

Profiles



Photos by George Tapan

Mt. Kitanglad Range

NATURAL PARK BUKIDNON, MINDANAO, PHILIPPINES

For anyone wanting to have a glimpse of the endangered Philippine Eagle (*Pithecophaga jefferyi*) in its natural habitat, Mt. Kitanglad Range Natural Park would be the perfect place to go. Mt. Kitanglad is one of the few remaining rainforests in the Philippines, hosting one of the most important diverse species of rare and endemic wildlife such as the Philippine Eagle, which is now known as the country's national bird. The Park's diverse and rich flora and fauna make it one of the last sanctuaries of the country's natural heritage.

The natural park boasts more than a dozen mountain peaks, densely forested slopes, a number of caves, several waterfalls and a hot spring. Five of its peaks have very high elevations: Mt. Dulang-Dulang, the highest at 2,938 m; Mt. Kitanglad, 2,899 m; Mt. Maagnaw, 2,742 m; Mt. Lumuluyaw, 2,612 m; and

- Mt. Tuminungan, 2,400 m.
- Legend relates that when the great flood submerged the native lands, only the tip of the mountain, which was the size of a *tanglad* plant (lemon grass), remained visible; thus the name Kitanglad .
- The Mt. Kitanglad Range Natural Park covers 47, 270 hectares (protected area – 31,236 ha; buffer zone – 16,034 ha) in the north central portion of the province of Bukidnon, and straddles parts of the municipalities of Baungon, Talakag, Lantapan, Impasugong, Sumilao, Libona and Manolo Fortich and the city of Malaybalay.
- The Natural Park is the major watershed that provides water for irrigation, power generation and domestic use for Bukidnon as well as the province of Misamis Oriental, and the catchment area of the Cagayan, Tagoloan and Pulangi river system. It is likewise the ancestral territory

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The Philippine brown deer

of the Talaandig, Higaonon and Bukidnon ethnolinguistic groups that share common historical and cultural ties with Mt. Kitanglad, which they consider the well-spring of their traditions.

The establishment of the Mt. Kitanglad Ranges as a full-fledged protected area on 9 November 2000 by virtue of Republic Act 8978, strengthens the protection of its ecological, biological, scientific and educational features. The peripheral buffer zone serves as an extra layer of protection for the park. The protected area covers portions of the city of Malaybalay and the municipalities of Impasugong, Sumilao, Manolo Fortich, Libona, Baungon, Talakag and Lantapan.

The Plant and Animal Life

The Natural Park has six major habitat types, ranging from lowland evergreen forest, which is the most species-rich forest formation; lower montane forest, upper montane (mossy) forest, grasslands, freshwater wetlands and caves. Every part of Mt. Kitanglad's habitat is considered precious not only for harbouring countless species but more for serving vital functions to its inhabitants.

The lower montane forest is characterised by a two-layered canopy. Trees in this habitat type are shorter in height than those found in lowland residual dipterocarp forest. In the upper montane (mossy) forest, trees are gnarled

and have a stunted growth with a more or less uniform height; trunks and branches are festooned and characterised by the presence of numerous species of mosses, lichens and ground epiphytic ferns. The brushland / grassland and cultivations are confined to the central lower portions of the park (CPPAP).

These forests and grasslands protect a sizable population of flora and fauna endemic to the Philippines, many of which are endangered like the Philippine eagle. Seventy-four avian species have been recorded, including some species that were found to be common during previous studies but are rarely observed at present. The list includes *Phapitreron amethystina*, *Macrophygia phasianella tenuirostris*, *Prioniturus discurus*, *Trichoglossus jhonstoniae*, *Harpactes ardens*, *Coracina mcgregori*, *Aceros leucocephalus*, and *Basilornis miranda*. Some species, however, appeared more abundant compared to earlier observations; these include *Lophozosterops goodfellowi*, *Hypocryptadius cinnamomeus*, *Leonardina woodi* and *Erythrura coloria*. Another species, *Serinus estherae* was recorded for the first time. Others include the Whitehead's Swiftlet, Mindanao Lorikeet, Mindanao Racquet-tail, Mindanao Scops-owl, Slaty-backed Jungle-flycatcher, Red-eared Parrot finch, Apo Myna, Philippine Brown Deer and the Mindanao Pygmy Fruit Bat (*Alionycteris paucidentata*).

On the other hand, 58 mammalian species are known to exist in Mt. Kitanglad, compared to 49 in the entire island of Negros. There were 13 species found to be endemic to the Park in contrast to only eight such species in Mt. Apo, the highest mountain in the country. The equally diverse amphibians and reptiles represent 26 species and 21 species respectively, with 50% endemicity. Birds have 159 known species and an exceptional composition of butterflies numbering about 131 species. Numerous bat species are also plentiful; in fact, the Mindanao Pygmy Fruit Bat, which is abundant and endemic to the park alone, is the first fruit bat species known in Asia.

