

# The New Guinea Tropical Ecology and Biodiversity Digest

*Metrosideros*  
(*Mearnsia*) *ramiflora*



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McCarthy

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Please send all contributions and corrections to either the mail, fax, or email address listed below.

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Please note our web address



This issue we want to thank the Wildlife Conservation Society for providing financial support -- this is much appreciated!

If you have internet access, the digest is available on the web at: <http://www.wcs.org/pngcp>

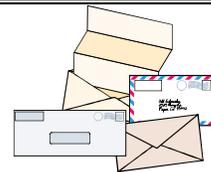
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If you need back issues of the Digest, please let us know and we will mail them to you (or you can download them from the web site).

We try to get a new issue out every six months so the information stays relatively up-to-date. Please don't forget to send in any information you can contribute!

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## Editorials and Letters



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Anybody want to expound on his or her thoughts or solicit opinions about something? Please send in anything that you would like to see appear here! Opinions are from the author and don't necessarily reflect those of the editor or WCS.

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## New Guinea Conservation Updates



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Updates anyone??

### Conservation Education Resource Centre opens in Goroka

From Janine Watson

For a country like PNG that derives its identity from the unique natural environment, Conservation Education is one of the most important topics for PNG school children to learn about. This point was highlighted by Mrs Mary Bagita,

Acting Assistant Superintendent, Primary Inspections National Education Department, while speaking at the opening of the Conservation Education Resource Centre (CERC) located at the Research and Conservation Foundation (RCF) headquarters in Goroka, Eastern Highlands Province.

After many years of work the CERC is now open and ready to welcome teachers, their school groups and other interested members of the public through its doors to learn more about the natural environment. The CERC has a variety of materials for all ages covering topics such as endangered species, conservation practices, rainforest ecology, sustainable development, plants and animals of the world and of course PNG. In fact, there is also a specific PNG section at the CERC which has a wealth of information regarding native flora and fauna, conservation projects across the country, and specific issues facing PNG's unique environment.

The Grand Opening of the CERC was held in March and a number of important guests involved in Conservation and Education across the country attended to pledge their support. Representatives from The Nature Conservancy, the Department of Environment and Conservation, the Curriculum Development Division of the National Department of Education, the University of Goroka, and representatives from the various participating Provincial Education Offices were among those present. Dr Mark Solon, Vice Chancellor of the University of Goroka and RCF Board Chairman, spoke of the importance of programs such as the CERC to the future of PNG and officially declared the CERC open.

The CERC is much more than a library and has a diverse collection of materials including books, videos, magazines and student activity books. Teachers are encouraged to bring their student groups to the centre to watch videos, hear from guest speakers such as RCF staff or visiting scientists, and to actively take part in various Conservation Education activities lead by RCF instructors.

The CERC is an integral part of a wider program focused on Conservation Education in PNG. This program is a collaborative effort between the Research and Conservation Foundation of PNG and the Wildlife Conservation Society (WCS). RCF is a successful conservation NGO that manages the Crater Mountain Wildlife Management Area (CMWMA) as well as its conservation education work and WCS is an international conservation organization with its headquarters in New York and country programs across the globe including PNG.

This broader program is called the RCF/WCS Conservation Education Teacher Training Program and has PNG teachers as its major target audience. This is because teachers are in one of the best positions to teach PNG's future landowners of the importance of protecting natural resources. The wider program includes Conservation Education Teacher Training Workshops and the production of a regular teachers' newsletter titled: Ting Ting Long Mama Graun.

For more information call the Conservation Education Resource Centre in Goroka on 732 3821.

## NGOs Call for Reform of the Forest Industry

From the PNG Eco-Forestry Forum

A coalition of non-government organisations is calling on the Government to make some fundamental changes in the Forest Industry. They are calling for the continuation of the current Moratorium on new logging concessions until reforms are in place to deal with the many problems in the sector.

Speaking as Chairperson of the Eco-Forestry Forum, Mr Sasa Zibe Kokino said, "the Prime Minister has already admitted that the forest industry is in a mess with poor practice, corruption and unsustainable logging operations. We are now calling on the Government to ensure that the necessary reforms are made before the current Moratorium is lifted."

The NGO recommendations are included in their 'Submission on the Forest Industry Moratorium and Reviews'; a document that was presented to the Prime Minister today. The Submission contains an assessment of the reasons behind the current appalling state of the forest industry and sets out the changes that are needed.

The NGOs are asking for the Government to honour their promise of a review of current forest operations and for the completion of the current review of proposed new concessions. They also want to see the recommendations from these reviews fully implemented together with systems to prevent the same problems being repeated in the future.

The NGOs are also calling for a new and effective method of enforcing the logging code of practice, which, they say, is currently being ignored. They also want to see a new National Forest Plan that properly considers all land use options and reflects the wishes of resource owners. The NGOs are also calling for an independent system to ensure that forest management is truly sustainable and a change in the focus of the Forest Authority from one of assisting loggers to access resources to one of monitoring and controlling forest operations.

The NGO Submission is the result of collaboration between eighteen different national and international organisations and their local partners. It has been developed over a number of months and has included patrols to many remote areas of the country to gather the views of resource owners and to assess current practice in the forest industry.

As Mr. Kokino explained, "We see the current Moratorium as a last chance for our forests. The Moratorium must be maintained and fundamental reforms implemented before it is lifted."

For a copy of the document contact the PNG Eco-Forestry Forum Phone: 983 5464 Fax: 983 5852 Email: [teff@global.net.pg](mailto:teff@global.net.pg)



# Current Research Updates

If you have recently finished work or are currently doing a project, please send a summary for inclusion in the next newsletter--**thanks!** Remember that research articles should still be submitted to journals for publication. We just want to print a summary of your work to let people know what is going on without having to wait for the lag-time involved in regular journal publications and so that summaries of all current work in NG can be found in one location. We want to make it easy for everyone to keep informed about all of the current research in New Guinea, so please send your information!

## Studies of Parrots and Hornbills on New Britain

From Stuart Marsden and John Pilgrim

Between December 1998 and April 1999, fieldwork was undertaken to assess population densities of parrots and hornbills on New Britain, to investigate their feeding and nesting ecologies, and to find out how populations might be affected by habitat alteration. The project was funded through the North of England Zoological Society, and fieldwork was conducted by John Pilgrim (now of Conservation International) in collaboration with Professor Lance Hill of UPNG. Fieldwork was concentrated at two lowland study sites on New Britain. These were areas around Mu and Marunga on opposite sides of Wide Bay in the northeast of the island.

A total of 250 survey plots were set up in primary and selectively logged forests and gardens at the two sites. Within each plot, trees in fruit were identified and measured. A total of 1,382 trees of around 70 species were recorded in fruit during the survey and many of these are known to be used by birds and mammals. Densities of individual tree species (e.g. *Eucalyptus deglupta* and *Areca* spp.) were, in some cases, enormously different between the habitats and sites.

A major part of the work was to relate differences in parrot and hornbill abundance to food and nest site availability in the different habitats. In addition, we aimed to determine whether nest site availability was a likely limit to local breeding populations of parrots and hornbills. Blue-eyed Cockatoo *Cacatua ophthalmica* and the hornbill *Rhyticeros plicatus* were usually rarer in forest gardens than in primary forest, but both fared well in logged forest. Eclectus Parrot *Eclectus roratus* was more common in all human-altered forests than in primary forest, and Eastern Black-capped Lory *Lorius hypoinochrous* was reasonably common throughout but

extremely abundant in forest gardens at one site. Parrots and hornbills were recorded eating fruits of 15 tree species and flowers of nine species. Densities of these fruiting trees were highest in logged forest, while densities of suitable flowering trees were highest in forest gardens. Human-altered forests on New Britain are important as feeding grounds for parrots and hornbills. Active nest cavities were found in large individuals of 12 tree species. Densities of potential nest cavities were highest in primary forest and lowest in forest gardens. Our estimates of potential nest site density were, at both sites, significantly lower than our estimates of the density of parrot/hornbill pairs: there may be 10-20 parrot/hornbill individuals per nest hole. Continuing forest alteration may allow large populations of parrots and hornbills to persist due to increased availability of food in some anthropogenic habitats, but in the long-term will crucially further reduce nest-site availability.

A focus for the research was Blue-eyed Cockatoo, both because it is extremely poorly known and because, unlike most cockatoos outside Australia, it is little traded. Cockatoos were recorded in groups of up to 40 birds in all forest types visited. Estimated cockatoo density in recently logged forest (64 birds per km<sup>2</sup>) was similar to that in primary forest, but densities in gardens at both sites (6 and 28 per km<sup>2</sup>) were considerably lower than those in primary forest (27 and 73 per km<sup>2</sup>). Most active nests found were in large trees in primary forest and the paucity of nests in forest gardens is cause for concern. While we predict that the cockatoo population on New Britain is declining, the species remains numerous both due to current low levels of trapping and the large area of suitable forest remaining on the island.

## Metrosideros

From Tony Whitaker and Shane Wright

In 1996 our research group at Auckland University, New Zealand, started the long task of collecting samples of the ca. 60 species of the flowering plant genus *Metrosideros* (F. Myrtaceae). These striking, often red-flowered, plants are widespread across the Pacific Basin, occurring from the Philippines and New Guinea in the west, to Tahiti and Hawaii in the east. The diversity centres are on the southern post-Gondwanan landmasses of New Zealand and New Caledonia. The purpose of this collection was to undertake DNA sequencing of all species to look at patterns of evolution and dispersal across the vast oceanic distances separating them.

Because of the size of the task, the work has been separated into two components, coinciding with the two subgenera that comprise the genus. The research for one of

those, subg. *Metrosideros* (ca. 30 spp), is now complete, with all species collected and sequenced and the resultant papers written and submitted. One of those manuscripts was recently published in the Proceedings of the National Academy of Sciences, U.S.A. (April 2000). This work points to the role of climate change during Ice Age cycles as possibly facilitating long-distance over-water dispersal by these wind-borne plants.

The second part of the work focuses on the other subgenus, subg. *Mearnsia*, and remains incomplete. To date we have collected all but one of the species in this grouping. The majority of these species occur in New Zealand and New Caledonia and have proved to be relatively straightforward to collect. However there are at least four species in New Guinea, one in the Philippines and one in Solomon Islands,

and all of these have involved far greater levels of challenge to sample. The single species in the Philippines required three expeditions before it was found, and so far only three of the four species in New Guinea have been collected after several separate attempts to locate them. The fourth species, *Metrosideros ovata*, is known only from upper montane forest in eastern New Guinea and remains uncollected at this point.

In February of 2001, Tony and Vivienne Whitaker of New Zealand—the same collectors that secured *M. halconensis* from the central Philippines—obtained two of the three New Guinea species in western PNG. They were given invaluable assistance in their work by many people in PNG; in particular Robert Kiapranis (Forest Research Institute), Monica Rau, Andy Maie and Jim Veness (Ok Tedi Mining), and Don Harvey (MAF), and were provided significant background information by David Frodin (Kew, UK) and Lyn Craven (CSIRO, Canberra). Their collections of *M. scandens* and *M. ramiflora* were made respectively on the Fly River floodplain near to Kiunga and at Feramin in the Upper Sepik catchment. An earlier collection, of *M. cordata*, was made by Michael Heads (Goroka University) on Mt Kaindi in 1997. Wayne Takeuchi (FRI) also gave much appreciated help in some earlier attempts to locate these species. In the Philippines we have received excellent assistance from Domingo Madulid and the late Estong Reynoso, and in the Solomon Islands from Myknee Sirikolo and Moffet Hane.

