of theory, but the chronological scope of the study, and the quite revolutionary changes which it documents, defy a simple choice among theories. Nor is it helpful to try to equal complexity on the ground by flaunting a panoply of current pacemakers, some of whose preconceptions turn out to offer a less than perfect fit with the situations described. How, for instance, does the rusticity of Telok Melano, compared to the elite Malay culture of Kuching—due to distance—enhance our understanding of the dynamics of international demarcation, or vice-versa?

(Roger Kershaw, Clashnessie, Scotland IV27 4JF)

Abdullah, Robert Rizal, 2008, *My Adventure: An Iban Warrior’s Autobiography*. Coral Springs, Florida: Metier Books.

Robert Rizal Abdullah (up to 1972, Robert Madang ak Langi) published his life story when he was 60 years old but will hopefully live many decades longer and have more adventures to tell us later.

I first knew of the author as a former student of Peace Corps volunteers and

sundry other teachers at Tanjong Lobang School in Miri in the 1960s. As he told me recently, he was enamored as a boy with the rather elderly school matron there, also a Peace Corps volunteer, who rode around on an antique bicycle and also organized the great war on bedbugs in the boys' (Deanley) hostel. The bedbug war under this supreme commander was Robert's first adventure in military strategy.

Long before he arrived in Miri, however, he had been enamored with the legends of Iban warrior heroes, recited in his natal longhouse of Lachau Ili. This eventually led him to emulate these heroes by joining the Malaysian Army. After two years as a cadet in Malaya, he was happily posted to the Third Battalion of the Malaysian Rangers, then operating in Sarawak. In between times, he climbed Mt. Kinabalu and canoed down the Upper Perak River to Kuala Kangsar. Once assigned to Sarawak, the Rangers were stationed along the Kalimantan border during Confrontation but the writer's platoon did not make contact with any "CTs" (communist terrorists) in the first year of duty there. In the following years, in both Malaya and Sarawak, the Rangers did carry out successful anti-CT operations, as described in the text, for which the author received the Panglima Gagah Berani (PGB) award.

The only drawback to this volume is the lack of copyediting, but the "adventure" comes through clearly despite this flaw. Indeed, adventure is the fitting title for this book.

(A. Baer, Oregon State University, Corvallis, Oregon, USA)

Clare L. Boulanger, 2009, *A Sleeping Tiger: Ethnicity, Class and New Dayak Dreams in Sarawak*. Lanham: University of America Press. ISBN: 978-0761843764.

This book is based on an examination of insiders' views, in this case those of Dayaks (a catch-all term for non-Muslim indigenes in Sarawak, p. vii), about what it means to be ethnically Dayak in present-day Sarawak. Implicit in the book's title is the sense of a force at rest. The subtitle juxtaposes "ethnicity" with "class" and "dreams," the latter suggesting that Dayak aspirations regarding ethnicity and class may remain unfulfilled in the twenty-first century metropolitan landscape of Sarawak, a prognosis that is upheld at the book's end.

The book has 154 pages of main text in 8 chapters, a 14-page bibliography, and a 5-page index. There are 2 maps: peninsular Malaysia on p. 47 (although its function is unclear); and a map of Sarawak, on p. 67, with delineations of administrative divisions but not much else. There is a table of Sarawak's indigenous ethnic groups (p. 18), about which I and, perhaps, others may be concerned given it has no label but, more critically, is attenuated and hence slightly misleading: *orang ulu* are conflated with a set of 7 sub-ethnic groups, plus "and others," to illustrate the larger so-called *orang ulu* "ethnic group," a somewhat simplistic title for these congeries of diverse ethnolinguistic groups. To be fair, *orang ulu* is a widely used term of general reference, but ethnicity in Sarawak is a contested issue, as Zawawi (2008) has articulately described. Boulanger's book is based on research undertaken over three separate periods, partly sponsored by the Tun Jugah Foundation of Sarawak. The author interviewed 112 people in what appears to have been a semi-structured format, following an interview protocol given on p. 98.

In chapter 1, “Introduction: Ethnicity, class and dreams of dignity,” the author locates her study in a global context. A feature that makes Malaysia stand out (to many non-Malaysians, as well as some Malaysians) is the central place of ethnicity. Despite the author’s claim, “no one ethnic group having the power to declare itself ‘normal’” (p. 2), there is a tendency to foreground Malays and “Malayness” (cf. Nagata 1974) in many domains of public life. And one is sometimes inclined to feel as if being Malay is synonymous with being Malaysian, a form of homogenization linked to the idea of “the Malaysian race,” a notion touted by Mahathir (p. 60). In Malaysia, ethnicity is generally referred to as “race,” which, the author claims, “attracts no opprobrium,” a point about which I cannot agree. While not necessarily damaging or divisive, use of the term “race” still implies fundamental difference and conveys implicit messages about the so-called racial group being referred to, possibly as inferior in some way. Towards the end of this chapter, on pp. 13-15, there is a very useful summary of the book’s contents, while self-deprecatingly acknowledging its limitations.

In chapter 2, the author provides superb contextual information under the heading, “The construction of ethnicity in Sarawak—from Brunei to Malaysia,” providing rich discussion of pre-colonial history among more recent historical developments. I feel an opportunity was missed, nonetheless, to discuss how Sarawak was absorbed into Malaysia, following the Cobbold Report (1962), including concerns about this merger articulated by Sarawakians, as some of these predate issues raised by Boulanger’s interviewees (see, especially, paragraphs 42 and 49; the report is available from Wikipedia).

In chapter 3, Malaya’s political independence and the Mahathir era (during which Malaysia generally enjoyed substantial economic growth) are discussed, along with the emergence of the “*bumiputera* policy,” which is purported to boost the economic position of the indigenes, but is not always perceived in this way by some informants. In this connection, perceptions of the Ninth Malaysia Plan have also been investigated among rural dwelling Iban (J. Sercombe 2008), from which one view emerges above all others—the extent to which an Iban community is connected with the ruling political party and how this relates to state-sponsored infrastructural development awarded to that community.

In chapter 4, the relationship between peninsular Malaysia and Sarawak is considered, and how the first Chief Minister of Sarawak, an Iban, Stephen Kalong Ningkan, was unseated to make way for an Iban puppet of West Malaysia. Following this, a Muslim Chief Minister was installed in 1970, a situation that remains until this day. The current incumbent, Abdul Taib Mahmud, his predecessor’s nephew, however, has gradually become a butt of public criticism, particularly regarding his involvement in the logging industry and the wealth that has accrued from this, as can still be viewed on Wikipedia (cf. p. 82). Chapter 5, “Fieldwork in the urban jungles of Borneo,” is essentially about the author’s methods, and these are explained in clear detail. Given the purpose of gaining a Dayak perspective, the approach seems to have been highly productive.

Chapter 6, “Dayaks—losing the ‘race race’?,” opens with a discussion of the current Chief Minister’s views on development, an ongoing state and federal mantra,

top-down, yet couched in terms of benevolence. The author then goes on to reveal the first 6 of the 12 broad themes that emerge from her interview data. These themes embrace: “Behind” which includes a number of areas in which Dayaks feel they are lagging, especially in economic terms; “faults of their own,” self-attribution of blame for the often poor circumstances of Dayaks; “something to prove” in relation to non-Dayaks, in socioeconomic cum-class terms among others, rather than ethnically; a feeling of being “second-class *bumiputera*” in terms of opportunities and advantages accrued by Malays in the main, but also Chinese; “like some primitive group” insofar as this is what some informants see as perceptions of themselves (mainly) by West Malaysians; and, such is the level of bitterness among some Dayaks that “drastic measures” are seen as legitimate means to tackle perceived wrongs, but which are likely to be more a sentiment than a call to action.

Chapter 7, “Fighting in a different way: In defense of being a Dayak,” continues by mining responses to the author’s questions, from which seems to emerge a distinct “self-consciousness” (p. 121) regarding ethnicity and class among her sample. This is curious since, generally, they are success stories in their own right, even if they do not depict themselves as such. However, this chapter takes account of ways that Dayaks might improve their lot (in contrast to themes from the previous chapter): “Education—rural to urban ethnicity” and the challenge of making the Dayak label work to their benefit (see p. 127); “reworking history” so that the Dayak story can be documented and publicly acknowledged (cf. Sandin 1967); “rewriting *adat*” to help make sense of contemporary life, *adat* being linked to a “communal life” with concomitants of “sharing” and a “sense of community” (p. 131); “turning culture inside out” such that Dayaks reconstruct themselves in ways used by others (to describe them). From this, also emerges (among 43 interviews) the notion of ethnic “identity” (p. 133) and the salience of language as a particular dimension of this¹; “the model minority approach” by which less successful Dayak groups rise to the levels of those who are generally seen as “ethnic success stories” (p. 139), e.g.: the Kelabit, Lun Bawang and Melanau; and, finally, “you don’t have to wait 400 years,” a theme that suggests Dayaks can achieve parity with non-Dayaks in a rapidly connecting and connected world and from which has emerged media that can cater to mass expression by minority groups.

The penultimate chapter, “Conclusion: The impossible dream?” is not overly optimistic about the circumstances of the Dayak: their lack of political unity, besides the huge challenge of tackling state and/or federal political machinery. Nonetheless, in the final brief chapter, “Postscript: The general elections of 2008,” Boulanger suggests a sense of ennui with the current political situation among the wider Malaysian population, which gives some hope of the possibility of change, whatever this may bring.

It would have been interesting to see some full transcripts of interviews, or a set of interviewee utterances linked to one theme, also, closer analysis of some of what Dayaks actually said (as in examples on pp. 137-138), to gain a more detailed understanding of themes that emerged. This is, nonetheless, a very well-researched and

1 In this connection, it was proposed in the Malaysian media in the 1980s that Iban is a “dialect” of Malay, a proposition that sparked outrage (see Ejau 1987 and Masing 1987).

elegantly written book, especially in terms of its high level of contextualization. The reader gains a wealth of historical background, on the basis of which one is better placed to understand responses of Dayaks interviewed by Boulanger and, more broadly, some of the challenges facing Sarawak today.

References

Ejau, A.

1987 Fury over Iban dialect. *Borneo Bulletin Newspaper*. (January 17): 13-14.

Masing, J.

1987 Iban language 'in own right.' *Borneo Bulletin Newspaper*. (January 31): 28.

Mühlhäusler, P.

1996 *Linguistic Ecology*. Routledge: London.

Nagata, J.A.

1974 What is a Malay? Situational selection of ethnic identity in a plural society. *American Ethnologist*, 1(2): 331-350.

Sandin, B.

1967 *The Sea Dayaks of Sarawak before White Rajah Rule*. Ann Arbor: Michigan University Press.

Sercombe, J.S.

2008 To what Extent has the development of Malaysia impacted the development of the Iban in Sarawak? Unpublished BA Dissertation, University of Bradford, UK.

Zawawi Ibrahim

2008 Discoursing representation, identity and multiculturalism in Sarawak. In: Zawawi Ibrahim, ed., *Representation, Identity and Multiculturalism in Sarawak*. Kuching: Dayak Cultural Foundation, pp. 1-19.

(Peter Sercombe, Newcastle University, UK)

William Beavitt and Andrew A. Tuen, 2010, *Swamp: Kuching Wetlands National Park*. Kota Samarahan: Universiti Malaysia Sarawak, 111pp., ISBN 978-967-5527-06-7.

William Beavitt, the main author of this book, first visited Sarawak as a boy (his father is anthropologist Paul Beavitt), then later returned in 2007 as a fulltime Universiti Malaysia Sarawak postgraduate student. It was during this time that he wrote *Swamp: Kuching Wetlands National Park*, a photographic guide to the 6,610-hectare, biologically diverse and ecologically important area that was constituted in 2002, originally as part of a larger Sarawak Mangrove Forest Reserve.