Mt. Kitanglad supports the richest known vertebrate fauna (mammals and

birds) in the country (Heaney and Peterson 1992, Amoroso *et al.* 1996; L. Heaney, *unpublished manuscript*, as cited in Garrity, *et al.* 2002). Heaney and Peterson (1992), as cited in Garrity, *et al.* (2002), observed 13 of the 14 species of birds endemic to Mindanao, including the critically endangered Philippine Eagle. Very few mammalian and herpetological species were observed but this could be an artifact rather than a reflection of the real conditions in the area. Common species of the Families Suidae and Cervidae have become rare in the area because of the increased demand for meat by the local inhabitants.

The park also has an exceptional conservation value in terms of the high endemism of the vascular flora (Amoroso *et al.* 1996; Pipoly and Madulid, 1995, *personal communication*, as cited by Garrity, *et al.* 2002)). This includes the endangered rootless vascular plant *Tmesipteris lanceolata* Dang (Amoroso *et al.* 1996, as cited in Garrity, *et al.* 2002). The park was recently found to have the highest tree density ever reported in a tropical forest (Pipoly and Madulid, 1995, *pers. comm.*, as cited by Garrity, *et al.* 2002). This combination of a small, manageable size and a rich, singular biodiversity conforms to the type of protected ecosystem that, according to Sayer (1995), ought to receive the most determined attention in tropical biodiversity protection (Garrity, *et al.* 2002).

The Indigenous peoples

The indigenous communities consider Mt. Kitanglad as the centre of their well-being; they regard the mountain range as their ancestral domain - their history, myth and tradition revolve around it. Despite the influx of migrants and the impact of inculturation, they still manifest strong cultural traits in their activities and way of life. Their current livelihood practices determine the sustainability of the biodiversity conservation goals instituted in the Park.

They grow mostly root crops in the area, but some residents have also ventured into gathering rattan poles, weaving rattan and bamboo strips, abaca

production, and hunting. Though some 40% of the occupants engage in fishing in nearby creeks or rivers, their catch contributes very little to their daily subsistence.

In December 1998, the three main indigenous communities – the Tala-andig, Higa-onon and Bukidnon tribes – living within the areas of the Park, asserted their rights of ownership over the plant and wildlife resources of Mt. Kitanglad through a proclamation made during a programme that included a customary ritual where a boar and several heads of chicken were slaughtered. Accordingly, they hope to put the entire world on notice that they have first and prior rights over these resources as they are the ones who nurtured and conserved these resources over several generations. Thus, academic researchers or scientists who wish to have access to these resources would have to deal with the Council of Elders of the three tribes and comply with their requirements (Peria, E. *undated*).

In addition, the tribal communities, in particular the Tala-andig group, have started building cultural monuments within their ancestral domains in the Park to stop bio-piracy in the areas; preserve the cultural tradition of the people; and, organise and institutionalise indigenous leadership. The tribes themselves have become more vigilant against intrusions into their areas especially after they saw



A datu of Talaandig tribe patrols the park.

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researchers gathering herbal plants for medicine research (Vanzi, 2000).

The Tala-andig community plans to build some 200 monuments or altars that they call *bangkasu*, where offerings to their gods are made. The first monument was built in a hidden spring at the foot of Mt. Apolang; the altar of the gods who keep honey, *bangkasu hu lalawag*, marks the traditional worship area of the Tala-andig community (Vanzi, 2000).

The second monument, the altar of the gods who protect wild animals, was erected at the eastern side of Kiabansag mountain while a third built at Kaatoan, Lantapan hopes to regain and strengthen the traditional worship area, which is now known as the Cinchona Reforestation project (Vanzi, 2000).

Park Management

The Office of the Protected Area Superintendent under the Department of Environment and Natural Resources directly supervises the day-to-day operations and management of Mt. Kitanglad. The Office works closely with the Protected Area Management Board (the governing body) and in partnership with Kitanglad Integrated NGOs or KIN.

Recognised as the host NGO of the Park in April 1996, the KIN is a consortium of five local NGOs organised in May 1995 with proven capability in various fields that include cultural, environmental and church-based programs, upland and tribal community welfare activities, as well as in cooperative and entrepreneurial social development aspects. KIN's focus in MKRNP is on reviving and strengthening the cultural integrity of local communities toward their socio-economic upliftment and capability enhancement to protect Mt. Kitanglad.

The NGO consortium was formally sanctioned to assist in the implementation of the Mt. Kitanglad Range National Park Community Resource Management Project, a component of the Conservation Priority of Protected Areas Project (CPPAP) of the World Bank-Global Environment Facility (WB-GLF) and the Government of the Philippines through the Department of Environment and Natural Resources

(DENR). Its over-all operation is premised on partnership and coordination with the Protected Area Staff (PAS) and the PAMB.

The Management Project envisions to protect and enhance the biodiversity of Mt. Kitanglad through sustained community-based economic, site stabilization and environmental conservation activities. To achieve a long-term conservation effort, the Project adopts key strategies that support site rehabilitation while ensuring the survival of community beneficiaries. The project also aims to promote local involvement in the protection of the mountain range.

For almost seven years, the Kitanglad project had been provided regular assistance from the CPPAP. When the project officially ended in June 2002, the PAMB was able to source funds from the Provincial Government of Bukidnon, which approved a P3 million assistance for forest protection work. Local governments with jurisdiction over Mt. Kitanglad have also expressed willingness to allocate varying amounts for the protected area, the total of which amounts to 2.8M pesos.