The painting of *Metrosideros (Mearnsia) ramiflora* used in the masthead of this issue of the newsletter was painted by Nelson (NZ) botanical artist Stephen McCarthy. When Viv & Tony Whitaker were planning their field trip to Western Province to collect material from *Metrosideros* species for the Auckland University biogeography project one thing they lacked were pictures of the plants that they could use to show local people what they were seeking. As they were unable to find any photographs at all of the species, they commissioned Stephen to produce paintings that would

capture the salient features of each species. Working from just the original botanical descriptions and colour-photocopies of old and faded herbarium specimens—plus a field knowledge of the NZ *Metrosideros (Mearnsia)* species—Stephen was able to create remarkably realistic images of the two taxa in western PNG. In the upper Sepik, the Telefol people instantly recognised the painting of *M. ramiflora* as the tree they knew as ‘ang’ and were able to take Viv & Tony directly to a small population. Near Kiunga, the Awin were less sure of the *M. scandens* from the painting, but once some specimens were collected the details illustrated proved to be a remarkably accurate image of the vine they call ‘titmin’.

The DNA sequencing of the Mearnsia-group species from New Guinea, Solomon Islands and the Philippines suggests that they form a related group and that all the named species are genetically distinct from one another. Their relationships with New Caledonia and New Zealand can be more reliably reported once we have made the collection and done sequencing of *M. ovata*.

This just leaves one final species to be collected and sequenced after 5 years of work embracing 60-odd species in 15 different countries. *M. ovata* has been recorded from a handful of high elevation sites on the Owen Stanley and Ekuti Ranges but its occurrence near the high point of the Bulldog Road and from adjacent Mt Amungwiwa suggest this locality might be the best place to attempt a collection.

We are slowly working towards collecting *M. ovata* if we can get the funding to do so. Meanwhile if there is anyone out there who has personally collected the species or has information that would help us with the search, in other words, good, recent and precise localities, we would appreciate it if they could please contact us: Tony Whitaker, 270 Thorpe-Orinoco Road, Orinoco, R.D. 1, Motueka 7161, New Zealand, Phone/Fax: (64) 3 526 8703, Email: [Whitaker@ts.co.nz](mailto:Whitaker@ts.co.nz)

## Insect Species Richness

Novotny, V., and O. Missa. 2000. Local versus regional species richness in tropical insects (Auchenorrhyncha, Hemiptera): one lowland site compared to the island of New Guinea. *Ecological Entomology* 25:445-451.

**Abstract:** The overlap in species composition of Cercopoidea (Aphrophoridae, Cercopidae and Machaerotidae), Flatidae and Ricaniidae between two data sets, an almost exhaustive census from 13 *Ficus* species and a sample from diverse vegetation in the same area, lead to the estimate of the local species richness of 113 species (46 species of Cercopoidea, 37 species of Flatidae and 30 species of Ricaniidae) at a lowland rain forest site. Another, independent estimate of the local species richness of 116 species was obtained by fitting an asymptotic function to the species accumulation curve for the samples from diverse vegetation. Samples restricted to 13 species of *Ficus* contained 66 species, i.e. 57-58% of the estimated local species richness. This high proportion probably results from the high proportion of polyphagous and tourist (transient) species in the Cercopoidea, Flatidae and Ricaniidae. The two largest museum collections of New Guinean insects contained 327 species of Cercopoidea from New Guinea, including 23 of the

34 species collected in the field samples. This overlap led to the estimate of 483 species of Cercopoidea present in New Guinea. The species found in the field samples were also 2.6 times more likely to be found in the museum collection than other species. This sampling bias probably results from a positive correlation between species local abundance and geographic distribution. Such correlation was found between the abundance of species in the *Ficus* samples and the number of New Guinean localities recorded for them in the museum collection. The estimate of species richness of Cercopoidea in New Guinea increased to 1,222 species when corrected for this sampling bias. Thus, only 4 % of the New Guinean species were present locally, in the study area. Such high beta diversity is probably a consequence of the exceptional habitat and vegetation diversity in New Guinea, as well as its complex geological history since several tectonic blocks that now compose the island remain distinct centers of endemism.

## Long-lost megapode rediscovered on Indonesian island

From C.W. Moeliker, Natural History Museum of Rotterdam

Bruijn's Brush-turkey (*Aepyodius bruijnii*) was first described by E. Oustalet in 1880, based on one specimen that reached the Muséum d' Histoire Naturelle in Paris in 1879 through the Dutch feather merchant A.A. Bruijn who was stationed on the island of Ternate. The bird belongs to the Avian family Megapodiidae, the so-called Megapodes, of which the 22 species are distributed over Australia, Papua New Guinea, East-Indonesia, the Philippines, the Nicobar Islands and some islands in the Southwest-Pacific (Tonga, Mariana). Most species occur in the Indo-Australian region where they inhabit tropical (mountain) forests. Megapodes exhibit peculiar and unique breeding habits: they use external heat sources (instead of body heat) to incubate their eggs. Some species bury their eggs in the sand of sun-drenched beaches (like sea-turtles) and let the heat produced by the sun incubate the eggs, and others build huge mounds of leaf litter to lay their eggs in, where heat produced by rotting leaves causes eggs to hatch. Megapode chicks emerge fully self-supporting and are immediately able to fly.

Bruijn's Brush-turkey (*Aepyodius bruijnii*), a bird which has not been recorded for more than 60 years, has been rediscovered on Waigeo, one of the West Papuan Islands (Indonesia). On 23 February 2001 the Dutch/Indonesian WAIGEO EXPEDITION led by dr Kees Heij of the Natural History Museum Rotterdam got the proof of the bird's ongoing existence in their hands: the head and bones of a recently hunted and eaten specimen.

Bruijn's Brush-turkey is the only species of Megapode which has never been observed alive by western scientists, despite the effort of at least 15 expeditions in search of this 'lost species'. The bird was only known from 23 specimens kept in the collections of natural history museums in the United States and Europe. All but one of these birds were collected around 1880 by hunters employed by the Dutch feather merchant A.A. Bruijn on the island of Waigeu. The last 'sign of life' of the species dates back to 1938 when a local collector obtained a single bird and forwarded the specimen to the Academy of Natural Sciences in Philadelphia. With the recent find by the WAIGEO EXPEDITION, it became clear that Bruijn's Brush-turkey still exists on Waigeu and that there is no reason to fear the bird is extinct - as is the case when a species has not been seen for more than 50 years. The actual number of birds that still survives on the island is unknown, but is probably less than 1000 individuals.

The rediscovery of Bruijn's Brush-turkey by Kees Heij and his expedition-team can be regarded as the long term result of the WAIGEO EXPEDITIONS 1999 & 2000. These two expeditions not only surveyed parts of the almost inaccessible rugged and densely forested interior of Waigeu (total surface about 3200 km<sup>2</sup>), but also supplied local people in villages all over the island with illustrations of the bird, urging them to report any sighting to the Indonesian counterpart of the WAIGEO EXPEDITION, Kris Tindige, who has an office in Sorong, the nearest town. This method yielded success: a pig hunter from Waigeu, whose dogs had

caught and killed a rather large megapode, brought the head and bones (the leftovers of his meal) to Tindige who preserved the remains in alcohol and notified the expedition-members in Rotterdam. Kees Heij immediately mounted the WAIGEO EXPEDITION 2001 and - accompanied by Hans Post - travelled to Sorong. Based on studies of skins and mounted specimens of Bruijn's Brush-turkeys and other closely related megapode-species in the collections of the American Museum of Natural History (New York) and Museum Zoologicum Bogoriense (Java, Indonesia), Heij and Post could positively identify the head and bones as belonging to the long-lost *Aepyodius bruijnii* (Oustalet, 1880).

The Waigeo Expedition was funded by the Moluccan and Papuan Wildlife Conservation Ecoguide Fund. For more information and illustrations, please contact: Kees Moeliker, Natural History Museum Rotterdam, Tel: (31) 10 4364222, Home: (31) 6 53778445, Email: [moeliker@nmr.nl](mailto:moeliker@nmr.nl) or Kris Tindige, Papua Bird Club Wildlife Watch, P.O. Box 182, Sorong, Papua (Irian Jaya), Indonesia, Ph/Fx: (62) 951-327196, E-mail: [papubirdclub@hotmail.com](mailto:papubirdclub@hotmail.com) or [wildlifewatch@eudoramail.com](mailto:wildlifewatch@eudoramail.com)

**More from Kris Tindige:** Although I have been working as wildlife guide and consultant for the last 20 years, my first involvement in the documentary filming of Birds of Paradise in 1995 with Sir David Attenborough (BBC), '*Attenborough in Paradise*' was the main motivation for me to found the first bird club in Irian Jaya, the Papua Bird Club (PBC).

The purpose of PBC is to introduce, explain and to raise conservation awareness among the Irian Jaya people and to provide training for local wildlife guides, such as bird guides, to aid birders or any other naturalist who may need a skillful local wildlife guide. To achieve these goals, PBC has conducted field trips to collect information and data about the birds of the region. The field trip to Waigeo Island to rediscover the Bruijn's Brush-turkey, described above, was one such trip.

Papua Bird Club hopes that this success will bring conservation benefits to the local people who live in the area, so that they will in return conserve the bird and wildlife there. The presence of eco-tourism will hopefully eliminate the need for giving the concession to logging companies, which would harm the local environment and people.

Papua Bird Club is just a small club, and yet, it has contributed this recent success of rediscovering the Bruijn's Brush-turkey to the world of science and to the history of Indonesian ornithology.

PBC hopes to bring eco-tourism benefits to local people, but this can only be accomplished with hard work and good promotion. So, if there are any readers who are interested in visiting Irian Jaya, please do not hesitate to contact the Papua Bird Club.

A further report of the rediscovery of Bruijn's Brush-turkey, can be accessed at:

[http://www.geocities.com/kristindige\\_1/myste.html](http://www.geocities.com/kristindige_1/myste.html)

## Pygmy Sperm Whales, *Kogia breviceps*

From Peter Clark



Pygmy Sperm Whale *Kogia breviceps*

Most people know about giant Sperm Whales, as there have been many recorded sightings in PNG waters, some recently. But on the 10<sup>th</sup> September 2000 several pairs of Pygmy Sperm Whales were sighted about 20 nautical miles SE of Lae. According to Frank Bonaccorso, of the National Museum, this was the first recorded sighting of these animals in PNG.

They were seen by several people including myself from a game fishing boat, and were 'logging' in pairs at the time. 'Logging' is a practise characteristic of this species and refers to their stationary floating behaviour.

These animals were 3-4 metres long, grey in colour and had their small dorsal fin set well back near the waterline. When approached they slipped silently below the water to reappear elsewhere. If you get close enough they have what looks like a set of gills (but obviously is not, as they are mammals); apparently this makes them look somewhat 'sharklike' in appearance. They also have a set of very 'sharklike' teeth. A most unusual looking animal!

