ASEAN CENTRE FOR BIODIVERSITY

*The newsmagazine of the ASEAN Centre for Biodiversity*

# asean BIODIVERSITY

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# COMMUNICATING BIODIVERSITY

# The ASEAN Centre for Biodiversity

The ASEAN Centre for Biodiversity (ACB) is ASEAN's response to the challenge of biodiversity loss. It is an intergovernmental regional centre of excellence that facilitates cooperation and coordination among the ten ASEAN Member States and with relevant national governments and regional and international organizations on the conservation and sustainable use of biological diversity, as well as the fair and equitable sharing of benefits arising from the use of such national treasures.

ASEAN CENTRE FOR BIODIVERSITY

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## ACB's core strategic goals

- Serve as an effective coordinative body to facilitate discussion and resolution of cross-country biodiversity conservation issues
- Provide a framework and mechanism for sharing information, experiences, best practices and lessons learned for efficient access by ASEAN Member States
- Implement a pro-active approach in monitoring and assessing biodiversity conservation status as a strategic approach towards identifying critical issues and future trends
- Deliver/facilitate conduct of capacity-building services and technology transfer through engaging relevant and appropriate expertise
- Enhance common understanding of biodiversity conservation issues, strengthening ASEAN regional positions in negotiations and in compliance with relevant multilateral environmental agreements
- Promote public and leadership awareness to develop champions and enhance support at different stakeholder levels on biodiversity concerns
- Undertake innovative resource generation and mobilization measures to pursue impact activities that will enhance biodiversity conservation in the region

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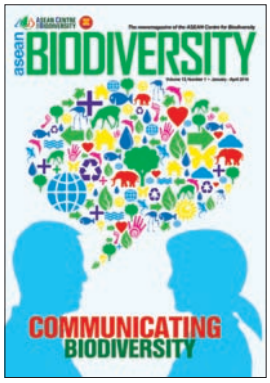


**About the cover**

The lack of public awareness on the key role of biodiversity in human well-being is a serious concern. Steps need to be taken to mainstream biodiversity issues into humans' daily lives. This issue's cover illustrates the importance of communicating biodiversity issues.

*Cover Design by*
***Eisen Bernardo***

## SPECIAL REPORTS



## FEATURES

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Infograph by Eisen Bernardo

# COMMUNICATING BIODIVERSITY LOSS AND CONSERVATION

**By Rolando A. Inciong***

There is a crisis that does not attract media and public attention compared to hot issues such as climate change and natural disasters, heinous crimes, wars, graft and corruption, political or show business controversies, and sports record breakers. This forgotten crisis is called biodiversity loss.

Biodiversity is a contraction of two words – biological, referring to life, and diversity, meaning variety. Biodiversity is the variety of life on Earth. It encompasses all life, from the smallest microorganism to the biggest

whale. Biodiversity is the web of life that includes the full-range of ecosystems, the species that live in them, and the genetic variety of those species produced by nature or shaped by humans.

However, biodiversity is not just the collection of magnificent and wonderful species. We depend on the vast biodiversity around us to supply our daily needs. We depend on nature for our food, air and water, medicine, clothing, shelter, soil fertilization, air and water purification, protection from harsh weather conditions, and many more. These are called ecosystem services.

### How will biodiversity loss affect all of us?

First, it is in the area of food security that biodiversity's value is most clear. Nature provides the plant and animal resources for food production and agricultural productivity. When biodiversity is destroyed, the source of food is likewise destroyed.

The Food and Agriculture Organization (FAO) reported that out of more than 10,000 different plant species used for food by humans over the millennia, barely 150 species remain under cultivation. Of these, only 12 species provide 80 percent of the world's food needs. Only four – rice, wheat, corn and potatoes – provide more than half of human's energy requirements.

Health is another area where the natural benefits of a healthy biodiversity are most obvious. Plants have been known to many indigenous tribes for centuries for their therapeutic value. They have yielded chemicals from which many existing prescription drugs are derived.

About 80 percent of the world's known biodiversity can be found in forests. Many of them have medicinal values. According to FAO, the world is losing around 13 million hectares of forest cover every year. If this continues, it would be difficult to develop better kinds of medicine to cure both existing and emerging illnesses.

Apart from providing people with food and medicine, nature also offers a wide range of ecosystem services such as climate stabilization, maintenance of ecosystems, soil formation and protection, and pollution breakdown and absorption.

Biodiversity is also a source of livelihood to millions as the economy of many communities is driven by the use of species in industries such as biotechnology, forestry, agriculture and fisheries.

Moreover, biodiversity provides social benefits including recreation and tourism, as well as cultural and aesthetic values.

### Does it matter if we lose just one species?

Let's take bats, for example. What will happen if we take away the bats from our environment? A female bat of reproductive age can consume her weight in insects each night—and that amounts to millions of pounds of insects each year. If the bats are wiped out, insect population could explode, including pests that can decimate agriculture yields, and insects that spread disease to humans.

In short, any species lost in an ecosystem will have an impact on everybody.

The world is losing its biodiversity at unprecedented rates. The loss of biodiversity is one of the greatest threats that the entire human race is facing today. Biodiversity loss poses a significant threat to humankind's food security, health, livelihood, and nature's overall capacity to provide for our needs and those of future generations.

### Biodiversity loss: beyond losing species

The loss of biodiversity is beyond losing plants and animals. It is clearly an issue of human survival.

Biodiversity loss does not recognize social, economic, cultural, political and geographical boundaries. What happens in one country affects another. Therefore, national efforts on biodiversity conservation are not enough. There is a need for regional and international cooperation.

"The world is losing its biodiversity at unprecedented rates. The loss of biodiversity is one of the greatest threats that the entire human race is facing today. Biodiversity loss poses a significant threat to humankind's food security, health, livelihood, and nature's overall capacity to provide for our needs and those of future generations."

This is the reason why the ASEAN Member States are signatories to many multilateral environmental agreements. These include the UN Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, and the Convention on Wetlands, to name a few.

As a response to biodiversity loss, the ASEAN Member States established the ASEAN Centre for Biodiversity to coordinate regional efforts on biodiversity conservation.

### A common front vs. biodiversity loss

We are losing our biodiversity because of deforestation, large-scale and small-scale mining, wildlife hunting, air and water pollution, climate change, and irresponsible human activities. We are losing our biodiversity because of sheer pressures and demands of the growing human population, and our wasteful and inefficient consumption patterns.

Reducing biodiversity loss is not the sole responsibility of governments, scientific community and conservation organizations. Individuals, businesses, communities, schools, women, youth and all sectors, especially the media, must act individually while forming alliances to stage a common front against biodiversity loss.

If left unsolved, biodiversity loss will have a huge impact on the lives of billions of people. Our biodiversity faces a bright future if all sectors, including the media, would get involved.

### Role of media communicators and communicators in reducing biodiversity loss

The ASEAN Centre for Biodiversity recognizes the role of media and communicators in promoting biodiversity conservation and reducing biodiversity loss. Traditionally, newspapers and other forms of media are treated as tool for disseminating public information or for covering events. Journalists and communicators should play a wider role by being partners, instead of being just tools to disseminate information.

Media and communicators need to make their audience aware of the richness of biodiversity. Educate the public on the values and impact of biodiversity in people's daily lives. Make people realize the negative effects of biodiversity loss. Make them vigilant in preventing and reporting crimes against the environment. Influence people to change lifestyles that are not friendly to the environment. Pressure local governments to craft and implement laws and programs on conservation. Mobilize entire communities to care for the environment.

Media and communicators' challenge is: "Demystify" biodiversity by making the man-on-the street aware of the values of biodiversity and take action to conserve them. □

**Mr. Rolando Inciong* is the head of communication and public affairs of the ASEAN Centre for Biodiversity.*

*Green Challenge Accepted*

# TELLING THE STORY OF SUSTAINABILITY

**By Philipp Gassner***

Green is the new pink. Sustainability is *en vogue.* And quite rightly so. Illustrations come by the bookful: Take climate change, pollution, the sixth global mass extinction, land degradation, threats to food security. You name it, we have it. The world is hitting the environmental buffers, more and more jeopardizing meaningful development. However, simply gazing at these symptoms will leave us stumped for an answer – numerous global efforts don't bear fruit. Instead, green ideas have to drill down on the root causes.

The challenge lies beyond the green surface: humans are using 50 percent more resources than the Earth can sustainably produce and unless we change course, by 2030, even two planets will not be enough. At the same time, half the world's carbon emissions are produced by just 11 percent of its people, while, with grim symmetry, 50 percent of the world's people produce just 11 percent of its emissions. In a nutshell, we are currently not living off of our ecological annual interest, but drawing down the accumulated natural capital, leaving future generations with a huge debt. We humans are both the problem and the solution for sustainable development.

To accept the green challenge, we thus have to focus on humans. And we simply are not moved to action by data dumps. Instead, human knowledge is based on emotional stories. People are storytelling organisms that lead storied lives. All too often, the public, scientists and politicians stare at each other over a gulf of mutual incomprehension. Surely, anecdotes don't make science. Data is important. It informs the story. But it is not the story. Without a compelling story, great ideas – also the green ones – are dead on arrival. To get green ideas across and make sense of the science of sustainability, hence my agenda begins with 'Once upon a time…' I try to use the molding power of stories. I turn data into drama, numbers into narrative, and stats into stories – to create real behavior change.

For this, we have to leave the green ivory tower and move from mere scientifically reliable knowledge to a socially robust consensus on sustainability. How leaving the ivory tower might look like, I would like to illustrate, using marine pollution as example. Instead of yawning about the remarkable but nevertheless dull statistics of trash entering the ocean, let's hitch a hike on a floating motorcycle and go on journey from and to friendly floatees.

### Every litter bit hurts

What do space and the ocean have in common? Their vastness, that we know little about it, and that both resemble the mess in a teenager's room. Rather than piles of tossed out toys, used underwear

Photo by Arifin Al Alamudi

**A group of storks flying around AN area landfill, Medan City, North Sumatra, Indonesia.**

and dirty dishes, in space one will find a junkyard of spent rocket stages and dead spacecraft. These end up in Earth's orbit ever since the Soviet Union launched Sputnik 1 in 1957. The number of pieces of space debris has risen to a burgeoning blizzard of over 500,000 fragments in orbit. Even though this space garbage is going to have a major impact on the future economics of space flight, it is of somewhat less concerning to humanity than the equally messy oceans.

## A beachcomber's paradise

Just how messy they are, an unintentional experiment showed when the Japanese tsunami in March 2011 swept about 4.8 million tons of debris into the sea. 'You don't often get a chance to take an entire city, put it in the ocean, and see what happens to all the stuff,' Marcus Eriksen says. The scientist and adventurer sailed after the tsunami garbage on its 7,000-km journey across the Pacific to find out all about marine debris, which included a rusting Harley-Davidson motorcycle, a set of golf clubs and a 50-meter fishing boat, found by beachcomber in British Columbia.

But beachcombers can only comb five percent of the floating debris. The much bigger part ends up in the Earth's five great subtropical gyres – enormous, slow-moving whirlpools on the ocean's surface which accumulate debris for years from currents and winds. Thousands of kilometers across, the biggest of these gyres is known as The Great Pacific Garbage Patch. Located between two huge population and industrial centres – Asia and North America – the patch serves as Earth's mighty bellybutton, covered in thin confetti of plastic. More than three million tons of confetti. In the world's oceans, this sums up to hundreds of million tons. And indeed the marine garbage problem is a problem of plastic, making up 85 percent of all debris in the sea.

## Six million tons of trash to our Web of Life

Our economy is based on the one-time use of throw away plastics. *'Instead of hunting and gathering, we now shop. And every time we shop, we accumulate plastic:* a toothbrush, a vat of butter, a bag of chips, a candy bar wrapper, all made of plastic,' illustrates another sailing environmentalist, Josh Berry. Over six million tons a day make their way to the sea, 80 percent of it from land. The rest stems from the 10,000 containers lost by container ships each year or ghost nets, fishing nets left in the ocean, and the like. Once waterborne, debris becomes mobile blown by the wind, or

> "To accept the green challenge, we thus have to focus on humans. And we simply are not moved to action by data dumps. Instead, human knowledge is based on emotional stories. People are storytelling organisms that lead storied lives."

following the flow of ocean currents, ending up in gyres and after decades on the seabed.

Problem solved? Not quite. Unlike in the deep space, the trash in the oceans is of a bigger concern than the threat to the odd satellite orbiting the blue planet. Its name is well deserved, since blue oceans cover two thirds of the Earth and provide over a billion people with food. You wouldn't want to trash the place where your food comes from, would you?

Beyond global food security, oceans are essential to the health and survival of all life, power our climate, and are a critical ecosystem of the biosphere. The marine ecosystem makes up a large part of biodiversity, the global web of life. Just take the ASEAN region, harboring the mega-diverse Coral Triangle. It supports six of the world's seven marine turtle species, 51 of the 70 mangrove species, and 75 percent of global coral species. The ecosystem services such reefs provide globally come to an estimated annual value of $112.5 billion.

Beyond this money, the region is also crucial to the global cycle of plankton, tiny floating marine creatures which regulate the global climate and feed all other marine animals. But now, for every kilo of plankton per cubic meter of seawater the great garbage patches contain approximately six kilos of plastic. That means that there is more trash in the oceans than living beings and, even worse, it is passed up the food chain to reach all marine life. A sad fact which endangers the vital biodiversity, the very same beings make up.

## Hitching a hike on a floating motorcycle

Coral is smothered by plastic, fish get trapped in drifting ghost nets, and birds die from eating plastic. Ninety-five percent of the sea bird Northern Fulmar found dead on beaches has plastic in their stomachs. Marine debris harms an estimated 100,000 sea turtles and marine mammals and millions of other sea creatures each year. For instance, plastic shopping bags can clog digestive tracts, tricking the animal into thinking it is full, thus, causing starvation.

However, much of the plastic is ending up as microplastic – fragments less than five millimeters across. On the bright sight, this microplastic is hosting life, creating a new niche in the vast oceans. The tiny fragments in the Atlantic Ocean have been colonized by microbes not found in open water, a community dubbed as plastisphere.

Trashing is a good thing then? Hardly, since on the flipside, the plastisphere can also work as a mini-raft, transporting dangerous species around the world, like the *Vibrio* bacteria causing cholera. And such rafts can be much bigger, like our Harley-Davidson, on which invasive species can be hitching rides around the globe. Hotspots like the bays of San Francisco or Manila amount to global zoos of invasive species, which break the earth's natural barriers, muck up the area's marine environments, cost billions of dollars to manage, and endanger local biodiversity.

Another way, biodiversity is put in peril by thin layer of industrial chemicals and petroleum, coating the plastic particles, creating little poison pills that fish eat and absorb. And if fish are feasting on these toxic morsels, then be sure, we are too.

## Clean up the world

To avoid feeding on poison and to protect the marine web of life, there is a very easy way: reducing and preventing trash from entering our waterways. It is critical to manage man-made debris at every point, from its manufacture to a product's consumption. Slowly, this is recognized by the plastic industry, meeting on International Marine Debris Conferences to address the ocean garbage issue – with what results remains to be seen.

On a regional level, the ASEAN Centre for Biodiversity – in cooperation with GIZ, the German development cooperation arm – has a strong emphasis on marine topics. The centre, based in the Philippine university town Los Baños, coordinates networks of marine protected areas and takes marine debris seriously.

From Los Baños comes also a clear solution on the local level – as the first Philippine town to enforce a ban on plastic bags in 2008, now followed by 60 other Philippine municipalities – but lobbied against by the plastic industries. Perhaps, making the business case is more convincing: increasing the recycling rate by 14 percent in a few years – thus lowering plastic waste – the Republic of Korea already created economic benefits of $1.6 billion a year.

Until this trickles down, join the global anti-litter movement. True to the motto *Clean Up the World,* an astounding 35 million volunteer in 130 countries each year. Join them next 15th September, for the *International Coastal Cleanup.* In 2012, the global effort on 28,516 kilometers of global waterways and beaches netted a staggering five million kilos of trash, equivalent to the weight of 41 blue whales. What to do with all this garbage showed activist David de Rothschild. He built a raft, the Plastiki, from old plastic bottles and sailed into, where else but the Great Pacific Garbage Patch.

If that is too adventurous for you, perhaps you are lucky and find a friendly floatee – 350,000 of them are travelling the world's oceans since 1992 when some containers with child's bath toy were washed overboard a cargo ship. As friendly as the red beavers, green frogs, blue turtles and yellow ducks might seem, they still are among the ocean's silent killers. □

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# MEDIA PRACTITIONERS SHARE THOUGHTS ON REPORTING BIODIVERSITY

**By Leslie Castillo***

Impact, timeliness, prominence, proximity, bizarreness, conflict, and currency – a story on biodiversity may have most of these news values, but that does not guarantee it a space on the main page of a newspaper or a slot on primetime television.

While a story of a shark attacking tourists on a popular resort will definitely be picked up, news of 100 million sharks being killed every year so


### Biodiversity Awareness Survey for Media Practitioners in the ASEAN Region

Between February and April 2014, the ASEAN Centre for Biodiversity (ACB) conducted a survey on ASEAN-based media practitioners' awareness of biodiversity.

This online survey sought to provide baseline data on biodiversity awareness levels. It also sought to gather insights on biodiversity reportage, including challenges faced by media practitioners in reporting biodiversity.

Responses from the survey are featured in this article. As promised to the participants, only ACB has access to the raw data, and no particular survey participant was identified in this article or any public or internal reports.

their fins may be made into soup has a very little chance of making it to the pages of a major daily or a top-rating news program. This is why readers and viewers might never know that killing sharks, the ocean's top predator, will disrupt the marine ecosystem's equilibrium and ultimately affect the food web.

## Biodiversity, not a priority topic

According to a number of Southeast Asian media practitioners who responded to the *Biodiversity Awareness Survey for Media Practitioners in the ASEAN Region,* a major factor affecting the limited reportage on biodiversity is the fact that it is not seen as a priority topic. "Certainly not. There are always other priorities like political and economic news and biodiversity is seen as a secondary news item," an editor from Malaysia said.

Half of the respondents said their media organizations do not see biodiversity as a priority topic. "Media organizations are businesses like any other; while we do have a duty to readers, that duty is often constrained by the bottom line. Media organizations must be shown how environmental issues can affect everyone's bottomline," another editor from Malaysia said.

One newspaper that considers biodiversity a priority is the Philippine-based *BusinessMirror* which devotes a full section to biodiversity-related stories once a week. "We believe that biodiversity as a subject doesn't exist in a vacuum. It's part and parcel of much of everyday life, especially those relating to our business constituencies. You could say that we continually seek to promote biodiversity as no less than the business of living," Lourdes Molina-Fernandez, former Editor-in-Chief of the *BusinessMirror* said in 2011 when the paper was recognized as an ASEAN Champion of Biodiversity in the media sector.

Another daily, *The Brunei Times,* also allocates significant space for biodiversity and even places environment and biodiversity news as headline stories. "The establishment of *The Brunei Times* has brought about major improvements in media coverage of environment and biodiversity issues in the country. The paper has significantly helped educate the public about the importance of serious environmental issues. I would like to see this role sustained for the benefit of my country," Yang Berhormat Pehin Udana Khatib DPSS Ustaz Hj Awg Badaruddin Bin Pengarah DP Hj Othman of Brunei's Ministry of Home Affairs said.

One hindrance to prominently publishing news on biodiversity is resistance from newspaper's management. In the case of *The Brunei Times,* there was never any resistance from management regarding the paper's focus on biodiversity and environment issues. "No probing questions are asked each time the editors devote precious front page space to biodiversity news. We can run fresh images of the Bornean clouded leopard or other 'newly recorded' species for days on our front page under favorable circumstances, and we don't expect to be asked to justify our decisions to management," Mr. Romulo Luib, managing editor of *The Brunei Times,* said.

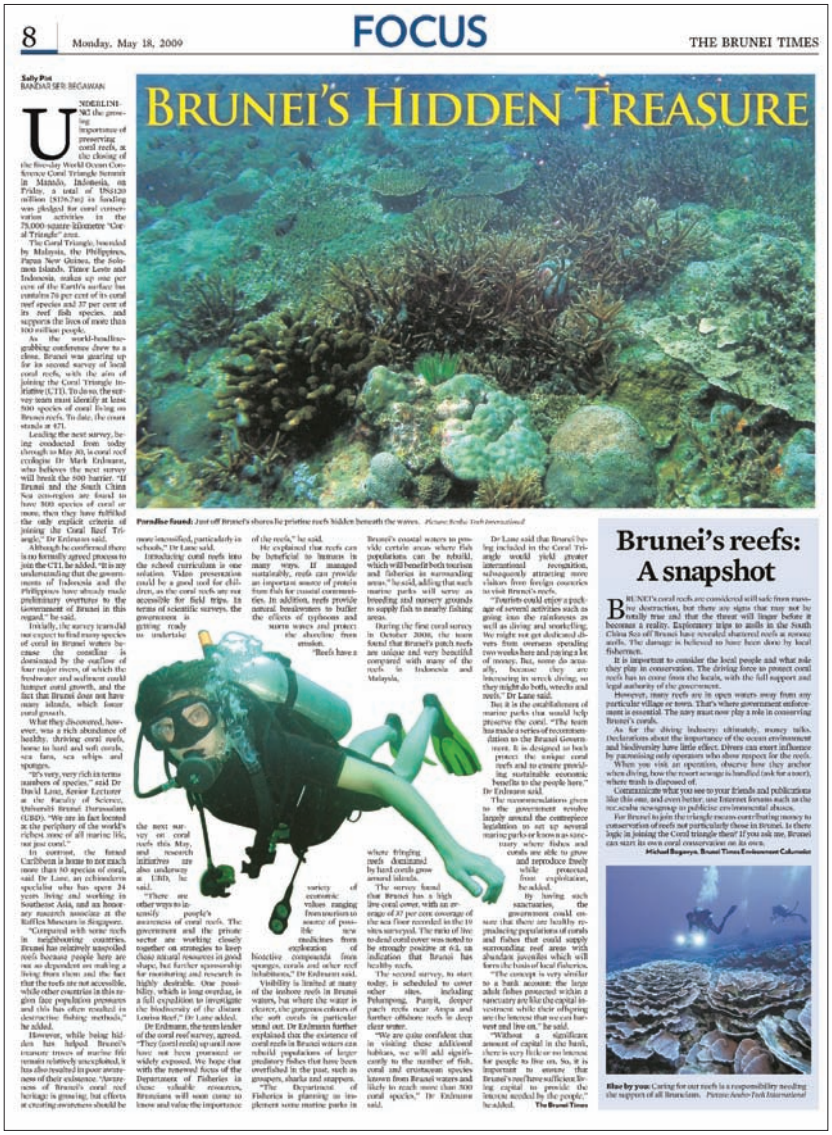
"Unfortunately, not all media organizations can readily devote prominent space to accommodate stories on biodiversity. A lot of forces are at play. A reporter or an editor, for example, may want to feature the topic, but a newspaper or broadcasting firm's owner may not see it as a story that will sell copies or attract viewers," Rolando A. Inciong, Head of the ASEAN Centre for Biodiversity's (ACB) communication and public affairs unit, said.