Before entering the Park, visitors are advised to drop by the Protected Area Superintendent Office (Telefax: (088) 813-3453; [email:mkrnp@mlbly.philcom.com.ph](mailto:mkrnp@mlbly.philcom.com.ph)) located within the DENR Compound at Malaybalay City, Bukidnon. Or while at Cagayan de Oro City, one can get information from the DENR Regional office there.

Climate

Temperature ranges from 22.7°C in January to 24.6 °C in June. It receives the highest amount of rainfall in June. The driest period is March.

The climate at the Kitanglad Ranges falls under the Modified Corona Classification, which is characterised by a short dry season usually lasting from one to three months, and no pronounced rainy season. The area is cloud-covered all year round.

How to get there

Access to the Province of Bukidnon is through Cagayan de Oro City. Daily plane flights from Manila and Cebu are

available. From Cagayan de Oro, the park can be reached by regular public jeepneys and buses plying the 99-km Cagayan-Bukidnon route. From Cagayan, Rural Tours and Bachelor Express leave for Malaybalay every hour. At least four trails that lead to the summits of Mt. Kitanglad and Mt. Dulang-dulang are described in another section below.

Park facilities/fees and guidelines

Park visitors are limited to only 15 persons at a given time and are allowed a maximum of two (2) days and one (1) night stay.

Mountaineers who trek the area can stay at the Visitors' Center at Sitio Intavas, La Fortuna, Impasugong, Bukidnon or at the renovated PAMB building at the summit. These nature centers are equipped with cooking utensils and sleeping paraphernalia. The fees are as follows:

- a. Overnight stay = P50.00 pesos/person
- b. Guide (serves also as the caretaker) = P300.00 pesos
- c. Additional P100.00 pesos for the use of the summit center to defray expenses for the electricity; a 100-watt bulb per bed capacity has been installed.

Porters, most of whom are residents of the barangays, are available at each entry point.

Visitors are advised to bring rainproof clothing and bags, camera, binoculars, hat, insect repellent, water, food as well as camping equipment for those wishing to stay a few days.

Visitors' Entrance Permit

All visitors are required to secure a permit from the Office of the Protected Area Superintendent. The administrative fees for the issuance of visitor's permit are as follows:

	Mt. Kitanglad	Mt. Dulang-Dulang
Students	P50.00/person	P15.00/person
Foreign Nationals	US\$ 15/person or peso equivalent	US\$ 15/person or peso equivalent
Professional	P85.00/person	P50.00/person

The PAMB has also set the administrative fees and governs specific visitor's activities at the Cinchona Forest Reserve, located at Kaatuan, Lantapan, Bukidnon. Entrance fees for a 12-hour duration is

P20.00 for Filipinos and P50.00 for foreigners.

Visitors shall undergo an orientation/briefing at the Protected Area Superintendent's Office prior to any scheduled climb. They shall then make a courtesy call on the barangay captain and tribal leader of the entry barangay. Before entering the park premises, specific conditions have to be met such as securing the Prior Informed Consent (PIC) of the concerned Indigenous Peoples, performing a ritual and coordinating with the local government units.



A Talaandig tribe performs the ritual of Panahod.

What to see and do

The recreational zone of Mt. Kitanglad offers potential attractions to foreign and local mountaineering enthusiasts. Regulated and responsible ecotourism activities are allowed. Trekking at the summit, camping and bird watching are among the favorite activities in the park.

Hiking

It is safe to scale the mountains all year round. Four trails lead to the mountain summits. For Mount Kitanglad summit, the first trail is located at Intavas, La Fortuna, Impasug-ong town; the second at Barangay Lupiagan, Municipality of Sumilao, while for Mount Dulang-dulang destination, the first trail starts at Bol-ogan,

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Songco and Kaatuan, Lantapan, Bukidnon, and the second trail is at Dalwangan, Malaybalay City.

Mount Kitanglad summit

Intavas Trail

The first trail is located at Sitio Intavas, La Fortuna, Impasugong. Sitio Intavas can be reached by any type of vehicle. It takes about an hour ride from Malaybalay City or a two-hour ride from Cagayan de Oro City to reach the sitio. The jump-off point is at Crossing Sta. Ana of Impasugong Municipality (located along Sayre Highway). Passenger jeepneys ply the Crossing Santa Ana – Intavas route daily.

There is a Visitor's Center at Sitio Intavas, which is manned by the Barangay Council of La Fortuna through its Barangay Chairman. The Sitio is about five km away from the foot of Mt. Kitanglad. From the foot, it is three km away to the summit of Mt. Kitanglad with a three- to five- hour regular walk.

Lupiagan Trail

Lupiagan trail is located at Barangay Lupiagan, Sumilao, Bukidnon. Sumilao is five kilometers away from the Kisolon Bus Terminal (located along Sayre Highway). From Sumilao, an eight-km road leads to Lupiagan, but is passable only by a four-wheel type vehicle. However, at present,

only a motorcycle locally called *habalhabal* is available to bring passengers from Sumilao up to the foot of Mt. Kitanglad.