The guide is composed predominantly of a potentially stunning collection of photographs of nature—mammals, bird, reptiles, invertebrates—and of people interacting

with the natural world. Unfortunately, however, the poor-quality reproduction does justice neither to the skill of the photographer, William Beavitt, nor to the wonders of the park.

The walk for the reader through the park via wildlife starts with the primates and the iconic proboscis monkey. We get an intimate look at life inside the bachelor groups and the harems dominated by a single mature male. The dramatic photographs include a mother cuddling her young, bachelors imitating the aggression of the mature males when they defend their harems, and a large-bellied and bulbous-nosed dominant male.

Close-up shots of the silvered langur and long-tailed (crab-eating) macaque follow. These, unlike the heart-wrenching one of the hand of a captive pig-tailed macaque grasping the bars of its cage, are of the primates in their natural habitats. Other mammals, including playful small-clawed otters, bearded pigs and wild cats, are up next. Although not as personal, glimpses of bottlenose and Irrawaddy dolphins breaching above the waves are shown.

The portraits of a small selection of birds generally found in and around the seaside grip the reader next. The pages showcase colorful kingfishers and graceful egrets. Beavitt is also able to capture reptiles and invertebrates at their best. The animals do not live in isolation, but are connected to the landscape defined by the forest habitat—mangrove forest, beach habitats, and *kerangas* or ‘heath forest.’ For example, proboscis monkeys general inhabit the coastal mangrove forest and in the guide we can almost feel the rough bark of the *Sonneratia* sp. and be tripped by the pneumatophores (erect roots), an adaptation to the tidal nature of this forest type.

Several human communities exist along the edge of the Kuching Wetlands National Park and they have a history of earning a living from the sea and land. Photographs of economic activities, for example fishing or processing nipah, demonstrate the communities’ (and ours, in a general sense) dependence and connection to the forest. In small or big ways, man has influenced the landscape. The final chapter provides tips to visitors.

The layout of the guide is also partly responsible for the tantalizing photographs not being shown at their best. Some pages are crowded, for example pages 76 and 77, with several views of myth-shrouded Santubong Mountain contrasted sharply with the white space of others. In addition, the guide left the potential visitor needing more information than what was provided on the boat routes through the mangrove forest and on the single walking trail. The vague maps were not sufficiently detailed. Although the book is a photographic guide, we cannot assume that all who pick it up will possess background knowledge of mangrove forests and the mutual dependency of its inhabitants. This is hinted at, but not explored fully.

I have visited Kuching Wetlands National Park and the adaptability of the living creatures to the extreme environment—the salinity, exposure to full sunlight and heat during low tide and then being immersed—left me truly in awe. Despite the dedication and skill at photography, the reader is not likely to truly appreciate the complexity and harsh beauty of this remnant of the Sarawak Mangrove Forest Reserve.

(M M Ann Armstrong, Lodge International School, Kuching, Sarawak)

Quentin Phillipps and Karen Phillipps, 2009, *Phillipps' Field Guide to the Birds of Borneo*. Oxford: Beaufoy Publishing Limited, 368pp., ISBN 978-1-906780-10-4.

G.W.H. Davison and Yeap Chin Aik, 2010, *A Naturalist's Guide to the Birds of Malaysia and Singapore, including Sabah & Sarawak*. Oxford: Beaufoy Publishing Limited, 176pp., ISBN 978-1-906780-21-0.

“Which would you recommend?” I asked in confusion as I looked at the array of field guides to the birds of Borneo. The Malaysian Nature Society volunteer replied, with a glint in her eye and comforting sureness, “Either of these, *Phillipps' Field Guide to the Birds of Borneo* or *A Naturalist's Guide to the Birds of Malaysia and Singapore, including Sabah & Sarawak*.”

Eventually, I owned both, but initially I purchased *Phillipps' Field Guide to the Birds of Borneo*, as I was assured it has the most comprehensive information about our feathered friends. To say this field guide is comprehensive is not to give sufficient credit to the details on the birds, their habitats and steps to bird watching. Eventually, I did purchase Davison and Yeap's thinner, and less informative *A Naturalists Guide to The Birds of Malaysia and Singapore Including Sabah & Sarawak* because it was easier to carry into the field. It is slim enough to slip into a back pocket and refer to when trying to identify birds on the wing.

Phillipps' Field Guide to the Birds of Borneo is written by Quentin Phillipps who has had a life-long passion for nature and bird watching, and illustrated by his sister, Karen Phillipps, an internationally acclaimed wildlife artist who has illustrated several books on Asian wildlife. This field guide is a work of art.

The field book is divided into several sections. The first pages illustrate the birds of specific ecosystems including the seashore, coastal gardens, padi fields, rivers and streams, lowland forest, and Kinabalu National Park. These pages are a useful starting point for the newly minted bird watcher. Although birds do appear in unexpected places, it does make the search easier with a list of what to expect.

Much of the information is presented visually and this representation is explained in the next section. A tiny, very large-scaled map showing distribution of the bird and its residency status in Borneo provide a huge amount of information at a single glance along with a short description of the bird. The detailed drawings of each bird are always on the opposite page of the description and map, making for easy reference.

The birds in both field guides are organized by families in broadly the same order. However, photographs are used to illustrate *A Naturalists Guide to the Birds of Malaysia and Singapore, including Sabah & Sarawak*. Davison and Yeap included tidbits of information on habitat, food and residency status. The breakdown is by family, but only the common birds are discussed.

Phillipps, in his field guide, has separated birds by family, and where the families contain a large number of species, by other traits including, for example, habitat and residency status.

In-depth discussion in the Phillipps' field guide on migration and migrants is a plus. The routes of the four flyways that birds take to Borneo as either overwintering migrants or as a stopover further south were named and shown. The importance of Borneo as a stopover where birds literally replenish their energy cannot be underrated.

Without protecting these sites, migratory birds are likely to have higher rates of fatalities during these arduous journeys as they are likely to be in a weakened state.

Bird watching as a hobby is increasing in popularity around the world with birders contributing to the pool of scientific knowledge about both common and uncommon bird species. Both books describe how even amateurs can contribute; in Malaysia birders can submit their sightings to the Malaysian Nature Society-Bird Conservation Council electronically. It is to this group that these books are aimed.

(M M Ann Armstrong, Lodge International School, Kuching, Sarawak)

Michel L'Hour (editor). *La Mémoire Engloutie de Brunei*. Paris: Éditions Textuel, September 2001. Publication sponsored by TotalFinaElf. Three-volumes, 368pp. Prefaces by Thierry Desmarest, Jean-Luc Massy, and Matassim bin Haji Jibah. Volume 1: *Cahier de Fouille* (144pp). Volume 2: *Précis Scientifique* (176pp). Volume 3: *Carnet de Dessins* (48pp). ISBN 2-84597-040-4.

This three-volume paperback boxed set was published to coincide with an exhibition held at La Conciergerie in Paris between 28 September 2001 and 7 January 2002. It appears that an English-language version of the catalogue is also available (1:10).

The *exposition*, sub-titled *une aventure archéologique sous-marine* (an underwater archaeological expedition) had as patrons President Jacques Chirac and HM Sultan Haji Sir Hassanal Bolkiah (1:13). On display was a huge cargo, particularly of Chinese blue-and-white porcelain, dating from not later than the late fifteenth and early sixteenth centuries. The commercial value of the ceramics, recovered in 1997-8 by a French-led team twenty-two miles offshore from present-day Negara Brunei Darussalam, would probably run into many millions of pounds.¹

La Mémoire Engloutie is an awkward phrase to translate into English. Apart from its obvious meaning, *mémoire* may also be rendered 'good name' or 'renown'; *engloutir* means to 'swallow up' or 'engulf'. So perhaps we are looking for something along the lines of 'The Glory of Brunei: Evidence from the Deep.' Reference is made on the back covers to the 'Brunei Shipwreck Project.' Any mention of "Brunei" in the present context, however, creates difficulties of its own; as we shall see in a moment.

But to start at the beginning: it was during offshore oil prospecting operations by TotalFinaElf on 24 May 1997 that evidence of pottery was discovered at a depth of some 207 feet (thirty-four fathoms). After a preliminary inspection in October 1997 by experts from the French DRASSM (*Département des Recherches Archéologiques*

¹ As an indication, just *one* eighteenth century Chinese vase was sold at auction for £43 million (£53 million including fees) in November 2010 (*The Daily Telegraph*, London, Saturday 13 November 2010:29, 32**); whereas our shipwreck yielded *inter alia* no fewer than 4,524 items of porcelain, of which the 'overwhelming majority' (*l'immense majorité*) were of the Ming blue-and-white type (2:142). Postscript: In late February 2011 (as this volume went to press) the successful bidder for the Qianlong-era vase was reported to be having second thoughts about the wisdom of the purchase; the vendor, at any rate, was yet to receive a penny (DT M. 28.2.2011:7 **).

Subaquatiques et Sous-Marines), it was decided to proceed with a full-scale excavation of the site.

Most of the first volume of the trilogy comprises extracts from the captain's log of Michel L'Hour,² the expedition director, between 18 May and 5 August 1998.³ A multi-national, multi-disciplinary team had been assembled at great speed: there were divers, barge crew, restorers, porcelain experts, artists, stock-takers, information technology wizards, administrators, photographers, doctors; a mere list of them requires three pages (1:19-21). Most of the personnel originated from the host nation and France, but other participants came from Australia, Germany, India, Indonesia, Ireland, Italy, Malaysia, Netherlands, New Zealand, Singapore, Sri Lanka, and the United Kingdom. L'Hour strongly impressed upon them that they were undertaking a serious scientific enterprise, not a treasure hunt (1:40, 1:51). Diving conditions were hazardous, partly because of the great depth at which they were working, but also because of low visibility at the wreck itself; and the local marine life did not appreciate the disturbances either. Special emphasis was placed on safety precautions; and, indeed, in 225 hours of diving (2:142) no one was injured. The whole campaign was subject to severe time-pressure. Secrecy had to be safeguarded at all times because of fear of interlopers and pirates; each day the precious finds would be transported by the Royal Brunei Navy to their base at Muara, four hours away. Eventually, however, the story was broken by the *Straits Times* (18 July 1998), followed up by the *Borneo Bulletin* two days later (1:120). HRH Prince Al-Muhtadee Billah visited the onshore "workshop" on 2 July and was so entranced by what he saw that his stay extended way beyond schedule (1:104, 105**).

The reason why the vessel went under was not established definitively, the most plausible explanation being that it got caught up in a storm (1:35[-]38). It was thought unlikely that anybody on board would have survived the sinking; but there is no mention of any human remains having been discovered, either.

Nathalie Huet contributes a chapter explaining the "study, conservation, and restoration of the objects" (1:133-43) and in the second volume adds another paper on the jewelry, bracelets and beads⁴ brought to the surface (2:129-37). Indeed, most of the papers in the scientific précis are of excellent calibre. Marie-France Dupoizat, for example, contributes three pieces (2:85-127), one on earthenware jars, and the next two on Siamese and Vietnamese ceramics respectively. One major problem with the *Précis Scientifique*, however, is the tendency on the part of one or two of the contributors to rely on the official chronology of the sultanate of Brunei, which was comprehensively demolished by Robert Nicholl in 1989.⁵

The editor himself and Jerzy Gawronski, assisted by Anne-Christine Nalin, pull all the archaeological evidence together in order to work out the deployment of the cargo on board the vessel (2:139-67). The dive had been organized like a military operation. A metal grid was placed over the wreck, thereby enabling the precise location of every

2 His style is not given. He himself is pictured on page 85 of Volume 1.

3 During this time France won the FIFA World Cup (entry for 12 July 1998, 1:116).

4 The word 'perles' is a 'false friend' to the English translation.

5 Some Problems of Brunei Chronology. *JSEAS* XX(2), September 1989:175-95; offprint by courtesy of the author.

single item to be plotted in the control room. The squares themselves formed “columns” which the divers cleared one by one. Column G required twelve days, for example, whereas column B took just one (2:141). Some squares produced a lot more material than others. A three-dimensional hypothetical reconstruction of the vessel and its cargo was generated using computer graphics (2:165).