A reporter from Malaysia supports this view, saying, that while she believes media organizations should report more on biodiversity, there are obstacles faced, including the priorities and editorial direction of the paper; the reporters' level of understanding, awareness, interest and passion; and the understanding and willingness of decision-makers in the newsroom.

## Too complex, too technical

Complicating the situation is the lack of understanding of the topic. "There are lots of technical terms that are too difficult for a layperson to understand," a Malaysian editor said of information materials she has read on biodiversity.

According to the executive director of a Philippine media organization, "I like some terms to be laymanized so that it is easier to relay information to the public."



8 Monday, May 18, 2009 FOCUS THE BRUNEI TIMES

Sally Piri
BANDAR SERI BEGAWAN

# BRUNEI'S HIDDEN TREASURE

UNDERLINING the growing importance of preserving coral reefs, at the closing of the Bowsley World Ocean Conference Coral Triangle Summit in Manado, Indonesia, on Friday, a total of $9(0.20 million ($US6.7m)) in funding was pledged for coral conservation activities in the 75,000-square-kilometre "Coral Triangle" area.

The Coral Triangle, bounded by Malaysia, the Philippines, Papua New Guinea, the Solomon Islands, Timor Leste and Indonesia, makes up one per cent of the Earth's surface but contains 76 per cent of its coral reef species and 37 per cent of its reef fish species, and supports the lives of more than 100 million people.

As the world-headline-grabbing conference drew to a close, Brunei was gearing up for its second survey of local coral reefs, with the aim of joining the Coral Triangle Initiative (CTI). To do so, the survey team must identify at least 500 species of coral living on Brunei reefs. To date, the count stands at 471.

Leading the next survey, being conducted from today through to May 30, is coral reef ecologist Dr Mark Erdmann, who believes the next survey will break the 500 barrier. "If Brunei and the South China Sea eco-region are found to have 800 species of coral or more, then they have fulfilled the only explicit criteria of joining the Coral Reef Triangle," Dr Erdmann said.

Although he confirmed there is no formally agreed process to join the CTI, he added, "It is my understanding that the governments of Indonesia and the Philippines have already made preliminary overtures to the Government of Brunei in this regard," he said.

Initially, the survey team did not expect to find many species of coral in Brunei waters because the coastline is dominated by the outflow of four major rivers, of which the freshwater and sediment could hamper coral growth, and the fact that Brunei does not have many islands, which foster coral growth.

What they discovered, however, was a rich abundance of healthy, thriving coral reefs, home to hard and soft corals, sea fans, sea whips and sponges.

"It's very, very rich in terms numbers of species," said Dr David Lane, Senior Lecturer at the Faculty of Science, Universiti Brunei Darussalam (UBD). "We are in fact located in the periphery of the world's richest zone of all marine life, not just coral."

In contrast, the famed Caribbean is home to not much more than 50 species of coral, said Dr Lane, an echinoderm specialist who has spent 24 years living and working in Southeast Asia, and an honorary research associate at the Raffles Museum in Singapore.

"Compared with some reefs in neighbouring countries, Brunei has relatively unexploited reefs because people here are not so dependent on reefs as a living from them and the fact that the reefs are not accessible, while other countries in this region face population pressures and this has often resulted in destructive fishing methods," he added.

However, while being hidden has helped Brunei's treasury troves of marine life remain relatively unexploited, it has also resulted in poor awareness of their existence. "Awareness of Brunei's coral reef heritage is growing, but efforts at creating awareness should be more intensified, particularly in schools," Dr Lane said.

Introducing coral reefs into the school curriculum is one solution. Video presentation could be a good tool for children, as the coral reefs are not accessible for field trips. In terms of scientific surveys, the government is giving ready us undertake the next survey on coral reefs this May, and research initiatives are also underway at UBD, he said.

"There are other ways to intensify people's awareness of coral reefs. The government and the private sector are working closely together on strategies to keep these natural resources in good shape, but further sponsorship for monitoring and research is highly desirable. One possibility, which is long overdue, is a full expedition to investigate the biodiversity of the distant Louisa Reef," Dr Lane added.

Dr Erdmann, the team leader of the coral reef survey, agreed. "They (coral reefs) up until now have not been promoted or widely exposed. We hope that with the renewed focus of the Department of Fisheries in these valuable resources, Bruneians will soon come to know and value the importance of the reefs," he said.

He explained that reefs can be beneficial to humans in many ways. If managed sustainably, reefs can provide an important source of protein from fish for coastal communities. In addition, reefs provide natural breakwaters to buffer the effects of typhoons and storm waves and protect the shoreline from erosion.

"Reefs have a variety of economic values ranging from tourism to source of possible new medicines from exploration of bioactive compounds from sponges, corals and other reef inhabitants," Dr Erdmann said.

Visibility is limited at many of the inshore reefs in Brunei waters, but where the water is clearer, the gorgeous colours of the soft corals in particular stand out. Dr Erdmann further explained that the existence of coral reefs in Brunei waters can rebuild populations of large predatory fishes that have been overfished in the past, such as groupers, sharks and snappers.

"The Department of Fisheries is planning to implement some marine parks in Brunei's coastal waters to provide certain areas where fish populations can be rebuilt, which will benefit both tourism and fisheries in surrounding areas," he said, adding that such marine parks will serve as breeding and nursery grounds to supply fish to nearby fishing areas.

During the first coral survey in October 2006, the team found that Brunei's patch reefs are unique and very beautiful compared with many of the reefs in Indonesia and Malaysia, where fringing reefs dominated by hard corals grow around islands.

The survey found that Brunei has a high live coral cover, with an average of 37 per cent coverage of the sea floor recorded in the 19 sites surveyed. The ratio of live to dead coral cover was noted to be strongly positive at 6:1, an indication that Brunei has healthy reefs.

The second survey, to start today, is scheduled to cover other sites, including Peluapong, Pamit, deeper patch reefs near Ampa and further offshore reefs in deep clear water.

"We are quite confident that in visiting these additional habitats, we will add significantly to the number of fish, coral and crustacean species known from Brunei waters and likely to reach more than 500 coral species," Dr Erdmann said.

Dr Lane said that Brunei being included in the Coral Triangle would yield greater international recognition, subsequently attracting more visitors from foreign countries to visit Brunei's reefs.

"Tourists could enjoy a quicker of several activities such as going into the rainforests as well as diving and snorkelling. We might not get dedicated divers from overseas spending two weeks here and paying a lot of money. But, some do actually, because they are interesting in wreck diving, so they might do both, wrecks and reefs," Dr Lane said.

But it is the establishment of marine parks that would help preserve the coral. "The team has made a series of recommendations to the Brunei Government. It is designed to both protect the unique coral reefs and to ensure providing sustainable economic benefits to the people here," Dr Erdmann said.

The recommendations given to the government revolve largely around the centrepiece legislation to set up several marine parks or learn as sanctuary where fishes and corals are able to grow and reproduce freely while protected from exploitation, he added.

By having such sanctuaries, the government could ensure that there are healthy reproducing populations of corals and fishes that could supply surrounding reef areas with abundant juveniles which will form the basis of local fisheries.

"The concept is very similar to a bank account: the large adult fishes protected within a sanctuary are like the capital investment while their offspring are the interest that we can harvest and live on," he said.

"Without a significant amount of capital in the bank, there is very little or no interest for people to live on. So, it is important to ensure that Brunei's reef have sufficient living capital to provide the interest needed by the people," he added. The Brunei Times

## Brunei's reefs: A snapshot

BRUNEI's coral reefs are considered still safe from massive destruction, but there are signs that may not be entirely true and that the threat will linger before it becomes a reality. Exploratory trips to atolls in the South China Sea off Brunei have revealed shattered reefs in remote atolls. The damage is believed to have been done by local fishermen.

It is important to consider the local people and what role they play in conservation. The driving force to protect coral reefs has to come from the locals, with the full support and legal authority of the government.

However, many reefs are in open waters away from any particular village or town. That's where government enforcement is essential. The navy must now play a role in conserving Brunei's corals.

As for the diving industry, ultimately, money talks. Declarations about the importance of the ocean environment and biodiversity have little effect. Divers can exert influence by patronising only operators who show respect for the reefs.

When you visit an operation, observe how they anchor when diving, how the resort sewage is handled (ask for a tour), where trash is disposed of.

Communicate what you see to your friends and publications like this one, and even better, use Internet forums such as the soc.scuba newsgroup to publicise environmental abuses.

For Brunei to join the triangle means contributing money to conservation of reefs not particularly those in Brunei. Is there logic in joining the Coral triangle then? If you ask me, Brunei can start its own coral conservation on its own.

Michael Bagneys, Brunei Times Environment Columnist



Blue by you: Caring for our reefs is a responsibility needing the support of all Bruneians. Picture: Azahri Fadi International

## The role of media

Article 13 of the Convention on Biological Diversity (CBD) an international treaty with 193 parties, recognizes the need to create awareness and educate the public in the field of conservation. It highlights that without communication, education and public awareness (CEPA), biodiversity loss will continue. Target No. 1 of the Aichi Biodiversity Targets states that "by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably."

"Media practitioners play a big role in achieving the global biodiversity targets by bridging the gap between biodiversity experts and the general public," Inciong said.

A number of those who responded to the poll, however, said there is limited media outreach by scientists or biodiversity experts. They pointed to the need to invest in greater media education.

## Need for media education

"Media helps in getting the message across, but they have to be educated as well," a media expert from the Philippines said. He encouraged conservation and government organizations to "spend on forums and field studies for media practitioners." "Training programs are necessary," he underscored.

In terms of knowing more about biodiversity, most of the survey respondents said they favor face-to-face training to learn more about the topic. Among biodiversity-related issues they are most interested in access and benefit sharing of genetic resources, agro-biodiversity, biodiversity information management, business and biodiversity, climate change and biodiversity, coastal and marine biodiversity, ecotourism and biodiversity, economics of ecosystem services and biodiversity, urban biodiversity, and communicating biodiversity.

Apart from training, a reporter from Singapore highlighted the need to provide media with regular updates on

research findings and emerging issues, coupled with an explanation of why they are significant. She emphasized the importance of providing statistics as well as easy-to-understand explanation to facilitate reporting.

For an editor from Malaysia, constant engagement is key. "Keep them constantly engaged on developments on biodiversity. Many major undertakings on biodiversity go unreported or unappreciated due to poor understanding right from the basics."

## Not sexy enough?

A comment frequently heard about biodiversity is that it is 'not sexy' enough. "For a lot of reporters, it is not palatable. Stories have to be 'sexy' to catch attention," one of the respondents said.

The *BusinessMirror* is faced with the same problem. "When we started focusing on biodiversity issues, we faced the unique challenge of making it a 'sexy' topic, which could hook readers and generate public support. Our reporters and editors also have to be constantly encouraged to embrace the subject and appreciate the seamless connection between biodiversity, climate change and the very stake of human survival. It's not exactly a simple topic to handle; some biodiversity-related issues are complex and can't be written simplistically, or without careful research and extensive interviews with multidisciplinary experts," Ms. Lyn Resurreccion, *BusinessMirror's* science editor and officer of the Philippine Science Journalists' Association, Inc., said.

A reporter from one of Malaysia's top dailies offers a recommendation for conservation organizations. "When they are pitching stories, especially to non-specialist reporters or news organizations that don't have a regular beat to cover it [biodiversity], they should frame the potential story or new information for release in the context of its human interest, global implications, and urgency" she said. She added the need to highlight fascinating facts and anything quirky. Another reporter said government and conservation organizations can "come up with programs that will include public participation, thus, making it interesting for the target audience." This was supported by a Malaysian reporter who recommended "creating unusual ways of connecting with our readers." A Filipino reporter suggested tying up biodiversity "with something hot like celebrities" to get more air time or column inch of coverage.

Addressing the question of making biodiversity a priority topic, one editor aid, "Put money into it! If an organization is willing to support environmental stories with ads, the editorial section could 'sell' the topic to management."

## Thoughts on biodiversity reportage

Asked to share their thoughts on the role of media in conserving biodiversity, an editor from Malaysia said, "Media has to help all parties in creating awareness on biodiversity, especially why it is important to conserve biodiversity for the future of mankind."

For the executive director of a Filipino media organization, "The growing concerns on environmental hazards and depleting ecosystem should primarily be on public domain. Media helps in getting the message across. But they have to be educated as well. And this needs constant updating on relevant information and current realities for contextual and nuanced reporting. In fact, this has to be a staple segment in newspapers. The newsroom culture is such that editors and reporters need to be conscientious of the necessity of protecting the environment and all life forms. Interventions from conservation groups have to be sustained and nurtured."

## Bridging the communication gap

Some survey respondents raised the problem of who to approach for questions on biodiversity.

"In the ASEAN region, media practitioners who want to know more about biodiversity can join the Southeast Asia CEPA and Media Network for Biodiversity (CEPA-Net), a knowledge network composed of media practitioners, government and NGO information officers, and communication experts from Southeast Asian countries who are committed to help promote the importance of biodiversity conservation in the region," Inciong said.

Among the network's activities are forums on biodiversity conservation, regular exchange of best practices on effective communication techniques for biodiversity, sharing of success stories, media advocacy programs, and capacity building activities.

"Media practitioners can also visit the following websites: www.aseanbiodiversity.org (ACB); www.cbd.int (Secretariat of the CBD); http://biodiversity-media.ning.com/ (Biodiversity Media Alliance); and www.https://www.internews.org/ (Internews); among many other sites.

"The ASEAN Centre for Biodiversity is grateful to receive the views of the media sector. An important finding is that amid the obstacles faced in biodiversity reportage, media practitioners acknowledged that they have an important role to play in generating awareness for biodiversity. They also welcome opportunities to learn more about biodiversity so they can better bridge the biodiversity information gap between experts and the general public. At ACB, we consider media as not merely a tool for media coverage, but a partner in communicating biodiversity," Inciong said. □

***Leslie Castillo** is a communication consultant at the ASEAN Centre for Biodiversity.*

*The Power of the Moving Image*

# HOW A TV SHOW IS PROMOTING BIODIVERSITY CONSERVATION

**By Angeli Atienza***

When our program *Born to be Wild* began airing in 2007, it was the only program of its kind on mainstream Philippine television dedicated entirely to nature and wildlife conservation. Being a pioneer in this genre of television had its upside: an endless array of topics just waiting to be featured in a country blessed with thousands of diverse species. But being first also meant having no guide book, no references, no "model" that we could follow to communicate biodiversity on television in the Philippine setting.

**Dr. Nielsen Donato, one of *Born to be Wild's* hosts**

Armed with our research, our cameras, and a goal to document the diverse natural world, we began our story. In between filming, writing and editing our first few episodes, we struggled to make phrases like "endemism", "habitat loss" and "critically endangered" more meaningful to the Filipino audience. Biodiversity is such a big word, often relegated to the world of scientists and researchers, that we found it challenging at first to explain the idea. But as visual storytellers, we eventually embraced the idea that the most effective way we could communicate biodiversity to a larger audience was through the power of the moving image. If biodiversity seems to be a distant concept, then we would attempt to bring biodiversity closer to the audience using only the best video footage possible.

To bring home images of unique species for people to appreciate and watch on television seems like a romantic idea, but early on in the work of wildlife filmmaking, it became apparent that capturing footage of elusive wildlife is easier said than done. It was a learning process which helped us to eventually communicate the value of biodiversity to our audience. As early as year one, our teams began to understanding nature has its laws and cycles. Plants and animals follow seasons. And we recognized that our best chances at capturing the best images were to observe and respect these natural cycles. It would take careful planning, discipline, and hours upon hours of waiting just to document a single event in nature.

In the beginning, the waiting game was a challenge; our teams would spend weeks in the mountains or out at sea and still be faced with the very real possibility that they would come home empty-handed. But somehow, this respect for nature's timing translated to our stories, and through the years we've managed to elicit the same respect and awe in nature from our viewers – a Tamaraw will not wait for us; we wait on the Tamaraw. The blue whale will show up at its own pace, and in its own time. The flying lemur will give birth to its young, and this moment captured on video will continue to be a reality in the wild, for as long as we protect habitats. And so week after week, our viewers watched and waited with us. Slowly, but surely, awareness grew and throughout our episodes we've seen how little-known species like Varanus Bitatawa (a newly-named reptile species in the Philippines) and Irrawaddy (a most endangered species of dolphin) transformed into household names.

As time passed, threats to the forests and the oceans were no longer distant issues, but seen by viewers as habitats that sheltered the wildlife they saw on our television program. Little by little, we began to drive focus on how human actions directly impact biodiversity.

From inspiring awe in biodiversity through the power of the moving image, we went on to challenge ourselves and our audience to take a more proactive stance towards conservation. With our veterinarian-hosts, Dr. Ferds Recio and Dr. Nielsen Donato, the team responded to wildlife emergencies such as marine mammal strandings and urged local communities to do the same. Our information and education campaigns continued even off-camera, as our hosts and teams visited local communities and schools to encourage participation in conservation efforts. It has been an amazing journey, to say the least, to be part of a transformation in ourselves and in our viewers – a transformation from lack of knowledge towards awareness, from indifference to involvement, and finally from inaction to action.

For seven years now, our team has lived and breathed biodiversity. Our experiences in the field, and our conversations with the stakeholders – locals, indigenous tribes, experts and organizations at the forefront of conservation – only tell us that the work does not end here.

In these times, when threats to biodiversity are immense, the challenge is to continue to make the subject relevant to the ordinary person. After close to 500 stories, and literally travelling from Batanes to Tawi-Tawi, biodiversity still leaves us with so much to discover and so much to strive towards protecting. It's a message that we will continue to bring to audiences, one moving image at a time. □

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***Angeli Atienza** is program manager of BORN TO BE WILD, a weekly nature and wildlife documentary series which airs Sundays,9:45AM over GMA-7 in the Philippines. The show is hosted by Dr. Ferds Recio and Dr. Nielsen Donato. BORN TO BE WILD was declared as ASEAN Champion of Biodiversity (Media Category) in 2010 by the ASEAN Centre for Biodiversity, besting media entries from ten ASEAN Member States.*

*#biodiversity*

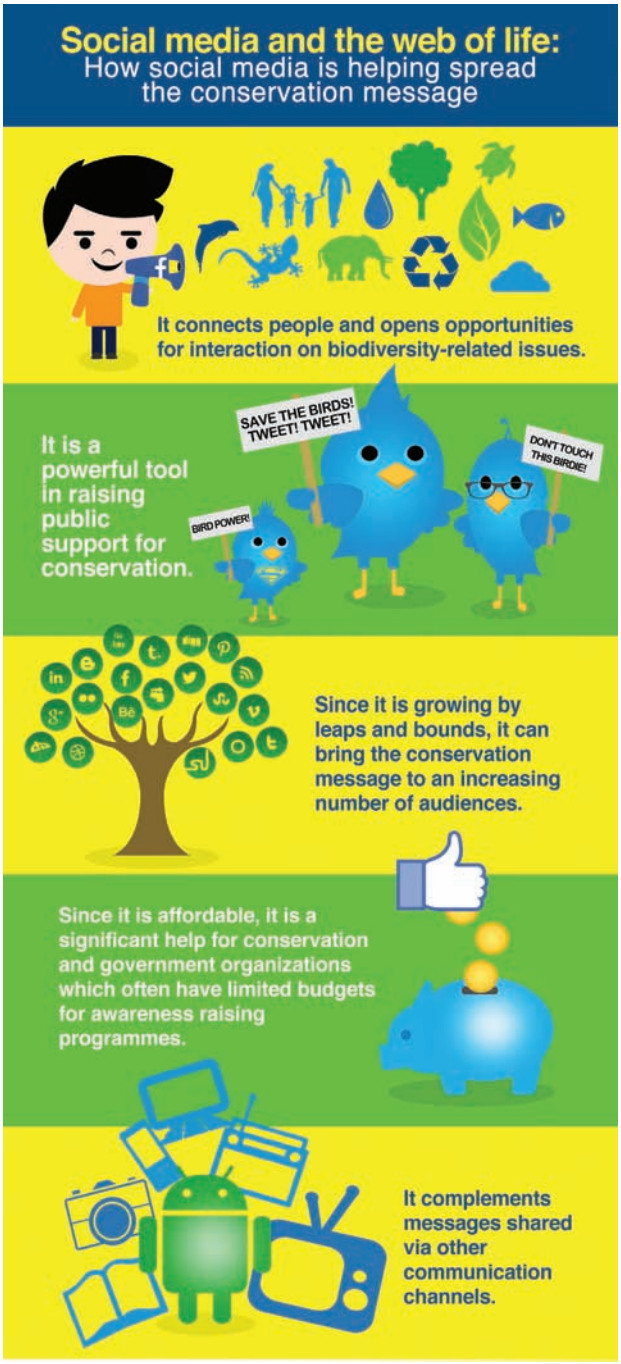
# COMMUNICATING BIODIVERSITY IN THE ERA OF SOCIAL MEDIA

**By Eisen Bernard V. Bernardo***


The rise of social media significantly changed the way people communicate. These affordable and user-friendly tools such as instant messaging (Skype, Viber), blogging service (Blogger, Wordpress), content sharing (YouTube, Tumblr), and social networking (Facebook, Twitter) enable

anyone to create and share texts, audio recordings, photos, and videos anytime and anywhere. Nowadays, having a social media account is as important as having a mobile phone. Statistics show that there are 1 billion people in Facebook, 560 million in Twitter, 400 million in Google+, and 150 million in Instagram.