Mount Dulang-dulang summit

Bol-ogan Trail

Bol-ogan trail is located at Sitio Bol-ogan, Songco, Lantapan. Public utility jeepneys ply the Malaybalay-Kibanggay route, passing the National Highway, the converging road network to the City of Iligan. From Malaybalay City, it takes an hour and a half to reach Crossing Bol-ogan.

Barangay Songco is approximately eight kilometres away from Crossing Aglayan (*Sayre Highway*). The road is well graveled and cemented at Lantapan proper.

Bol-ogan trail leads climbers to Mt. Dulang-dulang and a cross-country towards Mt. Kitanglad using the Intavas and or Lupiagan trails as the exit route (Information Hand Book, Mt. Kitanglad Range Natural Park)

Dalwangan Route

The trail although already established is quite difficult to traverse as it is not often used. For normal hikers, it will take half a day to reach the peak. There are no facilities in the area, thus one has to bring his/her camping gear.

Camping at Cinchona Forest Reserve.

Cinchona Forest Reserve at Kaatuan, Lantapan, Bukidnon is a favourite for campers. The reserve was established on 22 September 1936 per Presidential Proclamation No. 83 and covers an area of 1,914 hectares. It was declared as Kaatuan Forest Reserve for the experiment and propagation of quinine, forest protection and timber production. The forest is a habitat of the rare Green Maya and *Ratus ratus rabori*, the only rat of its kind in the world. The Reserve formed part of the Mt. Kitanglad protected area on 24 October 1996. The Mt. Kitanglad PAMB manages the site.

Birdwatching. The nesting site of the famous Philippine eagle is located at Sitio Mangasa, Dalwangan, Malaybalay City.



Campers at Mt. Kitanglad Range Natural Park



Philippine Eagle

The **Ecolodge at Sitio Lalawan**, also at Dalwangan, offers bird watching and camping activities. A tourist guide for birdwatchers is available.

Lusok Falls at Kalanganan, Baungon. A series of three falls with a height of 30-50 metres can be reached in two hours along a jungle trail with a distance of approximately four to five kilometres. The local government unit proposed the area for ecotourism activities.

Nabitag Falls at Sitio Lantud, Brgy Sagaran, Talakag, Buk. The falls measure 200 metres. It takes a 45-minute walk to the falls from Brgy Lantud through the forest. From Brgy Sagaran to Sitio Lantud, it takes a one-hour walk.

Sitio Tulugan, Songco, Lantapan. The place is home to the Talaandig tribe. The School of Living Tradition still exists. Here, one can find the various products from the art of weaving, handicraft production, rituals, dance and music. People entering sacred areas are required to participate in a cleansing ritual called "Pangawan".

Hot spring at Sitio Alas-as, Licoan, Sumilao, Bukidnon. It is located along

the Culaman River at Sitio Alas-as, Brgy. Licoan. The water is very hot that it can boil an egg (chicken) in less than 5 minutes. Although there is no trail going to the site, it can be reached from Brgy Licoan of the said municipality through a two-hour walk in the forest.

Other attractions around the Park (as recommended in the [clickmindanao website](#)):

- The *Del Monte Pineapple Plantation*, with an area of 90 km², is the largest pineapple plantation in the world where work in the field goes on 24/7. Vast tracts of land show different stages of crop production: while some are readied for planting, others have ripe fruits for harvesting. There is a Clubhouse and a Golf course within the plantation.
- *Mangima Canyon* in Monolo Fortich town on the road from Cagayan de Oro to Malaybalay has a zigzag road winding up and down the wide and deep canyon with naturally scenic surroundings.
- Just before reaching the next town of Impasugong on the national highway, a road branches southwest to Sumilao with several natural attractions: *hanging ladders* ascent a cliff wall of Mt. Palaspas



to the *multi-chambered Paiyak Cave*, an ancient native burial site; and *Alalum falls* with a cool spring at its base;

- Maagnao Spring Resort at Sitio Maagnao, Patag, Lantapan, Bukidnon;
- At Barangay Bangcud are *Matin-ao Spring*, a popular picnic spot, and *Nasuli Spring*, with a depth ideal for diving.
- South of Malaybalay is Valencia, where one can visit the *Napalit Lake* and the *Central Mindanao University*, a World Bank-subsidized agricultural school. The school is in the shadow of Musuan Peak. Napalit Lake, which is about 36 ha wide is at the foot of Kalatungan mountains. It stands out because of its 24 floating islets of varied sizes.
- Apo Lake in Barangay Guinoyoran, Valencia is a 25-ha lake surrounded by mountains. It is ideal for boating and fishing.
- The *Kaamulan* is a native term meaning “gathering for a purpose”. It is a week-long cultural festival during which the seven tribes of Bukidnon gather amidst a setting of pine trees, aptly called Pines View Park in Malaybalay City. It features dances, songs, oral traditions, mimetic, native force and wine in various reenacted rituals. Held every first week of March, the festival aims to foster unity among the tribes and understanding between them and the lowlanders. Ethnic groups trek down from their mountain villages in colorful costumes and spectacular headdresses to join in the singing and dancing, compete in indigenous sports, and perform traditional rituals. Among its highlights are a parade of the tribes followed by the *Pamalás*, a cleansing and purification ceremony, and *Alusod*,

the offering of native wine and food to visitors.