Seen amongst them was a Sailfish, and not long after the sighting a Blue Marlin was hooked, tagged and released. If you see any unusual sea animals please let Frank or me know: Peter Clark, The Rainforest Habitat, Lae, e-mail [habitat@datec.com.pg](mailto:habitat@datec.com.pg) Phone: (675) 475-7839

## The Palms of New Guinea Project

From Bill Baker

The Palms of New Guinea Project is a collaboration involving 12 botanists from six different countries. The project, co-ordinated by Bill Baker and John Dransfield at the Royal Botanic Gardens, Kew, UK, aims to explore and document the palm flora of New Guinea. Around 1000 species of palm occur in the Malesian region in a bimodal distribution of diversity across Wallace's Line. The most palm-rich area in Malesia is the Sunda shelf, but New Guinea comes a very close second with more than 250 species in 33 genera. Although only two of the genera do not occur outside New Guinea, more than 90% of the species are endemic. Despite the similar numbers of species in the two regions, the New Guinea palm flora has a rather different taxonomic composition to that of the Sunda shelf, but there are also some strong links with western Malesia. For example, the rattan genus *Calamus* and the undergrowth fan palm genus *Licuala* both possess two major centres of diversity, one in the Sunda region and another in New Guinea.

So why the interest in the palms of New Guinea? The piecemeal description of the species has resulted in an advanced state of chaos in the taxonomy of the group. The great Italian botanist Odoardo Beccari was the first palm expert to describe sizeable numbers of New Guinea palms based on specimens sent to him in Florence by the likes of Baron von Mueller and material that he collected on his own expedition to the Vogelkop. In the 1930s and 1940s, the German palm botanist Max Burret made further progress, though his tendency to over-describe has resulted in much of the taxonomic mayhem that we are dealing with today. Sadly, many of Burret's type specimens were destroyed during the bombing of Berlin in WWII, although duplicates of some specimens can be found in various other institutions. A fresh look at the New Guinea palm flora in its entirety is desperately needed. We know from our experiences following the publication of the highly successful book, *Palms of Madagascar*, that the provision of expert information on the taxonomy of palms has spawned a wide range of research projects on Madagascar palms ranging from ecology and conservation to ethnobotany and sustainable utilisation. We are confident that a palm treatment for New Guinea will have

a similar effect. Too few groups of vascular plant in New Guinea have received recent taxonomic attention, creating a major obstacle to research potential downstream. Palms are very conspicuous at lower elevations in New Guinea and are easily recognised by experts and laymen alike. Thus they attract attention and are ideal subjects for practical field research. They are good indicators of forest quality and are extremely important to local people providing raw materials for a host of day-to-day uses. Some groups, such as the rattans, have much potential as sustainable forest products and yet exploitation of these resources is almost impossible without an understanding of their basic taxonomy. On top of the scientific justification for palm research, there is substantial demand for palm information in the horticultural community as many New Guinea palms are popular garden subjects. One species in particular, *Ptychosperma macarthurii*, is one of the most widely used landscaping palms.

The Palms of New Guinea Project team is a unique collaboration with a strong capacity building and training element. In New Guinea itself, Rudi Maturbongs and Charlie Heatubun are vital counterparts in Papua, Indonesia, conducting adventurous fieldwork with their colleagues from Universitas Papua (formerly the Manokwari campus of Universitas Cenderawasih). Their special research interests lie in rattans and the endemic genus *Sommieria*. Roy Banka, Assistant Curator of the National Botanic Garden at PNG Forest Research Institute, Lae, is undertaking exciting field trips too and is paying special attention to *Rhopaloblaste* and *Heterospathe*. At the Indonesian National Herbarium at Bogor, Johanis Moge and Ary Keim are providing treatments of *Arenga* and *Orania* respectively. John Dowe at James Cooke University, Townsville, Australia is working on *Calyptrocalyx* and *Linospadix*, with assistance from Michael Ferrero, and will also provide the account for *Livistona*. *Licuala* and *Borassus* are being studied by Anders Barfod from Aarhus University, Denmark, while Scott Zona of Fairchild Tropical Garden is bravely tackling *Ptychosperma*, *Ptychococcus*, *Drymophloeus* and *Brassiophoenix*. John Dransfield and Bill Baker from the Royal Botanic Gardens,

Kew, are revising *Calamus*, *Gulubia*, *Gronophyllum*, *Hydriastele*, *Siphokentia* and *Areca*. Sasha Barrow of the Global Diversity Foundation will prepare a chapter on the ethnobotany of New Guinea palms.

The project was initiated formally in late 1999 and we expect to complete the task by the end of 2004. Currently, we are focusing on fieldwork in both PNG and Papua, although some taxonomic treatments are already nearing completion. The primary product will be a book describing all taxa, including diagnostic plates for each species and numerous colour photographs. Illustrations are being prepared at Kew by Australian botanical artist Lucy Smith, thanks to a generous grant provided by the Pacific Biological Foundation. In addition, we will produce non-technical guides in pidgin,

Indonesian and English aimed at enabling the non-expert reader to identify New Guinea palms in the field. An interim field guide to the genera of PNG palms has been published already by project members Anders Barfod, Roy Banka and John Dowe (see ordering information in "Available Publications" below). An interactive electronic key is also a high priority to improve ease of access to complex botanical information for the widest range of users.

We are keen to hear from any readers with interests in New Guinea palms and would be glad to provide identifications for any specimens sent to Kew. Please do not hesitate to contact me: Bill Baker, Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, Email: [w.baker@rbgkew.org.uk](mailto:w.baker@rbgkew.org.uk)

## WCS Coral Reef Conservation Project

From Tim McClanahan

The Wildlife Conservation Society (WCS) has developed two successful and long-term programs in coral reef conservation science, one in Belize associated with Glovers Reef Atoll in Belize and the other in Kenya, associated with its 4 permanent marine protected areas. These two programs have similar conservation programs, including long-term ecosystem-level monitoring of managed versus unmanaged areas. Reefs are managed by WCS and local government bodies. Because conservation, research, and monitoring methods and approaches are very similar in these two programs, we are able to conduct comparative studies of the same ecosystem in different biogeographic regions.

The long-term goal of WCS coral reef programs is to establish a third site in Asia, the center of coral reef biodiversity, that will complement the other conservation science programs and allow WCS to develop a modest ecosystem-level global monitoring program for coral reefs. This will allow WCS to contribute to the global knowledge of the status of coral reef ecosystems and to compare and contrast the factors that degrade and protect coral reef

ecosystems, in order to develop effective policy and management for coral reefs.

The WCS-Asian Coral Reef Program is undergoing a pilot and planning process to identify potential sites, partners and programs for establishing a future more permanent program in the region that has been funded, in part, by a planning grant from the Packard Foundation. A regional-level survey of the status of Asian coral reef ecosystems is planned for the period of 2001 to the end of 2003. To date there has been a lack of regional and ecosystem-level studies using comparable methods and similar observers across different nations. Additionally, the recent increases in coral reef degradation, associated with warm water (the 1998 El Nino) and increased fishing and destructive fishing practices, requires continued monitoring of reefs. Consequently, WCS proposes to undertake a survey that will form a basis for a fuller understanding of the status of Asian coral reefs and the factors that influence their management and ecology.

Please see job announcements below for more information.

## Evaluation of Crater Mountain WMA

Johnson, Arlyne H. 2000. Monitoring and evaluation of an enterprise-based strategy for wildlife conservation in the Crater Mountain Wildlife Management Area (Papua New Guinea). PhD dissertation, University of Wisconsin, Madison.

**Abstract:** This dissertation investigates the relationship between community benefits from research-based tourism enterprises and the use and management of wildlife by indigenous Gimi and Pawaia landholding groups in the Crater Mountain Wildlife Management Area (WMA) in Papua New Guinea (PNG). The introduction reviews central arguments of community-based conservation to demonstrate how secure land tenure and community authority for fauna management in PNG provide a unique setting in which to test the predicted limits of community-based conservation. The first chapter examines biological sustainability of wildlife capture and trade by 16 landholding groups in 2 villages. A comparison of annual harvest of the most heavily-utilized species *Casuaris bennetti* to estimates of maximum sustainable harvest reveal that a capture rate of 0.07 per km<sup>2</sup> in one catchment is unsustainable and that of 0.06 per km<sup>2</sup> in another catchment borders on the threshold of unsustainable use. The second chapter investigates performance by village Wildlife Management Committees to regulate wildlife use under arrangements of co-management with State and non-governmental organization (NGO) actors. A comparison of 3

committees in Crater Mountain with committees in 11 WMAs reveals that social costs of enforcement exceeded benefits such that the status quo of wildlife use was seldom changed. State actors were associated with increased enforcement while NGO actors were associated with an increase in committee meetings, training and economic benefits. The third chapter evaluates associations between household income from enterprises and amount of wildlife capture and trade by 16 landholding groups in 2 villages. The amount of wildlife trade was negatively correlated with the proportion of households within a group that received enterprise income but not with the proportion of household income from enterprises. The final chapter compares recommendations for monitoring and adaptive management of conservation and development projects to results from this case. Findings show that it was feasible, through collaboration with research institutions and community members, to design and implement a monitoring program that was used to evaluate and adapt assumptions about the relationship between socioeconomic conditions and the conservation of biodiversity.

# Domestication and Conservation of Papua New Guinea's Indigenous Forest Species

from Brian Gunn

Papua New Guinea (PNG) has a rich and diverse forest genetic resource, which has the potential to contribute to the future socio-economic development of the country. This resource can be used to underpin future developments in native forest management, agroforestry, non-timber forest products and commercial forestry plantation development. The PNG National Forest Service is well aware of the importance of encouraging the planting of trees on farms and the development of industrial plantations to meet the future social and economic needs of the country. The challenge PNG now faces is how best to develop these forest genetic resources on an economic and ecologically sustainable basis.

As a partial means of addressing this challenge PNGFRI and CSIRO Forestry and Forest Products, with financial support from the Australian Centre for International Agricultural Research (ACIAR), have jointly developed a cooperative Research and Development programme to strengthen PNG's capacity to conserve and better utilize the country's forest genetic resources. The project titled '*Domestication of Papua New Guinea's indigenous forest species*' runs for 3.5 years.

**The Project.** The project objectives are divided into five components, each comprising a number of activities which focus on capacity building elements in order to enhance the PNGFRI and National Tree Seed Centre staff with necessary skills in tree domestication. The project components and associated activities are as follows -

## Component I - Domestication of indigenous species:

- Assess and document the performance of existing and old PNGFA trials of PNG under-developed indigenous species (i.e. those species which have not been through a process of domestication).
- For four high value target species, selected within the project i.e. *Pometia pinnata*, *Casuarina oligodon*, *Dracontomelon dao* and *Calophyllum euryphyllum*, determine their natural distribution, undertake seed collections and establish field trials to assess field performance. As background information to the work, prepare monographs for each species.
- Establish a seed production area for *Acacia mangium* using improved genetic material.
- Conduct isozyme studies on *Toona ciliata* to assess genetic variation in seed collections made in Australia under SPRIG (South Pacific Regional Initiative on Forest Genetic Resources) as well as from PNG populations under this project.

## Component II - Germplasm conservation strategies:

- Develop conservation strategies for two indigenous forest species *Santalum macgregorii* (Sandalwood), and *Aquilaria spp* (Eaglewood)) based on biogeographical and community information. Rapid Rural Appraisals will be conducted to obtain this information.
- For sandalwood, develop an *in situ* and *ex situ* conservation stand.

## Component III - Propagation:

- Undertake research into assessing the vegetative propagation potential of the four species selected for domestication. An assessment will be made of the

potential of these species for mass clonal propagation for plantation development.

- Using vegetative and seed propagation techniques, screen a range of species (about 20) to assess optimal propagation techniques and seed storage conditions. Publish booklet on propagation of PNG target species.
- Conduct studies into methods for assessing seed characteristics of two recalcitrant rainforest species.

## Component IV - Human resource development:

- Staff development within the PNG FA in areas associated directly with the project and extend opportunities for personnel at other organisations to participate in structured training courses e.g. involvement of forestry staff and students from UniTech in Lae and Bulolo.
- Develop the capacity of the National Tree Seed Centre to enable it to meet PNG's future tree seed requirements.