Social media has democratized almost every aspect of human life. Today anyone can voice out opinion on any issue just by posting a status in Facebook, or by Twitting. Youtube and other video sharing sites have helped discover many new talents, from singers to dancers to filmmakers. Celebrities can now easily interact with their fans via Twitter and Instagram. Businesses, both multinational and microenterprises, have taken advantage of the benefits of the social media in promoting their products and services. Many international and regional organizations, including the United Nations, the World Bank, and the Asian Development Bank, are using social media tools to reach out to a variety of audiences.




Moreover, social media is the new platform for various social advocacies. Recently, it has become very instrumental in the rescue and relief operations and emergency fundraising for the victims of Typhoon Haiyan in the Philippines.

Individuals and organizations in the biodiversity arena are also harnessing the power of social media.

## Social media and biodiversity

Many prominent organizations and government agencies working on environmental conservation have joined the social media bandwagon. The World Wildlife Fund (WWF), the world's largest environmental charity organization, employs social media tools to boost its communication campaigns. The organization believes that social media has given them the opportunity "to engage supporters and reach new audiences in a way they have not ever been able to in the past." The new media allows open dialogue and personal connection making the people more engaged and aware of the organization's agenda. WWF proudly shares that its website is its home base, the blog its podium, and social networking sites its megaphones.

Other organizations are also using social media to complement their communication strategies. In 2010, the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC), together with the International Union for Conservation of Nature, launched Protectedplanet.net. The website, an interactive, social media-based site, allows the general public to upload photographs, record wildlife sightings, and contribute reviews of visits to protected areas.

In the Philippines, the Biodiversity Management Bureau (BMB) of the Department of Environment and Natural Resources (DENR) launched its own social media campaign dubbed #whatsnextph, with the goal of informing and educating the public on biodiversity and wildlife conservation. Dr. Theresa Mundita S. Lim, director of BMB, emphasized in an interview that "the campaign aims to tap environmental advocates to reflect the concerns of the public regarding different environmental problems and thus pressure the decision makers to solve a specific environmental issue."

Beyond its power to create public awareness, social media is proven to be a platform for long-term and high-impact initiatives. Experiences of various international organizations and academic and research institutions show that the social media can carry citizen science and crowdsourcing, fund raising, and enforcement programs.

## Trending: citizen science and crowdsourcing

One way of democratizing scientific research is by involving ordinary citizens in research activities. This is the essence of citizen science projects. Because of the Internet, citizen science has become more feasible and accessible.

Project Noah, a worldwide citizen science project, is an online mobile platform for documenting flora and fauna. Launched in 2010, the Project Noah smart phone application is available in both iTunes and Google Play. The app provides smartphone users a venue to share pictures of their "spotting" or their encounter with different plants and animals. The pictures shared are located in maps and taxonomically identified. As of now, there are almost 600,000 spottings posted by participants worldwide.

Project Noah also launched various citizen science projects, like online mapping (Mushroom Mapping), biodiversity surveys (Global Urban Biodiversity, Moths of the World, International Spider Survey) and others. It also provides the users online classrooms which discuss topics ranging from species adaptation and natural selection to conservation and biodiversity.

Citizen science projects like Project Noah is a good example of crowdsourcing in this social media age. Crowdsourcing is the practice of soliciting ideas and/or financial support from large groups. Today, online communities offer a vast amount of information and resources that can be tapped in crowdsourcing projects.

In 2011, a team of experts from the Smithsonian's National Museum of Natural History conducted a fish diversity survey in the Cuyuni River of Guyana. The group collected more than 5,000 specimens that need to be identified. Because of time constraints and insufficient literature, the team created an online catalog via Facebook. In less than 24 hours, more than 90 percent of the species were correctly identified. Most of the people commenting on the catalog were Ph.D. degree holders in ichthyology and related fields. Social media also broke geographical barriers by making scientists from countries like the United States, Canada, France, Switzerland, Colombia, Peru, Venezuela, Guyana and Brazil collaborate in this project.

## Hashtag fundraising

An offshoot of crowdsourcing, crowdfunding is the practice of funding an initiative using different online platforms. Several organizations have utilized social media and other online tools to raise funds for their biodiversity conservation projects.

In 2004, WildlifeDirect, a conservation fundraising project using social media, was launched in Kenya. Through a website (http:/wildlifedirect.org/) featuring a collection of blogs, anyone can participate in biodiversity conservation through online donations. The blogs are written by conservation workers, ranging from scientists and researchers to doctors and veterinarians, who are working for the protection of wildlife

"Citizen science projects like Project Noah is a good example of crowdsourcing in this social media age. Crowdsourcing is the practice of soliciting ideas and/or financial support from large groups."

and wetlands, woodlands, and forest ecosystems. Some bloggers conduct activities like helping animals in captivity, working with children and communities, and addressing the issue of poaching.

In the WildlifeDirect website, anyone who cares about wildlife has the opportunity to provide financial support to a conservation initiative of their choice. Donations are used "to purchase equipment like computers and GPS, food for orphaned animals, patrol vehicles, school fees and bursaries for needy children in communities that border wildlife, field veterinary care, de-snaring exercises, and wages for rangers and scouts." In the blogs, the donors can follow the conservation worker's day-to-day activities on the ground, and monitor the actual results that their financial support enables.

In 2007, WildlifeDirect had seven blogs written by conservationists working in the Democratic Republic of Congo. These blogs raised $350,000 that was used to pay the rangers' salaries and help save mountain gorillas in the Virunga National Park. Contributions collected in 2008 amounted to $500,000 and $321,000 in 2009. These funds were used to finance the field projects of the bloggers. At present, there are almost a hundred ongoing blogs in the WildlifeDirect website, including four projects in the ASEAN region. These are the Orangutan Foundation; Tasikoki Wildlife rescue, rehabilitation and release of native species; and Sumatran Sea Turtles Community Conservation in Aceh in Indonesia; and the Bornean Sun Bear Conservation Centre in Malaysia.

Conservation International (CI), one of the most prominent organizations working in the conservation arena, partnered with the #GivingTuesday movement to raise funds for conservation activities. The day refers to the Tuesday after Thanksgiving celebration in the United States held every November. The #GivingTuesday movement encourages people to do a good deed on the said date, such as donate money to charity or sign up for volunteering activities. Last year, CI used various social media sites like Facebook, Twitter, Tumblr and Pinterest to communicate its own #GivingTuesday campaign. CI crafted messages, mostly photographs, inspired by the theme *Nature gives to us, it's time to give back.*

Netizens were given three options on how they can participate in CI's #GivingTuesday. First is by donating money to support CI's various conservation initiatives. Second is by following their official Twitter account and/or by using the hashtag #GivingTuesday, and joining the online conversation on philanthropy and conservation. And last is by applying some of CI's simple steps to live green such as drive less, eat greener, recycle everything else, get involved locally, and others.

## Wildlife enforcement is now viral

Events of cruelty to wildlife can easily spur social media outrage. This shows how powerful social media is in raising public support for conservation action. Several events of wildlife slaughter and illegal trade were viral in Facebook and Twitter. These also led the authorities to take legal actions regarding the incidents.

In the official Facebook page of Wild Bird Club of the Philippines (WBCP), the Club regularly posts incidents of poaching and illegal trade of wildlife particularly birds. Some of these incidents include an online site selling a seven-month old Eagle Owl, an airline company allowing illegal transport of the Philippine Eagle, and a government official killing the vulnerable and protected Philippine wild ducks. Most of these Facebook posts were picked up by national television networks and broadsheets. Recently, WCBP posted a picture of a local hunter in Northern Philippines who displayed a dead juvenile hornbill he allegedly shot with an air gun. The DENR immediately looked into the reports of illegal bird hunting in the region.

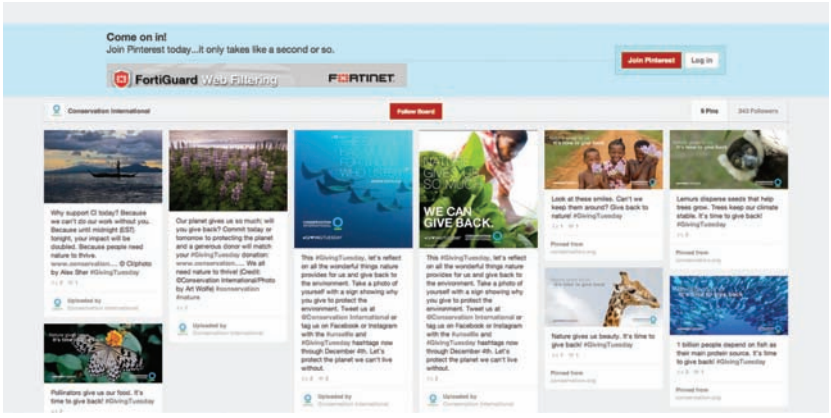
In November last year, Melissa Bachman, an American TV host of *Winchester Deadly Passion,* triggered the online community by posting in her Twitter account a photo of her kneeling and smiling with a rifle in hand, behind a lion she had shot and killed in South Africa. More than 485,000 netizens signed an online petition on Change.org addressed to the government of South Africa to make Bachman a persona non grata. A "Stop Melissa Bachman" page on Facebook generated more than 368,000 likes.

Early this year, the traditional dolphin hunt in Taiji Cove in Japan was a trending topic in social media. Various hashtags such #tweet4taiji, #HelpCoveDolphins, and #tweet4dolphins trended on Twitter to raise awareness about this mass slaughter of dolphins. The social media outrage was picked up by CNN, and elevated the controversy in the international media.

In Facebook, people are more likely to respond on issues affecting them on the emotional level. In the experience of Rimba, a group of conservation biologists in Malaysia, it is easier for conservation issues that cause moral outrage (e.g. animal abuse) to become viral on social networking sites compared to intangible long-term conservation issues (e.g. deforestation, illegal wildlife trade). On its official Facebook page, the group shared a local tour operator's photograph of snorkelers harassing an endangered green turtle (Chelonia mydas). The post depicting animal abuse went viral, and drew the attention of the media. This eventually led to the Malaysian Fisheries Department investigating the incident, and the tour operator issued a public apology.

## Harnessing social media in the ASEAN region

The ASEAN Centre for Biodiversity (ACB) has been implementing a wide range of programs and projects, with the aim of conserving and protecting the ASEAN region's rich biological resources. Despite the successes of such initiatives, mainstreaming biodiversity



conservation remains a huge challenge, considering that biodiversity-related information may not be "interesting or sexy" to all types of audiences. Mr. Rolando A. Inciong, head of ACB's communication and public affairs unit, enthusiastically shared that "the birth of social media has given hope to conservation organizations such as ACB, by providing us an efficient, effective, and affordable information-sharing platform catering to a wider range of audiences."

He added that "sectors working for the conservation of nature and biodiversity benefit from harnessing the power of social media to mainstream our cause. Social media communication can complement our existing communication activities and materials in our communication, education, and public awareness programs." ACB has organized a social media team to plan and implement its social media campaign.

According to Accenture, a global IT company, all the well-known global Internet and social media services are already well established in Southeast Asia. These include Gmail and Hotmail; Facebook, LinkedIn, and Blogger; Skype and Google+; YouTube and Flickr; eBay; and the iTunes store and Google Play store. Recent statistics from Facebook show the site has 42 million users in Indonesia, 27 million in the Philippines, 14 million in Thailand, and 12 million in Malaysia. Other ASEAN Member States have growing numbers of Facebook users such as Viet Nam (2.9 million), Singapore (2.7 million), Cambodia (1.2 million), and Brunei Darussalam (260 thousand).

Social media has been proven as an effective tool to reach millions of people. It is a low-cost set-up and a platform for quick sharing of messages. "Social media can also provide us new opportunities to listen, engage, and monitor our organization's impact," Mr. Inciong stressed. □

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**Eisen Bernard V. Bernardo* *is a multimedia producer and writer at the ASEAN Centre for Biodiversity.*

SINGAPORE

# ENGAGING THE PUBLIC IN CONSERVING THE SUNGEI BULOH WETLAND RESERVE

Article and photos contributed by
**Sungei Buloh Wetland Reserve**

Singapore, as a tropical island, has diverse ecological habitats. These areas, encompassing patches of tropical rainforest, swamp forest, mangroves and other ecosystems serve as habitats for many plant and animal species endemic to the region, 'green lungs' for the city, and avenue for residents to get close to nature.

## Conserving the mangroves

Mangroves are a natural feature of Singapore's coastline and are considered a relatively rare forest type, comprising only 0.4 percent of all forests worldwide. They support a plethora of unique mangrove and mangrove-associated species, providing vital habitats, breeding grounds, nurseries and nutrients for adjacent coastal ecosystems. The importance of mangrove conservation for biodiversity in Singapore was formally recognized by the government's commitment to legally gazette 130 hectares in Sungei Buloh as a nature reserve in 2002. Located at Singapore's northern coastline, this wetland reserve contains stretches of mudflats, an important stopover destination for migratory birds to escape from the arctic winter. Two hundred thirty species of birds have been recorded at Sungei Buloh Wetland Reserve (SBWR) alone, of which 118 are migratory species. It was little wonder that the reserve was formally recognized as a site of international importance for migratory birds under the East Asian-Australasian Flyway Partnership (EAAFP). In 2003, SBWR also became Singapore's first ASEAN Heritage Park. Today, it attracts approximately 130,000 visitors annually, including tourists from all over the world.

## Engaging the public

Singapore's National Parks Board (NParks) manages SBWR with a combination of objectives – conservation, education, research and nature based recreation. From a socio-ecological perspective, NParks recognizes the importance of effectively engaging different stakeholders which are key to the long term conservation of the wetland reserve. It does so through a variety of programs catered specifically to each group, including the public schools, non-governmental organizations and corporate organizations.

Tucked away in the northwest corner of a highly-urbanized island, SBWR has been fitted with boardwalks, trails and bird-watching hides to increase its attractiveness to Singapore's city dwelling population. Information boards with species identification guides and explanatory diagrams complement trails for self-guided walks. More recently, wireless trails and QR codes have been incorporated to make information about biodiversity in SBWR more readily accessible, given the common use of smartphones in the city. Visitors may also choose to participate in guided walks, marine fish tours, prawn harvesting demonstrations and nature photography workshops. The activities organized for the general public at SBWR are highly interactive, and are aimed at further increasing public awareness of the wetlands, the ecosystems one can find in the reserve, and how the community can do their part to conserve them.

## People's participation

Those who prefer to have a first-hand encounter with the wetlands and do not mind getting their hands dirty can volunteer in mangrove salvaging, habitat restoration, coastal clean-ups and shorebird monitoring. By gathering viable seedlings and replanting them, these volunteers are helping in the regeneration of the mangroves.

Birds are good indicators of biodiversity and SBWR actively studies the migratory patterns of these birds in Singapore. Every year, thousands of migratory birds seek shelter at SBWR during the winter season in the northern hemisphere. Birdwatching workshops are conducted to introduce the public to this natural phenomenon; they involve discussion

and field sessions. Through engaging activities like these, participants feel closer to nature and better appreciate it. The outreach team at SBWR is supported by a network of committed volunteers. Some of the volunteer activities include leading guided walks, conducting workshops, and contributing to biodiversity surveys. The NParks website and subscriber-based mailing lists with monthly updates and quarterly newsletters have been effective portals for communicating and publicizing outreach activities to the public.

### Starting them young

The outreach team at SBWR organizes structured workshops with local primary and secondary schools. For many Singaporeans, their first encounters with mangroves often occur during school fieldtrips. SBWR works closely with schools to tailor programs based on their desired learning outcomes for students of different ages. For instance, workshops for primary school students focus on basic introductions to the flora and fauna often found in the mangroves, while more emphasis is placed on environmental stewardship with older students attending secondary school. The youth may also wish to further their interests in the environment through the 'Young Naturalist Programme', which provides students with a more hands-on approach to conservation activities. SBWR also works with schools for the

"Given the multi-faceted nature of raising awareness of local biodiversity, a variety of outreach methods have been utilized at SBWR to appeal to a wide range of audiences and stakeholders."

'Sister Wetlands Affiliation Programme' (SWAP). Through SWAP, 10- to 18-year-old student representatives collaborate with students from other countries along the EAAFP network, such as Korea and Japan. Projects undertaken by student representatives include running blogs and conservation initiatives. SWAP has been a great way for students to spark interest in biodiversity conservation among their peers.

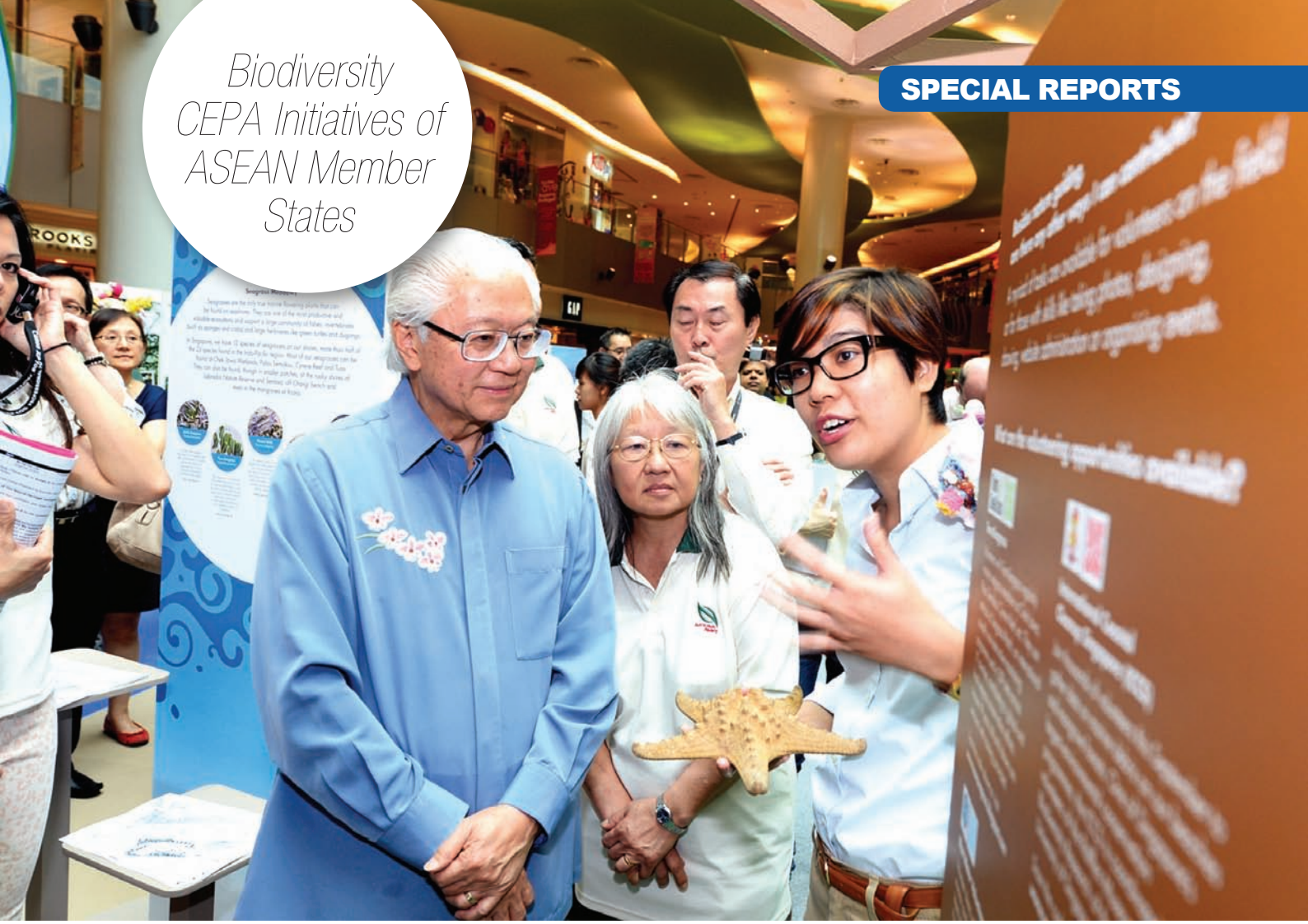
### Developing skills through nature

In conjunction with Singapore Press Holdings, the Sun Club brings nature appreciation to students with special needs. Activities such as guided tours and hands-on craft projects at SBWR are developed through consultation with special schools. Another initiative is the Nature Nurtures program, which was established in 2007 and sponsored by Shell Singapore. The program, which aims to motivate delinquent youth to contribute positively to society, equips them with skills that challenge them both physically and mentally through activities aimed at increasing their confidence and teamwork skills. By conducting these activities at SBWR, the participants are given the opportunity to interact with nature.

The Ministry of Social and Family Development and Dads for Life, a local non-governmental organization (NGO), co-organize the 'Nature Rumble with Dad' program with SBWR to encourage father and child bonding through meaningful conservation activities, such as planting seedlings to restore mangrove sites. SBWR's close partnership with corporate organizations and NGOs is beneficial for all parties involved, providing a powerful tool for communicating the importance of biodiversity to a broad range of audiences.

### Meeting diverse needs

Given the multi-faceted nature of raising awareness of local biodiversity, a variety of outreach methods have been utilized at SBWR to appeal to a wide range of audiences and stakeholders. Continuous effort is being made to further develop best practices in communication, education and public awareness of biodiversity conservation at SBWR. After all, managing our environment sustainably is about managing the people who benefit from its impacts. □



(NParks, FOB 2013)

**President Tony Tan Keng Yam learning more about seastars at Festival of Biodiversity 2013**

*SINGAPORE*

# CELEBRATING THE ANNUAL FESTIVAL OF BIODIVERSITY

**By Linda Goh***
Photos courtesy of **NParks***

Owing to its geographical location, Singapore is a city rich in biodiversity, despite a small land area of just over 700 square kilometers. More than 10 ecosystems can be found in Singapore – primary lowland dryland dipterocarp forest, primary hill dryland dipterocarp forest, primary freshwater swamp forest, secondary forests,

Photo by Rene Ong

Photo by Ria Tan

rivers, estuaries, mangrove forests, sandy beach, rock shore, inter-tidal mudflats, seagrass meadow, coral reef, sea bed and open water – which harbor some 52 mammal species, 364 bird species, 301 butterfly species, 66 freshwater fishes, 12 species of seagrass and 255 hard coral species.