Where to stay

Other than the places mentioned above, the best hotels and resorts are usually located in Cagayan de Oro City and Malaybalay City. Rates are very reasonable with excellent services. ■

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WORLD WETLANDS DAY 2003

No Wetlands – No Water!

Each year the world celebrates World Wetlands Day (WWD) on February 2 to commemorate the 1977 signing of the Convention on Wetlands in the Iranian city of Ramsar. The Ramsar Convention is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 136 Contracting Parties to the Convention, with 1,267 wetland sites totaling 107.5 million hectares. The Convention defines wetlands as “areas of marsh, peatland or water, whether natural or artificial, permanent or temporary, with water that is static, flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters.”

Wetlands include reefs flats and seagrass beds in coastal areas, mudflats, mangroves, estuaries, rivers, freshwater marshes, swamp forests, saline marshes and lakes. It is home to a rich variety of flora and fauna, and is a vital feeding and breeding habitat for migratory birds.

Wetlands are sources of fresh water and food, help regulate floodwater as well as the intrusion of saline water, prevent soil erosion, retain sediments and nutrients in soil, sources of energy (hydro-electric, firewood and peat), provide water transport, and serve as habitats of plants and animals.

World Wetlands Day celebrations began in 1997 and has since become an opportunity for government agencies, non-governmental organizations, and groups of citizens at all levels of the community to undertake actions aimed at raising public awareness of the Ramsar Convention and wetland values and benefits. For instance, the Society for the Conservation of Philippine Wetlands, in cooperation with the Philippines' Protected Areas and Wildlife Bureau, educated visitors at the Ninoy Aquino Parks and Wildlife Nature Center on the importance of wetlands and the significance of World Wetlands Day. In Thailand, the Office of Environmental Policy and Planning conducted a World Wetlands Day Conference, which featured an exhibition of wetland products by lo-

cal communities and exhibition boards on Ramsar sites and wetland values. Other activities often undertaken to mark the event include lectures and seminars, nature walks, art contests, community clean-up projects, radio and television interviews by conservation personalities, as well as the launch of new wetland policies and new Ramsar sites.

This year's WWD theme is “No wetlands - No water”, which underscores the importance of wetlands in conjunction with the observance of 2003 as the United Nation's International Year of Freshwater (IYF). The choice of the theme is meant to strengthen efforts by the United Nations to bring attention to the importance of protecting the world's freshwater sources. Over the years there has been growing concern over the availability of safe drinking water to accommodate the needs of the world's growing population. On the surface, statistics indicate that there seems to be enough water for everybody, since we only use around 20% of the water in the world's rivers. However, the situation, as well as the quality of available water varies across the globe. It is known though that:

- 1.1 billion people do not have access to safe drinking water.
- 2.3 billion people currently live around rivers where there are frequent water shortages, and
- 1.7 billion of these people live in areas where water is scarce.

Obviously, water is not distributed well enough to satisfy everybody's needs. In addition, at least 1.1 billion people do not have access to safe drinking water and 3 million die each year, many of them children, from illnesses caused by contaminated water.

Wetlands play an important role in water cycle by capturing and holding rainfall and snowmelt, retaining sediments, and purifying water. And yet, human-related activities have led to the destruction of 50% of the world's remaining wet-



The Airhitamlaut river at the heart of Berbak Park in Sumatra, Indonesia.

lands. Modification of wetlands with dams and canals have significantly fragmented and altered water flow in 60% of the world's largest rivers - often compromising the many valuable ecosystem functions upon which we depend.

Wetlands have also been converted to agriculture to increase food production while depleting global freshwater supplies. Agricultural practices, particularly the use of pesticides in farming, have also contributed to the contamination of remaining wetlands. Excessive logging of forests has also led to soil erosion, causing widespread sedimentation of rivers and lakes. Pollution from industrial sources has also caused the death of a significant number of freshwater bodies and groundwater sources all over the world. The net result is a serious reduction in both freshwater quantity and quality.

This situation will not improve with a projected 1.7 billion additional people on the planet in the next 20 years, most of whom will live in developing countries. These circumstances pose a triple challenge to environmentalists all over the world. How can we ensure food, water and ecosystem security for the global population? Solutions lie in integrated water resource management strategies at the source level with full stakeholders' participation.

Approaches must incorporate improved technologies for more efficient use of water in agriculture, industry and domestic use, as well as recognise the value of water infrastructure and ecosystem protection, as well as provide the appropriate safety nets for the poor. The Ramsar Convention believes that the source of freshwater, our wetland ecosystems, should be the starting point of all integrated water management strategies. Maintaining the health of wetlands to secure our sources of freshwater and much of our food is one of the fundamental keys to a sustainable planet. ■

Surfing the Web... of Life

Protected areas that meet across international borders provide important opportunities for collaboration between managers and scientists in neighbouring countries. Various terms are used to describe these areas - transboundary protected areas, transfrontier protected areas, and peace parks are the most common.