In her beautifully-illustrated analysis of the Ming blue-and-white porcelain, Hélène Chollet notes (2:58) “*l’absence de motifs décoratifs spécifiquement destinés à un pays de tradition islamique. On peut même être étonné par l’importance de l’iconographie bouddhique*”. But perhaps the absence of decorative motifs specifically destined for a country of Islamic tradition might reflect the possibility that, at the turn of the sixteenth century, Brunei (or, should one say P’o-ni?) did not yet have a Muslim ruler. If that were indeed the case, then the grounds for astonishment in the present instance would be correspondingly diminished.

There is a reference (2:156) to forty-one coins having been recovered. It would be fascinating to learn more about these items and, in particular, whether they shed any light on who was ruling the northwest coast of Borneo around 1500. Also noteworthy is the fact that the shipwreck appears to have contained little or nothing of Bornean manufacture. Its actual destination or destinations are not known for certain either. There does not appear to be any suggestion that the vessel was actually built in Borneo or was owned by a Bornean. And it is not even sure that the “sultanate of Brunei” existed as such at the time. For these sorts of reasons, the term “Brunei Shipwreck Project” would appear to be something of a misnomer. If anything, the excavation confirms the wealth and advanced civilization of *China*.

More than 550 drawings were made of the ceramics and their motifs (1:88, 1:130). Some of these sketches, veritable works of art in their own right, are reproduced in volume three. The artists were Marie-Noëlle Baudrand, Gerlinde Frommherz, and Marie-Thérèse Pesty.

There is no index nor any biographical information about the contributors.

Overall, the *Mémoire Engloutie* trilogy has provided a tremendous feather in the cap of Gallic genius.⁶ Soundly organized and brilliantly executed, the dive required a massive logistical operation using state-of-the-art equipment. Meticulous and comprehensive records were kept. The whole proceedings were captured on video camera and in still photographs. Special care was taken not to waste any evidence whatsoever (2:141). The materials raised to the surface—the inventory ran to 13,261 items (1:130) - included Chinese blue-and-white porcelain and monochrome ware, Siamese and Vietnamese ceramics, earthenware, bracelets, beads, tin, some coins, and fragments of bone and ivory.

Far from being a mere glossy “coffee table” catalogue, *La Mémoire Engloutie* captures for all time a thoroughly professional venture and a splendid scientific achievement on the part of Michel L’Hour and his team.

(A.V.M. Horton, Bordesley, Worcestershire, United Kingdom).

6 In ninety-five years of *de facto* colonial rule in Brunei (1888-1983), the British were unable to achieve anything remotely comparable.

ABSTRACTS

Aijmer, Göran, 2010, Rice, Death, and Chieftly Power in Central Borneo. *Anthropos*, 105:393-410.

The article concerns a description found in an early account of Central Borneo of a “rice dance” among the Kayan people, based on observations made in 1896. This ritual is analyzed mainly as imagery enacted according to an iconic code. It explores a symbolism of evocative displays of meaning largely beyond language, making manifest other possible worlds. The celebration was connected with the sowing of rice in swiddens. At this time, the Kayan chieftaincy displayed, in a series of *tableaux vivant*, an imaginary narration of rice and divinely inspired authority as related to political power. A chief of divine descent initiated the sowing, and it was in his power to bring together the forces of Heaven, Earth, and Underworld into unity to bless the sowing and ensure the growing of rice. Finally, the article offers some brief comparative remarks in the wider Southeast Asian context, and points to similarities found in the construction of imagery of political rituals [author].

Brühl, Carsten A., and Thomas Eltz, 2010, Fuelling the biodiversity crisis: species loss of ground-dwelling forest ants in oil palm plantations in Sabah, Malaysia. *Biodiversity and Conservation*, 19(2): 519-29.

Oil palm plantations today cover large areas of former tropical lowland rain forest in Southeast Asia and are rapidly expanding on the island of Borneo. Study of the community of ground-dwelling ants in different plantations in Sabah, Malaysia, over 2 years using tuna baiting, revealed that the oil palm plantation ground ant community was severely reduced in species richness in comparison to the forest interior, regardless of age, undergrowth cover, or proximity to neighboring forest. The results indicate that oil palm plantation habitats, now covering more than 15% of Sabah’s land area, can sustain only about 5% of the ground-dwelling ant species of the forest interior. Nine of the 23 ant species baited in the plantations were never recorded inside forest. All numerically dominant ants were nonforest species. The most common species was *Anoplolepis gracilipes*, an invasive species present at 70% of all bait sites and known to cause “ecological meltdowns” in other situations. The low frequency and species number of forest ground ants indicates that oil palm plantations act as effective dispersal barriers leading to community isolation in rain forest remnants. The replacement of natural forests with oil palm plantations poses a serious threat to the conservation of biodiversity on Borneo if similar results are confirmed in other taxa.

Hamard, M., S.M. Cheyne, and V. Nijman, 2010, Vegetation correlates of gibbon density in the peat-swamp forest of the Sabangau catchment, Central Kalimantan, Indonesia. *American Journal of Primatology*, 72(7): 607-16.

Understanding the complex relationship between primates and their habitats is essential for effective conservation plans. Peat-swamp forest has recently been recognized

as an important habitat for the Southern Bornean gibbon (*Hylobates albibarbis*), but information is scarce on the factors that link gibbon density to characteristics of this unique ecosystem. Our aims in this study were firstly to estimate gibbon density in different forest subtypes in a newly protected, secondary peat-swamp forest in the Sabangau Catchment, Indonesia, and secondly to identify which vegetation characteristics correlate with gibbon density. Data collection was conducted in a 37.1 km² area, using auditory sampling methods and vegetation “speed plotting.” Gibbon densities varied between survey sites from 1.39 to 3.92 groups/km². Canopy cover, tree height, density of large trees and food availability were significantly correlated with gibbon density, identifying the preservation of tall trees and good canopy cover as a conservation priority for the gibbon population in the Sabangau forest. This survey indicates that selective logging, which specifically targets large trees and disrupts canopy cover, is likely to have adverse effects on gibbon populations in peat-swamp forests, and calls for greater protection of these little-studied ecosystems.

Kanamori, T., N. Kuze, H. Bernard, T.P. Malim, and S. Kohshima, 2010, Feeding ecology of Bornean orangutans (*Pongo pygmaeus morio*) in Danum Valley, Sabah, Malaysia: a 3-year record including two mast fruitings. *American Journal of Primatology*, 72(9): 820-40.

We observed the diet and activity of Bornean orangutans (*Pongo pygmaeus morio*) in the primary lowland dipterocarp forests of Danum Valley, Sabah, Malaysia, during 2005-2007, including two mast fruitings. We collected 1,785 hrs. of focal data on 26 orangutans. We identified 1,466 samples of their food plants and conducted a fallen fruit census to monitor fruit availability in the study area. Their activity budget was 47.2% feeding, 34.4% resting, and 16.9% traveling. Fruits accounted for the largest part (60.9%) of feeding time, especially during mast fruiting periods (64.0-100%), although the percentages of leaves (22.2%) and bark (12.3%) were higher than those reported for *P. abelii* and *P. pygmaeus wurmbii*. Although 119 genera and 160 plant species were consumed by focal animals, only 9 genera accounted for more than 3% of feeding time (total: 67.8% for 9 genera). In particular, the focal orangutans fed intensively on *Ficus* and *Spatholobus* during most of the study period, especially in periods of fruit shortage. The percentage of fruit feeding changed markedly from 11.7 to 100% across different months of the year, and was positively correlated with the amount of fallen fruit. When fruit feeding and availability decreased, orangutans fed primarily on leaves of *Spatholobus* and *Ficus*, and the bark of *Spatholobus* and dipterocarp. The percentage of time devoted to feeding during mast fruitings, when the orangutans foraged almost exclusively on fruits, was lower than during seasons when the orangutan diet included leaves and bark as well as fruits. Resting increased as feeding decreased in the late stage of each fruiting season, suggesting that the orangutans adopted an energy-minimizing strategy to survive the periods of fruit shortage by using energy stored during the fruit season.

Labes, E.M., D. Hegglin, F. Grimm, W. Nurcahyo, M.E. Harrison, M.L. Bastian, and P. Deplazes, 2010, Intestinal parasites of endangered orangutans (*Pongo pygmaeus*) in Central and East Kalimantan, Borneo, Indonesia. *Parasitology* 137:123-35.

Faecal samples from 163 captive and semi-captive individuals, 61 samples from wild individuals and 38 samples from captive groups of Bornean orangutans (*Pongo pygmaeus*) in Kalimantan, Indonesia, were collected during one rainy season (November 2005–May 2006) and screened for intestinal parasites using sodium acetate-acetic acid-formalin-concentration (SAFC), sedimentation, flotation, McMaster- and Baermann techniques. We aimed to identify factors influencing infection risk for specific intestinal parasites in wild orangutans and individuals living in captivity. Various genera of Protozoa (including *Entamoeba*, *Endolimax*, *Iodamoeba*, *Balantidium*, *Giardia* and *Blastocystis*), nematodes (such as *Strongyloides*, *Trichuris*, *Ascaris*, *Enterobius*, *Trichostrongylus* and hookworms) and one trematode (a dicrocoeliid) were identified. For the first time, the cestode *Hymenolepis* was detected in orangutans. Highest prevalences were found for *Strongyloides* (individuals 37%; groups 58%), hookworms (41%; 58%), *Balantidium* (40%; 61%), *Entamoeba coli* (29%; 53%) and a trichostrongylid (13%; 32%). In re-introduction centers, infants were at higher risk of infection with *Strongyloides* than adults. Infection risk for hookworms was significantly higher in wild males compared with females. In groups, the centers themselves had a significant influence on the infection risk for *Balantidium*. Ranging patterns of wild orangutans, overcrowding in captivity and a shift of age composition in favor of immatures seemed to be the most likely factors leading to these results.

Malohlava V. and L. Bocak, 2010, Evidence of extreme habitat stability in a Southeast Asian biodiversity hotspot based on the evolutionary analysis of neotenic net-winged beetles. *Molecular Ecology*, 19(21): 4800-11.

The diversification of neotenic beetle lineages has not been studied, despite the potential for defining biodiversity hotspots and elucidating the history of regional faunas. Additionally, neotenic may provide insight into the process of speciation in small populations with extremely low dispersal ability and a limited range. Here, we used two rDNA and three mtDNA markers to investigate the phylogeny of *Scarelus*, a neotenic lineage endemic to Southeast Asian rainforests. Most genetic differentiation was associated with Palaeogene geographical divisions, which remain distinct despite temporary connections. Dispersal events were rare, with only two inferred for *Scarelus*: from Borneo to the Philippines 28.3 million years ago (Ma) and from Sumatra to Java 13.9 Ma. We suggest that speciation resulted from allopatric range fragmentation, and *Scarelus* diversified readily when conditions were favorable; in this case, at different times in the eastern (19.3–39.1 Ma) and western (3.5–13.9 Ma) parts of Sundaland. The observed strong phenotypic similarity was preserved under speciation through complete allopatry. Neotenic Lycidae have survived for a long time in very stable habitats, and extremely low dispersal activity has not limited their persistence; however, the long-term diversification rate of neotenic is low and diversification is nonexistent under stable conditions. The modern ranges of neotenic lineages are indicative of ancient rainforest

refugia and may be used in biodiversity conservation management. Most neotenuics are at risk of extinction because of their small ranges and a low dispersal potential.