With increased interest in biodiversity conservation issues, Singapore formed the Biodiversity Roundtable to enable interest groups and non-governmental organizations to have greater involvement in conservation activities.

A brainchild of the Biodiversity Roundtable, the Festival of Biodiversity is an annual event that aims to raise greater awareness of our natural heritage and excite more Singaporeans to appreciate the diverse flora and fauna within our small island-state. Inaugurated in 2012 by Singapore's President Tony Tan Keng Yam, the festival features the unique plants and animals found in various habitats, and highlights the importance of conserving Singapore's biodiversity.

The two-day fun-filled and educational event typically involves some 100 volunteers and about 40 partners comprising nature groups, biodiversity experts, schools, corporate organizations and government agencies, each contributing to the festival's program and exhibits.

Each year at the festival, the National Parks Board Singapore (NParks) puts together an informative and interactive exhibition based on the theme for the year's International Day for Biological Diversity to enhance local understanding of biodiversity issues. This educational exhibition subsequently roves to various heartland areas in Singapore to further reach out and spread the message to the community.

The whole event takes a celebrative mood with a myriad of free activities targeted at different age groups. Families can sign up and join volunteer guides to go on a journey of discovery at our

**① Children expressing their creativity at a hands-on art and craft workshop.**

**② A community art piece of the Festival's logo launched in 2012.**

**③ Volunteers from the marine community showcasing interesting specimens to the public.**

**④ Volunteers sharing nuggets of information with visitors at the interactive exhibition panel.**

**⑤ Bringing biodiversity into the heart of a busy shopping mall.**

**⑥ Children discovering the secret lives of plankton.**

**⑦ 'Show and Tell' trolley packed with specimens allows movement to different parts of the mall.**


Photo by Rene Ong




Photo by Ria Tan

parks and gardens. They can also view a plethora of plant and animal specimens and informative exhibits featured at the interactive booths manned by the various groups, and listen to the volunteers share interesting nuggets of information about our biodiversity.

Young visitors can also exercise their creativity at the various hands-on art and craft workshops such as creating and painting a hanging mobile of a butterfly, or making their very own nature-inspired bookmarks. In addition, they can also find joy in listening to fun tales and dramatization of "The Giving Tree", "The Lorax" and more at the storytelling sessions. These sessions are conducted by enthusiastic primary school students to make reading fun and encourage children to appreciate nature around us.

For visitors who appreciate more scientific-based information, a wide range of talks are organized featuring topics such as forest conservation, nature photography and even animal forensics conducted by local biodiversity experts and avid nature photographers. Various films are screened to showcase our native biodiversity and species recovery conservation efforts to broaden their perspectives of the importance of biodiversity conservation.

The first festival in 2012 was held in Singapore Botanic Gardens. It attracted some 3,000 visitors then. To reach out to the "unconverted", Singaporeans who may not have discovered the rich biodiversity found locally, the second festival in 2013 was held at a popular shopping mall and attracted some 10,000 visitors. The festival received positive feedback and many visitors cited that they gained a deeper understanding and appreciation of Singapore's rich biodiversity, its benefits and relevance to Singapore. The venue sponsor also invited the organizers to put up the Festival again in 2014.

Holistic biodiversity conservation cannot be achieved with the efforts of a single organization or government agency. To achieve sustainable biodiversity conservation that is effective in implementation, it is essential to have broad-based support from individuals, the community and government agencies. Through the Festival of Biodiversity, the biodiversity community, public agencies, corporate and school groups, and individuals are galvanized to contribute to a common goal: the conservation of Singapore's natural heritage. All the partners involved in the event bring to the Festival of Biodiversity their knowledge, expertise and resources to create greater awareness and interest in our natural heritage and instil a sense of national pride to sustain our rich biodiversity for future generations. □

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**Linda Goh* is currently the Deputy Director for Biodiversity Information and Policy Section in the National Biodiversity Centre, National Parks *Board.*

*Biodiversity CEPA Initiatives of ASEAN Member States*

THAILAND

# COMMUNICATION ACTIVITIES OF THE ROYAL FOREST DEPARTMENT

**By Dr. Surang Thienhirun***

Thailand's Royal Forest Department is responsible for the preservation and protection of the country's preserved forests. There are approximately 1,221 which still do not have a biodiversity database. Some parts of the preserved forests have been converted into community forests to allow people who live around the areas to take


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vegetables, fruits, medicinal plant, bamboo and mushroom from the forest for their livelihood. The department assigned Dr. Surang Thienhirun, the director of Forest Biodiversity Division to construct the database of preserved forests under the biodiversity conservation and development project.

Under this project, the Forest Biodiversity Division encourages the participants including foresters, scientists, and local people living near the forest to work as a team. This entails thinking, discussing, and planning the method to collect biodiversity data together. Teams are separated into five groups with each group going into the forest and collecting biodiversity data on plants, animals, insects, mushrooms, and lichens. The groups also collect the locals' wisdom and traditional knowledge related to biodiversity. From the data collected, the Forest Biodiversity Division constructed the database and made it available in the website http//biodiversity.forest.go.th beginning 2009.

To-date, the project has collected data from approximately 27 forests including the northern, southern, central, eastern and northeastern parts of Thailand. It has published 42 books and produced five videos to generate awareness on biodiversity. The project also conducts biodiversity exploration training for people who live around the forest and staff to provide them with better understanding of how to collect the biodiversity data.

As they worked together, the project organizers and participants learned a lot. They benefit from exchanging ideas. The project enables villagers to gain a greater understanding of ecology and biodiversity. Through the project, the Forest Biodiversity Division is able to determine which plants, animals, insects, mushrooms and lichens will be extinct soon and what are already extinct. The community is also made aware of the impact of extinction, encouraging them to think of ways how to conserve forest biodiversity for future generations. Today, they conserve rare plant species by growing young plants and putting them back in the forest.

Under the project, the Forest Biodiversity Division constructs biodiversity classrooms with the goal of giving

"To date, the project has collected data from approximately 27 forests including the northern, southern, central, eastern and northeastern parts of Thailand. It has published 42 books and produced five videos to generate awareness on biodiversity."

① **Training with communities about exploring and collecting biodiversity data**

② **Working on collecting biodiversity data**

③ **Database website**

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④ **Publication and video**

⑤ **Biodiversity classroom in different schools**

⑥ **Sharing knowledge with teachers and students**

⑦ **Everyone in the community help grow the rare plants for conservation**

⑧ **Plant, animal, insect, mushroom, lichen and traditional knowledge**

⑨ **Pu-Chao-Po-Laeng crab**

⑩ **Mae-Jang-Fang-Sai forest**

⑪ **Small dam in Mha-Jang-fang-sai forest**

> By working with local people and staff, the Forest Biodiversity Division of Thailand's Royal Forest Department not only gathered information for its biodiversity database, but also formed a good relationship with the local people.

knowledge back to communities through the young generation. The biodiversity classrooms are built in schools located near forests so that students and the local communities are made aware of the importance and the value of biodiversity in the forest.

## Discovery, the way to preserve forest by local community

Thaworn Yasol, who lives in Ban Sam-Kha near the Mae-Jang-Fung-Sai forest, Mae-Ta district, Lumpang, joined the team to gather biodiversity data in the Mae-Jang-Fung-Sai forest.

His village places emphasis on forest preservation and tries to keep the forest plentiful like it was in the past. Years ago, his village used water from Mae-Jang-Fung-Sai forest for agriculture and daily life. However, due to the water crisis in 2003, the village set a schedule to open and close the water source. In community consultations, the villagers realized that the reason they lacked water was the higher rate of deforestation which reduced the number of trees in the forest and finally led to drought. The community then arranged for a group of people to guard the forest day and night to catch those who cut the trees without permission.

The community also built a small dam to reduce the speed of water flow during the rainy season. If a tree falls down because of storm, people are not allowed to use the trees. They have to leave the tree in the forest and let it decompose. This aims to prevent people from claiming that the tree fell down by itself so they can move it out of the forest.

After 10 years, the forest became fertile again and the people now have enough water throughout the year. This is one of the success stories that resulted from the cooperation of everyone in the community in restoring the forest so that they can all benefit from a sustainable water resource. By being encouraged to know more about forest preservation, the locals become more willing to preserve the forest themselves.

## Community and biodiversity conservation and sustainable usage

Pu-Chao-Po-Laeng crab (Potamonbhumibol) is the freshwater crab found on the small cannels in Mae-Jang-Fang-Sai forest.

In the past, this crab species was abundant. Soon, the population of this species declined and seemed to be extinct. People in the community noticed the change and started implementing conservation measures. In one of their meetings, the locals agreed to catch only the big male crabs and the females without eggs. For over 10 years, guards were assigned to watch out for people who went into the forest to gather food. This practice of conserving species became ingrained in the locals' culture. It was no longer just a rule that they complied with, but a voluntary act. This shows that when people realize and understand the value of biodiversity, they will use resources in a sustainable manner.

By working with local people and staff, the Forest Biodiversity Division of Thailand's Royal Forest Department not only gathered information for its biodiversity database, but also formed a good relationship with the local people. Both parties gained knowledge on biodiversity together. In the end, the people not only understood more about biodiversity, the environment, and culture; they realized the important role that they to play and started conserving forests themselves. □

***"This process makes the community willing to preserve the forest, protect the forest which leads to the conservation and protection of biodiversity and sustainable usage"***

**Dr. Surang Thienhirun** *is Director of Forest Biodiversity Division at Thailand's Royal Forest Department.*

WORLD WETLAND DAY, 2 FEBRUARY

# Wetlands and agriculture, partner for growth

**By Sahlee B. Barrer**

Each year on 2 February, Parties to the Convention on Wetlands of International Importance (Ramsar Convention) of 1971, celebrate *World Wetlands Day,* which provides an opportunity to raise awareness on the significance of the world's wetlands to humanity and the environment. Article 1.1 of the Ramsar Convention defines wetlands as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters".

This year's theme is *Wetlands and Agriculture* to complement 2014 as the *UN International Year of Family Farming.*

For the longest time, wetlands were often viewed as a barrier to agriculture, and they continue to be drained and reclaimed to make farming land available. However, the essential role of wetlands in support of agriculture is becoming clearer and clearer, and there are successful agricultural practices which support healthy wetlands. Wetlands and agriculture are now recognized as partners for growth, and both sectors need to work together for the best shared outcomes.

Wetlands have been used for agriculture for millennia, especially riverine wetlands in floodplains where soils are fertile and water is plentiful. Unfortunately, the drainage and reclamation of wetlands for agriculture has become ever more widespread and effective. In some regions of the world, more than 50 percent of peatlands, marshes, floodplains and other wetland areas have been lost, primarily for conversion for agricultural use. Millions of people all over the world now depend directly on agriculture, forestry, and fishing, or some combination of these for their livelihoods. As such, agriculture is often a primary driver of economic growth in developing countries. However, this development comes at the price of wetlands, which provide vital ecosystem services that people are now beginning to recognize.

Photo by Karen Discaya, SCPW

**Lake Balanan in Siaton, Negros Oriental, Philippines is home to close to a hundred dalakit/balete trees. The earthquake in May 1925 had caused a massive landslide on both sides of the Balanan and Nasig-id ridges that formed this scenic 24-hectare lake.**

Wetlands provide food and other agricultural products such as fuel and fiber directly through agricultural production activities that take place within wetlands, such as in rice paddies, coastal grazing marshes, recession agriculture and aquaculture in large floodplains, and cropping of small seasonal wetlands. Wetlands also support agriculture by providing fertile soils and reliable supplies of good quality water.

According to the ASEAN Centre for Biodiversity, wetlands in the ASEAN region are under extreme pressure by factors originating from human activities. Urban expansion such as land reclamation, wetlands conversion for aquaculture, pollution, sedimentation and siltation are among the most common factors affecting wetland ecosystems.

ACB Executive Director Roberto V. Oliva said changing climate patterns have reduced rainfall in many wetlands, resulting to lower water levels, even to the point of parchment of some areas. Other areas experience excessive rainfall, resulting to higher water levels and flooding. Either way, he said, the life cycles and reproductive patterns of many organisms are affected.

Given their importance for water supply and food production, wetlands are also a key element of achieving the goals of poverty alleviation worldwide. Through World Wetlands Day 2014, the Ramsar Convention aims to highlight the importance of wetlands in supporting agriculture, especially since many family farming operations rely on the soils, water, plants and animals found in wetlands to provide food security and improve their livelihoods.

For more information on World Wetlands Day 2014 and the impact of agriculture on wetlands, log on to www.ramsar.org. □

WORLD WILDLIFE DAY, 3 MARCH

# World Wildlife Day highlights urgent need to curb illegal trade

**By Leslie Castillo**

On 25 February, the Philippines' Biodiversity Management Bureau (BMB) announced it seized 93 exotic animals which were smuggled into Southern Philippines. Among animals confiscated were 66 wild birds, 10 sugar gliders, and assorted mammals and reptiles, some of which are vulnerable and critically endangered. The five Filipinos caught transporting the animals from Australia and Indonesia were arrested and were charged with illegal possession and transport of such species. Their arrest came two weeks after 100 almost similar animals from Australia and Indonesia were seized by wildlife authorities while being transported to Manila.

In Thailand, police seized five endangered tiger cubs and hundreds of other animals including turtles and monitor lizards being illegally transported to Lao PDR. Police said traders are using Lao PDR as transit point to sell animals to China and Viet Nam. The two Thai men caught smuggling the cubs and other species were charged with illegal possession of protected animals. Under international law, it is illegal to trade tigers and tiger parts, except for non-commercial reasons such as scientific research.

In Cambodia, police arrested two Vietnamese caught smuggling nearly 80 kilograms of elephant tusks from Africa. According to arresting officers, the men were caught with the illegal ivory after arriving in Siem Reap from South Korea. The ivory, which came from Angola, was being transported to be sold in Viet Nam.

The three incidents, which happened in a span of only two weeks, came days before the first celebration of World Wildlife Day on 3 March. The global event traces its roots to the 68th session of the United Nations General Assembly on 20 December 2013, when leaders proclaimed the third of March as World Wildlife Day to celebrate and raise awareness of the world's wild fauna and flora. The date is significant as it also marks the adoption of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Adopted on 3 March 1973, CITES plays a key role in ensuring that international trade does not threaten the survival of various species.

CITES Secretary-General John E. Scanlon said World Wildlife Day is "the opportunity for all of us – no matter who we are or where we are – to celebrate the beauty and variety of the millions of plants and animals that we share our planet with. While we cherish wildlife in its own right, we should not forget that it also contributes to our personal well-being – from food to medicine – from culture to recreation." He also pointed to the global problem of habitat loss and illegal trade, which "is now threatening the survival of some of our most charismatic species, as well as some plants and animals you may never have heard of." Mr. Scanlon urged citizens and consumers to bring illegal trade to an end and to work for a future where people and wildlife co-exist in harmony.

The celebration has elicited support from various global organizations. International Union for Conservation of Nature (IUCN) Director General Julia Marton-Lefèvre said "World Wildlife Day gives us a chance to highlight the breathtaking diversity of our planet's animal and plant species and how their continued survival in the wild is intimately linked to ours."

"At a time when the earth's natural resources are being exploited at an accelerated pace to meet the needs of burgeoning populations and consumer demands, the World Wildlife Day and CITES will help us to focus more on sustainable practices by communities, governments and enterprises in our ultimate quest for development," said Mukhisa Kituyi, Secretary-General of the United Nations Conference on Trade and Development.

In Southeast Asia, ASEAN Centre for Biodiversity (ACB) Executive Director Roberto V. Oliva expressed support for the global celebration. "The ACB is proud to support World Wildlife Day. As home to a treasure trove of plant and animal species, many of which are either threatened or critically endangered, the ASEAN region has a crucial role in ensuring that biological resources will be conserved for future generations," he said.

The ASEAN region is a known hotspot in the lucrative, multi-billion dollar global trade of wildlife, in which both live and processed goods of most species are traded, ranging from tigers and elephants to rare orchids and indigenous medicinal herbs, from rare marine species to endemic reptiles and songbirds. While all 10 ASEAN Member States are signatories to the CITES, the poaching, trafficking and illegal consumption of

wildlife parts and products remain rampant.

According to the United Nations Office on Drugs and Crime, "Southeast Asia and the Pacific is both a point of origin and destination for a significant trade in wildlife that threatens many vital and endangered species with extinction. Rare wildlife is consumed throughout Asia – but particularly in China, Hong Kong, Taiwan, Viet Nam and Thailand – for luxury meals, and used for status symbol ornaments and in traditional medicine. Asia is now a significant consumer market for smuggled wildlife, driving the massive scale of poaching in Africa."

ASEAN Member States are heightening enforcement actions. One collaborative effort is the ASEAN Wildlife Enforcement Network (ASEAN-WEN). Launched in 2005, ASEAN-WEN is a regional intergovernmental law enforcement network designed to combat the illegal wildlife trade.

According to Director Oliva, ACB is working together with ASEAN-WEN on capacity-building activities aimed at enhancing the understanding of CITES policies by ASEAN Member States. In 2013, ACB continued to support the ASEAN-WEN and FREELAND Foundation in the implementation of the program entitled PROTECT (**P**rotected Area **O**perational and **T**actical **E**nforcement **C**onservation **T**raining).

Director Oliva urges the citizens of ASEAN to support efforts against illegal wildlife trade. "There are many simple things we can do. We can start by not patronizing food and other products that come from the illegal trade, especially the endangered species."

"Let us cherish wildlife and recognize their great contributions to our well-being. They provide food, medicine, and many other products and services. But we must all be responsible. Let us put an end to illegal wildlife trade. As CITES Secretary-General Scanlon, said 'By working together we can do this - and in doing so secure the future for wild plants and animals as well as for ourselves." □

INTERNATIONAL WOMEN'S DAY, 8 MARCH

# Celebrating women and biodiversity

**By Pamela Reblora**


DigiArt by Eisen Bernardo

Teresita Comia, a Filipina mother of seven, is a plain housewife who usually spends her time preparing food for her children, raising chicken, doing household chores, and maintaining a vegetable garden: her routine since her husband left to work abroad. Relying on biodiversity as her family's primary source of food, medicine, water, materials for clothing and shelter did not just bring Teresita closer to nature, but also made her more knowledgeable on how to protect , sustain, and conserve biological resources for her family's needs.

Teresita is just one of the many women who are empowered with a wealth of knowledge on the environment and on ways on how to make it sustainable for future generations.

## Women as custodians of biodiversity

According to the Convention of Biological Diversity (CBD), women farmers account to 60 to 80 percent of all food production in developing countries. This confirms that women play a huge part in primary land and resource management.

The annual global celebration of the International Women's Day every 8th of March is a constant reminder of the need to recognize the role of women in society; one of which is their remarkable role as custodians of traditional knowledge and biological resources.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO),the theme for this year's celebration is, *Equality for Women is Progress for All.* Providing women with equal access to information, education, trainings and capacity building opportunities will result to better implementation of biodiversity conservation efforts anywhere in the world.

"As we celebrate this year's International Women's Day, let us pay tribute to all women who contribute to efforts in protecting our nature," said Atty. Roberto V. Oliva, Executive Director of the ASEAN Centre for Biodiversity.

"In Southeast Asia, 35 to 60 percent of the agricultural labor force is composed of women. Women are rich in indigenous knowledge as they are the ones who usually gather biological resources for food, fuel, and medicine. In order to have a genuine concern for the environment which will eventually lead to conservation efforts, one must be knowledgeable of the importance of nature in our lives," Atty. Oliva stressed.

Natural resource conservation initiatives will be more efficient and effective if women will be involved in decision making, and crafting policies on biological resource management. Conservation organizations must also consider women empowerment in formulating and developing their projects and programs.

## Celebrating women and mother nature

As we commemorate this year's International Women's Day, let us not just honor the achievements of women all over the world, but let us also reflect on why nature is being embodied as a mother – as a woman.

Nature, just like women, provides everything we need for survival. Like a woman who has the ability to give birth, nature sustains all life forms. Thus, both nature and women should be well taken care of, nurtured, and protected. □

INTERNATIONAL DAY OF FORESTS AND THE TREE, 21 MARCH

# Promoting the importance of trees and forests

On 21 March, the ten Member States of the Association of Southeast Asian Nations (ASEAN) join the global community in celebrating the *International Day of Forests and the Tree.*

According to the United Nations, forests cover one third of the Earth's land mass, providing vital ecosystem services that sustain the lives of 1.6 billion people, including more than 2,000 indigenous cultures that depend on forests for their livelihood. The World Health Organization estimates that between 65 and 80 percent of people rely on medicines derived from forests as their primary form of health care.