## Component V - Infrastructural strengthening:

- Provide appropriate equipment to upgrade the FRI nursery at Lae in order to develop facilities for striking cuttings under different conditions.
- Extension to the existing NTSC building to accommodate equipment, and to provide drying facilities for processing seed.

## Outcomes from the project after 12months.

Training has been provided in experimental design and analysis, use of computer software, vegetative propagation, seed collecting and handling and tree climbing techniques. Training was undertaken both within PNG and overseas (Australia and Thailand).

## Domestication work.

- Monographs have been written up for the four domestication species and two conservation species. Distribution maps have been prepared for the four domestication species. Provenance seed collections have been made for *C. oligodon*, *D. dao*, *P. pinnata* (in progress) and *C. euryphyllum* (not completed). For each species, collections have been made from five distinct locations covering the species natural distribution in an attempt to capture the genetic variation with the species. The collections have been a considerable challenge given the lack of information on when to collect the seed at the different targeted locations together with locating seed trees and access to seed crops.
- Establishment of a PG walnut provenance field trial and family identified field trial of *C. euryphyllum* near Lae.
- Seed collections of *Toona ciliata/sureni* from Bulolo area and Baluan Island Manus Province for use in an isozyme study looking at variation across the species natural distribution in Australia and PNG.
- Preliminary results from the initial cuttings work undertaken at FRI nursery using the misting house indicated 50% strike for *P. pinnata* and 36% for *E. medulosum*. *C. euryphyllum* had very little root formation but showed potential with 54% of cuttings showing callus formation after three weeks under mist. Other species currently under trial are *Endospermum medulosum* (NG basswood), *Castanospermum australe* (blackbean).

Successful cuttings have also been taken from *Toona ciliata* and *Agathis robusta* at CSIRO Canberra.

**Conservation strategies.** Strategies have been discussed and work has commenced on sandalwood. Preliminary investigations indicate that this species has been severely depleted and only remnant stands and isolated trees remain. Plans are in place to conduct a survey (Rapid Rural Appraisal) aimed to map the distribution of sandalwood, obtain information on sandalwood trade, and obtain villager information on genetic variation, biological issues and their attitudes to conservation and development of this species in a village context.

A similar survey on *Aquilaria* (eaglewood) is to be conducted in the Sepik region of PNG with the view to developing a conservation and management plan for that species. We are aware that other groups have an interest in this species and it is our expectation that we can work closely with them. Traffic Oceania has long had an international interest in this species and has produced an important document on the species and the trade.

**Project Contacts.** Director, Forest Research Institute, PNG National Forest Service, PO Box 314, Lae, PNG, Ph: (675) 4724188, Fax (675) 4724357, and CSIRO Forestry and Forest Products, PO Box E4008, Kingston, ACT 2604, Australia, E-mail: [Brian.Gunn@ffp.csiro.au](mailto:Brian.Gunn@ffp.csiro.au)

## Protected Fauna of Papua New Guinea

If you will be handling any of the following species in your work, you need to write to the Conservator of Fauna and get a written permit. Conservator of Fauna, Office of Environment and Conservation, P.O. Box 6601, Boroko, NCD, Papua New Guinea.

### Mammals

<i>Zaglossus bruijni</i>	Long Beaked Echidna
<i>Spiloglossus rufoniger</i>	Black spotted cuscus
All species of <i>Dendrolagus</i>	Tree Kangaroos
<i>Dorcopsis atrata</i>	Black Dorcopsis Wallaby
<i>Aproteles bulmerae</i>	Bulmer's Fruit Bat
<i>Dugong dugon</i>	Dugong

### Birds

<i>Egretta alba</i>	Greater Egret
<i>Egretta intermedia</i>	Lesser or Plumed Egret
<i>Egretta garzetta</i>	Little Egret
<i>Anas (Salvadoriana) waigiensis</i>	Salvadori's Teal
<i>Harpyopsis novae-guinea</i>	New Guinea Harpy Eagle
<i>Pandion cristatus</i>	Osprey

<i>Ducula finschii</i>	Finch's Imperial Pigeon
<i>Ducula rubricera</i>	Red knobbed Imperial Pigeon
<i>Goura cristata</i>	Western Crowned Pigeon
<i>Goura scheepmakeri</i>	Scheepmaker's Crowned Pigeon
<i>Goura victoria</i>	Victoria Crowned Pigeon
<i>Probosciger aterrimus</i>	Palm Cockatoo
<i>Psitttrichas fulgidus</i>	Pesquet's or Vulturine Parrot
<i>Rhyticeros (Aceros) plicatus</i>	Blyth's Hornbill
All species of the Paradisaeidae family	Birds of Paradise

### Reptiles

<i>Dermochelys coriacea</i>	Leatherback turtle
<i>Python boeleni</i>	Boelen's python

### Fishes

<i>Salmo trutta</i>	Brown trout (less than 203 mm long)
<i>Onorhynchus mykiss</i>	Rainbow trout (less than 203 mm long)
<i>Salmo gairdneri</i>	Rainbow trout (less than 203 mm long)

### Insects

All Birdwing Butterflies



This section is for anyone to use. You can send in announcements (for example, to advertise an upcoming meeting). You can also send in any requests for information that you think other newsletter recipients could help with (for example, if you are writing a paper about forest structure and want to find out who is currently working in this area or who you could collaborate with or exchange info with). Please send any announcements or information requests to Debra.

## 2001 Nov-Dec Christensen Biological Training Course Open for Applications

During this year's course, students will learn proposal writing for research projects, project design, data analysis, and project report writing.

The course will be held during the University break from the 5<sup>th</sup> of November until the 5<sup>th</sup> of December 2001 and will be conducted in the Crater Mountain Wildlife Management Area. Instructors will include Andrew Mack, Debra Wright and Stephen Richards. All expenses including transportation will be paid. Student performance will be graded for college credit and there is no tuition.

The course is open to all third and fourth year students in biology, forestry, or environmental sciences at University of PNG, PNG University of Technology,

University of Goroka, or Bulolo University College or to graduates from these programs. It is also open to people in biology-related professions.

To apply for this course, please send your name, address, phone and fax numbers, email address, your college transcript, at least one letter of recommendation from a faculty member or job supervisor, and a letter stating why you wish to take the course and what you plan for your future career.

Send these application materials no later than **30 August 2001** to: Andrew Mack and Debra Wright, P.O. Box 277, Goroka EHP, Papua New Guinea, fax: (675) 732-2461. Applications and questions can also be emailed to: [dwright@wcs.org](mailto:dwright@wcs.org)

## The World's Most Elusive Harrier? Feather Needed.

From Rob Simmons

The Papuan Harrier is confined to PNG and almost nothing is known of its biology or ecology. In the recently completed *Harriers of the World* by Oxford University Press (2000), Professor Michael Wink and I put together an evolutionary tree of 14 of the world's 16 harriers. Two are still missing from this group: the Pied Harrier of Mongolia and Russia, and probably the world's most elusive harrier, the Papuan Harrier. We have no idea if this bird is a good species but present (morphological) evidence suggests that it is.

We need a large recent feather or a blood sample (stored in EDTA which we can supply) from this bird in order to sequence its DNA and add it to our evolutionary tree.

If you have access to a recent specimen or know of live birds from which a feather might be taken, please write to me at the address below. If you can lead me to securing tissue from these species I will send a free copy of the new harrier book to you and a full acknowledgement will appear in the paper which appears when we have all 16 species.

I look forward to hearing from you. Dr Rob Simmons, National Biodiversity Programme, Directorate of Environmental Affairs, Ministry of Environment & Tourism, Private Bag 13306, Windhoek, NAMIBIA, Fax: (264) 61-240339 (at DEA) 237552 (at Schubert House), Tel: (264) 61-249015 (at DEA) 237553 (at Schubert House), e-mail: [harrier@iafrica.com.na](mailto:harrier@iafrica.com.na)

## Request for *Delias*-material from Eastern part of Papua New Guinea

Since the '80's I have been studying *Delias* butterflies from Papua New Guinea and Irian Jaya. Living in Irian Jaya, I have a good and representative collection of the material from Irian Jaya. In my collection the material from P.N.G. is still poor. That will say: I have a lot of material from Chimbu Province, but have practically nothing from the eastern part, from where a lot of material is in BMNH from the beginning

of last century. To make my work easier I should be very pleased to get material from the eastern parts of P.N.G.

Who can help me with material from the area around Wau, Eddie Creek, Aroa River, Rawlingson Mnts, Owgarra, Owen Stanley Range, Rawlingson Mts etc.? Please contact me. Many thanks in advance and kind regards: Henk van Mastrigt, P.O. Box 1078, Jayapura 99010, INDONESIA, email: [henkvm@jayapura.wasantara.net.id](mailto:henkvm@jayapura.wasantara.net.id)

## Red Data Book Launch

I would like to announce that BirdLife International is going to launch the Red Data Book of Asia on 6 June 2001. On the same day, a simple web page is also going to be launched. From the web page, visitors can view or download every globally threatened species account in PDF format (323

species accounts in total). The address of the web page is <http://www.rdb.or.id>. I would be grateful if you could visit it and I will be happy to receive your comments. Rudyanto, BirdLife International-Asia Division, Email: [rudyanto@burung.org](mailto:rudyanto@burung.org)

## Request for Wild Dog Information

The New Guinea Singing Dog Conservation Society is seeking recent wild dog sighting information in order to develop current distribution data for the IUCN Canid Specialist Group's revision of the Canid Action Plan. Our information is that these canids range from about 2,500 m to 4,700 m. If you have worked in the higher elevations and have sighted NGSDs, their scats or other signs, or heard their howls please let us know. If you have occasion to travel or work in potential NGSD habitat we would be most grateful if you would make note of any NGSD activity. Reports of the presence of wild NGSDs from local informants would also be of value, especially if the report is that the wild dogs used to inhabit the area but have not been seen/heard for some time. We are especially interested in any information on NGSD breeding season (when pups have been seen).

Because NGSDs have in the past been captured as puppies by Highland groups and crossbred with their domestic village dogs to improve hunting instincts, many Highland pariah dogs may resemble NGSDs. Therefore, to reduce the chance of false sightings, which may actually be feral or wandering pariah dogs, only sightings several km from human habitation should be considered NGSDs.

NGSD reports ideally would include the general location and altitude, and, if possible, the basic color of the dog(s), estimated body size and the number of individuals sighted. NGSDs in captivity are either brown (sometimes with black hairs interspersed) or black with tan points (similar

to the Doberman pattern without the spots over the eyes) and usually have white on the tail tip, chest, toes, and sometimes on the nose and neck. They never have white spots on the main body, which would be a marker for domestic dog hybrids. Their tails have long pale-colored brushes on the underside that are very visible when the tails are carried high. Captive size ranges from 20 – 30 pounds, and 15 – 18 inches at the withers, with females being in the lower range. Wild NGSDs may be somewhat smaller, due to nutritional variation.

I have not been able to locate breeding season information for New Guinea mammals. My understanding is that the Highlands have a fairly uniform climate, with temperature variation being mainly altitude-related and the seasons being "wetter" and "drier." In the Northern Hemisphere captive NGSD breeding season begins in July, with most pups born in October/November. Does this coincide with a "season" in the Highlands?

Thank you for your attention. If anyone has information to share with us, or would like further information on NGSDs, their diagnostic characters or the latest information from research on the captive NGSD population, please contact me at [jkoler@iname.com](mailto:jkoler@iname.com). Janice Koler-Matznick, The New Guinea Singing Dog Conservation Society, 5265 Old Stage Road Central Point, OR 97502 USA.