Meijaard, E., G. Albar, Nardiyono, Y. Rayadin, M. Ancrenaz, S. Spehar, 2010, Unexpected ecological resilience in Bornean orangutans and implications for pulp and paper plantation management. *PloS One*, 5(9): e12813.

Ecological studies of orangutans have almost exclusively focused on populations living in primary or selectively logged rainforest. The response of orangutans to severe habitat degradation remains therefore poorly understood. Most experts assume that viable populations cannot survive outside undisturbed or slightly disturbed forests. This is a concern because nearly 75% of all orangutans live outside protected areas, where degradation of natural forests is likely to occur, or where these are replaced by planted forests. To improve our understanding of orangutan survival in highly altered forest habitats, we conducted population density surveys in two pulp and paper plantation concessions in East Kalimantan, Indonesia. These plantations consist of areas planted with fast-growing exotics intermixed with stands of highly degraded forests and scrublands. Our rapid surveys indicate unexpectedly high orangutan densities in plantation landscapes dominated by *Acacia* spp., although it remains unclear whether such landscapes can maintain long-term viable populations. These findings indicate the need to better understand how plantation-dominated landscapes can potentially be incorporated into orangutan conservation planning. Although we emphasize that plantations have less value for overall biodiversity conservation than natural forests, they could potentially boost the chances of orangutan survival. Our findings are based on a relatively short study and various methodological issues need to be addressed, but they suggest that orangutans may be more ecologically flexible than previously thought [authors].

Meijaard, E., A. Welsh; M. Ancrenaz; S. Wich; V. Nijman, and A.J. Marshall, 2010, Declining orangutan encounter rates from Wallace to the present suggest the species was once more abundant. *PloS One*, 5(8): e12042.

Bornean orangutans (*Pongo pygmaeus*) currently occur at low densities and seeing a wild one is a rare event. Compared to present low encounter rates of orangutans, it is striking how many orangutans each day historic collectors like Alfred Russel Wallace were able to shoot continuously over weeks or even months. Does that indicate that some 150 years ago encounter rates with orangutans, or their densities, were higher than now? We test this hypothesis by quantifying encounter rates obtained from hunting accounts, museum collections, and recent field studies, and analyzing whether there is a declining trend over time. Logistic regression analyses of our data support such a decline on Borneo between the mid-19th century and the present. Even when controlled for variation in the size of survey and hunting teams and the durations of expeditions, mean daily encounter rates appear to have declined about 6-fold in areas with little or no forest disturbance.

This finding has potential consequences for our understanding of orangutans, because it

suggests that Bornean orangutans once occurred at higher densities. We explore potential explanations—habitat loss and degradation, hunting, and disease—and conclude that hunting fits the observed patterns best. This suggests that hunting has been underestimated as a key causal factor of orangutan density and distribution, and that species population declines have been more severe than previously estimated based on habitat loss only. Our findings may require us to rethink the biology of orangutans, with much of our ecological understanding possibly being based on field studies of animals living at lower densities than they did historically. Our approach of quantifying species encounter rates from historic data demonstrates that this method can yield valuable information about the ecology and population density of species in the past, providing new insight into species' conservation needs [authors].

Berry, Nicholas J., Oliver L. Phillips, Simon L. Lewis, et al., 2010, The high value of logged tropical forests: lessons from northern Borneo. *Biodiversity and Conservation*, 19(4): 987-97.

The carbon storage and conservation value of old-growth tropical forests is clear, but the value of logged forest is less certain. Here we analyze 100,000 observations of individuals from 11 taxonomic groups and 2,500 species, covering up to 19 years of post-logging regeneration, and quantify the impacts of logging on carbon storage and biodiversity within lowland dipterocarp forests of Sabah, Borneo. We estimate that forests lost ca. 53% of above-ground biomass as a result of logging but despite this high level of degradation, logged forest retained considerable conservation value: floral species richness was higher in logged forest than in primary forest and while faunal species richness was typically lower in logged forest, in most cases the difference between habitats was no greater than ca. 10%. Moreover, in most studies 90% of species recorded in primary forest were also present in logged forest, including species of conservation concern. During recovery, logged forest accumulated carbon at five times the rate of natural forest (1.4 and 0.28 Mg C ha⁻¹ year⁻¹, respectively). We conclude that allowing the continued regeneration of extensive areas of Borneo's forest that have already been logged, and are at risk of conversion to other land uses, would provide a significant carbon store that is likely to increase over time. Protecting intact forest is critical for biodiversity conservation and climate change mitigation, but the contribution of logged forest to these twin goals should not be overlooked.

Phillips, O.L., G. van der Heijden, S.L. Lewis, et al., 2010, Drought-mortality relationships for tropical forests. *The New Phytologist*, 187(3): 631-46.

The rich ecology of tropical forests is intimately tied to their moisture status. Multi-site syntheses can provide a macro-scale view of these linkages and their susceptibility to changing climates. Here, we report pan-tropical and regional-scale analyses of tree vulnerability to drought. We assembled available data on tropical forest tree stem mortality before, during, and after recent drought events, from 119 monitoring plots in 10 countries concentrated in Amazonia and Borneo. In most sites, larger trees are disproportionately at risk. At least within Amazonia, low wood density trees are also at

greater risk of drought-associated mortality, independent of size. For comparable drought intensities, trees in Borneo are more vulnerable than trees in the Amazon. There is some evidence for lagged impacts of drought, with mortality rates remaining elevated 2 yrs. after the meteorological event is over. These findings indicate that repeated droughts would shift the functional composition of tropical forests toward smaller, denser-wooded trees. At very high drought intensities, the linear relationship between tree mortality and moisture stress apparently breaks down, suggesting the existence of moisture stress thresholds beyond which some tropical forests would suffer catastrophic tree mortality [authors].

Pyatt, F.B., G.W. Barker, R.J. Rabett, K. Szabó, and B. Wilson, 2010, Analytical examination of animal remains from Borneo: the painting of bone and shell. *Journal of Archaeological Science*, 37(9): 2102-2105.

Examination of a selection of shell and bone from archaeological assemblages excavated at Niah Cave and Gua Sireh, both of which are located in Sarawak, Borneo, has revealed the deliberate application of colored material to one or more surfaces. Small fragments of the surface colorant were analyzed using a variety of techniques, including microscopy, energy dispersive microwave analysis and infra-red spectrophotometry. These procedures established that, although red in color, the applied coating in each instance was not red iron oxide. It is suggested that, based on the chemical components present, this coating was a tree resin or a similar organic substance. The paper further reports the presence of enhanced chloride values in the colorant recovered from the ancient human cranial fragment tested. It is suggested that elevated concentrations of this trace element may indicate that the site, the human remains or ingredients within the colorant were once in close proximity to the sea [authors].

Sanderson, Sunny Jane, 2007, Variation in Great-Call Structure of Hybrid Gibbons in Central Borneo, Master's Thesis, School of Integrative Biology University of Queensland.

A study on the variation in great-call structure of hybrid gibbons (*Hylobates agilis* x *H. muelleri*) was conducted throughout the headwaters of the Barito River in Central Kalimantan, Indonesia. A total of 88 females from 22 sites were recorded between September-November, 2004 and May-August, 2005. A detailed spectrographic analysis was made of 469 great-calls, which revealed that six of the 45 variables measured could accurately differentiate between agile and Müller gibbons: (1) Number of great-call notes, (2) Great-call rate of emission, (3) Number of climax notes, (4) Climax rate of emission, (5) Mid-climax note duration, and (6) Inter-climax note interval. Of these, only the variable "climax rate of emission" could reliably distinguish between the calls of agile (n = 23 females), Müller's (n = 14 females) and hybrid gibbons (n = 51 females). A coefficient of variation indicated that intra-individual variation in great-call structure was low for each of the six variables. Non-parametric tests revealed that intra-population variation in great-call structure varied significantly ($P < 0.05$). A discriminant function

analysis found that great-calls could be correctly assigned to the individual that produced them at a rate higher than would be expected by chance (cross-validated classification rate: hybrid = 81.9%; agile = 54.4%; Müller's = 52.4%). There was a significant ($P < 0.05$) level of inter-population variation in great-call structure. The cross-validated correct assignment rate was 94%, indicating that the agile, Müller's, and hybrid populations could be reliably distinguished by the two functions of the discriminant function analysis. One of the main variables in each of the two functions was "climax rate of emission." Within the hybrid population, females located on the western side of the hybrid zone had a slower climax rate of emission (mean = 2.07 notes/s) than those located on the eastern side (mean = 4.55 notes/s). This finding is likely due to a larger proportion of agile genes on the western side of the hybrid zone, and a larger proportion of Müller's genes on the eastern side. It appears that the average climax rates of emission on both sides of the hybrid zone have increased since last surveyed by Mather (1992), indicating that the rate of emission of hybrid great-calls is accelerating. There was a significant level of variation between mother-daughter pairs, one generally having a faster climax rate of emission than the other. It appeared that the regular participation of daughters in song bouts was to practice their own song, rather than learn that of their mother. Female neighbors also varied significantly in their call structure. The wide range of inter-individual variation indicates that great-call structure is inherited and not learnt. The hybrid zone appears to have increased in size since it was last surveyed (Mather, 1992). Fifteen of the 29 females recorded between the western side of the Busang River and the northern side of the Joloi River were hybrids. These females were sparsely distributed from the village of Parahau down to the northern banks of the Joloi River. They had a faster climax rate of emission (range = 0.67-4.89 notes/s) than the agile gibbons in the same region (range = 0.37-0.65 notes/s). It is likely that limited hybridization has long been present in this region, but that hybrids have become more abundant than when last surveyed (author).

Wurster, C.M., M.I. Bird, I.D. Bull, F. Creed, C. Bryant, J.A. Dungait, and V. Paz, 2009, Forest contraction in north equatorial Southeast Asia during the Last Glacial Period. *Proceedings of the National Academy of Sciences of the United States of America*, 107(35): 15508-11.

Today, insular Southeast Asia is important for both its remarkably rich biodiversity and globally significant roles in atmospheric and oceanic circulation. Despite the fundamental importance of environmental history for diversity and conservation, there is little primary evidence concerning the nature of vegetation in north equatorial Southeast Asia during the Last Glacial Period (LGP). As a result, even the general distribution of vegetation during the Last Glacial Maximum is debated. Here we show, using the stable carbon isotope composition of ancient cave guano profiles, that there was a substantial forest contraction during the LGP on both peninsular Malaysia and Palawan, while rainforest was maintained in northern Borneo. These results directly support rainforest "refugia" hypotheses and provide evidence that environmental barriers likely reduced genetic mixing between Borneo and Sumatra flora and fauna. Moreover, it sheds light on possible early human dispersal events.