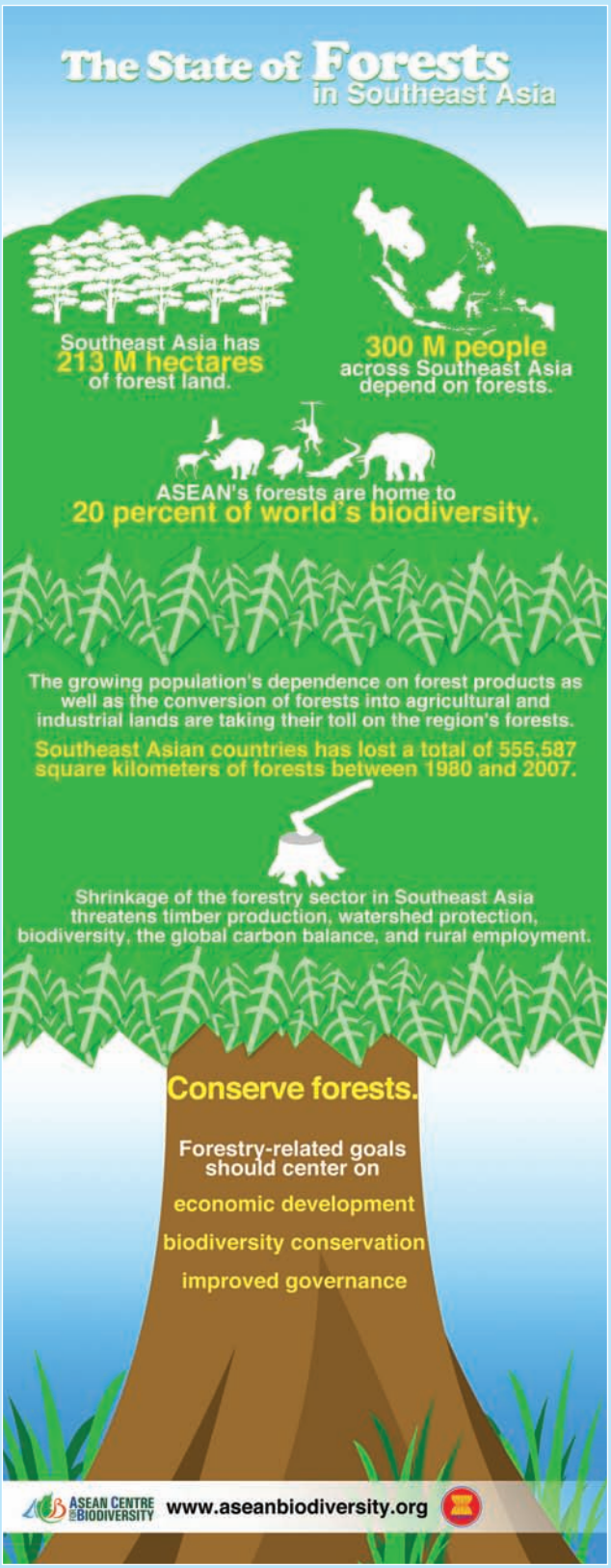
Serving as home to more than half of the world's terrestrial species of animals, plants and insects, forests are the most biologically-diverse ecosystems. They provide food, shelter, fuel and income for forest-dependent populations; protect us from harsh conditions brought about by climate change; serve as giant purifiers that clean our air and water; and contribute to the balance of oxygen, carbon dioxide and humidity in the air. Forested catchments supply three-quarters of the world's freshwater, which is essential for agriculture, industry, energy supply and domestic use.

While forests and trees provide priceless ecological, economic, social and health benefits, irresponsible human activities continue to destroy them. United Nations data show that global deforestation continues at an alarming rate; some 13 million hectares of forests are destroyed annually. Deforestation accounts for 12 to 20 percent of the global greenhouse gas emissions that contribute to climate change.

In the ASEAN region, the growing population's dependence on timber, fuel wood, and other forest products, as well the conversion of forests into agricultural and industrial lands, are taking their toll on the region's forests. Southeast Asian countries had lost a total of 555,587 square kilometers of forests between 1980 and 2007, an area roughly the size of Thailand.

According to Atty. Roberto V. Oliva, executive director of the ASEAN Centre for Biodiversity, irresponsible human activities are the key drivers of forest loss.

"As we celebrate the International Day of Forests and the Tree, let us strive to change our irresponsible activities so that we can contribute to the conservation and sustainable use of our forests and trees. Let us take this opportunity to raise awareness of the importance of all types of forests and of trees. Let us raise awareness of sustainable management, conservation and sustainable development of forests and trees for the benefit of current and future generations," Director Oliva stressed. □



WORLD WATER DAY, 22 MARCH

# Global celebration puts spotlight on water and energy

**By Sahlee B. Barrer**

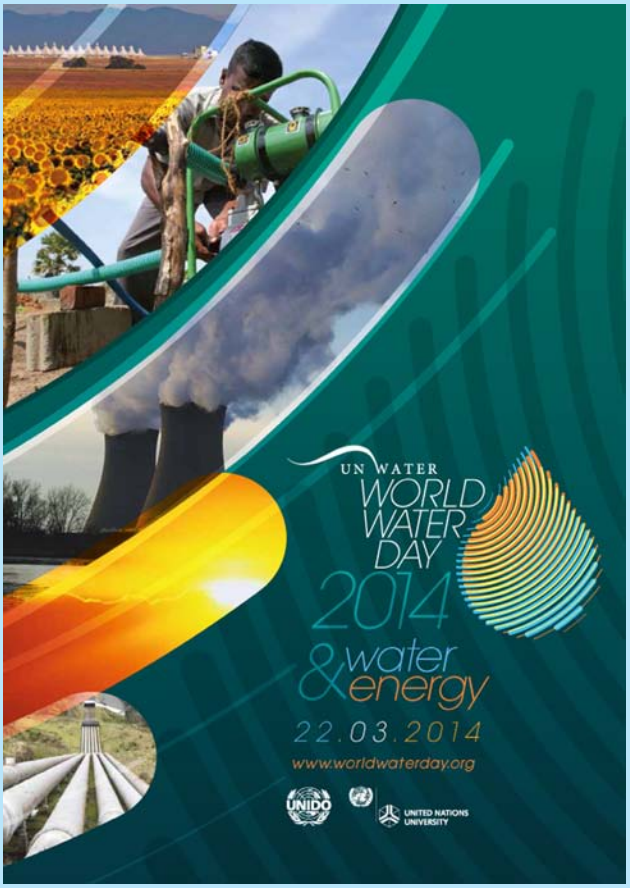
Covering more than 70 percent of the Earth's surface, water is important and is integral to survival. People need water to live, grow plants and livestock, ensure sanitation and hygiene, and power industries. Over the years, however, water resources and quality have been severely compromised, making the celebration of World Water Day (WWD) on 22 March all the more significant as it highlights the importance of the sustainable use and management of water.

An international day to celebrate freshwater was recommended at the 1992 United Nations Conference on Environment and Development in Brazil, and the UN General Assembly responded by designating 22 March 1993 as the first World Water Day. It has been celebrated annually since then to focus global attention on the specific aspects of water. World Water Day 2014 addresses the nexus of water and energy.

Water and energy are closely interlinked and interdependent. Energy generation and transmission requires utilization of water resources, particularly for hydroelectric, nuclear, and thermal energy sources. A tremendous amount of energy is also used to pump, treat and transport water to various consumers.

The United Nations decided to highlight the water-energy linkage particularly in relation to inequities faced by many of the poorest populations. Millions of people live in impoverished areas and have no access to safe drinking water, adequate sanitation, and sufficient food and energy services. WWD 2014 also aims to facilitate the development of policies and cross-cutting frameworks that bridge government agencies and sectors, leading the way to energy security and sustainable water use in a water- and energy-efficient green economy.

Specifically, WWD 2014 aims to raise awareness of the inter-linkages between water and energy; contribute to a policy dialogue that focuses on the broad range of issues related to the nexus of water and energy; demonstrate, through case studies, to decision makers in the energy sector and the water domain that integrated approaches and solutions to water-energy issues can achieve greater economic and social impacts; identify policy formulation and capacity development issues; and identify key stakeholders and create collaborations in further developing the water-energy linkages.




Atty. Roberto V. Oliva, Executive Director of the ASEAN Centre for Biodiversity, said the ASEAN region is blessed to have plenty of water resources to satisfy the region's needs and support its industries.

"However, water resources are under increasing pressures due to rapidly rising demand from industrial activities, agricultural use, and a growing population. The different conditions across the ASEAN Member States affect how water resource issues and their management are addressed, and all of these challenges are also exacerbated by climate change," Director Oliva explained.

Director Oliva appeals to the public to participate in World Water Day celebrations to encourage greater awareness of water and energy issues.

"Commitment across governments and communities to address issues in supply, demand, water conservation, and water quality can only ensure greater sustainability in the use and management of water, and ensure better access to safe water for those who need it the most," Director Oliva stressed. □

WORLD HEALTH DAY, 7 APRIL

# Biodiversity: Nature's Prescription

**By Pamela Q. Reblora**

Because we often associate bats with horror movies, darkness, and fear, many of us are scared of these flying mammals. Some might be so terrified that they wish that these hair-raising creatures only exist in movies. Would you believe that bats are actually saving us from real-life blood-sucking "vampires"?

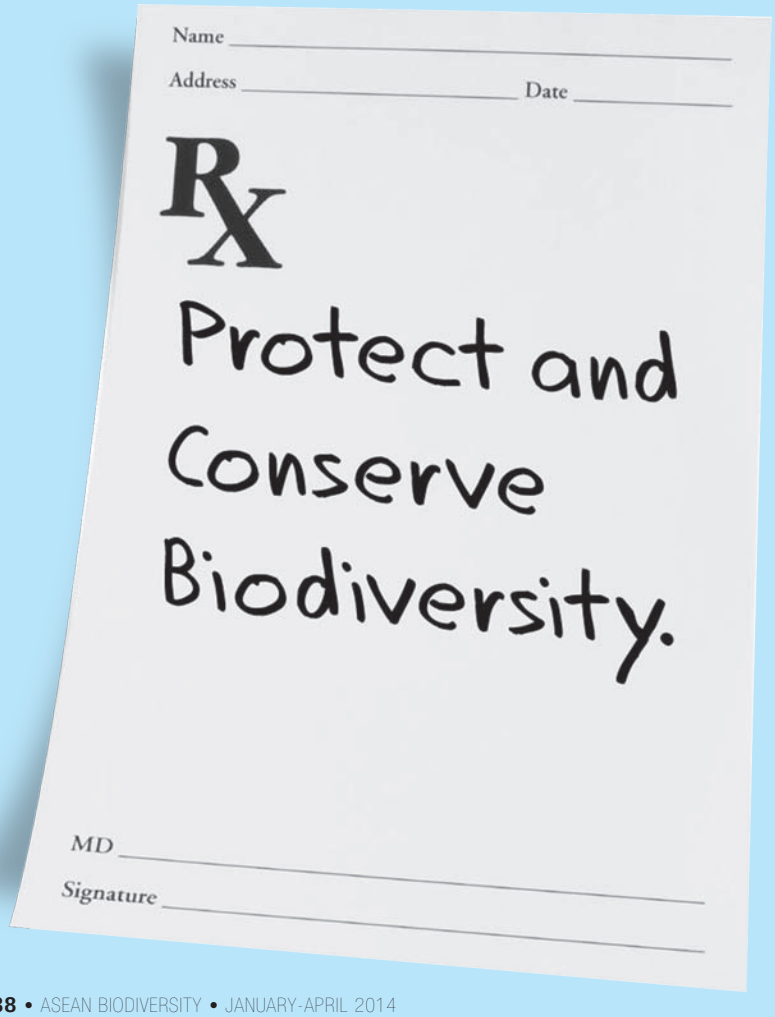
Bats feed on blood-suckers that are popularly known as mosquitoes. Thus, getting rid of bats would also entail an expansion of the population of mosquitoes. These insects carry a number of communicable diseases such as malaria, chikungunya, and dengue fever. In effect, the existence of bats in the food chain is beneficial for human health for it controls the population of mosquitoes in the environment.

## World Health Day 2014: attention to vector-borne diseases

This seventh day of April, we are celebrating World Health Day, with a working slogan, "Small bite, big threat," as the World Health Organization (WHO) gives emphasis to vector-borne diseases. Vector-borne diseases are transmitted by organisms that have the ability to transfer illnesses "between humans or from animals to humans." Such living organisms include insects like mosquitoes, fleas, ticks, and flies among others. Freshwater aquatic snails are also carriers of a vector-borne disease called Schistosomiasis.

"No one in the 21st century should die from the bite of a mosquito, a sandfly, a blackfly or a tick," said Dr. Margaret Chan, WHO Director-General.

According to WHO, vector-borne diseases take more than one million lives annually. Majority of these fatalities can be accounted to malaria and dengue fever. Rapid population growth, urbanization, climate change, migration, and deforestation, among many other natural and human-induced factors contribute to the emergence of vector-borne diseases.




"This seventh day of April, we are celebrating World Health Day, with a working slogan, "Small bite, big threat," as the World Health Organization (WHO) gives emphasis to vector-borne diseases. Vector-borne diseases are transmitted by organisms that have the ability to transfer illnesses "between humans or from animals to humans."

## Biodiversity loss: threat to human health

We are well aware that humans depend on biodiversity for survival because nature provides us with food, water, shelter, clean air and many more. However, the relationship between biodiversity and human health can be described in more ways than we can ever imagine. Does it matter if we lose a particular plant or animal species? Will it have any effect to human health?

In recent years, illegal trade of geckos or *"tuko"* occurred in thePhilippines. A person shelled out as much as USD1,200 in exchange for a 300-gram gecko which allegedly cures a lot of diseases. But what if geckos become extinct as a result to illegal wildlife trade?

"Because a lot of people do not know the role of geckos in the ecosystem, they resort to this kind of illegal activity," said Atty. Roberto Oliva, Executive Director of ACB. "Geckos actually save us from vector-borne diseases as they consume insects and other small animals for food. Some also feed on rats. This implies that every species has an important role in maintaining the balance of nature which is very important to human survival," Atty. Oliva explained.

## Biodiversity heals

The medicinal value of biological resources is another gift from nature that we should all be thankful for. Traditional medicine has been playing a significant role in health care despite the emergence of modern pharmaceutical practices and technologies. It is also from biological resources, particularly plants where approximately 25 percent of modern medicines are derived directly or indirectly.

Southeast Asia, though considered one of the "hotspots" for infectious diseases, is opportunely rich in biological resources. "Southeast Asia, particularly the ASEAN region, is home to 18 percent of all known plant and animal species. The biodiversity richness of the region is one of the strongest weapons in combating infectious diseases as an abundant biodiversity also means more biological resources with medicinal values," said Atty. Oliva.

## What can we do?

We have biodiversity to back us up in our battle against infectious diseases, but we should also do our part. Human activities that alter or disturb ecological balance should be avoided. According to WHO, ecosystem disturbances result in the proliferation of infectious diseases since reducing the population of a certain species will lead to population growth of other species. Some of the contributing factors to the spread of infectious diseases are deforestation, irrigation, urban sprawl, migration, illegal wildlife trade, and land conversion – all are results of irresponsible human activities. Another means of preventing the spread of communicable diseases is to maintain a clean environment. It is in places with poor sanitation that vectors usually abound.

The best way to veer away from diseases is to conserve and protect biodiversity.

"As we celebrate World Health Day 2014, let us explore and discover other gains that biodiversity provides us. Because being informed will surely lead to appreciation, and eventually, leadto biodiversity conservation. If a person has genuine concern for the environment, he will keep his surroundings clean; avoid ecosystem disturbing activities; and thus, contribute in achieving a healthy environment," said Atty. Oliva. □

EARTH DAY, 22 APRIL

# Nurturing the Cities of the Future

**By Eisen Bernardo**

Mother Earth is a motif that commonly appears on the mythologies of different cultures around the world. It depicts Earth as a goddess embodying fertility and motherhood such as Gaia in Greek mythology and Terra in Roman tradition. In Southeast Asia, particularly in Myanmar, Cambodia, Thailand, and Laos, the Earth goddess is known as Phra Mae Thorani. She is depicted as a young woman with water flowing from her hair. In Indonesia, they have Dewi Sri who is the goddess of rice and fertility. Dewi Sri is considered as Mother Earth in Javanese culture. She encompasses birth and life, and controls rice which is the staple food of the Indonesians.

In today's culture, the term Mother Earth is still used to personify nature. The term embodies the nurturing character of our planet. It is the common expression for the planet Earth that reflects "the interdependence that exists among human beings, other living species, and the planet."

In 1972, the United Nations organized the first UN Conference on the Human Environment to respond to the emergencies posed by global warming and the damage human activities are causing planet Earth. It started the global awareness of our "interdependence" with Earth. In 2009, the United Nations General Assembly declared every 22nd of April as International Mother Earth Day. It aims to promote a view of the Earth as the place that sustains all living things found in nature.


## Green Cities

Today, more than half of the world's population lives in cities. As the urban population grows and the effects of climate change worsen, the need to create sustainable communities is more important than ever.

The theme for this year's celebration is Green Cities. The International Mother Earth Day 2014 will focus on "green cities, mobilizing millions of people to create a sustainable, healthy environment by greening communities worldwide."

Having launched last year, the Green Cities Campaign aims to help cities and communities around the world accelerate their transition to a cleaner, healthier, and more economically viable future.An initiative of the Earth Day Network, the campaign focuses on three key elements such as buildings, energy, and transportation.

## Three Key Elements

Buildings account for nearly one third of the world's greenhouse gas emissions. To build Green Buildings, building design should improve energy and water efficiency, reduce waste and pollution, use sustainable buildings ma-

terials, and move towards renewable energy sources. Cities need to update ordinances, switch to performance-based building codes, and improve financing options.

Another key element of the Green Cities campaign is energy. The current world's energy infrastructure pumps greenhouse gases into the air and contribute to climate change. Green cities should utilize cheap, clean, and efficient energy by constructing more solar panels and wind turbines throughout communities. Education and policy advocacy should start now to make this energy future a reality.

The urban lifestyle prompts more people to rely on cars for transportation. This makes transportation as the fastest-growing source of greenhouses gas emissions. The campaign pushes all the sectors to increase public transportation options, invest in alternative transportation, and improve walkability and bikeability of cities.

### Cities of the Future

For the Green Cities campaign, right investments should be made in energy, transportation, and green buildings for the cities of the future to be different from the cities of today. The future communities will be cleaner and more sustainable, and the quality of life will be better.

The future cities will have more energy independent homes and buildings. Solar panels will become vital part in the construction of houses. Buildings will be equipped with comprehensive water management systems for efficient water use. Cities will be connected by solar-powered public transportation options that are convenient and eco-friendly. Solar energy from space will be harnessed to provide clean and efficient electricity.

### Urban Biodiversity

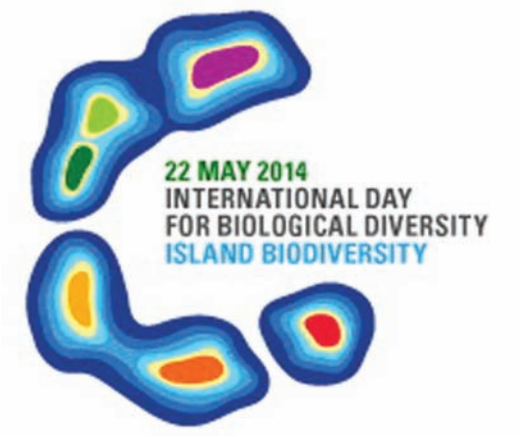
"The cities of the future should be a haven of rich biodiversity," according to Atty. Roberto V. Oliva, the Executive Director of the ASEAN Centre for Biodiversity. "Ecosystems provide food, raw materials, water, and medicinal resources; regulate the quality of air, water, and soil, and control flood and disease; and enrich the physical, social, aesthetic, and spiritual life of urban dwellers. This makes biological diversity a vital component for cities to function properly," Atty. Oliva stressed.

"We should start building the cities of the future by making urban planning guidelines to be more ecological and sustainable. It should also integrate the tools in monitoring and evaluating biodiversity in the cities," Atty. Oliva added. He also encouraged city governments to adopt strategies that aimed to empower and to be implemented by the public and the business sector. This can be community-driven initiatives like community farms, aquaponics or urban gardening for additional food resource. Or can be business sector-supported projects such as adopting a public park or acquiring idle lands for park development.

In building our cities of the future, all our development initiatives should carry the nurturing tradition of Mother Earth. □

*Sources:*
*https://www.un.org/en/events/motherearthday/background.shtml*
*http://www.earthday.org/greencities/*

## International Day for Biological Diversity 2014 Logo




The Secretariat of the UN Convention on Biological Diversity (CBD) announced the release of the logo for the 2014 International Day for Biological Diversity (IDB), which will focus on the theme 'Island Biodiversity.'

This theme was selected to coincide with the designation by the UN General Assembly (UNGA) of 2014 as the International Year of Small Island Developing States. The theme was also chosen to reflect Decision XI/15, Paragraph 1 in which the Conference of the Parties to the CBD "urges Parties, and invites other Governments, financial institutions and other relevant organizations to strengthen the implementation of the programme of work on island biodiversity."

The Secretariat also invited parties that have already initiated plans to celebrate IDB to keep it informed of such plans, including activities organized by NGOs and other organizations for inclusion in the IDB 2014 webpage. SCBD

Read more: http://biodiversity-l.iisd.org/news/international-day-for-biological-diversity-2014-logo-released. □

# Nature's Invisible Hand – Simply Complex

**By Philipp Gassner**

Stuck in a traffic jam? Trouble with your partner? Stressed by your job? Zoom away and relax for a moment in wonderland... a place of rainbows and unicorns. But where can we find such mystical place?

The narrow strip of lush evergreen forests along the mountains of the Annamites called *Truong Son* in Vietnam and *Sai Phou Louang* in Laos might just be it! Entangled in the rainbow-magic monsoon forests along the legendary Ho Chi Minh Trail, look closely and you might just get a glimpse of a unicorn.

## The polite animal

An Asian unicorn to be precise! And its name is well deserved, owing to its long, sharp parallel horns. Undeniably, the chocolate brown Saolas or *Pseudoryx nghetinhensis* do have a certain mystique about them. Known as 'polite' animals, they walk in a gentle, quiet and slow manner. When they sleep, they have their forelegs tucked under their bodies, necks extended and chins resting on the floor. Then again, to witness this wonder you have to be lucky, very lucky. The eight-million-year-old cousin to the cow, goat and antelope is a relic of the last Ice Age and one of the world's rarest mammals. Only 11 have been recorded alive. The first one during an expedition lead by Dr. John Mackinnon, the co-director of the ASEAN Regional Centre for Biodiversity Conservation Project, now known as ASEAN Centre for Biodiversity, who remembers: *"I knew it was so 'wow!' so 'new'!"*

Also with an undeniable wow factor is the Kangaroo rat, which is so adapted to desert life that it won't take a single drink of water in its whole life. Or the scallops, which have more than 100 single eyes - commonly blue ones. Or take the clam 'Ming', the world's oldest-recorded animal, born 507 years ago when Leonardo da Vinci was just painting the Mona Lisa. Sadly, Ming just passed away, some 70 million years after the Dino *Deinocheirus,* an odd mix of a sloth and camel, with 2.4-meter-long arms and 20-cm claws. Not wow enough? Then you might like the Glowing Jellyfish, or rather the glow-in-the-dark ice cream, a British company is making from the jellyfish's luminescent protein.

## The economy of nature

Glow-in-the-dark, 100 eyes, unicorns! Marveling the resourcefulness of nature's incredibly ludicrous and squandering inventions one cannot help but wonder: what's the point and how is this even possible? By sheer chance? Surely not?