## FUNDING OPPORTUNITIES AND JOBS

### JOB OFFER: Coral Reef Ecologists and Fisheries Community Scientists

The Wildlife Conservation Society is developing a coral reef research and conservation program for the countries of Papua New Guinea and Indonesia (see article above). The initial part of this program will include a broad scale survey of 16 protected areas in these two countries. The ecology and cultural institutions associated with coral reefs in and out of protected areas will be surveyed. The primary goal is to determine the factors that influence the effectiveness of marine protected areas (MPAs) and other management institutions. WCS will conduct a comparative study of reef conditions and management systems to determine:

- 1) the ecological status of coral reefs in the region, looking for indicators (the status of key resources, pests, pollution, coral bleaching and fishing regimes) that directly impinge on or measure reef health;
- 2) the management approaches of the institutions, both national and small-scale socio-cultural organizations, associated with marine parks and fisheries policies in the two countries;
- 3) the relationship between coral reef ecology, fishing restrictions imposed by socio-cultural institutions, and measures of resource extraction and sustainability with respect to reef health; and
- 4) socio-cultural factors (indigenous etiologies and behaviors) and institutional structures that can help to promote (or degrade) conservation and sustainability of coral reefs.

To undertake this study WCS is organizing a small team of field scientists to survey reefs, MPAs and cultural institutions. Applicants should have a Ph.D. or a Masters degree and equivalent field experience. Experience in the region, the fauna and languages will be considered an asset. This team will work with a team of national collaborators to help with the field program and will provide training to the national team members. The team will also work with WCS country program personnel in developing the survey. The positions will be held for a minimum of 18 months and hold the title of "Associate Research Scientist". The work will include extensive traveling in the two countries and living under field conditions. These positions can lead to long-term appointments with WCS. One of the team members will be named as the project leader and will be given a coordinating role with appropriate compensation. Annual salaries will be commensurate with experience and salary history. In addition to salaries, a major portion of living expenses incurred during the field survey will be covered.

The three positions and their major responsibilities are:

**Coral Reef Fish Ecologist** – Undertake visual counts of coral reef fish in and out of managed areas using standard belt transects. Use time-sampling procedures to develop species richness estimates for each study site. Undertake assays of herbivory and predation on invertebrates. Train national collaborators in the field methods. Assists with data collection of general environmental parameters, assist the invertebrate ecologist with transects and fish landing data collected by the Fisheries Community Specialist. Perform data analysis and

prepare publications from the field study. Coordinate and share data with other team members to develop a holistic view of reef ecology and human influences. Actively share findings and information with collaborating governmental and non-governmental organizations.

**Coral Reef Invertebrate Ecologist** – Undertake line and belt transects of hard coral and sessile invertebrates including sea urchins, starfish, sea cucumbers and coral-eating snails. Undertake time-sampling procedures for developing species richness estimates at each site. Train national collaborators in the field methods. Assist with data collection of general environmental parameters; assist the fish ecologist with transects and fish landing data collected by the Fisheries Community Specialist. Perform data analysis and publications from field study. Coordinate and share data with other team members to develop publications and a holistic view of reef ecology and human influences. Actively share findings and information with collaborating governmental and non-governmental organizations.

**Fisheries Community Specialist** – This investigator will work with a national collaborator and they will attempt to uncover the means by which fishing regulations are established and enforced. This will include direct observation of fishing practices; structured and more informal individual and focus group interviews with fishers, fish marketers, park and fisheries department personnel; in-depth interviews with community leaders and elders; and review of any relevant secondary sources. In addition they will collect basic socio-economic data for each study site based on the "Rapid Assessment of Management Parameters for Coral Reefs" (RAMP) which has been developed by the University of Rhode Island's Coastal Resources Center (CRC). They will gather basic fisheries statistics on the number of fishers using the landing site, the locations and estimated sizes of the fishing grounds, and direct weight measurements of fish and resources at the landing. In addition they will examine and compare these data with national fisheries statistics and national fisheries policies. Actively share findings and information with collaborating governmental and non-governmental organizations.

Interested individuals should submit a cover letter and full curriculum vitae to Dr. T.R. McClanahan [crcp@africaonline.co.ke](mailto:crcp@africaonline.co.ke) and copy the application to L. Lauck [llauck@wcs.org](mailto:llauck@wcs.org). The application should be sent as a single Word 98 email attachment with the applicants name as the file name. The first two pages should be the cover letter followed by the curriculum vitae that should not exceed six pages. The cover letter should briefly state the job of interest, describe the applicant's past history, experience relating to this work, interest and availability in undertaking this study. The curriculum vitae should contain past educational, work and research experience, including a list of publications. The application period will end July 30<sup>th</sup> and the work will begin in October 2001. For more information on WCS go to <http://www.wcs.org/wild> then follow links to Worldwide Programs and Marine Conservation.

## JOB OFFER: Assistant Coral Reef Ecologists and Fisheries Community Scientists

In association with the above studies, the Wildlife Conservation Society will also be hiring two PNG nationals who would like to assist in this survey and work as assistants to doctoral level field scientists. The positions will start in October 2001 and end in March 2002. There will be an opportunity for post-survey financial support towards additional field studies or graduate school.

The two positions and their major responsibilities are:  
**Assistant Coral Reef Fish Ecologist** – The person will assist with visual counts of coral reef fish in and out of managed areas using standard belt transects. Use time-sampling procedures to develop species richness estimates for each study site. Undertake assays of herbivory and predation on invertebrates. Assists with data collection of general environmental parameters, assist with transects and fish landing data collected by the Fisheries Community Specialist. Perform data analysis and prepare publications from the field study. Coordinate and share data with other team members to develop a holistic view of reef ecology and human influences. Actively share findings and information with collaborating governmental and non-governmental organizations.

**Assistant Fisheries Community Specialist** – This investigator will assist a collaborator in order to uncover the means by which fishing regulations are established and enforced. This will include direct observation of fishing practices; structured and more informal individual and focus group interviews with fishers, fish marketers, park and fisheries department personnel; in-depth interviews with community leaders and elders; and review of any relevant secondary sources. In addition they will collect basic socio-

economic data for each study site based on the "Rapid Assessment of Management Parameters for Coral Reefs" (RAMP) which has been developed by the University of Rhode Island's Coastal Resources Center (CRC). They will gather basic fisheries statistics on the number of fishers using the landing site, the locations and estimated sizes of the fishing grounds, and direct weight measurements of fish and resources at the landing. In addition they will examine and compare these data with national fisheries statistics and national fisheries policies. Actively share findings and information with collaborating governmental and non-governmental organizations.

Interested individuals should submit a cover letter and full curriculum vitae to Ruby Yamuna [yamuna\\_ruby@yahoo.com](mailto:yamuna_ruby@yahoo.com) and copy the application to Dr. T.R. McClanahan [crcp@africaonline.co.ke](mailto:crcp@africaonline.co.ke) and Dr. Debra Wright [dwright@global.net.pg](mailto:dwright@global.net.pg). The application should preferably be sent as a single Word 98 email attachment with the applicant's name as the file name. The first two pages should be the cover letter followed by the curriculum vitae that should not exceed six pages. The cover letter should briefly state the position of interest, describe the applicants past history, experience relating to this work, interest and availability in undertaking this study. The curriculum vitae should contain past educational, work and research experience. The work will begin in October 2001. For more information on WCS go to <http://www.wcs.org/wild> then follow links to Worldwide Programs and Marine Conservation.

## JOB OFFER: Project Co-ordinator - UK Darwin Initiative Papuan Plant Diversity Project

The Royal Botanic Gardens, Kew, is a vibrant scientific conservation and horticultural institute housing the most comprehensive living plant collection in the world and attracting over one million visitors each year. We are leading an ambitious project to rehabilitate the Herbarium at the Biodiversity Study Centre, Universitas Negeri Papua, Manokwari, the only herbarium in the Indonesian part of the megadiverse tropical island of New Guinea.

You will implement a far-reaching programme of staff and student training in herbarium management, plant exploration and research aimed at significantly enhancing the role of the University in biodiversity research and conservation. Your own research will be centred around the preparation of a field guide to the flowering plant families of New Guinea. This position presents an exciting opportunity in which you will spend six months each year in Papua and six months at Kew.

You should have a relevant higher degree, experience of working in a herbarium and experience of working overseas. Fluency in Indonesian is desirable, but not essential. This is a three-year fixed term appointment for which the salary is up to £20,650 per annum depending on experience. A terminal bonus will be paid upon satisfactory completion of all project requirements within agreed time scales. Benefits include a mainly non-contributory pension, generous annual leave and a stunning environment.

**Profile:** UK Darwin Initiative Papuan Plant Diversity Project  
**Project Leader:** Dr. John Dransfield, Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK.

The flora of the Indonesian province of Papua (formerly Irian Jaya), the western part of the island of New Guinea, is one of the most diverse yet least well known in the world. The Herbarium at Universitas Negeri Papua, Manokwari is the only local plant diversity reference collection in the province. It is based on historical collections from the Dutch colonial period, many of which are not duplicated elsewhere, but inadequate curatorial infrastructure has resulted in numerous specimens being damaged or destroyed by pests in recent decades. The Herbarium is in urgent need of rehabilitation to prevent further degeneration of the collections, so that it can play a more effective and much needed role in exploration and conservation.

Project activities will involve:

- . herbarium renovation and development;
- . training staff to develop best management of the Herbarium and skills in plant collection and identification;
- . augmenting herbarium collections;
- . developing a database;
- . developing staff research skills through preparation of field guides (palms and rattans, families of seed plants in New Guinea);
- . building collaboration with both Papua New Guinea and the UK

**Application form and further information available from:** Personnel Department, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, Tel.: 020 8332 5184/ 5150 (24 hour), Email [j.hancock@rbgkew.org.uk](mailto:j.hancock@rbgkew.org.uk), Please quote job ref 1152. Closing date is 9 July 2001.

## Christensen Fellowships for Honors Thesis or Master's Field Work

If you are a graduate from the biology, forestry, or environmental sciences programs at University of PNG, PNG University of Technology, University of Goroka, or Bulolo University College and wish to pursue an Honors or Master's degree, you may apply for funding to do your field research.

To apply, please send your name, address, phone and fax numbers, email address, your college transcript, at least

two letters of recommendation from faculty members, and a letter or proposal with ideas for your research.

Please send these application materials at any time to: Andrew Mack and Debra Wright, P.O. Box 277, Goroka EHP, Papua New Guinea, fax: (675) 732-2461. Applications and questions can also be emailed to: [dwright@wcs.org](mailto:dwright@wcs.org)

## The World Parrot Trust's Actions Grants Program: Request for Proposals

Our goal is to support the implementation of the Parrot Action Plan by funding conservation action on behalf of the nearly 100 species of parrots that are globally threatened with extinction.

For the current round of grants, we are planning on allotting US\$50,000 to 10-15 projects of this kind - so proposals should be for no more than US\$5000. Projects will be reviewed by our Scientific Committee and priority will be given to projects directed toward effective conservation of parrot species included in the Parrot Action Plan (for a copy of the plan, please see

<http://www.worldparrottrust.org/parrotactionplan.html> for both the online version and the printed version).