These areas provide possibilities for promoting biodiversity conservation and sustainable use across politically divided ecosystems, while at the same time encouraging international collaboration in management, and in the sharing of experience and of information. The **World Conservation Monitoring Centre** (http://www.wcmc.org.uk/protected_areas/transboundary/index.html) provides information on the status and distribution of transboundary protected areas, key meetings on peace parks, as well as links to other sites.

The **Peace Parks Foundation** (<http://www.peaceparks.org/>) aims to facilitate the establishment of Transfrontier Conservation Areas (TFCAs) in Africa while supporting sustainable economic development, the conservation of biodiversity, and regional peace and stability. The idea for the project first began in 1990, when the possibility of establishing a permanent link between some of the protected areas in southern Mozambique and their adjacent counterparts in South Africa, Swaziland and Zimbabwe was first explored. Results from the project supported by the World Wide Fund for Nature (WWF)-South Africa, World Bank and Global Environment Facility suggested a conceptual shift away from the idea of strictly protected national parks towards greater emphasis on multiple resource use by local communities. The concept of transfrontier conservation area (TFCA), or peace parks, was defined as relatively large areas that straddle frontiers between two or more countries and cover large-scale natural systems encompassing one or more protected areas. Very often both human and animal populations traditionally migrated across or straddled the political boundaries concerned. In essence, TFCAs therefore extend far beyond designated protected areas, and can incorporate such innovative approaches as biosphere reserves and a wide range of community-based natural resource management programmes.

The **North American Commission for Environmental Cooperation (CEC)** (<http://www.cec.org/home/index.cfm?varlan=english>) is an international organisation created by Canada, Mexico and the United States under the North American

Agreement on Environmental Cooperation (NAAEC). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of the North American Free Trade Agreement (NAFTA). The CEC supports projects in four major areas: Trade and the Environment; Conservation of Biodiversity; Pollutants and Health; and Law and Policy. Initiatives funded and logistically supported by the CEC seek to develop the rationale for changes in public policy and investment strategies across North America through protection of shared ecosystem.

The CEC website also has a **Transboundary Agreements Infobase** (http://www.cec.org/pubs_info_resources/law_treat_agree/transbound_agree/index.cfm?varlan=english), which gives Internet users free and unrestricted access to agreements and treaties on transboundary environmental cooperation in North America. The Infobase is part of the CEC's efforts to provide information that promotes North American cooperation on environmental issues that affect the entire region. Users can search the database by subject, agreement name, or by parties to the agreements. A complete list of agreements—there are approximately 200 individual agreements currently in the database—is also available for users to browse through. In addition, the database provides hyperlinks to the full text of the agreements, as well as to other Internet sites that provide additional information related to the agreements.

The **Transboundary Freshwater Dispute Database** (<http://www.transboundarywaters.orst.edu/>), a project of the Oregon State University Department of Geosciences in collaboration with the Northwest Alliance for Computational Science and Engineering, was developed to aid in the assessment of the process of water conflict prevention and resolution. It provides links to case studies of transboundary dispute resolution; an International Freshwater Treaties Database with more than 400 international, freshwater-related agreements, covering the years 1820 to 2001; an International River Basins Register that lists and maps the world's international river basins, delineated by continent; and an International Water Event Database documenting historical international water relations from 1948 to 1999, among others. ■

The Third World Water Forum

From 16-23 March 2003, some 24,000 participants from 182 countries attended 351 separate sessions on 38 interlocking themes dealing with water during the Third World Water Forum. The major event, part of ongoing efforts to commemorate 2003 as the International Year of Freshwater, was held in three Japanese cities - Kyoto, Shiga and Osaka.

Key issues discussed by the participants included balancing increasing human requirements for adequate water supplies and improved health and sanitation with food production, transportation, energy and environmental needs. Other countries stressed the need for more effective governance, improved capacity and adequate financing. More than 100 new commitments on water were made, 20 of which focused on climate, and 13 on gender issues. Global agreements include the:

- Establishment of the International Flood Network (IFNet) – this will launch the “Global Flood Warning System” project, which will have the capacity to create the precipitation maps all over the world

every 3 hours. The project aims to improve flood warnings around the world and thus benefit up to 4.8 billion people.

- Development of an international consortium of concerned organisations to produce a programme that will precisely identify and highlight the benefits brought by sound water management and provide governments with appropriate tools to enhance priority setting, planning, development, management, and budgeting for the water sector.



- Memorandum of Understanding between UN-HABITAT and the Asian Development Bank (ADB) to create a programme to build the capacity of Asian cities to secure and manage pro-poor investments and to help the region meet the Millennium Development Goals (MDG) of halving, by 2015, the proportion of people without safe drinking water and basic sanitation.

- Commitment by UNESCO and the World Water Council to promote, develop and

support the establishment and operation of an independent, easily accessible facility that can help solve problems related to trans-boundary waters by providing experienced technical advisers, tools, training sessions and mediators.