Scottish economist and moral philosopher Adam Smith offers an answer. Exactly 238 years ago, on 9 March 1776, he published *'The Wealth of Nations'.* In this fundamental work in classical economics, he illuminates how our incredibly complex, inventive and powerful economy works and developed - a similarly puzzling mystery to nature's rich biological diversity. In a nutshell: each enterprise is doing its best to prosper, yet without the 'benefit' of a centralized planner. Something very simple -individual competition-results invisibly to our eye in something very complex - an efficient economy. But how can Smith's famous metaphor of the invisible hand of the self-regulating market explain our rich natural biodiversity? English naturalist Charles Darwin wondered too, and coined the term *'Economy of Nature',* according to which life on earth evolves without the guidance of a designer. Instead, in his book *'Origin of Species'* he explains the *'invisible hand'* of nature, better known as evolution.

## Playing evolution

"The survival of the Fittest" - rings a bell? Well, let's see! To grasp this concept, take a friend and play a little game. You have to guess a word in 20 questions only with yes or no answers. Out of the about one million possible words of the English language that seems impossible, or is it? Just try and see what happens: 'Is the word an animal?' 'No'. 'Can I eat it?' 'Yes'. 'Is it a fruit?' 'No'...

Step by step you get to the answer, quicker than you think. This is how it works: initially you ask for a category of words, which may be wrong. Thus, in the next round you randomly vary the category and repeat asking, coming closer to the word every step. This is the same with nature: a random ge-

Photo by Lim Fung Yenn.

**Biodiversity is often referred to as the web of life. It is the unique combination of life forms and their interactions with each other that have made Earth a habitable place for humans.**

Creative Commons from vi.wikipedia

**Snapshot of the rare Asian Unicorn, Saola.**

netic mutation causes a variation, for instance slightly thicker fur on a formerly bald animal. In a hot climate this variation is useless, or even a hindrance. The environment will answer with no. In a colder climate, however, the variation is very beneficial, helping to survive the cold. Thus, the variation will be passed on to the next 'round of questions', inherited by the following generation. This way of the environment saying yes is called selection. But instead of passing on variations in words like in the game, evolution uses genetic code, also known as DNA. This does not only happen in one individual but the whole genetic pool of many individuals. Repeated over and over again the animal species will become very furry - or glowing in the dark or have 100 eyes.

## Stunning simplicity

Put simply, the stepwise progress of evolution works through hereditary variation plus variation in success of reproduction (selection) plus repetition. Thus, the common understanding of evolution as the *'survival of the fittest'* can be rephrased as *'passing on the code of the most successful reproducer'.* However, this does not only happen in reproducing animal or plant species. It is a universal principle in many systems, such as culture. Our taste for music, art or food is stored (e.g. in a cookbook), multiplied and passed on (e.g. by a publishing house), and modified (e.g. by the cook). Or take evolutionary algorithms which are used daily for instance by hackers to break password protection or by automated trading systems in the financial sector.

Just like Smith's invisible hand *'Darwin's theory of evolution was a concept of such stunning simplicity* - variation, selection, repetition- *but it gave rise, naturally, to all of the infinite and baffling complexity of life'* English writer Douglas Adams put it.

Does life get ever more complex then? There are indeed increasingly complex blueprints, like the ones of our eye or brain. But that does not necessarily make it more successful. In fact, the most basic life forms are still dominant on Earth, such as the estimated nine million bacteria species which are around for billions of years already.

## Going bankrupt

This notion does not only explain the immense biological diversity around us, but puts us in line with the millions of peer species – inviting certain humbleness. Sure, throughout history humans tried to push the pause button on their own evolution by building buffers, like houses or medicine, against the natural selection around them. Instead of growing their own thick coat of fur like other animals, men simply learnt to take it off them. But mind you that it is exactly this evolution born diversity around us that makes the global ecosystems resilient to all kinds of threats. If one species fails, the next one steps in. If conditions change, gene pools can adapt. Biodiversity acts as ecosystem insurance, we are all too dependent on.

But at the same time that we discover our brilliantly rich, complex world in which we live in, we are destroying it at a rate is unprecedented in history – a rate too fast for natural adaptation, since evolution doesn't happen overnight. While in Smith's economy enterprises go 'bankrupt', in nature, species go 'exterminated'.

Which brings us back to our unicorn: the latest was photographed in Vietnam last September 2013 for the first time in the 21st century. Let's hope it was not the last time, as the unicorn is extremely threatened from hunting and habitat fragmentation. To protect its habitat, Barney Long, a World Wildlife Fund conservation biologist is working with fellow scientists in Vietnam, where he woefully reckoned: *'If we lose the Saola, it will be a symbol of our failure to protect this unique ecosystem'.*

Long couldn't be more right. The Unicorn is only one of its 5,000 fellow species endangered in Southeast Asia, almost a third of all 16,928 species listed as threatened with extinction on the IUCN Red List. Exactly, these are the priority of the Unicorn spotter Mackinnon's heritage, the ASEAN Centre for Biodiversity. The Philippine-based Centre, supported by the GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) since 2010, coordinates sustainable use and conservation of biodiversity. Well aware that its loss is bad news not only for unicorn lovers but for all Southeast Asians utterly dependent on the services biodiverse and resilient ecosystems provide. These services include provisioning of water and timber, cleaning of air or supporting of natural cycles, and also recreational and esthetic values.

Such values come to mind when wandering about Vietnam's wild jungle or dreaming away with rainbows and unicorns… sounds like a much better idea than letting them go 'bankrupt', doesn't it? □

INDONESIA

# BUKIT TIGA PULUH *National Park*

Established in 1995, Bukit Tigapuluh National Park lies just south of the equator in Eastern Sumatra and comprises approximately 144,000 hectares. Majority of the park lies in Riau province while around 33,000 hectaresare located in Jambi province. Also known as Thirty Hills, dominant forest types in the park include lowland, hill tropical rainforest, swamp and highland forests.

The park is part of the Bukit Tigapuluh Forest Landscape, which forms nearly 508,000 hectares of contiguous dry lowland and mountain forests spread across Riau and Jambi provinces and containing some of the richest biodiversity on Earth. Bukit Tigapuluhis one of the last refuges for three of the four flagship Sumatran species – orangutans, elephants and tigers. It also forms part of the globally important Tesso Nilo Complex where some of the highest biodiversity figures on earth have been recorded.

## Flora

The park is a safe haven for thousands of species of plants and animals, many of which are threatened by extinction or are extremely rare. In a survey of the biological resources of Bukit Tigapuluh, Norwegian-Indonesian Rainforest and Resource Management Project (NORINDRA) researchers observed and recorded 660 plant species, including 246 medicinal plants that are utilized by the local population. Many rare and threatened non-utilized plant species were also recorded. One example is the locally named *Cendawan mukarimau* (Tiger-face mushroom), which is none other than *Rafflesia hasseltii,* previously observed in only two locations (West Sumatra and Pulau Tioman, Malaysia). Other examples are a betel-related palm known by locals as Mapaukalui (*Iguanura* sp.), and the highly distinctive Salo palm *(Johannes tejsmannia altifrons),* which is on the International Union for Conservation of Nature's (IUCN) list of threatened plants.

## Fauna

In NORINDRA surveys of fauna found in Bukit Tigapuluh, 192 species of birds were recorded, which is almost 1/3 of all bird species known from Sumatra. Breeding was confirmed of 18 species of birds not previously known to breed on Sumatra, including the Garnet pitta *(Pitta granatina),* which had not been recorded in Sumatra for more than 70 years. At least 10 of the bird species recorded are globally threatened.

Some 59 species of mammals were recorded, five of which are globally threatened, including the Oriental small-clawed otter *(Aonyxcin cerea),* clouded leopard *(Neofelisne bulosa),* tiger *(Panthera tigris),* Malayan tapir *(Tapirus indicus),* and elephant *(Elephas maximus).* A total of 98 species of fish were collected and preserved, and one of these, a glass-perch, turned out to be new to science and has been given the name *Gymnochanda limi.*

Other significant species found in the park are gibbons (*Hylobate sagilis* and *H. syndactilus*), golden cat *(Catopuma temminckii),* long-tailed macaque *(Macaca fascicularis),* pig-tailed macaque *(Macaca nemestrina),* siamang *(Hylobates syndactylus),* banded leaf monkey *(Presbytis femoralis),* Malayan sun bear *(Helarctos malayanus),* spotted-winged fruit bat *(Balionycteris maculate),* white-collared fruit bat *(Megaerops wetmorei),* spiny turtle *(Heosemys spinosa),* Malayan flat-shelled turtle *(Notochelys platynota),* estuarine crocodile *(Crocodylus porosus)* and false gavial *(Tomistoma schlegelii).*

## Threats

Threats to these forests come from agricultural encroachment as well as plantation and timber enterprises from all over Indonesia. Until 2006, this forest block was relatively free from large-scale commercial forest conversion because of its hilly terrain. However, as police cracked down on illegal logging in Riau Province, the activity shifted to Jambi Province, thus putting pressure on the forests of Bukit Tigapuluh.

## Conservation program

The Bukit Tigapuluh landscape was designated one of just 20 "global priority" landscapes for tiger conservation by a global team of tiger scientists in 2006. Since 2002, the park has also been the site of a successful conservation project to reintroduce Sumatran orangutans and is now home to 135 reintroduced orangutans. Bukit Tigapuluh is the only existing wild habitat for this great ape outside the provinces of Aceh and North Sumatra.

A number of organizations and projects have been actively working with the government and park management to protect the park's habitats and species. One such project is the Bukit Tigapuluh Wildlife and Ecosystem Protection, a joint program between the Frankfurt Zoological Society (FZS), Perth Zoo and Australian Orangutan Project (AOP), with the support of the Indonesian Government. The program's work focuses on the unique ecosystem of Bukit Tigapuluh, with the aim of protecting the habitat and the wildlife within it through the establishment of wildlife protection units, community education programs, habitat and wildlife monitoring, and wildlife research. Community development programs and local employment complements the biodiversity conservation activities at Bukit Tigapuluh.

A major component of the initiative is the Sumatran Orangutan Conservation Programme, which re-introduces orangutans into Bukit Tigapuluh. In 2006 and 2011, two Perth Zoo-born Sumatran orangutans made history when they were released into Bukit Tigapuluh as part of a reintroduction program and international efforts to re-establish a population of this critically endangered species in the wild. Through donations, Perth Zoo has also funded the construction of an Orangutan Open Sanctuary in the Bukit Tigapuluh rainforest for rescued ex-pet and orphaned orangutans that cannot be released into the wild and need specialist care. The specially trained Wildlife Protection Units patrol the forest terrain of Bukit Tigapuluh to secure the forests against illegal activities, conduct wildlife surveys and collect information about potential threats.

A Mobile Education Unit (MEU) works with the people who live in the more than 30 villages of Bukit Tigapuluh to explain the importance of conserving habitat and wildlife in the area. Local teachers are provided with information about wildlife, forests and conservation to enable them to continue lessons once the unit has moved on to another school. Activities within the program include interactive stories, games, puppet shows, while older children also participate in discussions about conservation, climate change and how they can take action. Resources provided to the school include colouring-in sheets, origami, magazines and workbooks.

The greater community is also encouraged to be involved in the MEU program. Movie nights provide insight into the surrounding ecosystem, local wildlife species and the protection work being undertaken. Training is

provided to prepare communities for human-wildlife conflict so that local people can act without harming animals (commonly elephants and orangutans), which may enter villages in search of food.

The Frankfurt Zoological Society also works with the Jambi province administration and other partner organizations in the development of a land use plan for the southern park border to decrease the pressure on the protected area. FZS is also involved in conserving the forest surrounding the national park, which is made up of well-preserved secondary forest and in the northern part includes an important elephant habitat.

Other partners in conservation projects in Bukit Tigapuluh include other Australian and New Zealand zoos such as the Australia Zoo, Auckland Zoo, Taronga Conservation Society and Dreamworld. All programs train and employ local people and support local community involvement.

## People and culture

The forests and their surrounding buffer area provide homes for Orang Rimba (also called Kubu) and Talang Mamak – forest dwelling tribal communities all of whom have adapted to living in the environment in a sustainable way that has little impact on the ecosystem. The tribes are said to be descendants of the Pagaruyung Kingdom in neighboring West Sumatra. Other scientists say that they originate from the Siak Indragiri kingdom in Riau that was the center of the Malay kingdom. When most of the region embraced Islam, these tribes chose to adhere to their traditional ancient beliefs and fled into the remote jungles of Sumatra, including Bukit Tigapuluh. For this reason, when members of their tribes convert to Islam, they will be called Malays.

The Orang Rimba (People of the Forest) have around 3,000 members, most of whom live in Jambi province while almost 400 live in the forests of Bukit Tigapuluh. They are nomadic and migrate through natural forests and depend on natural resources from the forest and rivers everywhere in this forest block for their existence. The Orang Rimba have developed a traditional system of forest resources management, based on enrichment and selective enhancement of many tree and plant species. They generally collect non-wood forest products, hunt, and practice swidden cultivation. The fact that the Orang Rimba base their livelihood on the collection of forest products makes this forest of great importance to them. Known as a hinterland tribe, the Talang Mamak numbers about 6,000 and depends on the natural resources found in the park in Riau's Indragiri Hulu regency. They earn their living collecting resin from a species of rattan, which is known as "dragon blood" which can be sold in the towns for millions of rupiahs. However, with illegal loggers encroaching into the park, this resin becomes harder to come by, making life more and more difficult for this isolated tribe.

Research has shown that the Talang Mamak tribe uses 110 and the Orang Rimba tribe uses 101 medicinal plants and fungi found in Bukit Tigapuluh to cure over 50 diseases. Leaves are the most usable part of medical plants after roots, bark and sap. They have long known the plants and fungi as effective cures for common diseases such as rheumatism, dysentery, hepatitis, respiratory ailments, malaria, goiter, skin rashes, coughs and diabetes. Some plants are also considered natural contraceptives. Usually the parts of the plant are boiled then the water drunk as an herbal extract.

The survival of this knowledge and the tribes themselves are unfortunately under threat as the park faces intensifying pressures from logging and land conversion.

The park is not yet open to tourists because of the difficulty of access to Bukit Tigapuluh. □

**References:**

*CNN Expedition Sumatra (http://edition.cnn.com/2013/09/10/world/expedition-sumatra-we-knew-this/index.html)*

*Destinations in Indonesia (http://id.indonesia.travel/en/destination/930/the-bukit-duabelas-national-park-of-jambi/article/295/bukit-tigapuluh-national-park-in-jambi-threatened-habitat-of-sumatran-orangutans)*

*The Indonesian Conservation Community (http://www.warsi.or.id/forest/FOREST_tnbt.php)*

*Indonesia Tourism (http://www.indonesia-tourism.com/jambi/bukit_tiga_puluh.html)*

*Frankfurt Zoological Society (http://www.zgf.de/?projectId=62&id=65&language=en)*

*German Federal Nature Conservation Agency (BfN) (http://www.bfn.de/0310_umweltbildung-bukittigapulu+M52087573ab0.html)*

*The Orangutan Project (http://www.orangutan.org.au/Projects/mobile-education-unit)*

*Perth Zoo (http://www.perthzoo.wa.gov.au/conservation/bukit-tigapuluh-wildlife-and-ecosystem-protection-sumatra/)*

*Sumatran Tiger Trust (http://www.tigertrust.info/sumatran_tiger_where.asp?ID=NP4&catID=9)*

*World Association of Zoos and Aquariums (http://www.waza.org/en/site/conservation/waza-conservation-projects/overview/bukit-tigapuluh-wildlife-and-ecosystem-protection)*

*World Wide Fund for Nature (WWF) Indonesia (http://www.wwf.or.id/en/about_wwf/whatwedo/forest_species/where_we_work/bukit_tiga_puluh/)*

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DEUTSCHE ZUSAMMENARBEIT

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# GIZ and ACB Cooperate for Climate Change Mitigation and Adaptation

- An intact biodiversity and its sustainable use pose immense opportunities for protection and adaptation to climate change and have a great developing potential for the ASEAN region. However, this tangible value to society has not yet been fully appreciated. National development strategies consider only some aspects of biodiversity conservation and sustainable development and national policy frameworks addressing climate change are still not thoroughly articulated. The ASEAN challenge is to develop adequate policies, instruments, and the capacity to tackle issues on biodiversity and climate change.

- In response to this challenge, GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) and the ASEAN Centre for Biodiversity (ACB) are jointly implementing the Biodiversity and Climate Change Project which will run until 2015.

- The ACB-GIZ Biodiversity and Climate Change Project focuses on the elaboration and implementation of ASEAN-wide regional and national strategies to appropriately address the interface between biodiversity on one side, and sustainable development and climate change on the other side. The project targets to benefit the vulnerable population of the region who depends on the ecosystem services and biodiversity resources for subsistence.

ACB-GIZ BIODIVERSITY AND CLIMATE CHANGE PROJECT

CAMBODIA

# PHNOM PRICH *Wildlife Sanctuary*

The Phnom Prich Wildlife Sanctuary (PPWS) is located 25 kilometers west of the border with Viet Nam and 25 kilometers east of the Mekong River in Mondulkiri and Kratie provinces. In 1962, former King Sihanouk designated Phnom Prich as a forest reserve and refuge for the kouprey. On 1 November 1993, the sanctuary was designated a protected area under the jurisdiction of the Ministry of Environment.

Covering roughly 225,000 hectares, the sanctuary is more than 15 percent of the total area of Mondulkiri province and forms part of one of the largest remaining relatively undisturbed landscapes in mainland Southeast Asia. It is notable for its rich diversity of habitats, ranging from hilly evergreen forest to open dry dipterocarp woodland and seasonally wet grasslands.

## Habitats and wildlife

This wealth of ecosystems is due to the sanctuary's diverse elevational structure, which varies from 80 to 640 meters. This has created a rich, intricate mosaic of forest habitats: about 50 percent of Phnom Prich's forests are dry dipterocarp with an additional 40 percent semi-evergreen and 10 percent evergreen forest. These open forest mosaics support globally significant populations of animals that are characteristic of both dry and dense forest ecosystems, particularly large mammals and waterbirds, many of which have been extirpated from most other parts of Southeast Asia.

The Phnom Prich Wildlife Sanctuary is home to some of the endangered species in the country. There are wide varieties of mammals, birds and reptiles. Some of the protected species in the sanctuary are tiger, Asian elephant, wild water buffalo, jungle cat, and deer.

The wildlife sanctuary hosts the core area for the largest Asian elephant herd in eastern Cambodia, with camera trapping technology showing good recruitment with many calves seen in photographs. Wildlife also includes the mega-herbivores banteng and gaur as well as populations of the endangered Eld's deer. These and other herbivores form the prey base for an unknown number of Indochinese tiger present in the sanctuary. Other key carnivores include leopard and clouded leopard, as well as marbled cat, jungle cat, and dhole.

In 2008, surveys by World Wildlife Fund for Nature (WWF) revealed that the sanctuary had the second-largest population of endangered yellow-cheeked crested gibbons in the world. The surveys estimated more than 1,000 endangered gibbons in 275 groups reside in the wildlife sanctuary. The project findings emphasize that the dry evergreen forests of Mondulkiri are relatively intact and thus able to provide habitats to a diverse mammal community.

The PPWS is also known for its rich avifauna and is one of the last global strongholds for the endangered green peafowl. The elusive white-winged duck *(Cairina scutulata)* has also been spotted inside the protected area. Other key bird species inhabiting or potentially inhabiting the area's wetlands and streams include giant ibis *(Thaumatibis gigantea),* white-shouldered ibis *(Pseudibis davisoni),* saruscrane *(Grus antigone),* black-necked stork *(Ephippiorhyncus asiaticus),* woolly-necked stork *(Ciconia episcopus),* lesser adjutant *(Leptoptilos javanicus),* greater adjutant *(Leptoptilos dubius),* and masked finfoot *(Heliopais personata).*

## Threats

Uncontrolled hunting, logging, land clearing and other unsustainable uses of natural resources are major threats to the landscape's rich biodiversity. This is particularly troubling as the sanctuary provides habitats for some of Cambodia's most endangered species.

## Conservation program

Phnom Prich Wildlife Sanctuary benefits from a number of conservation programs, one of which is support from the World Wide Fund for Nature (WWF). Recognizing the rich variety of habitats and the large number of endangered species in PPWS, WWF included the dry forest landscape of the Mondulkiri Protected Forest (MPF) and PPWS in its list of Global 200 ecoregions that contains the most outstanding and representative terrestrial and aquatic habitats of the world.

WWF provides both financial and technical support to the Ministry of Environment, the Ministry of Agriculture, Forestry and Fisheries, and the Provincial Government. Conservation actions are directed through a landscape strategic plan developed by those working in the area. The conservation strategy focuses around law enforcement, governance and policy development, community engagement, and biodiversity monitoring. WWF carried out the first biological survey in MPF and PPWS in 2000 and then regular biological surveys were conducted from 2000-2008. A detailed baseline survey was conducted in 2009 as a basis for regular monitoring for priority species including large carnivores and their prey, Asian elephants and yellow-cheeked crested gibbons.

Law enforcement is critical to conservation in the area and WWF has been actively supporting enforcement activities in the landscape since 2006. Three major enforcement teams work in the landscape, including ranger teams in MPF and PPWS for enforcement within the protected areas and a Mobile Enforcement Unit (MEU). The protected area teams conduct regular enforcement patrols within the park boundaries and gather basic but vital information on key species. The MEU is responsible for monitoring international border transit points, checking markets and restaurants for wildlife products as well as gathering intelligence on wildlife and forest crime. The teams use a Management Information System (MIST), an electronically-based system used to monitor the patrol efforts and to gather information on key species' distribution and habitat quality. Other monitoring tools measure effectiveness of informants and track law enforcement actions.

Support for community livelihoods have also been initiated to encourage community support for conservation and offset restrictions to access to natural resources within the protected area. Community-based activities focus on awareness and education, community forestry, and improving livelihoods through sustainable harvest of non-timber forest products and ecotourism.

## People and culture

PPWS has about 8,500 residents living in communities inside and adjacent to the wildlife sanctuary, most of whom are indigenous people. Communities surrounding MPF and PPWS are composed of eleven indigenous groups, with Bunong, Khmer and Lao as the three largest groups.