In an effort to make this program as streamlined as possible, we are requesting brief pre-proposals of 300 words or less and a skeleton budget which outlines the broad categories of expenses. Both should fit on one printed page. In the pre-proposal, please include the title of your project, your name, the institution you work for, current and potential collaborators and supporters of your work, a brief description of the study site, the conservation need, the actions proposed, why you think they'll work, and how you'll know if they achieved your conservation goals. List the expenses in terms of 1. lodging and food, 2. travel, 3. salaries, 4. equipment (items >\$500), 5. supplies (items <\$500), 6. miscellaneous expenses, and the total. Do not submit any photographs, video, or other supporting materials with your pre-proposal. We prefer e-mail submissions to [ActionGrants@WorldParrotTrust.org](mailto:ActionGrants@WorldParrotTrust.org), but you can also fax your pre-proposals to: UK (44) 1736 751 028; US 651-275-

1891 or mail them to: WPT-UK Action Grants, Glanmor House, Hayle, Cornwall TR27 4HB, UK or WPT-USA Action Grants, PO Box 353, Stillwater, MN 55082, USA.

### Review Criteria

Our criteria for assessing all proposals will be:

1. The conservation significance of the proposed project;
2. The scientific quality and methods proposed;
3. The types of conservation tools to be employed; and
4. The likelihood of the project achieving its stated goals.

To save us both time and energy, please note that this level of funding is especially compatible with certain types of conservation solutions; crafting your proposal with this fact in mind will be in your interest. For instance, grants of this size can make a substantial contribution toward projects employing techniques such as radio telemetry, disease sampling, habitat modification, nest site augmentation or protection, and various forms of carefully designed surveys (these are examples, by no means a complete list). In contrast, for a broad scale program such as a large land purchase, a country-wide education campaign, or a study using satellite transmitters on birds, these modest grants are unlikely to be of great value (effective though these methods may be).

### Schedule and Deadlines

For this first Action Grant round, please submit your one page pre-proposals by 1 August 2001. If your pre-proposal is approved, we will send you the details for submitting a full proposal by 1 September 2001. We intend to have another grant round in early 2002, although the level of funding has not yet been determined.

We look forward to your submissions!

## CONFERENCES AND MEETINGS

### The International Flora Malesiana Symposia <http://plantnet.rbgsyd.gov.au/fm/fm.html>

Malesia is the equatorial East Asian region stretching from Malaysia to Papua New Guinea. An estimated 40,000 species of vascular plant occur there, and it is one of the richest, most diverse and most valuable concentrations of biodiversity on earth. Only 50% of the plant species can be defined, named and identified with certainty, and this information is readily accessible for only 20%, as yet. This is a fundamental impediment to understanding the ecosystems this biodiversity makes up, and hence to their sustainable management and exploitation.

Flora Malesiana is a world-wide network of plant scientists and associates whose goal is to break down this impediment. Our core project is to define the plant species of the region, establish their correct names, provide the means of their identification, communicate this information to users and to train new scientists within the Malesian region to pursue this essential work. Flora Malesiana is coordinated from Leiden University in the Netherlands, under the direction of the International Flora Malesiana Foundation Board.

The International Flora Malesiana Symposia take place every three years hosted by different institutions involved in FM. They provide the opportunity for FM members to exchange ideas, report research findings and progress, and to workshop issues of progressing and managing the Flora Malesiana Project. The symposia continue to provide a catalyst for dramatically increased output of plant biodiversity information.

### Conference Details

Venues and dates: Queensland workshops will be based at Atherton, and take place from 1-7 September 2001 with the pre-conference excursion 5-8 September. The Symposium will take place in Sydney from 9-14 September 2001, with the main sessions in the Domain Theatre of the Art Gallery of New South Wales, and workshops in various rooms in the National Herbarium of New South Wales, both situated within the grounds of the Royal Botanic Gardens Sydney and the adjacent Domain park.

**Deadlines**

Early Registration: 30 April 2001

Abstracts for Papers and Posters: 30 June 2001

Manuscripts for publication in the Proceedings: 31 Dec 2001

**Enquires**

Address for registration:

<http://plantnet.rbgsyd.nsw.gov.au/fm/fm.html> or Dr Barry Conn, Royal Botanic Gardens Sydney, Mrs Macquaries Road, Sydney NSW 2000, Australia, Fax: (61) 2-9241-2797.

General: [fmv@rbgsyd.nsw.gov.au](mailto:fmv@rbgsyd.nsw.gov.au).

Queensland workshops: Dr Judy West, Tel. +61-2-6246 5113, email [Judy.West@pi.csiro.au](mailto:Judy.West@pi.csiro.au).

Queensland Field Trip: John Clarkson, Tel. +61 7 4048 4745, Email [john.clarkson@dnr.qld.gov.au](mailto:john.clarkson@dnr.qld.gov.au).

Sydney symposium: Dr Alistair Hay, Tel. +61-2-92318181, Email: [Alistair.Hay@rbgsyd.nsw.gov.au](mailto:Alistair.Hay@rbgsyd.nsw.gov.au).

Mail and email address for submitting abstracts: Dr Peter Wilson, Royal Botanic Gardens Sydney, Mrs Macquaries Road, Sydney NSW 2000, Australia, Fax: +61-2-9241 2797, Email: [Peter.Wilson@rbgsyd.nsw.gov.au](mailto:Peter.Wilson@rbgsyd.nsw.gov.au)

**Queensland Workshops**

Interactive Identification systems - a training workshop in the techniques involved in the development of interactive identification systems will be held at Atherton in the north Queensland annex (QRS) of the Australian National Herbarium, 1-4 September. This will be a hands-on workshop covering the underpinning science through to incorporation of graphics in identification systems. It includes tuition from botanical experts, including rainforest specialists, as well as those who have developed software packages and designed appropriate graphics. There will be a small charge of AU\$45 to cover computer hire and morning and afternoon teas and lunches. Accommodation is not included, but arrangements will be made for cheap options.

Lauraceae - convened by Henk van der Werff (Missouri Botanical Garden) and Bernie Hyland (QRS), will take place over the day of September 4. It will cover aspects of Lauraceae research, including generic identification and planning for FM accounts. There will be no charge for this workshop.

**Symposium workshops**

Workshops are being organised on the following topics (convenors in brackets. Note: in some instances the convenors are provisional at this stage). Emphasis is intended to be on progress with accounts for Flora Malesiana and local floras in uncompleted major groups and on strategies for delivering flora information beyond the flora volumes for families currently at and near completion.

Pteridophytes (Josephine Camus - [J.Camus@nhm.ac.uk](mailto:J.Camus@nhm.ac.uk), Barbara Parris - [bsparris@voyager.co.nz](mailto:bsparris@voyager.co.nz), Jim Croft - [jrc@anbg.gov.au](mailto:jrc@anbg.gov.au));

Rubiaceae (Chris Puttock - [cputtock@bishopmuseum.org](mailto:cputtock@bishopmuseum.org));

Myrtaceae (Lyn Craven - [craven@pi.csiro.au](mailto:craven@pi.csiro.au));

Euphorbiaceae (Peter van Welzen - [Welzen@nhn.leidenuniv.nl](mailto:Welzen@nhn.leidenuniv.nl));

Urticaceae (Barry Conn - [Barry.Conn@rbgsyd.nsw.gov.au](mailto:Barry.Conn@rbgsyd.nsw.gov.au))

Verbenaceae/Lamiaceae (Rogier de Kok - CPBR, Canberra, Barry Conn - [Barry.Conn@rbgsyd.nsw.gov.au](mailto:Barry.Conn@rbgsyd.nsw.gov.au));

Annonaceae (Paul Kessler - [kessler@nhn.leidenuniv.nl](mailto:kessler@nhn.leidenuniv.nl));

Araceae (Peter Boyce - [p.boyce@rbgkew.org.uk](mailto:p.boyce@rbgkew.org.uk));

Pandanaceae (Matthew Jebb - [MJebb@EALGA.ie](mailto:MJebb@EALGA.ie));

Palms (John Dransfield - [j.dransfield@rbgkew.org.uk](mailto:j.dransfield@rbgkew.org.uk));

Orchids (Mark Clements - [mac@anbg.gov.au](mailto:mac@anbg.gov.au)).

**Symposium Sessions**

Symposium sessions in the form of mini-symposia are being organised on the following subjects (convenors and email contacts in brackets. Note: in some instances the convenors and key speakers remain provisional).

Bioinformatics - sponsored by IAPT (Barry Conn - [Barry.Conn@rbgsyd.nsw.gov.au](mailto:Barry.Conn@rbgsyd.nsw.gov.au), Jim Croft - [jrc@anbg.gov.au](mailto:jrc@anbg.gov.au)); a combined symposium, workshop and demonstrations. Key speaker: Reed Beaman (Sydney). Topics include Interactive Keys, Biogeographic Interpolation, BioRAP, Flora Malesiana Website.

State of Botany in Malesian countries (Marco Roos - [Roos@nhn.leidenuniv.nl](mailto:Roos@nhn.leidenuniv.nl)); reports from Malesian countries on resources, infrastructure and progress; progress report on Flora Malesiana.

Pteridophytes (Josephine Camus - [J.Camus@nhm.ac.uk](mailto:J.Camus@nhm.ac.uk), Barbara Parris - [bsparris@voyager.co.nz](mailto:bsparris@voyager.co.nz), Jim Croft - [jrc@anbg.gov.au](mailto:jrc@anbg.gov.au)).

Taxonomy, systematics, floristics, biogeography and other aspects of the ferns and fern allies of Malesia Key speaker: TBA

Palms and Malesia (John Dransfield - [j.dransfield@rbgkew.org.uk](mailto:j.dransfield@rbgkew.org.uk)). Systematics and biology. Key speaker: John Dransfield.

Rubiaceae and Malesia (Chris Puttock - [cputtock@bishopmuseum.org](mailto:cputtock@bishopmuseum.org), Christian Puff - [Christian.Puff@univie.ac.at](mailto:Christian.Puff@univie.ac.at)) Systematics and biology. Key speaker: TBA

Orchidaceae and Malesia (Mark Clements - [mac@anbg.gov.au](mailto:mac@anbg.gov.au)) Systematics and biology. Key speaker: Phillip Cribb (Kew).

Ecology/Biodiversity (Stuart Davies - [sjdavies@tualang.unimas.my](mailto:sjdavies@tualang.unimas.my)) Evolutionary ecology and biodiversity distribution patterns. Key speaker: TBA

Stakeholders (Judy West - [Judy.West@pi.csiro.au](mailto:Judy.West@pi.csiro.au), Alistair Hay - [Alistair.Hay@rbgsyd.nsw.gov.au](mailto:Alistair.Hay@rbgsyd.nsw.gov.au)). Perspectives on Malesian systematics and floras from outside the systematics community. Key speakers: Tony Whitten (World Bank); Ian Cresswell (ABRS/GTI).

Non-vascular Cryptogams (Rogier de Kok - [Rogier.deKok@pi.csiro.au](mailto:Rogier.deKok@pi.csiro.au)). Overviews of various major groups. Key speaker: Brent Mishler (Berkeley).

Ethnobotany (Glen Wightman - [glenn.wightman@nt.gov.au](mailto:glenn.wightman@nt.gov.au), Lyn Craven - [craven@pi.csiro.au](mailto:craven@pi.csiro.au)). Current research in Malesian ethnobotany. Key speaker: TBA

Special paper Michael Heads - University of Goroka, Panbiogeography and Malesia.

Open sessions of contributed papers. Various papers on systematics and biology of Malesian plants not fitting into the above mini symposia.