- Formation of an “International Water and Climate Alliance” that will build bridges between the climate and water sector, and develop activities to better cope with climate impacts.
- UNDP development of a Community Water Initiative, aimed at building on the power of the local community to solve water and sanitation challenges. Its aim is to provide innovative communities with small grants to expand and improve their solutions to the water and sanitation crisis.

Some of the regional commitments include:

- Funding from Australia amounting to over AUD\$80 million for water conservation activities, primarily in countries in the Asia-Pacific region.
- Preparation of a navigation strategy and programme by the end of 2003 by the Mekong River Commission (MRC) with the governments of Cambodia, Laos PDR, Thailand and Vietnam and other partners. The long-term goals of the strategy are to develop sustainable, effective and safe navigation on the Mekong, and to increase the international trade opportunities for the mutual benefit of the member countries of the MRC.

Other key issues focused on governance, capacity-building, financing and local community participation. Details on the Third World Water Forum is available on www.worldwaterforum.org.



Pollution from industrial and other sources is causing the death of rivers and lakes.

2ND INTERNATIONAL TROPICAL MARINE ECOSYSTEM MANAGEMENT SYMPOSIUM (ITMEMS 2)

RP Hosts International Marine Symposium

■ By DENR Public Affairs Office

March 24, 2003

Some 248 participants, composed mostly of marine experts from 37 countries and 19 institutions and funding agencies have mapped out a comprehensive plan to save coral reefs and the many life forms during the 2nd International Tropical Marine Ecosystem Management Symposium (ITMEMS 2) held from March 24 to 27, 2002 at the Westin Philippine Plaza, Manila, Philippines.

With the Philippines as host country, Environment Secretary Elisea G. Gozun welcomed the delegates to the symposium, which was organized by the Department of Environment and Natural Resources (DENR) and the International Coral Reef Initiative (ICRI) Secretariat, per the approval of the ICRI Coordinating and Planning Committee. Former Philippines President Fidel V. Ramos delivered keynote messages to the international attendees.

ICRI is an environmental partnership organized in 1994 by the governments of the United States, Australia, France, Jamaica, Japan, Philippines, Sweden, and United Kingdom with World Bank and the United Nations Environment Programme (UNEP) to stop and reverse the global degradation of coral reefs and related ecosystems, i.e. mangroves, seagrass and estuarine areas.

In 1995, ICRI adopted a "Call to Action" that urged governments to act on a concerted action to conserve coral reefs, and a "Framework for Action" which sets the objectives for governments, funding institutions, non-governmental organizations (NGOs), private sector and stake-

holders for the sustainable development of coral reef resources.

Since then, it has enjoined the US Agency for International Development (USAID), World Wildlife Fund (WWF), International Union for Conservation of Nature (IUCN), Swedish International Development Agency (SIDA), Regional Seas organisations and international conventions such as the Convention on Biological Diversity (CBD) and Ramsar Convention on Wetlands.

Together, ICRI partners aim to mobilize governments and a wide range of stakeholders in an effort to improve management practices, increase capacity and political support, as well as share information on the health of the corals and related ecosystems.

The ICRI Secretariat functions as the operational arm of ICRI under the guidance of a Coordinating and Planning Committee. The Secretariat is currently co-hosted by the governments of Sweden and the Philippines, through the DENR.

Major activities organized by the ICRI Secretariat included three Regional Workshops for East Asia (Cebu, Philippines: April 2-4, 2001); Regional Workshop for the Indian Ocean (Maputo, Mozambique: November 26-29, 2001); and Regional Workshop for the Tropical Americas (Cancun, Mexico: June 2-4, 2003); and several CPC Meetings. These activities successfully updated regional priorities for implementation on the conservation of coral reefs and related ecosystems.

As host of the ICRI Secretariat and as part of the ICRI Action Plan for 2001-2002, the DENR organized

ITMEMS 2 as a culminating activity of its term as co-chair of the ICRI Secretariat.

ITMEMS 2 was organized in collaboration with the UNEP, USAID, International Coral Reef Action Network (ICRAN) and SIDA.

It was participated in by coral reef managers and key players in the management and conservation of coral reefs and associated ecosystems from countries with coral and coastal resources, and various regional bodies (e.g. UNEP RCUs, IUCN, Coral Reef Degradation in the Indian Ocean (CORDIO), South Asia Co-operative Environment Program (SACEP), Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA).

International funding institutions (e.g. USAID, World Bank, SIDA), government and NGOs (e.g. Great Barrier Reef Marine Park Authority—GBRMPA, National Oceanic and Atmospheric Organization (NOAA) Conservation International (CI), The Nature Conservancy (TNC), WWF), international conventions (e.g. CBD) and academic institutions (e.g. James Cook University), shared experiences and lessons learned through a multi-disciplinary consideration of management-related case studies.

The ITMEMS 2 process offered opportunities to discuss gaps in the current management of tropical coastal ecosystems and identify priority actions and recommendations that should be addressed in the implementation of the ICRI Framework for Action and in response to the Plan of Implementation of the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa. ■



**DENR Secretary
Elisea G. Gozun**

WORLD WATER DAY

Water for the Future

The idea for World Water Day was first discussed during the 1992 United Nations Conference on Environment and Development in Rio de Janeiro - the Earth Summit, after which the United Nations General Assembly dedicated the 22nd of March to activities related to the conservation and development of water resources. This year's theme, "Water for the Future", calls on everyone to observe sustainable approaches to water use for the benefit of future generations. This year's celebration aims to inspire worldwide political and community action and encourage greater global understanding of the need for more responsible water use and conservation.