The Bunong in this area strongly believe in ancestral and natural spirits, ghosts and gods and continue many of their indigenous traditions. Villagers hold many traditional ceremonies every year such as rice, spirit, wedding, and house construction ceremonies. Ceremonies are also conducted when forests are cleared and converted to rice fields. The spirit ceremony is done to pray to the spirits for prosperity and prevent disease among the villagers, while the rice ceremony is done to pray for good rice production and prevent destruction of the crop by insects and other pests. Most ceremonies include dancing and drinking of locally-made rice wine.

The Bunong use several varieties of jars in traditional ceremonies passed down from their ancestors. These jars are very important because the Bunong need these jars for making rice wine and for praying to their ancestors. Some jars are estimated to be hundreds of years old.

## Ecotourism

The scenic sites, pleasant climate, beautiful landscapes, and wildlife observation areas form the bulk of ecotourism features of Phnom Prich Wildlife Sanctuary. Common activities include wildlife observation, hiking, and bird watching. There are also water-based activities such as rafting, canoeing, and fishing.

## How to get there

The road from Phnom Penh to Mondulkiri is in good condition and travel will take about seven to eight hours. There are many taxi and private transfers available. A number of pick-up trucks leave the New Market in Phnom Penh regularly, and travelers just need to secure a seat, or otherwise sit in the cab of the pick-up truck. □

***References:***


*Ministry of Tourism Cambodia (http://www.tourismcambodia.org/provincial_guide/index.php?view=attdetail&prv=12&att=252&page=2)*

*The Phnom Penh Post (*http://www.ecologyasia.com/news-archives/2008/dec-08/ppp_081231_1.htm*)*

*Ratanak, Ou. 2008. Analysis of Phnom Prich Wildlife Sanctuary, Cambodia. A Thesis submitted in partial fulfilment of the requirements for the Degree of Master of Science (Agricultural and Resource Economics). Department of Agricultural and Resource Economics, Graduate School of Bioresouce and Bioenvironmental Sciences, Kyushu University. Japan.*

*Singh, Rohit; PhanChanna; PrumSovanna; Pin Chanratana; Gerard Ryan; and Mark Wright. 2013. The Serengeti of Asia: Conservation in Two Major Protected Areas of the Eastern Plains Landscape Protected Area Complex, Cambodia. Parks. Vol. 19.2.*

*World Wildlife Adventures (http://www.world-wildlife-adventures.com/directory/cambodia/wildlife-park.asp?sanctuary=Phnom+Prich+Wildlife+Sanctuary&state=Mondolkiri+and+Kratie+Provinces)*

*WWF Cambodia (http://m.cambodia.panda.org/where_we_work/dry_forests/phnom_prich_wildlife_sanctuary/)*

## Philippines and Malaysia share good practices in park management and ecotourism

TWENTY-SIX senior and mid-level protected area officials from the Philippines' Department of Environment and Natural Resources (DENR) joined a study tour in Malaysia to look into good practices in protected area management and ecotourism. Organized by the ASEAN Centre for Biodiversity (ACB) and the DENR Biodiversity Management Bureau (BMB) in cooperation with the Ministry of Natural Resources and Environment (MONRE) of Malaysia, the experiential learning package brought the protected area managers to Taman Negara National Park, one of the 33 ASEAN Heritage Parks in Southeast Asia.

The study tour aimed to increase knowledge of the elements and principles of ecotourism and the policies and standards of ecotourism as practiced in Malaysia; and shared experiences and lessons learned on recreation, tourism and ecotourism. A field visit to Taman Negara National Park and other nature-based tourism sites in Malaysia provided first-hand experiences; shared good practices; and promoted cooperation and networking on recreation, tourism and ecotourism management in the Philippines and Malaysia.

As part of the training workshop, the participants developed a re-entry plan for an ecotourism project in the ASEAN Heritage Parks and protected areas in the Philippines. The plan include recommendations on the implementation of activities based on the experiences in the learning package. The Philippines has five ASEAN Heritage Parks – Mt. Apo, Mt. Malindang and Mt. Kitanglad in Mindanao; and Mt. Iglit-Baco and Mt. Makiling in Luzon. Key elements that were considered in the re-entry plans include facilities and development structures; good practices in natural resources management, a home stay program, visitor management in relation to ecotourism; sustainable financing; and public-private partnerships.

## Palawan strengthens data management in biodiversity conservation

PALAWAN Province in the Philippines has taken a major step in strengthening its biodiversity conservation efforts by conducting a training-workshop on Biodiversity Data Organization and Management. Held in Puerto Princesa, Palawan the workshop was conducted by the Palawan Council for Sustainable Development (PCSD) and the Biodiversity Information Management (BIM) Unit of the ASEAN Centre for Biodiversity (ACB).

Dr. Sheila G. Vergara, ACB-BIM Director, said the workshop enhanced the capacities of PCSD staff and partners in managing available information on species and protected areas (PA); acquiring relevant information from other sources online; and processing the information into relevant trends useful for analysis. The workshop introduced the participants to mapping skills and basic wildlife photography to populate species and PA databases. Dr. Vergara explained that "Biodiversity conservation requires accumulating vast amounts of data to support conservation management and action, policy making, and awareness and education campaigns. Proper management and organization of biodiversity data is therefore crucial to providing directions for effective conservation efforts."

The training workshop included 33 participants representing the PCSD, Department of Environment and Natural Resources-Provincial Environment and Natural Resources Office, Provincial Government Development Office, City Government-Environment and Natural Resources Office, City Government Planning Office, Department of Agriculture-PAES, Palawan State University, Holy Trinity University, Western Philippines University, Palawan NGO Network Inc., and the Tubbataha Management Office.

## ASEAN park managers undergo training on tropical ecosystem resilience

TO enable managers of protected areas and ASEAN Heritage Parks in Southeast Asia to learn strategies on making tropical ecosystems resilient to environmental threats, the ASEAN-Korea Environmental Cooperation Project (AKECOP) conducted a Short-term Training Course on Tropical Ecosystem Resilience and Services on April 4-7, 2014 in Bandar Seri Begawan, Brunei Darussalam. The event was held in cooperation with the Universiti Brunei Darussalam (UBD) and the ASEAN Centre for Biodiversity (ACB).

The training course gathered representatives from AKECOP, ACB, the ASEAN Korea Environmental Cooperation Unit, and ASEAN Heritage Parks to learn from the conservation efforts of Brunei Darussalam and UBD based on studies on threats to and resilience of tropical ecosystems. It provided an opportunity to disseminate knowledge and promote awareness and understanding of regional environmental issues and their impacts on tropical ecosystems; and strengthen cooperation between Brunei Darussalam and other ASEAN Member States. The participants experienced the pristine nature of the country's ecosystems through trips to Ulu Temburong National Park, Tasek Merimbun ASEAN Heritage Park, and the mangroves at Pulau Selirong. They also had a chance to see UBD in action with a visit to the Kuala Belalong Field Studies Centre.

The world's forest ecosystems provide an array of environmental benefits and services, including food, water, medicine, fiber, watershed protection, air purification, carbon storage, climatic regulation, and recreation. Ensuring that these services are maintained, however, requires a greater understanding of how tropical ecosystems work; how they are changing over time; and how they can be protected, regenerated, and restored. Resilience, or the capacity of an ecosystem to withstand or absorb external pressures and return to its pre-disturbance state, has become a major concern as governments and communities implement conservation measures amid looming threats from climate change, deforestation, pollution, and other pressures.

Most ASEAN Member States are faced with the difficult task of maintaining and protecting their remaining natural ecosystems, which are threatened by increased demand, exploitation, poor environmental frameworks, lack of law enforcement, and other issues. Unless effective management of these resources is implemented, much of the ecosystems' functions in the region will be lost.

## ASEAN aims for more heritage parks

SOUTHEAST Asia has 33 best nature parks called ASEAN Heritage Parks (AHP) and the region is aiming for more. In a meeting in Bandar Seri Begawan, Brunei Darussalam, representatives of the ten ASEAN Member States comprising the AHP Committee agreed to declare more ASEAN Heritage Parks, especially marine and protected areas by 2020. The AHPs are Southeast Asia's best natural parks which provide habitats for some of the world's most enigmatic species and harbor a globally significant wealth of biodiversity and ecosystems.

The AHP Committee Meeting reached high level status with the attendance of Prince Pengiran Muda Omar Ali Ibni Duli Yang Teramat Mulia Paduka Seri Pengiran Perdana Wazie Sahibul Himmah Wal-Waqar Pngiran Muda Mohamed Bolkiah, nephew of the Sultan of Brunei and currently Curator of Natural History and Manager of Tasek Merimbun Heritage Park, Brunei


Museums Department, Ministry of Culture, Youth and Sports, Brunei Darussalam.

Atty. Roberto V. Oliva, executive director of the ASEAN Centre for Biodiversity (ACB), said the establishment of the AHPs demonstrates that the ASEAN Member States share a common natural heritage and provides an avenue for collaboration to protect the rich biodiversity that supports the lives of millions of people in Southeast Asia. ACB serves as Secretariat of the AHP Programme.

Supported by Germany through the Biodiversity and Climate Change Project, the meeting in Brunei Darussalam discussed the AHP Regional Action Plan for 2014-2020; agreed on an evaluation system for new AHP nominations; deliberated on nominations for new AHPs for confirmation; and discussed updates on the implementation of the ASEAN Member States' AHP management plans.

The meeting discussed the ASEAN-German collaboration in support of the AHP Programme, specifically the ongoing Biodiversity and Climate Change Project (BCCP) funded by GIZ and the Small Grants Programme (SGP) funded by KfW. The BCCP has conducted management effectiveness reviews in selected ASEAN Heritage Parks. The SGP is helping improve biodiversity protection and the livelihood of the local population directly dependent on selected AHPs and adjacent areas.

## ASEAN trains Laotian environmental workers

ENVIRONMENTAL workers from Lao PDR participated in the planning and implementation of biodiversity conservation projects through the ASEAN Centre for Biodiversity's (ACB) Secondment Program. The program allows environmental personnel from the ten ASEAN Member States to know more about biodiversity research and capacity building, wildlife conservation, and other biodiversity concerns.

The participants from Lao PDR included Dr. Somchanh Bounphanmy, Dean and Associate Professor at the National University of Laos; and Mr. Bae Pheaxay, Head of Academic Division at the university. They were based in Los Baños, Philippines for two months where they had an opportunity to learn and exchange experiences with biodiversity experts from ACB. The Lao PDR team was the second batch of participants in the secondment program. In 2013, junior biodiversity officers Huyen Pham Anh and Dung Le Anh completed their short-term posting with ACB's Programme Development and Implementation Unit.

Norman Ramirez, ACB capacity development specialist, stated that "Through the secondment program, ACB provides opportunities for understanding and appreciation of ACB activities and the capacity building needs of ASEAN Member States. The program enables the participants to familiarize themselves with the institutional setup and work processes of ACB; bolster mutual learning through exchange of information, expertise, and lessons learned; and enhance biodiversity coordination processes between ACB and the ASEAN Member States."


## Business students join advocacy on biodiversity conservation

SOME 400 business management and accounting students from the College of Business Management and Accountancy (CBMA) of the Laguna State Polytechnic University (LSPU) in San Pablo City Philippines joined the global campaign to conserve biodiversity by organizing a forum on the "Link Between Business and Biodiversity." The forum was conducted in cooperation with the ASEAN Centre for Biodiversity (ACB) as part of ACB's ASEAN Schools Forum Series on Biodiversity, which is conducted in different academic institutions in the 10 ASEAN Member States.

The forum was facilitated by CBMA Prof. Onie Gallega and emphasized the importance of biodiversity conservation in business and the role of business students in promoting conservation. Key resource speaker was Rolando Inciong, ACB head of communication and public affairs, who explained that business depends on plant and animal species and ecosystem services for their products and services. Biodiversity loss would thus have severe impacts in business, in terms of loss of raw materials, which may then affect production, sales, and business and trigger economic losses. Biodiversity loss thus has severe ramifications on human health and wellbeing.

Mr. Inciong cited successful partnerships that have involved business and the youth in biodiversity conservation, but stressed that more efforts are needed. He then enumerated various ways where stakeholders can contribute to biodiversity conservation, and challenged the students take a more active role in environmental protection.

## Future Asian and African environment leaders discuss biodiversity

THROUGH web-streaming lectures by environment experts, graduate students from Asia and Africa can discuss biodiversity conservation and other environmental concerns at the comfort of their laptop and desktop computers through the online Leadership Study for Sustainable Living with Environmental Risk (SLER). SLER is a special educational program instituted by the Yokohama National University in Japan, which uses an online platform called Interactive Multimedia Education System. Through SLER, top researchers and specialists from globally

successful businesses and organizations lecture on environmental leadership, ways of living with risk, and basic philosophy and technology for environmental restoration.

In a recent SLER online lecture on Biodiversity in Southeast Asia: ASEAN Response to Address Biodiversity Loss and Provide Benefits to People by Clarissa C. Arida, director for program development and implementation of the ASEAN Centre for Biodiversity (ACB), students learned about the drivers of biodiversity loss such as habitat change, climate change, invasive species, and over exploitation of wildlife. Ms. Arida also explained the role of ACB in addressing biodiversity loss in the ASEAN region, highlighting the ASEAN Heritage Parks (AHP) Programme, access and benefit sharing, and other activities to encourage mainstreaming of biodiversity in different sectors. Other issues discussed during the lecture and open forum were the mitigation of climate change impacts, funding for wildlife conservation, arresting illegal wildlife trading, impacts of land reclamation on biodiversity, and access and benefit sharing.

Hosted by the College of Economic and Management, University of the Philippines Los Baños, the SLER lecture by Ms. Arida was viewed by students from the University of Nairobi in Kenya, University of Antananarivo in Madagascar, Malaysia Science University, University of Lampung in Indonesia, University of Danang in Vietnam, and East China Normal University.

## Living in Harmony with the Earth

THROUGH the Training Center for Tropical Resources and Ecosystems Sustainability (TREES), the ASEAN Centre for Biodiversity (ACB) welcomed Environmental Managers of Toshiba Corporation on 19 February 2014, at the ACB Headquarters, University of the Philippines, Los Baños, Laguna. Experts from the Centre's Biodiversity Information Management Unit discussed the ACB Clearing House Mechanism (CHM) and species database encoding. This activity was in line with Toshiba's Environmental Vision 2050, which is to "contribute to society by creating new value through innovation to ensure that all people can lead affluent lifestyles in harmony with the Earth."

## Nurturing young biodiversity advocates

AROUND 60 students from Cere Care Philippines Foundation and St. Therese of the Child Jesus Academy joined the Healthwalk Eco ART venture on 23 February 2014 at the Makiling Botanic Gardens, Los Baños, Philippines. Through a lecture and an exhibit from the ASEAN Centre for Biodiversity (ACB), the children learned about the values of biodiversity and the role of plants, animals and forests in our daily lives.

Healthwalk is a one-of-a-kind community event that raises awareness for one thing that everyone values - health. Composed of groups of restaurateurs, health spas and organic farming businesses in Los Baños, Healthwalk aims to educate children and parents to have a healthier eco-friendly way of life through family, food, exercise, wellness program and arts. A tour of the Makiling Botanic Gardens and a paper mache art workshop were among the activities held to help the students appreciate nature.




## Youth Power for Biodiversity

THE ASEAN Centre for Biodiversity (ACB) joined the 67th anniversary of San Pablo Colleges (SPC) by providing forums, film showings and an exhibit on biodiversity. The activities aimed to spread love for nature and biodiversity among the youth.

ACB discussed biodiversity values and the need for conservation through the ACB ASEAN School Forum Series. In the forum for 300 college students from San Pablo Colleges, Rolando A. Inciong, head of communication and public affairs of ACB, stressed the power of the youth in shaping the world's future. He emphasized the risks to humanity's survival if biodiversity loss will continue to wreak havoc on nature. Dean Olive Oabel, coordinator of the forum, stressed that students have the power to effect changes through advocacy on biodiversity conservation. Mr. Inciong also talked to 350 high school students of SPC and encouraged them to take part in biodiversity conservation activities.

Around 120 elementary students had the chance to watch "Animals and Plants in Danger," an animated short film produced by ACB to promote love and appreciation for threatened animals and plants species in the ASEAN Region. The ten-minute video highlighted the causes of species loss and ways on how to save critically endangered species from extinction.

## World Ecotourism Conference discusses emerging issues in marine and coastal ecotourism

AROUND 400 representatives from government and non-government environmental organizations, protected area managers, academe, and hotel and travel organizations gathered in Cebu City, Philippines on 20-22 February 2014 for the 5th World Ecotourism Conference. Focusing on Marine and Coastal Ecotourism: Oceans of Uncertainties, Waves of Opportunities, WEC 2014 was jointly organized by the Philippine Department of Tourism and DISCOVERYMICE, an affiliate member of the World Tourism Organization (UNWTO). The conference provided a platform for legislators, ecotourism experts and practi-

tioners, educators, community leaders and other stakeholders to share knowledge, skills and experiences, and collaborate to encourage and sustain ecotourism in coastal communities.

Key personalities in the conference include Agnes A. Magpale, Vice-Governor of Cebu; Michael L. Rama, Mayor, Cebu City; Ramon R. Jimenez, Jr., Secretary of the Department of Tourism (DOT); Ramon J.P. Paje, Secretary of the Department of the Environment of Natural Resources (DENR); and various experts in marine and coastal species and ecosystems. Highlights of the two-day conference include the launching of the National Ecotourism Strategy and Action Plan 2013-2022 by the DENR and DOT; keynote presentations on balancing conservation and commercialization, practices and challenges, and sustainability; and sessions on mitigating vulnerabilities, development of ecotourism destinations, and establishment of marine protected areas for ecotourism.

Marine and coastal issues have become more urgent as coastal areas and communities have become increasingly vulnerable to the impacts of climate change, including rising sea levels, coastal erosion, intense storms, and wave surges. These issues will have to be considered when planning and developing ecotourism in marine and coastal areas. A number of hotels and tour operators also presented green initiatives of their respective organizations, focusing on water and materials recycling, using local labor and materials to reduce carbon footprints, developing environmental programs as part of usual business operations, and working with local communities to ensure sustainability of efforts and strengthen community participation. Various ecotourism destinations and activities were also presented, which may inspire others to explore in their respective countries.

WEC 2014 is notable as being the first WEC for developing countries, highlighting issues and concerns for many nations that may just be starting to develop ecotourism as part of national development. Many speakers stressed the urgency of addressing marine and coastal issues, given the reality of climate change, and richness of coastal and marine resources of countries in the region. Ecotourism was also discussed in the context of Aichi Targets, with current marine protected areas (MPAs) being way below the target for biodiversity conservation of marine ecosystems and species.

In addition to increasing the number of MPAs, there is the greater challenge of ensuring management effectiveness of coastal and marine sanctuaries. This encompasses complex issues, including increasing employment and incomes, empowering communities, using rights based approaches, raising environmental responsibility, and improving resilience against disasters and climate change impacts. There are success models for ecotourism and participants can use these in their own countries. There are many success stories as well and these have to be mainstreamed into action in areas with similar potentials for ecotourism. Science is also being used more extensively in ecotourism planning, and combined with outreach, media, and more involvement from the business sector, ecotourism is envisioned to increase incomes to local and national economies, improve social services, alleviate poverty, protect local cultures, and strengthen environmental protection and biodiversity conservation.

## Biodiversity conservation remains Philippine DENR's top priority

ENVIRONMENT Secretary Ramon J.P. Paje said that the conservation of the country's biological diversity through effective protected areas (PAs) management will remain one of the top priorities of the Department of Environment and Natural Resources (DENR) in 2014. The DENR will also continue to implement the National Greening Program, which aims to plant 1.5 billion trees in 1.5 million hectares by 2016; and Executive Order 79, the government's mining policy, which declared 78 areas as "off-limits" to mining activities. He added that the DENR will continue to impose a logging ban to improve forest conditions and contribute to national and global biodiversity conservation efforts.

A major change has been the reorganization of the Protected Areas and Wildlife Bureau into the Biodiversity Management Bureau (BMB) to meet the changing needs of the environment

and biodiversity conservation sector. Sec. Paje stated that the threefold increase in the 2014 budget of the DENR's BMB, along with thorough manpower rationalization, will ensure a more efficient and effective implementation of biodiversity conservation programs in the country.

In addition, the enactment of Republic Act 10629 in 2013, which allows every management board of PAs all over the country to utilize 75 percent of its revenues generated under the Integrated Protected Areas Fund for its operation, will boost ongoing efforts of the DENR to protect and conserve the country's rich biodiversity.

## Blueprint for Philippine ecotourism launched

AT the World Ecotourism Conference held in Cebu City, Philippines, the Department of Tourism (DOT) and the Department of Environment and Natural Resources of the Philippines (DENR) launched the National Ecotourism Strategy (NES) and Action Plan 2013-2022. The document serves as the blueprint for ecotourism in the Philippines.

In 2012, 4.2 million foreign tourists visited the Philippines, and this number is expected to reach 10 million in 2016. An expected 35 million tourists are expected in 2016. With the huge volume of both foreign and local travelers, the financial potential maximum earnings from ecotourism could reach P157 billion (US$3.5 billion) in 2016. Ecotourism is thus envisioned as a means to reduce poverty while conserving biodiversity and the cultural heritage of the country. The strategy will also ensure that host communities and vulnerable groups reap benefits from ecotourism in their sites.

The goal of NES and Action Plan provides information on the ecotourism destinations; available tourism infrastructure, services and human resource opportunities; strategies for ecotourism development; as well as case profiles of successful ecotourism activities in the country. The NES and Action Plan will complement other frameworks for ecotourism in the country, including the Tourism Law (Republic Act 9593), the Philippine Development Plan, and the recently formulated National Tourism Development Plan (NTDP), among others.