BORNEO BIBLIOGRAPHY 2010

Clifford Sather and A.V.M. Horton

- Abdul Karim bin Haji Abdul Rahman, Haji
2008 *Keruntuhan Empayar Brunei KM19: Satu Kajian dari Sudut Ekonomi* (PSB, KKBS, BSB). Cited in *PB, Isnin* 6.9.2010:10.
- Abdul Latif Ibrahim, Haji
1993 Trade, Islam and the Expansion of the Brunei Sultanate. *Janang: Warta Akademi Pengajian Brunei*, (1):23-133. Cited in *L'Hour* 2001(2):171.
- Abdullah, F.; and K. Shamsulaman
2009 Ground Beetle (Coleoptera: Carabidae) at Entimau, Sarawak, Malaysia. *Journal of Entomology* (2009). 8pp.
- Abdullah, Robert Rizal
2008 *My Adventure: An Iban Warrior's Autobiography*. Coral Springs, Florida: Metier Books.
- Abu Saufi
1995 *Tanggungjawab Ibu Bapa Muslim* [Responsibilities of Muslim Parents]. Pustaka Ilmi, Selangor. Cited in *PB, Rabu* 24.3.2010:11.
- Adelaar, Alexander
2006 Where does Belangin Belong? Pp. 65-84 In: Fritz Schültze and Holger Warnk, eds., *Insular Southeast Asia: Linguistic and cultural studies in honour of Bernd Nothofer*, Wiesbaden: Harrassowitz.
2010 Language documentation in the west Austronesian world and Vanuatu: an overview. Pp. 11-41 In: Margaret Florey, ed., *Language documentation in the west Austronesian world and Vanuatu*. Oxford: Oxford University Press.
- Ahmad, F. bin; B.A. Moharm, and I. Jantan
2010 A Comparative Study of the Constituents of the Essential Oils of *Goniothalamus tapis* Miq. and *G. tapisoides* Mat Salleh from Borneo. *Journal of Essential Oil Research* 22:499-502.
- Aijmer, Göran
2010 Rice, Death, and Chiefly Power in Central Borneo. *Anthropos* 105:393-410.
- Ali Termizi bin Haji Ramli
2010 Adakah kelas sosial mempengaruhi pencapaian akademik? *Pelita Brunei, Rabu* 13.1.2010:10-11, 22; tables, bibliography.
- Ancrenaz, M., L. Ambu, I. Sunjoto, E. Ahmad, K. Manokaran, E. Meijaard, and I. Lackman
2010 Recent surveys in the forests of Ulu Segama Malua, Sabah, Malaysia, show that orang-utans (*P. p. morio*) can be maintained in slightly logged forests. *PloS One* 5(7): e11510.

- Anshari, G., A.P. Kershaw, S. Van Der Kaars and G. Jacobsen
2004 Environmental Change and Peatland Forest Dynamics in the Lake Sentarum Area, West Kalimantan, Indonesia. *Journal of Quaternary Science* 19 (7): 637-55.
- Anshari, G.Z.; M. Afifudin, and M. Nuriman, *et al.*
2010 Drainage and land use impacts on changes in selected peat properties and peat degradation in West Kalimantan Province, Indonesia. *Biogeosciences* 7:3403-19.
- Any Zubaidah, Muchlisin Arief
2004 Distribusi spasial hot spot dan sebaran asap indikator kebakaran hutan/lahan di pulau Sumatera dan Kalimantan tahun 2002. *Jurnal Penginderaan Jauh dan Pengolahan Citra Digital*, 1(1), Juni 2004.
- Ashton, Peter S.
2010 Conservation of Borneo biodiversity: do small lowland parks have a role, or are big inland sanctuaries sufficient? Brunei as an example. *Biodiversity and Conservation*, 19(2):343-56.
- Azlan Othman & Waleed PD Mahdini
2010 Sultan reveals major cabinet reshuffle. *Borneo Bulletin* (online), Sunday 30 May 2010.
- Baier, Martin
2010 Bordering Northern Sarawak and Sabah (East Malaysia). Indonesia's New National Park in North Central Borneo. A Review Essay. *Anthropos*, 105(2):578-82.
- Barlocco, Fausto
2010 The village as a "community of practice": constitution of village belonging through leisure sociality. *Bijdragen tot de Taal-, Land-en Volkenkunde* 166(4): 404-25. Kadazan, Sabah.
- Beavitt, William and Andrew A. Tuen
2010 *Swamp. Kuching Wetlands National Park*. Kota Samarahan: Universiti Malaysia Sarawak.
- Berry, Nicholas J.; Oliver L. Phillips, Simon L. Lewis, *et al.*
2010 The high value of logged tropical forests: lessons from northern Borneo. *Biodiversity and Conservation*, 19(4):987-97.
- BINA
2010 Perundangan Koperasi. *Pelita Brunei, Sabtu* 23.1.2010:22.
- Bing Zhao
2001 Les céramiques monochromes chinoises. Pp. 65-83 In: *L'Hour* (2001)(2).
- Blust, Robert
2010 The Greater North Borneo Hypothesis. *Oceanic Linguistics*, 49(1):44-118. DOI: 10.1353/ol.0.0060

Bose-O'Reilly, S., G. Drasch, C. Beinhoff, S. Rodrigues-Filho, G. Roider, B. Lettmeier, A. Maydl, S. Maydl, and U. Siebert

2010 Health assessment of artisanal gold miners in [Central Kalimantan] Indonesia. *The Science of the Total Environment*, 408(4): 713-25.

Boutin, Michael

- 1984 (with Alanna Boutin) *Indigenous groups of Sabah: An annotated bibliography of linguistic and anthropological sources*. Sabah Museum Monograph No 1. Kota Kinabalu: Sabah Museum.
- 1984 Banggi kinship terminology. *Anthropological Linguistics*, 26(3):305-12.
- 1986 *Indigenous groups of Sabah: An annotated bibliography of linguistic and anthropological sources, Supplement 1*. Sabah Museum Monograph No 1, Part 2. Kota Kinabalu: Sabah Museum.
- 1990 The Bonggi. Pp. 91-110. In: Sherwood G. Lingenfelter, ed., *Social organization of Sabah societies*. Kota Kinabalu: Sabah Museum and State Archives.
- 1991 Aspect and temporal reference in Banggi. Pp. 7-28 In: S.H. Levinsohn, ed., *Thematic continuity and development in languages of Sabah*. Pacific Linguistics, Series C - No 118. Canberra: ANU.
- 1993 (co-edited with Inka Pekkanen) *Phonological descriptions of Sabah languages*. Sabah Museum Monograph 4. Kota Kinabalu, Sabah Museum.
- 1994 Aspect in Bonggi. Ph.D. dissertation, University of Florida. Ann Arbor: UMI Dissertation Services.
- 2000 The role of /l/ in blocking nasal spread in Bonggi. Pp. 170-88 In: Michael Leigh, ed., *Borneo 2000: Language, management and tourism. Proceedings of the Sixth Biennial Borneo Research Conference*. Kuching: Institute of East Asian Studies, Universiti Malaysia Sarawak.
- 2001 Voice alternations in Bonggi. Pp. 47-70 In: Karen L. Adams and Thomas John Hudak, eds., *Papers from the Sixth Annual Meeting of the Southeast Asian Linguistics Society 1996*. Tempe AZ: Program for Southeast Asian Studies, Arizona State University.
- 2002 Nominative and genitive case alternations in Bonggi. Pp. 209-39 In: Fay Wouk and Malcolm Ross, eds., *The history and typology of Western Austronesian voice systems*. Canberra: Pacific Linguistics.
- 2002 Blocking nasal spread in Bonggi. Pp. 97-114 In: Marlys Macken, ed., *Papers from the Tenth Annual Meeting of the SEALS 2000*. Tempe AZ: Program for Southeast Asian Studies, Arizona State University.
- 2003 *Cassava: An annotated bibliography*. <http://www.sil.org/silewp/abstract.asp?ref=2003-001>.
- 2004 Linguistic encoding of responsibility in the Bonggi language of Sabah, Malaysia. Pp. 67-83 In: Gerald Knowles, Jamaliah Mohd Ali, Jariah Mohd Jan *et al.*, eds., *Language, linguistics and the real world, Volume 1: Making linguistics relevant*. Kuala Lumpur: University of Malaya.
- 2004 Locative predicates in Bonggi. <http://linguistics.buffalo.edu/research/rrg.html>.

- 2004 A Role & Reference Grammar account of Bonggi - an [thus]. Pp. 71-85. In: S. Burusphat, ed., *Papers from the Eleventh Annual Meeting of the SEALS (2001 Bangkok)*. Tempe, Arizona: ASU.
- 2006 (with Hans J.B. Combrink, Craig Soderberg, and Alanna Y. Boutin) *Indigenous groups of Sabah: An annotated bibliography of linguistic and anthropological sources, revised and updated edition*. Sabah Museum Monograph, Volume 10, Part 1 and Part 2 (two volumes). Kota Kinabalu: Department of Sabah Museum.
- 2007 Lexical decomposition and locative predicates in Bonggi. Pp. 25-43 In: Mark Alves, Paul Sidwell, and David Gill, eds., *SEALS VIII: Papers from the Eighth Annual Meeting of the Southeast Asian Linguistics Society, 1998*. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, ANU.
- 2008 (with Hans J.B. Combrink, Craig Soderberg, and Alanna Y. Boutin) *Indigenous groups of Sabah: An annotated bibliography of linguistic and anthropological sources. Part 1: author index*. <http://www.sil.org/silepubs/abstract.asp?id=50498>.
- 2008 (with Hans J.B. Combrink, Craig Soderberg, and Alanna Y. Boutin) *Indigenous groups of Sabah: An annotated bibliography of linguistic and anthropological sources. Part 2: ethnic group index, topic index*. <http://www.sil.org/silepubs/abstract.asp?id=50499>.
- 2009 Influence of lexical semantics on reflexes and allomorphs of **<um>* and **<in>* in Bonggi. *Journal of Southeast Asian Linguistics Society*, (1):23-47.

Boyce, Peter (dari CfBT)

2010 *Heart of Borneo*.

A buku kecil circulated by the British High Commission in BSB and the CfBT (cited in *PB Sa.10.4.2010:9***).

Bradshaw, Gillian (b 1956)

2007 *Bloodwood* (Severn House Publishers Limited, Sutton, Surrey, hbk).

A novel set in Sarawak. "Born in the USA, Gillian Bradshaw grew up in Washington, Santiago (Chile), and Michigan. She is a Classics graduate from Cambridge, and published her first novel, *Hawk of May*, just before her final term. A highly acclaimed novelist, Gillian Bradshaw has won the Hopwood Award for Fiction, among other prizes. She lives in Cambridge with her husband and their four children. Her other thrillers published by Severn House include *The Wrong Reflection*, *Dangerous Notes*, *The Somers Treatment* and *The Elixir of Youth*" (Bradshaw 2007: ibc).

Brown, E., M.F. Jacobson, and E. Wakker

2005 *Cruel Oil: How Palm Oil Harms Health, Rainforest & Wildlife*. Washington, D.C.: Center for Science in the Public Interest.

Brühl, Carsten A.; and Thomas Eltz

- 2010 Fuelling the biodiversity crisis: species loss of ground-dwelling forest ants in oil palm plantations in Sabah, Malaysia (Borneo). *Biodiversity and Conservation*, 19(2):519-29.

Buku Panduan Sempadan Mukim dan Kampung

Published by the Survey Department, Ministry of Development, NBD; launched by the acting DO Tutong, Awang Abdul Ghani bin Haji Othman, Tutong, 2 October 2010 (*Pelita Brunei* R.13.10.2010:9).

Burger, P; A. Charrie-Duhaut; J Connan

- 2009 Archaeological Resinous Samples from Asian Wrecks: Taxonomic characterization by GC-MS, *Analytica Chimica Acta*, 648(1):19 August 2009:85-97.

Caplan, Lionel

- 1991 "Bravest of the Brave": Representations of "the Gurkha" in British Military Writings. *Modern Asian Studies* 25:571-98. Cited in Pemble 2008:378.

Chan Cheung

- 1967 The Smuggling Trade between China and South-East Asia during the Ming Dynasty. *Historical, Archaeological, and Linguistic Studies in Southern China and South-East Asia*. Hong Kong: Hong Kong University Press, pp. 223-7. Cited in L'Hour 2001(2):169.

Chollet, Hélène

- 2001 La porcelaine bleu-et-blanc. Pp. 29-63 IN: L'Hour (2001)(2).

Chua, Liana

- 2010 Eating one's way through fieldwork: reflections on food and (Malaysian) sociality. Pp. 73-7 In: J.C.H. Lee, ed., *The Malaysian way of life*. Shah Alam: Marshall Cavendish.

Cohen, Martin; and Julia Cooper (photographer)

- 2010 Trunk Roads: Wildlife on the Trees of Borneo. *Wildlife Australia*, 47(3), Spring 2010.