**Botanical illustration workshop**

Rosemary Wise ([rosemary.wise@plant-sciences.oxford.ac.uk](mailto:rosemary.wise@plant-sciences.oxford.ac.uk)) and botanical artists from NSW, all outstanding professional scientific illustrators, have proposed to conduct a practical workshop on techniques of botanical illustration, beginners to advanced. If there is enough interest expressed, this workshop will be conducted all day on Thursday 13 September. There will be a charge of AU\$45. The maximum number of places is 18.

## INTERNET SITES TO CHECK OUT:

(Thanks to the INCL for many of these resources)

### WRI launches new online source of environmental information

With the hot debate surrounding global warming and finger-pointing about who emits what, how much carbon dioxide does each country actually emit? What countries are increasing their use of renewable energy sources? Is the country you live in likely to have scarce supplies of freshwater by 2025? How much food does your country produce? How many fish are caught? How much forest is left?

Answers to these questions are now available through a free, interactive website developed by the World Resources Institute (WRI). EarthTrends: The Environmental Information Portal provides the most comprehensive, current data, maps, articles, and country profiles about the environment and sustainable development. The website, <http://earthtrends.wri.org>, can also be reached through the newly re-designed WRI website, <http://www.wri.org/wri/>.

### Mines and Communities Website

<http://www.minesandcommunities.org/>

The Mines and Communities Website ("MAC") was initiated by members of the Minewatch Asia-Pacific London support group. Its main aim is to ensure easy access to materials published by the group, as well as partner organisations and individuals. We want to make information on mining impacts, projects, and the corporate sector more widely available. Above all, we hope to empower mining-affected communities, so that they can better fight against damaging proposals and practices.

The website is supported by: JATAM (Mining Advocacy Network, Indonesia), Mines, Minerals and People (India), Minewatch Asia Pacific Project (Philippines), Partizans (People against Rio Tinto Zinc and Its Subsidiaries, UK), Philippine Indigenous Peoples Links (UK), the Society of St. Columban (UK) and Third World Network Ghana. These organisations are also represented on the editorial group which will submit and monitor new information and contacts on which this website can build.

On our Company, Mineral and Country Pages you will find articles and papers selected from the archives of Minewatch and Partizans. These cover a wide variety of crucial subjects, ranging from the history of the mining industry to contemporary environmental and social issues. We

intend to regularly update these pages with important discussion documents, as they become available. Our Action Page will also be regularly supplied with press statements and requests for solidarity, from communities put under particular pressure by the mining industry. The Links Page is we believe the most comprehensive of its kind currently available. This covers activist/campaign/Indigenous groups, key research organisations, government and industry associations, and the specific agendas of Women and Youth, as well as mine workers. It also provides you with quick and easy access to organisations which address environmental, social justice, human rights issues, and more general implications of corporate control.

### PNG issue of Development Bulletin available on line (Volume 50)

At the end of 1999 a special issue of Development Bulletin was published which focused on Papua New Guinean perspectives on their country's social and economic development. This was published to mark PNG's 25 years of independence and to provide an opportunity for Papua New Guineans to express their opinions of the situation. There was tremendous demand for this issue and stock soon ran out. There were no funds to cover the cost of reprinting. As demand has continued, AusAID has agreed to cover the cost of making this issue available on line. Papers are all available individually free of cost. Available from our website: <http://devnet.anu.edu.au>

### The Rainforest Habitat in Lae, Papua New Guinea

[www.habitat.f2s.com](http://www.habitat.f2s.com)

### Non-Timber Forest Products

<http://www.NTFP.org/>

### Research and Conservation Foundation of PNG

<http://www.rcf.org.pg>

### Biodiversity Support Program

<http://www.bsponline.org/> <<http://www.bsponline.org/>>

### World Bank Report, February 2001: Indonesia: Environment and Natural Resource Management in a Time of Transition

[http://WBLN0018.worldbank.org/eap/eap.nsf/Attachments/Indonesia+Environmental+Report/\\$File/Indonesia+ENVNRM+Transition-entire.pdf](http://WBLN0018.worldbank.org/eap/eap.nsf/Attachments/Indonesia+Environmental+Report/$File/Indonesia+ENVNRM+Transition-entire.pdf)

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## Research Sites




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This section is for contributions describing research facilities in New Guinea. If you have information about a place where researchers are welcome to come and work, please send a summary. Include the location, altitude, available facilities, logistics of getting there, and a contact name, address and fax number. Thanks!

Research facilities we have covered in past issues include: Crater Mountain Biological Research Station, Motupore Island Research Department, Ivimka Research Station, Mekil Research Station, Mahonia Na Dari Research and Conservation Centre, Kamiali Training Centre and Guest House, PNG National Museum and Art Gallery, and the Natural Science Resource Center of UPNG.

# Diseases you should know about



This section is to make sure that we are all aware of the various diseases we need to look out for in New Guinea. Many diseases you would not get in town, but only by working in the forest or in a village, and doctors might not be able to diagnose these diseases easily. If you know about a disease that we should be aware of, PLEASE send in a description, or at least the name of the disease, so we can look up information on it to include in a future issue of this newsletter—thank you! Folks at the Institute of Medical Research—can you help us?

Diseases we have covered in past issues include: Ross River Virus, Barmah Forest Virus, Filariasis, Dengue Virus, Murray Valley Encephalitis Virus, Bat Lyssavirus, Japanese Encephalitis, Malaria, Typhoid Fever and Typhus.

## Tuberculosis (TB, consumption)

Tuberculosis is a disease caused by an infection with the bacteria *Mycobacterium tuberculosis*. In the 19<sup>th</sup> century up to 25% of all deaths in Europe were caused by “consumption”, another name for this disease. With the advent of antibiotics, TB became less prevalent, but currently it is becoming more common as drug-resistant strains emerge; in 1993 the World Health Organization (WHO) declared TB a global emergency due to the modern epidemic of this disease. Currently two to three million people die from TB every year and eight million become sick from it. Southeast Asia, Africa and Eastern Europe are currently the leading centers of the disease. It is the leading cause of death from a single infectious agent in adults worldwide. One third of the world’s population is infected with the bacteria. TB is common in New Guinea.

TB is contagious and is spread when infected people cough, sneeze, talk or spit and thus propel the TB bacilli into the air. The bacteria can remain alive and airborne for hours, but are killed by ultraviolet (sun) light. The bacteria are inhaled into the lungs and after six weeks a primary infection occurs. After this, the bacteria can spread through the bloodstream. Most often the immune system of an infected person will cover the bacilli with a thick waxy coat and the disease will lie dormant for years, until their immune system is weakened. Only 5-10% of people infected with TB become sick or infectious. When the disease is inactive, the person is not infectious to others.

**Vaccination:** BCG vaccine contains weakened but live cattle tuberculosis (a different species). The BCG vaccine is

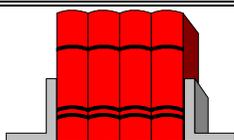
effective for 15 years, but you need another injection after this period.

**Symptoms:** chronic or persistent cough and sputum production, in advanced cases the sputum will contain blood, fatigue, lack of appetite, weight loss, fever, night sweats

**Diagnosis:** A chest X-ray is used to look for lung damage caused by the disease; a sample of the sputum (the stuff coughed up from the lungs) will be cultured and examined under a microscope to look for the bacilli; growing enough of the TB in these cultures to see it on a slide can take 4-12 weeks. There is a skin test where a substance from TB is injected under the skin to see if there is a reaction; however, this reaction could be due to a previous vaccination and not a current infection.

**Treatment:** Three to four different antibiotics are given in combination over a period of 6-9 months. It is crucial to take all of the drugs and to take them for the full course of treatment or the disease will become drug resistant. If treatment is failing, single drugs must NEVER be added, as the bacteria will quickly become resistant; combinations of different drugs must always be used. The patient should be isolated for the first two weeks to avoid infecting others.

**References:** <http://www.who.int/inf-fs/en/fact104.html>  
<http://www.who.int/gtb/publications/aircraft/summary.html>  
<http://www.netdoctor.co.uk/diseases/facts/tuberculosis.htm>  
<http://www.netdoctor.co.uk/medicines/showpreparation.asp?id=3040>



## Available Publications and Items

If you know about any books or items we should know about, please send the details! To order the following publications, use the addresses in bold.

**From Aarhus University Press, University of Aarhus, Ole Worms Allé, Bygn. 170, DK-8000 Aarhus C, Denmark, Phone: (+45) 8619 7033, Fax: (+45) 8619 8433, Email: [unipress@au.dk](mailto:unipress@au.dk), Web: [www.unipress.dk](http://www.unipress.dk)**  
 Anders S. Barfod, Roy Banka, John L. Dowe. Field Guide to the Palms in Papua New Guinea, AAU Reports 40.

**From Andrew Isles Natural History Books, 113-115 Greville Street, Prahran VIC 3181, Australia, phone: (61) 3-9510-5750, fax: (61) 3-9529-1256, email: [books@AndrewIsles.com](mailto:books@AndrewIsles.com), web: <http://www.AndrewIsles.com>**  
 Brian J Coates and William S Peckover, 2001. Birds of New Guinea and the Bismarch Archipelago: a photographic guide. Pocket-guide covering 440 species, 70% of which are endemic to the region. Dove, Australia.

**From Australian Institute of Marine Science** <http://www.aims.gov.au/index.html>  
AIMS, 2000. Electronic key to species of world corals on CD-ROM. AIMS, Australia

**From the Kew Royal Botanic Gardens** <http://www.rbgekew.org.uk/>  
R Govaerts, DG Frodin and A Radcliffe-Smith, 2000. World Checklist and Bibliography of Euphorbiaceae (with Pandaceae). Kew Royal Botanic Gardens.

**From Cambridge University Press, order by emailing** [hproctor@cambridge.org](mailto:hproctor@cambridge.org) or online at <http://www.cambridge.org>  
**You can also order by telephoning +44 1223 326050**  
Patrick Osborne. Tropical Ecosystems and Ecological Concepts. £24.95

**From the World Biodiversity Database, CD-ROM, ETI, Netherlands, URL:** <http://www.eti.uva.nl/>  
The Indo-Australian Mammal Atlas. By Dr. Nico van Strien.

The Indo-Australian Mammal Atlas CD-ROM contains comprehensive information on the taxonomy and distribution of the Mammals of the Indo-Australian Archipelago. It will be published in ETI's Biodiversity Catalogue Database and Image Library CD-ROM Series. Dr. Nico van Strien worked for many years to collect an extensive data set of mammals in the Indo-Australian region.

This database includes information on the type of material, where possible the condition of the specimens, and information on the locations where the specimens were collected. It is connected to a Biogeographic Information System where the specimen location data are plotted on a map of the region, fully scalable to great detail. This information system contains over 700 species, more than 1100 subspecies and about 1000 synonyms. Over 22,000 localities are entered and more than 3000 literature references. Users can select an area on the map, and extract a checklist.

The area covered is the chain of islands between the Asian and the Australian continents, from Sumatra and Borneo in the West to New Guinea in the East, including the coastal islands and the islands on the adjacent continental shelves. Politically the areas cover the Republic of Indonesia, the states of Sabah and Sarawak of the Malaysian Federation, the Palawan and Balabac groups of islands in the Republic of the Philippines, and the New Guinea part of the Republic of Papua New Guinea.

**From Department of Biology, Institute of Technology, Bandung 10, Jalan Ganesa, Bandung 40132, Indonesia, Email:** [biology@bi.itb.ac.id](mailto:biology@bi.itb.ac.id) or [iskandar@bi.itb.ac.id](mailto:iskandar@bi.itb.ac.id)

Djoko T. Iskandar, 2000. Turtles and Crocodiles of Insular Southeast Asia and New Guinea. 191+ xix pages; full colour, 177 line drawings, 140 colour plates. ISBN 979-96100-1-x.