World Water Day 2003 provided one of the highlights of the Third World Water Forum held from 16-23 March 2003 in the cities of Kyoto, Shiga and Osaka, all in Japan, and was

a key event of the UN International Year of Freshwater. In a speech commemorating the event, UN Secretary General Kofi Annan stressed how much we have taken freshwater resources for granted. Though freshwater is essential for healthy ecosystems, for sustainable development and for human survival itself, all too often pollution, over consumption and poor water management all over the world have led to the decreasing quantity and quality of available water.

The demands of agriculture have taxed freshwater resources and overall demand for water already far outpaces population growth. If current trends continue, two out of every three people on earth will suffer moderate to severe water shortages in little more than two decades. Freshwater problems unfortunately cause the most suffering among the world's poorest communities, who lack access to safe

drinking water, adequate sanitation, and fall victim to water-related diseases. The Secretary General urged everyone to work together to secure the world's water for the future.

To mark the event, the United Nations Environment Programme (UNEP), the UN's lead agency in this year's celebrations, provided a World Water Day website (<http://www.waterday2003.org/>) to help governments, key partners such as education ministries and schools, civil society organisations, communities and individuals worldwide achieve their goals in freshwater conservation.

The site provides links to the world's best online water information and practical water conservation advice, suggestions for local and regional activities, and high-resolution posters, logos and photos to help groups and individuals to promote and participate in the day. The site also includes information on Water Programmes conducted by the UNEP and other agencies in the UN System, news concerning water conservation across the globe, as well as links to relevant publications. ■

2003 is International Year of Freshwater

The United Nations General Assembly last year passed Resolution No. 55/196 proclaiming 2003 as the International Year of Freshwater. The resolution encourages governments, the United Nations system and all other stakeholders to take advantage of the Year to increase awareness of the importance of sustainable freshwater use, management and protection.

Over the years, the deteriorating quality of the world's water has wreaked havoc on people's health. According to a study by the International Water Management Institute (IWMI), each year more than five million people die of water-related diseases. About 2.3 billion suffer from diseases linked to dirty water. Some 1.2 billion people lack access to safe water and more than 2 billion lack adequate sanitation. By 2025, about 2.7 billion people – nearly one-third of the expected world's population – will live in regions facing severe water scarcity, with Asia and sub-Saharan Africa to be most severely affected. The world's



six billion people already access 54% of all available freshwater. The demand for water rises as global population increases, making access to freshwater one of the most important issues humanity faces today.

Throughout 2003, a number of events, including the Third World Water Forum as well as the celebration of World Water Day, will be conducted to stress the importance of conserving the world's freshwater resources. The website of the International Year of Freshwater is hosted by UNESCO at <http://www.wateryear2003.org>, and provides

information on various aspects of freshwater concerns, activities in various countries designed to protect fresh and groundwater sources, ways to get involved in conservation efforts, as well as links to important publications focusing on freshwater issues. Hopefully ongoing efforts to increase awareness on the matter will lead to increased protection, better management and sustainable use of our remaining freshwater resources. ■

Thailand and Indonesia Collaborate on Karst and Limestone Ecosystems Research

■ By Aida B. Lapis

Southeast Asia abounds with karsts and limestones that are potential reservoirs for biodiversity, offering a wide range of ecological information that are unknown and taken for granted. Most sites are formations of wonders and aesthetics, spiritual haven, habitat of specialised organisms and recently, ecotourism destinations.

Cognizant of the multifarious functions of karst and limestones, which are considered as poorly studied ecosystems in terms of their biological resources and much more their conservation, the ARCBC Research Grant Programme, which was launched in the year 2000, included the study of these ecosystems as priority for research. As such, no less than two countries - Thailand and Indonesia - submitted re-

search concepts on the impact of human activities and disturbances to the caves' integrity. Specifically, Thailand researchers intend to document caves for their database and to investigate possible research sites to study the effects of human activities on cave fauna. On the other hand, Indonesian scientists wish to conduct a taxonomic account of various organisms and treat them by systematic classification and identification.

Indonesia and Thailand each conducted their research works but have agreed to closely collaborate in the implementation of their projects. During one scientific meeting, project staff from the two countries agreed on an exchange and sharing of related information. They further agreed to initiate cross visits and staff training to learn the meth-

odology and practical sampling techniques to attain the two projects' set objectives.

Collaborative activities started with the Thailand project staff joining the Indonesian group in the field collection trip whereby the selection of specimen, collection, proper handling and on-site preparation of collected specimens were demonstrated. The methodologies to preserve specimens were experienced in the laboratory and in the museum. This exposure is critical to the project particularly in voucher specimen collection, preparation and management. In any taxonomic and systematic study, the processes of specimen curation make any systematic work worthy and reliable. Good specimens as evidence of the research work enhance the validity and reliability of data.



Bau limestone area