Coluzzi, Paolo

- 2010 Endangered Languages in Borneo: A Survey among the Iban and Murut (Lun Bawang) in Temburong, Brunei. *Oceanic Linguistics*, 49(1):119-43.

Cotterell, Arthur

- 2010 *Western Power in Asia: Its Slow Rise and Swift Fall 1415-1999*. John Wiley and Sons, 448 pp, pbk, 26 January 2010.

Cranbrook, Earl of

- 2010 Late quaternary turnover of mammals in Borneo: the zooarchaeological record. *Biodiversity and Conservation* 19(2):373-91.

Curran, L.M.; S.N. Trigg, A.K. McDonald, D. Astiani, Y.M. Hardiono, P. Siregar, I Caniango, and E. Kasischke

- 2004 Lowland Forest Loss in Protected Areas of Indonesian Borneo. *Science* (13):1000-3.
- Davis, Wade
1995 *Nomads of the Dawn: The Penan of the Borneo Rainforest* (Pomegranate, 1995). Cited in Thiessen 2008:292.
- Davison, G.W.H., and Yeap Chin Aik
2010 *A Naturalist's Guide to the Birds of Malaysia and Singapore, including Sabah and Sarawak*. Oxford: Beaufoy Books.
- den Tex, R.J., R. Thorington, J.E. Maldonado, and J.A. Leonard
2010 Speciation dynamics in the SE Asian tropics: Putting a time perspective on the phylogeny and biogeography of Sundaland tree squirrels, *Sundasciurus*. *Molecular Phylogenetics and Evolution*, 55(2): 711-20.
- Desmarest, Thierry (PDG TotalFinaElf)
2001 Préface. P. 15 IN: L'Hour (2001)(1).
- Drummond, S.P., K.A. Wilson, E. Meijaard, M. Watts, R. Dennis, L. Christy, and H.P. Possingham
2010 Influence of a threatened-species focus on conservation planning [in East Kalimantan]. *Conservation Biology*, 24(2): 441-9.
- Dupoizat, Marie-France
2000 Ré propos de la classification de Paul Guilleminet: jarres à Bornéo et sur les Hauts-Plateaux indochinois. *L'horizon nousantarien, Mélanges en hommage à Denys Lombard*. *Archipel* (60): 199-216; cited in L'Hour 2001(2):174.
2001 Les jarres de grès dans le commerce maritime asiatique, fonctions domestiques et rituelles. Pp. 85-107 IN: L'Hour (2001)(2).
2001 La céramique thaïe. *Ibid.*, 109-19.
2001 La céramique vietnamienne. *Ibid.*, 121-7.
- Ejau, A.
1987 Fury over Iban dialect. *Borneo Bulletin*, 17 January 1987:13-14.
- Eko Prianto Husnah Syarifah Nurdawaty and Asyari
2007 Food habit of Biawan Fish (*Helostoma teminckii*) at Sababila, Barito South Kalimantan. *Jurnal Protein*, 14(2).
- Fatimah binti Pengiran Haji Md Noor, Dayangku Hajjah
2010 Tinjauan. Sektor pelancongan tarik pelabur asing: Berpotensi tingkat ekonomi negara. *Pelita Brunei, Sabtu 30 Januari 2010:5*.*
Survey. The tourism sector is attracting foreign investors to NBD and has the potential to boost the national economy.
- Fletcher, A.
2010 Staying safe in the jungles of Borneo: five studies of fatigue and cultural issues in remote mining projects. *Industrial Health*, 48(4): 406-15.
Industrial mining in Kalimantan.

Garbutt, N; and C. Prudente

- 2006 *Wild Borneo: The Wildlife and Scenery of Sabah, Sarawak, Brunei and Kalimantan* (MIT Press, Massachusetts; published in association with WWF). Cited in Thiessen 2008:294.

Gardner, Frank

- 2010 Braving Borneo. An enthusiastic traveler since his student days, the author and BBC journalist Frank Gardner is not a man to let a wheelchair get in the way of adventure. A trip with his family to the jungles and mountains of Borneo offered a rare chance to see some of the island's unique and endangered wildlife. *The Daily Telegraph* (London), Saturday 18.9.2010: T1-3**; map.

Garis Panduan Kemajuan Tanah: Fokus Kemajuan di Kawasan Sensitif Alam Sekitar (Jabatan Perancang Bandar dan Desa NBD, no date, BND 15). Cited in *PB* R.3.2.2010:1.

Gavin, Traude

- 2010 Triangle and Tree: Austronesian Themes in the Design Interpretation of Indonesian textiles. In: R. Barnes, R. and M.H. Kahlenberg, eds., *Five Centuries of Indonesian Textiles*. Munich: Prestel Publishing.

Goh, Daniel P.S., Matilda Gabrielpillai, Philip Holden, and Gaik Cheng Khoo, eds.

- 2009 *Race and Multiculturalism in Malaysia and Singapore*. London: Routledge.

Gould, Tony

- 1999 *Imperial Warriors: Britain and the Gurkhas* (London). Cited in Pemble 2008:378.

Grey, Ian E.; Pierre Bordet, Nicholas C. Wilson, *et al.*

- 2010 A new Al-rich hydroxylated pseudorutile from Kalimantan, Indonesia. *American Mineralogist*, 95(1):161-70.

Hack, Karl; and Jean-Louis Margolin (eds.)

- 2010 *Singapore from Temasek to the twenty-first century*. Singapore: NUS Publishing.

Halina Sendera Mohd. Yakin

- 2007 *Identiti budaya etnik Palau' di Semporna, Sabah: Konservasi, adaptasi dan transformasi budaya*. Kota Kinabalu: Pusat Penataran Ilmu dan Bahasa, Universiti Malaysia Sabah. Kertas Kadangkala Bil. 7.

Hamard, M., S.M. Cheyne, and V. Nijman

- 2010 Vegetation correlates of gibbon density in the peat-swamp forest of the Sabangau catchment, Central Kalimantan, Indonesia. *American Journal of Primatology*, 72(7): 607-16.

Hanapi bin Haji Maidin

- 1996 Trade Ceramics Found in Brunei Darussalam: Their Function and Use. *SPAFA Journal*, 6(1), January-April 1996:24-7; cited in L'Hour 2001(2):175.

Hanbury-Tenison, Robin

- 2010 Robin Hanbury-Tenison remembers his Mulu expedition in Borneo, 1978. *The Daily Telegraph: Telegraph Magazine*, 18 September 2010: 98.*
- 2010 *The Great Explorers*. Thames & Hudson, 4 October 2010.

Harrison, Mark E., Helen C. Morrogh-Bernard, and David J. Chivers

- 2010 Orangutan Energetics and the Influence of Fruit Availability in the Nonmasting Peat-swamp Forest of Sabangau, Indonesian Borneo. *International Journal of Primatology* 31(4): 585-60.

Hashim, Pengiran Haji; and Pengiran Dr Karim

- 2000 *A Catalogue of Selected Artefacts from the Brunei Shipwreck*. Brunei Museums. Cited in L'Hour 2001(2):172.

Hashim bin Haji Abdul Hamid, Profesor Madya Dr

- 2003 *Islam di Brunei: Satu Analisis Sosio-Budaya* [Islam in Brunei: A Socio-Cultural Analysis] (Jabatan Kesusasteraan Melayu, UBD). Cited in *PB R.24.3.2010*:11.

Heok Hee Ng

- 2010 *Pseudomystus Fenebris*, A New Species of Catfish from Borneo (Teleostei: Bagridae). *The Raffles Bulletin of Zoology*, 58(1):87-91.

Hezlinawati HAK

- 2010 *Buku Pelan Induk Penggunaan Tanah Negara 2006-2025* diterbitkan. *Pelita Brunei*, Rabu 17.11.2010:6.**

Himpunan Ayat-Ayat Al-Qur'an dan Hadis mengenai Pentadbiran (PDI, 2008). Cited in *PB Sa.3.4.2010*:10.

HSBC Brunei

- 2010 *Buku Panduan Perniagaan*. Launched on 11 June 2010 by YB Pehin Yahya Bakar (MIPR) at the i-Centre, Anggerek Desa (*PB R.30.6.2010*:4).

Huet, Nathalie

- 2001 Étude, conservation, et restauration des objets. Pp. 133-43 IN: L'Hour (2001)(1).
- 2001 Éléments de parure, bracelets et perles. *Ibid.*, (2):129-37.

Ishikawa, Noboru

- 2010 *Between Frontiers: Nation and Identity in a Southeast Asian Borderland*. Copenhagen: NIAS, pbk.

Iswandi Anas, Noegroho Hadi, and Dwi Andreas Santosa

- 1999 Ability of Bacteria Isolated from Black Water Ecosystem of Central Kalimantan in Degrading of Crude Oil and Diesel Oil. *Jurnal Ilmu Tanah dan Lingkungan*, 2(2), Oktober 1999:1-7.

Jefferi Pengiran Durahman, Awangku

- 2010 MIB wujud sebagai sistem pemerintahan sejak 1368 [sic] Masihi. *Pelita Brunei R.24.3.2010*:5.**

Jimnun anak Tawi

- 1998 Iban mother tongue education. In: Soon Kua Kia, ed., *Mother Tongue Education of Malaysian Ethnic Minorities*. Kuala Lumpur: Dong Jiao Zong Higher Learning Center.

Kamus Dewan (fourth edition; DBP Malaysia, KL, 2007). Cited in *PB* Is.6.9.2010:10.

Kanamori, T., N. Kuze, H. Bernard, T.P. Malim, and S. Kohshima

- 2010 Feeding ecology of Bornean orangutans (*Pongo pygmaeus morio*) in Danum Valley, Sabah, Malaysia: a three-year record including two mast fruitings. *American Journal of Primatology*, 72(9): 820-40.

Karim bin P.H. Osman, Pengiran Dr.

- 1992 A Report on Archaeological Excavations and Exploration on Pulau Terindak and its Surrounding Area. *Brunei Museum Journal*, 7(4):18-48; cited in *L'Hour* 2001(2)172.

- 2001 L'épave de Brunei et sa contribution à l'histoire maritime de Brunei. Pp. 19-27 IN: *L'Hour* (2001)(2).

Keay, John

- 2010 Where Hornbills Fly: A Journey with the Headhunters of Borneo—Erik Jensen. *The Literary Review* (December 2010):13 (2 pages).

Kettle, Chris J.; Jaboury Ghazoul, Peter S. Ashton, et al.

- 2010 Letters. Mass Fruiting in Borneo: A Missed Opportunity. *Science* 330(6004), October 2010:584.

King, Rosalind C.; Mark R.P. Tingay, Richard R. Hillis, et al.

- 2010 Present-day stress orientations and tectonic provinces of the NW Borneo collisional margin. *Journal of Geophysical Research* (115).

King, V.T.

- 2010 Review of Laura P. Appell-Warren, ed., *The Iban Diaries of Monica Freeman 1949-1951* (Phillips ME: Borneo Research Council Inc., 2009). *ASEASUK News* (No 48).

Koleksi MIB.

Launched by the Minister of Education at UBD, 6 February 2010 (*PB* R.10.2.2010:1, 24).

Kottelat, M. and E. Widjanarti

- 2005 The Fishes of Danau Sentarum National Park and the Kapuas Lakes area, Kalimantan Barat, Indonesia. *Raffles Bulletin of Zoology* Supplement 13:139-73.

L'Hour, Michel (Ed)

- 2001 *La Mémoire Engloutie de Brunei* (three volumes; Éditions Textuel, Paris; published thanks to the patronage of TotalFinaElf; with prefaces by Thierry Desmarest, Jean-Luc Massy, and Matassim bin Haji Jibah).
Volume 1: *Cahier de Fouille*.
Volume 2: *Précis Scientifique*.
Volume 3: *Carnet de Dessins*.