This guidebook contains the latest information on 48 turtles and seven crocodiles that occur in Southern Thailand, Malaysia, Singapore, Brunei Darussalam, Philippines, Indonesia and Papua New Guinea. This book was designed for the field practitioner such as local officers hence its material size, format and layout have been made to meet field standards so that it will be easily brought and can be used in the field.

The first chapter will bring the readers to the turtles and crocodiles terminologies, an introduction to each family, key to the families and a species bibliography and indexes. Information on each species includes diagnostic features description, habitat, size, reproductive strategy, distribution and conservation status.

As far as possible each species is provided with line drawings or pictures including dorsal and ventral aspects of head, neck and body, distribution maps and colour photographs. It is expected that even a child can use the book to identify most if not all species that occur in Insular Southeast Asia and New Guinea as well as those from the close neighbouring countries in Southeast Asia.

This publication has been made possible with partial funding from the CY 99 Environment Component of the World Bank / Netherlands Partnership Programme through the IUCN Regional Biodiversity Programme for South and Southeast Asia.

Contains information on about 55 species (including notes on three undescribed side neck terrapin from New Guinea) extending from Malaysia up to New Guinea and Philippines. The book is intended to support Indonesian scientists and NGO's, Government officers, and lecturers dealing with conservation of Turtles and Crocodiles. Each English copy will support two Indonesian version copies so that the Indonesian citizen can purchase the book at a reduced price, appropriate for the Indonesian economical situation (no commercial profit). Price US \$ 50.00, (surface mail + US \$ 5.00, no air mail).

**Also from** [iskandar@bi.itb.ac.id](mailto:iskandar@bi.itb.ac.id)

Iskandar, D.T & E. Colijn, 2000. Preliminary Checklist of Southeast Asian and New Guinean Herpetofauna. Part I. Amphibians. *Treubia* 31(3) (Supplement): 1-333.

Contains a list of all amphibians of Southeast Asia, from Myanmar, ancient Indochina, Thailand, Peninsular Malaysia, up to Philippines, Papua New Guinea and Solomon islands plus some extra-limital records (India, Pakistan, Nepal, China, Australia, Pacific). Contains a listing of nearly 800 species, with information about author, year, synonyms, type specimen, type locality and distribution, index to generic and specific names.

Djoko Iskandar & Ed Colijn, 2001. Checklist of Southeast Asian and New Guinean Snakes. *Treubia* 31 part 4 (Supplement): 135-315, April 2001.

With a total number of about 2000 species of amphibians and reptiles, the Southeast Asian and New Guinean region is one of the richest herpetological regions in the world. Although covering only 5% of the earth's surface area, the region is home to 15% of the world's herpeto-diversity. This percentage is likely to grow as herpetology here is still in its childhood and

a lot of new species undoubtedly will be discovered in the near future. Indonesia, especially, seems to be terra incognita. Indonesia contributed about 70% to the region's herpeto-diversity until the 19th century while currently this is only 55%. A recent survey in the Wapoga River Area, Papua, Indonesia (Mack et al., 2000), for instance, revealed that more than 50% of the amphibians in the area were new to science.

The principal goal of this project is to bring together the scattered information about the region's herpetofauna and to offer local herpetologists a "state-of-the art" framework from which to proceed with future research. Global checklists have recently been published for various herpetological groups (e.g. David & Ineich, 1999; Duellmann, 1993; Frost, 1985; Golay et al. 1993, Iverson, 1992; King & Burke, 1989; Kluge, 1991; McDiarmid et al., 1999). However, most of these publications are hardly available to local herpetologists, none deals with two of the largest groups, Colubridae and Scincidae, and no single comprehensive herpetological checklist for the region exists.

The checklist covers all species occurring in the Indo-China, Sunda shelf and Philippines, Wallacea and New Guinea and Melanesia bioregion. In addition some sea snakes that are, as yet, only known from the Australian parts of the Timor and Arafura Seas have been included. We refrained from listing East Timor, as we know of only one recent publication dealing with the snakes of that region. That paper was unavailable to us. For each taxon we list the scientific name, describer and year of description. We do not present an exhaustive synonymy for each taxon but have included all genuine synonyms, replacement names and emendations, known to us. Type data, including museum (table 2), museum numbers and type locality are listed. No attempt has been made to be complete on whether a type specimen did consist of a holo-, syn-, neo- or lecto-type. Ranges include the species' extralimital distribution and are listed politically. In addition, we list all major islands and archipelagos that are part of each country, between parenthesis. For the island of Borneo we have made a distinction between the Malaysian parts (Sarawak and Sabah), the Indonesian part (Kalimantan) and Brunei. A similar distinction is made for the island of New Guinea (Papua - Indonesia, and Papua New Guinea), and the Solomon Islands (Bougainville and Buka - Papua New Guinea, and the remaining autonomous state of Solomon Islands).

Parts three (lizards) and four (Crocodiles, turtles, bibliography, geographic index) in this series are scheduled for publication in June 2001. Total about 600-650 pages.

**From the American Museum of Natural History <http://research.amnh.org/biodiversity/publ/publ.html>**

Interpreting Biodiversity - A Manual for Environmental Educators in the Tropics. By Margret C.Domroese and Eleanor J.Sterling. American Museum of Natural History.

Environmental interpretation can be an effective way to communicate about, and involve people in, biodiversity conservation. This manual is designed for educators and natural resource managers who are establishing interpretive programs in tropical regions, where the world's biodiversity is the richest and the most threatened.

The manual is based on the experiences of American Museum of Natural History staff, including a 1996 pilot education workshop with Peace Corps -Madagascar. With contributions from many colleagues, the manual is a synopsis of workshops and literature presented in a way that is intended to be succinct, accessible, and adaptable for a variety of situations. The five units of the manual are devoted to the key steps in the process of designing an interpretation program -whether large or small -including principles of exhibit design, presentations at an interpretive center, community outreach activities, and the process of evaluation.

A list of resources provides additional information on the topics covered in each unit. We are developing inserts for selected tropical countries that detail important biodiversity concepts for each country, describe pressing environmental problems, and suggest appropriate activities based on available resources. We hope that interpreters of all kinds will find the manual useful in educating people to solve environmental problems.

**From IUCN Publications Services Unit, Tel: +44 1223 277894, Fax: +44 1223 277175, Email: [info@books.iucn.org](mailto:info@books.iucn.org)**

A new Action Plan that unveils the often feared, but fascinating world of bats and provides a framework for their conservation worldwide has been published by IUCN's Species Survival Commission (SSC) to coincide with International Year of the Bat. Bats have always faced a public image problem, largely through misconception and superstition about their lifestyle. Populations around the world have suffered alarming declines through a variety of threats. Yet public appreciation of these gregarious creatures, which can cluster in millions, and hunt and migrate long distances in the dark, is slowly growing.

2001 is the International Year of the Bat, marking the 10th anniversary of the signing of the Agreement on the Conservation of Bats in Europe (EUROBATS). Publication of Microchiropteran Bats: Global Status Survey and Conservation Action Plan by the SSC will help the Parties to the Agreement as they increase efforts to promote bat conservation and awareness of the problems facing the species. There are about 1,000 species of bats (Chiroptera) - a quarter of all known mammal species - and almost half are considered threatened or near threatened. The Order Chiroptera is divided into the Megachiroptera - 167 species of Old World fruit bats and the Microchiroptera - 834 species of mostly insect-eating bats.

Microchiroptera or microbats are found on every continent except the Polar regions, and a few isolated oceanic islands, living mainly in forests and woodland. Some act as pollinators and seed dispersers, playing a major role in forest regeneration. A colony of 400 bats can disperse 146 million seeds in one year. Many species also help control insects - at least 100 million bats occupy caves of Central Texas in summer eating over 1,000 tonnes of insects every night. Despite their importance, 22% of the species are threatened by a range of problems including habitat loss through agriculture and forestry. Some have adapted well to urban areas, feeding and roosting in buildings which sometimes leads to conflict with humans.

The Microchiroptera Action Plan, compiled by the IUCN/SSC Chiroptera Specialist Group, uses information gathered from about 150 bat specialists around the world. Illustrated with maps and photographs, the Plan provides the first detailed

review of threats facing bats, conservation activities underway, and those needed to stop the decline in populations. The Plan, which will be launched at the 12th International Bat Research Conference in Malaysia in August 2001, provides a basis for local and regional action. "We hope this Plan will further stimulate the growing community of bat biologists and conservationists to secure this major part of our biological heritage," says Professor Paul Racey, who is Co-Chair of the Chiroptera Specialist Group, with Mr Anthony Hutson. "It will greatly boost efforts to increase public awareness and understanding of these extremely important species."

SSC Action Plans are one of the most authoritative sources of species conservation information and are used by natural resource managers, conservationists and government officials around the world. Of the 20 major recommendations outlined in the 1992 Action Plan for Megachiroptera, 15 have been addressed and conservation projects for fruit bats have been started in many countries. For a list of all Action Plans see <http://www.iucn.org/themes/ssc/pubs/sscaps.htm>

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## Scientific Literature

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If you haven't sent your publication list in yet (your papers about New Guinea), please send these citations to Debra so we can include them in a future issue. It doesn't matter if you have one paper, or 30 papers-- the rest of us want to know about it! We would really like to know what you have found out about New Guinea; that is the purpose for this newsletter—to share information. If you have more than one page of citations, please send your list on disk or by email (preferably in Word) if possible-- thanks! In addition, don't forget that we offer a reference-finding service for those of us without inter-library loan. If you need a particular reference and cannot find it or do not have access to it, please write and we will see if we can find it for you and send it to you. (Not just the citations in the newsletter, you can request any citation).

### **Coral Reefs-- from Norman Quinn**

Quinn, N.J. 2001. Reef Check – Papua New Guinea's participation in a global assessment of human activities on coral reefs. Annual Meeting of the Society for Integrative and Comparative Biology, Chicago, 3-7 Jan. 2001 (Abstract). p. 351.

### **Herpetology-- from Stephen Richards**

Richards, S.J. (2001). Discovering Irian Jaya's hidden biodiversity. *Asian Geographic* 6: 56-63.

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Günther, R. and Richards, S.J. (2000) A new species of the Litoria gracilentia group from Irian Jaya (Anura: Hylidae). *Herpetozoa*: 13: 27-43.

Richards, S.J., Iskandar, D.T. and Allison, A. (2000) Amphibians and reptiles of the Wapoga River Area, Irian Jaya, Indonesia. In: A. Mack and L. Alonso (eds) *A biological assessment of the Wapoga River area of northwestern Irian Jaya, Indonesia*. RAP Bulletin of Biological Assessment 14. Conservation International, Washington, DC.

### **Insects, biodiversity and parataxonomists-- from Scott Miller and Vojtech Novotny**

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Basset, Y., Novotny, V., Miller, S.E., and Springate, N.D. 1998. Assessing the impact of forest disturbance on tropical invertebrates: some comments. *Journal of Applied Ecology* 35:461-466.

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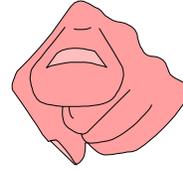
### **Hepetology-- from Dioko Iskandar**

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 Zweifel, R. G. 2000. Partition of the Australopapuan Microhylid Frog Genus *Sphenophryne* with descriptions of new species. *Bull. Am. Mus. Nat. Hist.* 253: 1-130.



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**Lukim yu bihain!**

**Sampai jumpa lagi!**