- 2001 Avant-propos. Pp. 22-3 In: L'Hour (2001)(1).
- 2001 *À l'aube du projet: L'expertise de 1997*. Pp. 25-41 In: L'Hour (2001)(1) 25.
- 2001 *Journal de bord*. Pp. 43-131 In: L'Hour (2001)(1).
- L'Hour, Michel; Jerzy Gawronski; avec la collaboration d'Anne-Christine Nalin
 2001 *L'organisation de la cargaison: procédés d'analyse et enseignements*. Pp. 139-67 IN: L'Hour (2001)(2).
- Labes, E.M., D. Hegglin, F. Grimm, W. Nurcahyo, M.E. Harrison, M.L. Bastian, and P. Deplazes
 2010 *Intestinal parasites of endangered orangutans (Pongo pygmaeus) in Central and East Kalimantan, Borneo, Indonesia*. *Parasitology*, 137(1): 123-35.
- Lasimbang, Rita; and Stella Moo-Tan, Eds.
 1997 *An Introduction to the Traditional Costumes of Sabah* (Natural History Publications in association with Department of Sabah Museum). Cited in Thiessen 2008:293.
- Lee Poh Onn
 2010 *Review of Land and Longhouse: Agrarian Transformation in the Uplands of Sarawak*. *Sojourn: Journal of Social Issues in Southeast Asia*, 25(1):143-7.
- Lim, Beatrice Fui Yee
 2010 *Human resource economics: Issues and perspectives*. Kota Kinabalu: Universiti Malaysia Sabah.
- Lloyd-Smith, Lindsay
 nd *Chronologies of the Dead: Later Prehistoric burial practice at the Niah Caves, Sarawak* (supervisor: Professor Graeme Barker). "Recent" Ph.D. thesis, University of Cambridge.
- Lo Jung Pang
 1970 *Chinese Shipping and East-West Trade from the Xth to the XIVth Century*. Pp. 167-78 In: M. Mollat, ed., *Sociétés et compagnies de commerce en Orient et dan l'océan Indien* (Paris). Cited in L'Hour 2001(2):169.
- Lumenta, Dave
 2008 *The Making of a Transnational Continuum: State Partitions and Mobility of the Apau Kayan Kenyah in Central Borneo 1900-2007*. Ph.D. thesis, Graduate School of Asian and African Area Studies, Kyoto University. Cited in Ishikawa 2010:254.
- Macdonald, Charles and Zeng Yangwen eds.
 2009 *Personal Names in Asia: History, Culture, and Identity*. Singapore: NUS Press.
- Macpherson, Colin G.; Kai Kim Chiang, Robert Hall, *et al.*
 2010 *Plio-Pleistocene intra-plate magmatism from the southern Sulu Arc*,

Semporna peninsula, Sabah, Borneo: Implications for high-Nb basalt in subduction zones. *Journal of Vulcanology and Geothermal Research*, 190(1-2):25-38.

Malohlava V. and L. Bocak

2010 Evidence of extreme habitat stability in a Southeast Asian biodiversity hotspot based on the evolutionary analysis of neotenic net-winged beetles. *Molecular Ecology*, 19(21):4800-11.

Manguin, Pierre-Yves

1984 "Relationship and Cross-Influence between South-East Asian and Chinese Shipbuilding Traditions. Pp. 197-211 In: *Final Report. SPAFA Workshop on Shipping and Trade Networks in South-East Asia* (Bangkok: SPAFA). Cited in L'Hour 2001(2):169.

1985 Sewn-plank Craft of South-East Asia: A Preliminary Survey. Pp. 319-43 IN: S. McGrail and E. Kentley, eds., *Sewn Planked Boats: Archaeological and ethnographic papers based on those presented to a conference at Greenwich in November 1984* (Oxford: Greenwich National Maritime Museum. Archaeological Series No 10, BAR International Series, No 276). Cited in L'Hour 2001(2):169.

1989 The trading ships of Insular Southeast Asia: New evidence from Indonesian archaeological sites. Pp. 200-20 In: *Proceedings, Pertemuan Ilmiah Arkeologi V, Yogyakarta, 1989* (Jakarta: Ikatan Ahli Arkeologi Indonesia, Volume I). Cited in L'Hour 2001(2):170.

1993 Trading Ships of the South China Sea: Shipbuilding Techniques and their Role in the Development of Asian Trade. *Journal of the Economic and Social History of the Orient* (36):253-80. Cited in L'Hour 2001(2):170.

1996 Southeast Asian shipping in the Indian Ocean during the first millennium AD. Pp. 181-98 IN: H.P. Ray and J.F. Salles, eds., *Tradition and archaeology: Early maritime contacts in the Indian Ocean* (Lyon, New Delhi, Manohar: Maison de l'Orient méditerranéen/Nistads).

1996 The Southeast Asian Ship: An Historical Approach. *Journal of Southeast Asian Studies* (1996):253-69. Cited in L'Hour 2001(2):170.

2001 Réseaux marchands et navires en mer de Chine méridionale. Pp. 7-17 In: L'Hour (2001)(2).

Marshall, Andrew J.

2010 Effect of Habitat Quality on Primate Populations in Kalimantan: Gibbons and Leaf Monkeys as Case Studies. *Developments in Primatology: Progress and Prospects*, 2010(1):157-77.

Masayuki Ushio, Kanehiro Kitayama, Teri C. Balsler

2010 Tree species effects on soil enzyme activities through effects on soil physicochemical and microbial properties in a tropical montane forest of Mt Kinabalu, Borneo. *Pedobiologia*, 53(4):227-33.

Massy, Jean-Luc

2001 Préface. P. 16 In: L'Hour (2001)(1).

- Matassim bin Haji Jibah
2001 Préface. P. 17 In: L'Hour (2001)(1).
- Mee, Wendy
2010 A traffic in Songket: Translocal Malay identities in Sambas. *Journal of Southeast Asian Studies* (41):321-39.
- Meijaard, E., G. Albar, Nardiyono, Y. Rayadin, M. Ancrenaz, S. Spehar
2010 Unexpected ecological resilience in Bornean orangutans and implications for pulp and paper plantation management. *PloS One*, 5(9): e12813.
- Meijaard, E., A. Welsh, M. Ancrenaz; S. Wich; V. Nijman, and A.J. Marshall
2010 Declining orangutan encounter rates from Wallace to the present suggest the species was once more abundant. *PloS One*, 5(8): e12042.
- Menua Saleh, Robert
2009 *Entelah* [Iban]. Kuching: Tun Jugah Foundation.
- Miettinen, Jukka and Soo Chin Liew
Status of Peatland Degradation and Development in Sumatra and Kalimantan. *Ambio: A Journal of the Human Environment*, 39(5-6):394-401.
- Misztal, P.K.; Owen, S.M.; Guenther, A.B., *et al.*
2010 Large estragole fluxes from oil palms in Borneo. *Atmospheric Chemistry and Physics Discussions*, 10(1):1517-57.
- Moeliono, M.
2008 Hands off, Hands on: communities and the management of national parks in Indonesia In: N.S. Sodhi, G. Acciolioli, M. Erb, and A. Khee-Jin Tan, eds., *Biodiversity and Human Livelihoods in Protected Areas: Case Studies from the Malay Archipelago*. Cambridge: Cambridge University Press.
- Mühlhäusler, P.
1996 *Linguistic Ecology*. Routledge: London.
- Mulvey, Paul
2010 *The Political Life of Josiah C [Clement] Wedgwood: Land, Liberty, and Empire, 1872-1943*. Woodbridge Suffolk and Rochester NY: Royal Historical Society/Boydell Press. Studies in History, New Series.
- Mohammad bin PH Abdul Rahman, Pengiran DSS Dr Haji
2007 *Islam di Brunei Darussalam Zaman British 1774-1984*. BSB: Dewan Bahasa dan Pustaka; cited in *PB R.21.4.2010:10*.
- Muhammad Hadi bin Muhammad Melayong, Dr
2010 Melayu Islam Beraja: Cara Hidup Yang Lengkap [MIB: A Complete Way of Life]. *Pelita Brunei, Rabu 24.3.2010:12.***
- Muhd Khairudin Aljunied, Syed
2009 Review of Leonard Andaya's *Leaves of the Same Tree* and Anthony

Milner's *The Malays*. *JMBRAS*, 82(2), December 2009:201-5.
See also *BRB* 2008:269-73.

Neate, Rupert

2010 Club Med "to be sold" to Brunei Group. Clear sailing: Club Med is seeking to attract 200,000 Chinese tourists by 2015. *The Daily Telegraph*, M.19.7.2010:B3.

Nooteboom, Gerben; and Edwin B.P. de Jong

2010 Against "Green Development Fantasies": Resource Degradation and the Lack of Community Resistance in the Middle Mahakam Wetlands, East Kalimantan, Indonesia. *Asian Journal of Social Science*, 38(2):258-78.

Nor Rasidah Hashim

2010 Analysing Long-Term Landscape Changes in a Bornean Forest Reserve Using Aerial Photographs. *The Open Geography Journal*, 2010(3):161-9.

Norratna binti Mohamad Ali

2010 Perbezaan Bahasa Melayu dan Bahasa Indonesia. *Pelita Brunei*, R.27.1.2010:11; tables.

Norratna Mohamad Ali, Siti

2010 *Laras bahasa* [Language register]. *Pelita Brunei*, Rabu 10 Februari 2010:11; figure, [incomplete] bibliography.

Oxford Business Group

2010 *The Report: Brunei Darussalam 2010*. Launched at Jerudong on 16 December 2010 (*PB* Sa.18.12.2010:24**; *PB* R.22.12.2010:9**).

Oxford Dictionary of National Biography: List of Entries on Individuals with Malaysian or Singapore[an] Connections. *JMBRAS*, 83(1), June 2010:117-20.

Page, S.E., R.A.J. Wust, D. Weiss, J.O. Rieley, W. Shotyk, and S.H. Limin

2004 A Record of Late Pleistocene and Holocene Carbon Accumulation and Climate Change from an Equatorial Peat Bog (Kalimantan, Indonesia): Implications for Past, Present and Future Carbon Dynamics. *Journal of Quaternary Science* 19 (7):625-35.

Panduan Penjualan dan Penyajian Makanan dan Minuman Sihat di Tempat Kerja.

Launched by HRH the Crown Prince of NBD at Jerudong on 3 May 2010 (*PB* R.5.5.2010:1).

Pelan Strategik Biro Mencegah Rasuah 2010-2014.

Launched at Jerudong on 12 January 2010 (*PB* Sa.16.1.2010:22).

Pemble, John

2008 *Britain's Gurkha War: The Invasion of Nepal, 1814-16*. London: Frontline Books, London, hbk, revised edition 2008 with a new foreword by JP Cross; originally published in 1971.

Perancangan Kemajuan Negara Jangka Panjang NBD. Wawasan Brunei 2035 Rangka Strategi dan Dasar bagi Pembangunan (OSPD) 2007-2012.

Cited in *PB* Sa.3.4.2010:10.

- Peraturan Lembaga Pengelola Majelis Perundingan Mukim dan Kampung (MPMK) Tahun 2006.*
Cited in *PB* R.3.2.2010:20
- Petersen, Stephen
2010 Bidayah Beekeeping; How Two Local Villages in Borneo Keep Bees and Harvest Honey. *American Bee Journal*, 150(8):787-90.
- Phillips, Quentin and Karen Phillips
2009 *Phillips' Field Guide to the Birds of Borneo*. Oxford: Beaufoy Books.
- Phillips, O.L., G. van der Heijden, S.L. Lewis, *et al.*
2010 Drought-mortality relationships for tropical forests. *The New Phytologist*, 187(3): 631-46.
- Polis Diraja Brunei: Meja Perhubungan Awam
2010 Sejarah Pasukan Polis Diraja Brunei. *Pelita Brunei, Isnin* 30 Ogos 2010:23.**.
- Prasojo, Zaenuddin Hudi
2010 Indigenous Community Identity Within Muslim Societies in Indonesia: A Study of Katab Kebahan Dayak in West Borneo. *Journal of Islamic Studies*, 22(1):50-65.
- Pusat Da'wah Islamiah
nd *Perspektif Islam mengenai Akhlak* (PDI, Ministry of Religious Affairs, NBD). Cited in *PB* R.24.3.2010:11.
- Pyatt, F.B., G.W. Barker, R.J. Rabett, K. Szabó, and B. Wilson
2010 Analytical examination of animal remains from Borneo: the painting of bone and shell. *Journal of Archaeological Science*, 37(9): 2102-5.
- Rasuah: Ingat Risikonya di Dunia dan di Akhirat* (PDI, 2009). Cited in *PB* Sa.3.4.2010:10.
- Richmond, Simon; Damian Harper, Tom Parkinson, Charles Rawlings-Way, Richard Watkins
2007 *Malaysia, Singapore & Brunei*. Footscray, Victoria; Oakland CA; London. Lonely Planet, pbk.
- Rin [thus]
2010 NDP General Congress Assembly. *Borneo Bulletin* (online), 8 June 2010.
- Roberts, Christopher; and Lee Poh Onn
2009 Brunei Darussalam: Cautious on Political Reform, Comfortable in ASEAN, Pushing for Economic Diversification. *Southeast Asian Affairs 2009*: 61-82.
- Rogayah Haji Abdullah
2010 "Penemuan-Penemuan arkeologi di Brunei Darussalam," in *Pelita Brunei, Isnin* 30 Ogos 2010:7.

Rukun Akhlak dan Etika Kerja Perkhidmatan Awam Negara Brunei Darussalam
[Practice and Ethics of the NBD Civil Service]. Jabatan Perkhidmatan Awam, JPM,
1996 or 1997.

Cited in *PB* Sa.3.4.2010:10 and *PB* R.24.3.2010:11.

Russon, A.E., A. Erman, and R. Dennis

2001 The Population and Distribution of Orangutans (*Pongo pygmaeus pygmaeus*) in and around the Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia. *Biological Conservation* 97:21-8.

Russon, Anne E.; Purwo Kuncoro, Agnes Ferisa, and Dwi Putri Handayani

2010 How Orangutans (*Pongo pygmaeus*) innovate for water. *Journal of Comparative Psychology*, 124(1):14-28.

Sanderson, Sunny Jane

2007 Variation in Great-Call Structure of Hybrid Gibbons in Central Borneo. Master's Thesis, School of Integrative Biology University of Queensland.

Sang anak Lamat, Muda anak Sandin, and Mathew Banyin Nyaru

2009 *Tiga Ensera: Indai Jubang, Kumang Bunsu Ikan Buing, Kumang Nyera* [Iban]. Kuching: Tun Jugah Foundation.

Searle, R.J.; and M.F. Newman

2010 *Myxochlamys Amphiloxa* (Zingiberaceae): A new species from Central Kalimantan, Indonesia. *Edinburgh Journal of Botany* 67: 347-52.

Sercombe, J.S.

2008 To what Extent has the Development of Malaysia Impacted the Development of the Iban in Sarawak? Unpublished BA Dissertation, University of Bradford, UK.

Sercombe, Peter G.

2010 Language and Education: The experience of the Penan in Brunei. *International Journal of Educational Development*, 30(6), November 2010:625-35.

Setianah, R.; S. Jayadi, R. Herman

2004 Tingkah Laku Makan Kambing Lokal Persilangan yang Digembalakan di Lahan Gambut: Studi Kasus di Kalampangan, Kalimantan Tengah. *Media Peternakan: Journal of Animal Science and Technology*, Faculty of Animal Science, Bogor Agricultural University, 27(3).

Shone, Robbie (Barcroft Media)

2010 British discovery. *The Daily Telegraph*, Thursday 9 September 2010:9.**

Photographed captioned: "A cave inhabited by three million bats has been found by British explorers in their latest expedition to map a vast underground system at Gunung Mulu National Park in Malaysia Borneo. Since 1978 British teams have charted 186 miles of caverns."

Sillander, Kenneth

- 2009 Teknonymy, name-avoidance, solidarity, and individuation among the Bentian of Indonesian Borneo. Pp. 101-27 In: Charles MacDonald and Zeng Yangwen, eds., *Personal Names in Asia: History, Culture, and Identity*. Singapore: NUS Press.

Singh, Prakash K.; M.P. Singh, Alok K. Singh, and Mukesh Arora

- 2010 Petrographic characteristics of coal from the Lati Formation, Tarakan basin, East Kalimantan, Indonesia. *International Journal of Coal Geology*, 81(2):109-16.

Spillmann, Brigitte; Lynda P. Dunkel, Maria A. Van Noordwijk, *et al.*

- 2010 Acoustic Properties of Long Calls Given by Flanged Male Orang-Utans (*Pongo pygmaeus wurmbii*) Reflect Both Individual Identity and Context. *Ethology: International Journal of Behavioural Biology*, 116(5), May 2010: 385-95. Article first published online, 25 March 2010. DOI: 10.1111/j.1439-0310.2010.01744.x

Sri Nuryani Hidayah Utami, Azwar Maas, Bostang Radjaguguk, Benito Heru Purwanto

- 2010 Nature on Soil Physical [*sic*], Chemical and Ftir [thus] Spectrophotometry of Hydrophobic Peat From Central Kalimantan. *Jurnal Tanah Tropika* (Journal of Tropical Soils), 14(2).

Sri Widodo, Wolfgang Oschmann, Achim Bechtel, *et al.*

- 2010 Distribution of sulfur and pyrite in coal seams from Kutai Basin (East Kalimantan, Indonesia): Implications for paleoenvironmental conditions. *International Journal of Coal Geology*, 81(3), 1 March 2010:151-62.

Sulaiman bin Haji Duraman, Haji

- 2010 "Rencana. Titah-titah kepemimpinan 25 tahun kedewasaan Perkhidmatan Awam Pascamerdeka: Memacu ke arah kecemerlangan pentadbiran". Siri pertama: *PB R.24.2.2010:11***; Siri kedua: *PB R.10.3.2010:11***; Siri akhir [ketiga]: *PB R.24.3.2010:11.***

Sunday Times Rich List 2010 (supplement 102pp, 25 April 2010; compiled by Philip Beresford; edited by Ian Coxon; London).

- HM Sultan Hassanah Bolkiah: joint-twentieth (with Liliane Bettencourt) richest in world: £12,800 million (£10,700 million in 2009) (p 62).

Swaine, Jon

- 2010a A prince and his erotic statues. *The Daily Telegraph* (London), Friday 5 November 2010:24.
- 2010b "Roadkill" lawyers win battle with Brunei prince. *DT*, Friday 17 December 2010:20.**

Tarling, Nicholas

- 2010 Britain, the Tunku and West New Guinea 1957-1963. *JMBRAS* 83(1), June 2010:77-90.

- Thambipillai, Pushpa
2010 Brunei in 2009: Addressing the Multiple Challenges. *Southeast Asian Affairs 2010*. Singapore: ISEAS.
- Thiessen, Tamara (with Kara Moses, contributing editor)
2008 *Borneo: The Bradt Travel Guide, Sabah Brunei Sarawak*. Chalfont St Peter, Buckinghamshire and Guilford [thus], Connecticut: ; Bradt Travel Guides UK/Globe Pequot Press Inc USA; ; pbk, December 2008.
Kalimantan not included.
- Timmer, Jaap
2010 Being seen like the state: Emulations of legal culture in customary labor and land tenure arrangements in East Kalimantan, Indonesia. *American Ethnologist*, 37:703–12.
- Umbat, Jantan
2009 *Madu Rimba* [Iban, novel]. Kuching: Lee Ming Press.
- Universiti Islam Sultan Sharif Ali (UNISSA)
nd *Pelan Strategik 2009-2018*. [No publisher, no place]. Cited in *PB, Rabu* 21.4.2010:10.
- Vivy Malessa PI, Dayangku
2010 Buku *Pelan Tindakan Brunei* dilancarkan. Pelita Brunei, Is.15.11.2010:6.**
- Walsh, Kate
2010 Brunei fund to splash out £675m on Club Med. *The Sunday Times* (London), 18.7.2010: (3)3.**
- Wartmann, Flurina M.; Ross S. Purves and Carel P. van Schaik
2010 Modelling ranging behaviour of female orang-utans: a case study in Tuanan, Central Kalimantan, Indonesia. *Primates* 51(2):119-30.
- Weerts, A.H.; J. Schellekens; F.S. Weiland
2010 Real-time geospatial data handling and forecasting: Examples from Delft-FEWS Forecasting Platform/System. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 3(3), September 2010:386-94.
- Wijarnaka
2000 Konsep dasar pengembangan struktur ruang kota/permukiman di Kalimantan Tengah (Belajar dari kota). *Jurnal Perencanaan Wilayah dan Kota*, 11(2).
- Wilson, K.A., E Meijaard, S. Drummond, H.S. Grantham, L. Boitani, G. Catullo, L. Christie, R. Dennis, I. Dutton, A. Falcucci, L. Maiorano, H.P. Possingham, C. Rondinini, W.R. Turner, O. Venter, and M. Watts
2010 Conserving biodiversity in production landscapes [of East Kalimantan]. *Ecological Applications*, 20(6):1721-32.

Wong Tze Ken, Danny

- 2010 Review of I.H.N. Evans, *Bornean Diaries 1938-1942* (BRC Monographs No 6, Phillips, Maine, 2002). *JMBRAS* 83(2), December 2010:122-4.

Wong Yee Tuan

- 2010 More than a Tea Planter: John Archibald Russell and his Businesses in Malaya, 1899-1933. *JMBRAS*, 83(1), June 2010:29-51.
Links with Dutch Borneo (pp 37-8).

Wurster, C.M., M.I. Bird, I.D. Bull, F. Creed, C. Bryant, J.A. Dungait, and V. Paz

- 2010 Forest contraction in north equatorial Southeast Asia during the Last Glacial Period. *Proceedings of the National Academy of Sciences of the United States of America*, 107(35):15508-11.
Chemical analysis of bat guano cores from Batu Cave, Niah.

Yap, F.B.

- 2010 Psoriasis among Sarawakian natives in a tertiary skin centre in Sarawak. *The Australasian Journal of Dermatology*, 51(3): 210-1.

Yasmi, Y., C.J.P. Colfer, L. Yuliani, Y. Indriatmoko, and V. Heri

- 2007 Conflict Management Approaches under Unclear Boundaries of the Commons: Experiences from Danau Sentarum National Park, Indonesia. *International Forestry Review* 9 (2): 597-609.

Yassir, I.; J. van der Kemp, P. Buurman

- 2010 Secondary succession after fire in *Imperata* grasslands of East Kalimantan, Indonesia. *Agriculture, Ecosystems & Environment*, 137(1-2), 15 April 2010:172-82.

Yule, Catherine M.; Luz Boyero, Richard Marchant

- 2010 Effects of sediment pollution on food webs in a tropical river (Borneo, Indonesia). *Marine and Freshwater Research*, 61(2), February 2010:204-13.

Yuliani, E.L., Y. Indriatmoko, V. Heri, S. Ernawati, L.B. Prasetyo, and M.S. Zulkiflie

- 2008 Promoting Good Governance in Managing Danau Sentarum National Park through Adaptive Collaborative Management Approach. In: B. Manos and J. Papathanasiou, eds., *Governance and Ecosystem Management for the Conservation of Biodiversity*. Thessaloniki: University of Aristoteles.

Zawawi Ibrahim

- 2008 Discoursing representation, identity and multiculturalism in Sarawak. Pp. 1-19 In: Zawawi Ibrahim, ed., *Representation, Identity and Multiculturalism in Sarawak*. Kuching: Dayak Cultural Foundation.

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