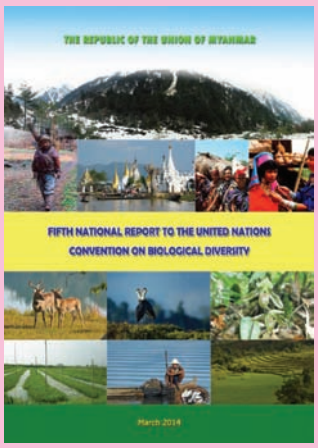
## GBIF launches awards on biodiversity research

THE Global Biodiversity Information Facility invites nominations for the 2014 Ebbe Nielsen Prize and Young Researchers Awards. The Ebbe Nielsen Prize has been awarded annually to a person or team who demonstrates excellence in combining biodiversity informatics and biosystematics research. The €30,000 award is intended to allow the recipient(s) to engage in biosystematics/biodiversity informatics research outside his/her/their country of residence for a period of three to six months.

The Young Researchers Awards aims to foster innovative research and discovery in biodiversity informatics. Two awards of €4,000 will be available to graduate students in a master's or doctoral program at a university in a GBIF Voting Participant or Associate Participant country.

Nominations for the 2014 Ebbe Nielsen Prize and the 2014 Young Researchers Awards are due on 31 May 2014. Detailed information on submission procedures is available at http://www.gbif.org/newsroom/opportunities.

## Countries report on achieving the Aichi Biodiversity Targets




IN preparation for the 12th Meeting of the Conference of the Parties (COP 12) to the Convention on Biological Diversity (CBD) in October 2014, countries are currently submitting their Fifth National Reports (5NR) that will enable a global assessment of progress made towards achieving the Aichi Biodiversity Targets. The 5NRs provide an opportunity for Parties to report internationally on progress made domestically on biodiversity commitments since the landmark COP 10 in 2010 in Nagoya, Japan. Submitting a national report at agreed intervals is an obligation that needs to be fulfilled by all 193 Parties.

A focus of the 5NR is the attainment of the Aichi Biodiversity Targets and associated national targets. These include targets under each of five goals of the Strategic Plan for Biodiversity, namely, to address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; reduce the direct pressures on biodiversity and promote sustainable use; improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; enhance the benefits to all from biodiversity and ecosystem services; and enhance implementation through participatory planning, knowledge management and capacity building.

National reports also provide a key source of information for the preparation of the fourth edition of the Global Biodiversity Outlook (GBO-4), the CBD's major periodic assessment of the state of biodiversity, trends and options. The GBO-4 will help assess overall progress towards the Aichi Biodiversity Targets and form an important communications tool during the 2011-2020 United Nations Decade on Biodiversity. The GBO-4, as well as the 5NRs, will be considered during COP 12 in Pyeongchang, Republic of Korea in October 2014. At COP 12, countries are expected to take stock of progress made and, among other things, prepare a road map on the way forward for the remaining implementation period of the Strategic Plan.

## Ramsar Wetland Conservation Awards is on

THE Ramsar Convention Secretariat has launched a call for nominations for the sixth edition of the Ramsar Wetland Conservation Awards, which will be presented at the 12th meeting of the Conference of the Contracting Parties in Punta del Este, Uruguay, in June 2015.

Three awards will be given, each with the Evian Special Prize of US$10,000 offered by the DANONE Group, in the following categories: a) The Ramsar Convention Award for Wetland Wise Use; b) The Ramsar Convention Award for Wetland Innovation; and c) The Ramsar Convention Award for Young Wetland Champions. For more please consult the Ramsar web site: http://www.ramsar.org/Ramsar-Award/. The deadline for the receipt of nominations is 15 July 2014.

## BRUNEI DARUSSALAM

**Beach management riddled with rubbish and red tape.** Littering, sewerage pollution, coastal erosion and a lack of funding and manpower are just some of the problems plaguing management of Brunei's beaches. The Beach Bunch, an NGO dedicated to keeping Brunei's coast clean and safe, presented these findings as part of a preliminary report on local beach management. The beaches reviewed are Serasa, Muara, Meragang, Berakas, Tungku, Jerudong, Empire, Seri Kenangan, Penanjong, Telisai, Sg Liang, Lumut, Panaga, Seria and Kuala Belait. Other problems include shared ownership and management of beaches among agencies with different jurisdictions; lack of enforcement of environmental laws; and continued appearance of litter despite clean-ups, among others. The Beach Bunch recommended the hiring of more cleaning services to stop the accumulation of litter; conduct of water quality assessment; ban unauthorized camping or driving on the sand; and limited access for domestic animals to the beach. *The Brunei Times*

**Minister calls for coral protection.** At a Coral Propagation Programme workshop facilitated by Ocean Quest (Malaysia) Sdn Bhd, Minister of Industry and Primary Resources Yang Berhormat Pehin Orang Kaya Seri Utama Dato Seri Setia Hj Yahya Begawan Mudim Dato Paduka Hj Bakar urged the public to preserve corals and help by not using coral-damaging fishing tools. He lauded efforts of the Fisheries Department, Poni Divers, and other stakeholders in their efforts to enrich marine ecotourism. Thirty divers and 15 students participated in the workshop where PONI Divers and Ocean Quest demonstrated the coral propagation process, an attachment process where broken coral fragments are collected and then attached onto natural live rocks from the same area using ordinary cyanoacrylate glues. Upon return to their underwater environment, the corals will naturally establish their foothold on the live rocks.

*The Brunei Times*

**Protecting insect world vital to preserving diversity.** Universiti Brunei Darussalam (UBD) focused on the conservation of global invertebrate biodiversity through *Invertebrates as a key-group for Biodiversity Conservation,* a lecture that was part of UBD's Institute for Biodiversity and Environmental Research (IBER) Seminar Series. Three specialists from Czech Republic institutes spoke about global invertebrate biodiversity, focusing on earwigs *(Dermaptera),* centipedes *(Chilopoda)* and millipedes *(Diplopoda).* They estimated that insects make up about 60 percent of global diversity. Although the diversity of insects has been described as about one million species, the predicted diversity of insects is probably about six to seven times more especially in the tropics. It is thus essential to protect insects if people are to protect diversity as a whole.

*The Brunei Times*

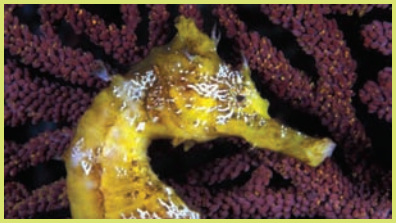
## CAMBODIA

**Tribes hold ceremony to protect trees in remote northern province.** Minority groups in Preah Vihear province gathered in a ceremony to combat illegal deforestation in the province. The forest of Preah Rorka covers 90,000 hectares and tribes in the area rely on the forest for their livelihoods. Companies have been granted concessions of 18,000 hectares to plant sugar cane and rose wood, and local temples have been damaged in the process. Local residents attest that damaged forests not only take away livelihoods, but important cultural land as well.

*Khmer Voice of America*

**Cambodia protects forest for giant ibis.** Cambodia has set aside 66,932 hectares of the Western Siem Pang forest to protect the country's national bird, the giant ibis *(Thaumatibis gigantea).* Listed as Critically Endangered by the IUCN Red List, the giant ibis is down to just a few hundred birds. BirdLife International stated that the forest is home to five Critically Endangered bird species in addition to the giant ibis, including the white-shouldered ibis *(Pseudibis davisoni),* white-rumped vulture *(Gyps bengalensis),* slender-billed vulture *(Gyps tenuirostris),* and the red-headed vulture *(Sarcogyps calvus).* The newly dubbed Protected Forest adds to a larger landscape of parks, making up 700,000 hectares across northern Cambodia, southern Lao PDR, and western Viet Nam. The giant ibis has been pushed to the edge of extinction by vast deforestation, hunting and human disturbance. *mongabay*

**Dynamite fishing threatens Cambodia's seahorses.** Destructive fishing practices have decimated the once abundant seahorse population in Cambodia. To save the fragile animals, the Marine Conservation Cambodia (MCC) tracks the animals' underwater habitat and works with local fishermen to



encourage the use of sustainable fishing methods. MCC is working with the Cambodian government to get more stringent controls in place. MCC is also working closely with other conservation groups to get a formal marine protection area established around the Koh Rong Samloem island, which was once teeming with seahorses. The move would put stiff penalties in place for those harming the marine environment. It's hoped that Cambodia's first marine protected area will go into effect in 2014, and others to follow.

*Deutsche Welle*

## INDONESIA

**Javan rhino population jumps by over 10 percent.** The Javan rhino population has increased by over ten percent from 2012 to 2013, according to new figures released by Ujung Kulon National Park. Using camera traps, rangers counted 58 Javan rhinos, up from 51 in 2012. Although the species once roamed much of Southeast Asia, today it is only found in Ujung Kulon National Park in western Java and is known as one of the most imperiled mammals on the planet. Conservationists counted 50 young and adult rhinos, along with eight calves, proof that despite such a small population the rhinos are reproducing. There are 23 females and 35 males in the group. Javan rhinos *(Rhinoceros sondaicus)* are listed as Critically Endangered by the IUCN Red List. Given the tiny population in a single area, potential threats include inbreeding, poaching, and disease. The

rhinos sit in a volcanic hotspot, and a sizeable eruption could wipe out the whole population. Conservationists also believe the population won't be able to grow much larger given the size and state of the forest and there have been discussions about moving part of the population to a different site to help boost the population. The last Javan rhino on mainland Southeast Asia—which represented a different subspecies—was killed by poachers in 2009 in Viet Nam. *mongabay*

**Indonesia pledges to protect manta rays.** The Ministry of Maritime Affairs and Fisheries has issued a decree to protect two manta ray species, *Manta birostris* and *Manta alfredi,* throughout their entire life cycle. The decree explicitly extends that protection to all parts of their body. During the last decade, demand for manta ray gill rakers—the small structures the fish use to filter zooplankton from the water—has increased. The dried organs are a popular item in southern China where they are used in a soup believed to have many health benefits including boosting the immune system and killing cancer. Historically, the ingredient was never a part of traditional Chinese medicine, and no scientific evidence exists to support any of the purported health benefits. Mantas, which can achieve wing-spans of over seven meters, and have one of the highest brain-to-body ratios of any fish, generally reproduce once every two years. According to the Wildlife Conservation Society, several studies have "provided irrefutable evidence" that manta rays are far more valuable alive than dead. Mantas are believed to bring in over US$100 million per year globally in dive tourism, with a single fish worth as much as $1 million in tourism revenue during its 30-40 year life span. This is in contrast to the current $200 price tag for a dead manta sold in Indonesia. Indonesia now has the second largest manta ray tourism industry in the world, with an estimated annual value of over US$15 million. If managed properly, Indonesia could become the top manta tourism destination on the planet. *mongabay*

**Indonesia's new forest agency head expected to speed reform.** The recent appointment of Heru Prasetyo as the new head for Indonesia's fledgling REDD+ Agency, tasked with reducing climate-changing emissions from deforestation, is expected to accelerate tree planting and other efforts to protect forests in Indonesia, and raise more funds for REDD. The REDD+ Agency is a key part of Indonesia's plans to reduce its greenhouse gas emissions by 26 percent by 2020, and is backed by a Norwegian aid pledge of $1 billion. Prasetyo is a former management consultant and also served as secretary to Indonesia's REDD+ Task Force, a precursor to the REDD+ Agency. The agency is tasked with formulating forest management policies that will slow Indonesia's rate of deforestation and help achieve its ambitious emissions target. It will draft and implement plans for a national REDD+ strategy, while promoting REDD+ as a vital part of government policy. *Thomson Reuters Foundation*

## LAO PDR

**Gaur lost in village, caused by encroachment of forest habitat.** A gaur lost in Done Tane Village, Khong Dis-

trict, Champasack Province was caught by villagers and taken to Phondam-deuan Temple, according to the chief of Done Tane Village. The Provincial Agriculture and Forestry Department stated that the gaur is 1.40 m tall and 1.70 m long and weighed about 500 kg. The gaur is a protected species and is suspected to have fled from the Se Pieng National Protection Area, which is home to many gaurs. The gaur is in good health and is being feed grass at the temple. *Lao News Agency*

**Proposed dam in Lao PDR called threat to dolphins downstream in Cambodia.** The planned Don Sahong hydropower project in southern Lao PDR, located just one kilometer upstream of the core habitat for Mekong dolphins, could precipitate the extinction of the species from the Mekong River, according to the World Wildlife Fund for Nature (WWF). The dam builders' proposal to use explosives to excavate millions of tons of rock will create strong sound waves that could kill endangered Irrawaddy dolphins, which have highly sensitive hearing structures. WWF urged Cambodian Prime Minister Hun Sen to call for a moratorium on the dam during the Mekong River Commission's Heads of State Summit in April. The Mekong River Irrawaddy dolphin has been listed as critically endangered on the World Conservation Union Red List of Threatened Species since 2004. *UPI*

**Oudomxay officials seize illegal rosewood shipment.** Forest inspection officials in Oudomxay province teamed up with local authorities to intercept vehicles suspected of concealing illegally harvested timber. At the officials' first checkpoint in the province, they found two tons of rosewood and six cubic meters of *maidou* and *mai tae kha* hidden in two semi-trailers from Vientiane. On January 21, forest officials also seized one ton of rosewood hidden in a Toyota Fortuner. The police are currently making inquiries to ensure that perpetrators of the crime are penalized in accordance with the law. Rosewood, known locally as maikhayoung , is very expensive and is highly sought after in neighboring countries.

*Vientiane Times*

## MALAYSIA

**Malaysian micro jewels going extinct as they are discovered.** A Malaysian-Dutch team of biologists have catalogued all 31 species of the tiny snail genus *Plectostoma* from West-Malaysia, Sumatra, and Thailand. Ten species are new to science, but some of those are going extinct as they are being discovered. The study was carried out by PhD student Thor-Seng Liew of Naturalis Biodiversity Center in Leiden, The Netherlands, and three colleagues. Liew spent four years studying the distribution, shell shape, and genetics of these minuscule snails. He is still working on the species from Borneo, where *Plectostoma* is exceptionally diverse. The snails are special because they have irregularly coiled and ornamented shells, making them look like micro jewelry. Investigating the exact shapes of the shells allowed Liew to recognize 31 species, ten of which were new to science. The species only live on limestone hills, which are few and far between in Southeast Asia. The snails that manage to colonize them are completely isolated, resulting in a high level of endemism. The species' habitat may also be its downfall, as limestone hills are quarried for cement. One species, *Plectostoma sciaphilum,* is already extinct, and six more are on the brink of extinction, including *P. tenggekensis,* which occurs only on Bukit Tenggek.

*ZooKeys*

**Conservationists applaud PERHILITAN and the Anti-Smuggling Unit for seized agar wood.** WWF-Malaysia and TRAFFIC congratulated the Department of Wildlife and National Parks Gerik and the Perak Anti-Smuggling Unit for seizing a substantial amount of agar wood originating from the Belum-Temengor Forest Complex. The haul was valued at RM500, 000 (US$153,000). For a number of years now, foreign nationals, mostly from the Indo-Chinese region, have been plundering the forests in Malaysia of agar wood and other natural resources. These syndicates are known to carry firearms, operate throughout Peninsular Malaysia, and spend several weeks at a time in the forest. To sustain themselves they often set snares and hunt animals as a source of protein. WWF-Malaysia and TRAFFIC urged the authorities to prosecute the culprits to the full extent of the law, and investigate other parties involved in the smuggling attempt. *WWF Malaysia*

**Sustainable tourism major contributor to economy.** According to Malaysian Tourism and Culture Minister Datuk Seri Mohamed Nazri Abdul Aziz, with the right investment, tourism can be a lead change agent in the move to a green economy by driving economic growth and job creation. Sustainable tourism simultaneously improves resource efficiency, minimizes environmental degradation, and raises environmental awareness among travelers. As a result, many ASEAN countries have chosen tourism development as one of the main pillars of their economic and national development. According to a United Nations World Tourism Organization study, international tourist arrivals for the period 2012 to 2030 were predicted to grow at an average annual rate of 3.3 per cent. Tourist arrivals in Malaysia are predicted to increase from 940 million in 2012 to 1.8 billion in 2030.

*Global Travel Industry News*

## MYANMAR

**Loss of forests accelerates as Myanmar opens for business.** According to UN-REDD Programme data, at least half of Myammar's land of 667,000 sq. km. is still covered in forest, but had lost 18 percent of its forests in 15 years between 1990 and 2005. It is still home to some of the most pristine forests in Southeast Asia but experts warn that Myanmar is fast losing its woodlands due to a combination of commercial logging, agricultural expansion and firewood harvesting. The country's

highest deforestation rates have been recorded from the Ayeyarwady Delta as a result of firewood extraction for Yangon. Considerable amounts of timber have also moved across Myanmar's porous borders. Increasing exposure to global commodity markets, rapid inflows, foreign direct investment, and a weak governance environment will lead to direct deforestation for large-scale agriculture, and indirect deforestation caused by large-scale agriculture displacing poor farmers to the forest margins where they have to clear new land. *Eco-Business*

**Vermont law school to train Myanmar ministry in environmental assessments.** Vermont Law will facilitate an Environmental Impact Assessments (EIA) training to protect the country's environmental resources. EIAs are used throughout the world to ensure that environmental and social impacts of development projects are considered before projects begin. The assessment system also mitigates environmental impacts of projects during construction, operation, and decommission. Sponsored by the Vermont Law Myanmar Environmental Governance Program, the training is made possible in part by a grant from the blue moon fund to support education in Myanmar as the nation prepares for considerable foreign investment, and will be attended by Myanmar's Ministry of Environmental Conservation and Forestry. *Myanmar Times*

**Myanmar, Norway to cooperate on environmental conservation.** On 21 January, Myanmar Minister of Environmental Conservation and Forestry U Win Tun met with Norwegian Ambassador Ann Ollestad in Nay Pyi Taw. The officials discussed the development of the forestry sector and protection of biodiversity, particularly in development of Inle Lake. The lake is a world-known tourist site in Shan State, and the discussion between Myanmar and Norway focused on the betterment of the social economy of ethnic minorities residing around the lake. Other issues discussed include the conservation of water resources, development of eco-tourism, and enhancement of technology expertise and human resources.

*Xinhua*

## PHILIPPINES

**Environment department mulls permanent closure of Mt. Banahaw.** The massive fire that ravaged some 50 hectares of forest and grasslands around the mystical Mt. Banahaw has prompted the Department of Environment and Natural Resources (DENR) to consider making the protected area permanently off limits to the public. The recent fire also razed some 92 hectares of plantation within Mt. San Cristobal. The Protected Area Management Board has declared certain portions of the Mts. Banahaw-San Cristobal Protected Landscape closed to the public until 2015 to allow the rehabilitation of its natural resources damaged by human activity. Unfortunately, people have been able to slip past the cordons into the prohibited area. Suspects in the forest fire could face charges for violation of Republic Act No. 9147, or the Wildlife Resources Conservation and Protection Act, which prohibits the killing of wildlife species and destruction of their habitat. Mt. Banahaw is home to a rich biodiversity of endemic and indigenous plant and animal species and is a famous site for trekkers and religious devotees during the Lenten season. *DENR*

**New haul of exotic animals seized in Philippines.** Wildlife authorities seized 93 animals from Indonesia and Australia in the waters off the southern island of Mindanao, including vulnerable and critically endangered species. Among the creatures confiscated were 66 wild birds, including a rare Pesquet's parrot, as well as assorted reptiles and mammals such as a long-beaked echidna, a Malayan box turtle, and 10 sugar gliders - squirrel-like animals that can glide from tree to tree. Five Filipinos transporting the animals were arrested and were charged with illegal possession and transport of those species. The seizure came just a week after wildlife officers, also in the southern Philippines, found almost 100 similar animals from Australia and Indonesia being transported by van to Manila. Wildlife officials believe the animals are transported from Indonesia to Malaysia, and then across the porous maritime border to the southern Philippine island of Mindanao. Aside from endangering the exotic animals, officials fear the smuggling could spread disease to local animal populations. The animals were so rare even the wildlife officials could not identify them, and had to ask Filipino hobbyists for help. About a third of the animals in the first shipment have died in transport, while 40 percent of the second shipment had perished, according to the Biodiversity Management Bureau.

*Philippine Daily Inquirer*

**Climate change clouds Philippines' dream of rice self-sufficiency.** The National Economic and Development Authority (NEDA) said that climate change will complicate the Philippines' efforts to become self-sufficient in rice. Preliminary data showed that 74 percent of the estimated damage from natural disasters in the country in 2013 year came in the farm sector, primarily affecting rice. NEDA stated that Typhoon Haiyan damaged about 600,000 hectares of agricultural lands, with an estimated 1.1 million metric tons of crops lost. The Philippines needs to harvest at least 19.03 million tons of rice to achieve self-sufficiency. The Philippines has been a net rice importer for the past five decades, in part because it was cheaper to buy rice from Viet Nam, Cambodia and Thailand than produce it locally. The Asian Development Bank (ADB) has identified Southeast Asia

as one of the world's most vulnerable regions to climate change because of its long coastlines, the concentration of people and economic activity in coastal areas, heavy reliance on agriculture for livelihoods and high dependence on natural resources. ADB said the Philippines, Indonesia, Thailand and Viet Nam could each need to spend $5 billion a year by 2020 on climate change adaptation measures such as flood-control projects.

*The Wall Street Journal*

## SINGAPORE


**Ministry of the Environment, Japan and NEA ink Letter of Intent on environmental cooperation.** A Letter of Intent (LOI) was signed by His Excellency Junichi Shiraishi, Vice-Minister for Global Environmental Affairs of the Ministry of the Environment, Japan (MOEJ) and Mr. Ronnie Tay, CEO of the National Environment Agency (NEA). The LOI reflects both countries' commitment to continue enhancing capacities to protect the environment and promote sustainable development. While a prior LOI in 2010 focused on the 3Rs and solid waste management, the new LOI covers expanded areas of cooperation such as vehicular emissions and noise standards; air quality standards; environmental planning; re-use of incineration ash; as well as exchange of information on off-site radiation decontamination activities.

*National Environment Agency*

**Singapore and Malaysia hit by extreme dry spell.** The two nations are grappling with some of the driest weather they have ever experienced, forcing Singapore to ramp up supplies of recycled water while Malaysia rations reserves amid disruptions to farming and fisheries. Singapore, which experiences tropical downpours on most days, suffered its longest dry spell on record between Jan 13 and Feb 8 and has had little rain since. Shares in Hyflux Ltd, which operates desalination and water recycling operations there, have risen 3.5 percent in January. In peninsular Malaysia, 15 areas have not had rainfall in more than 20 days, with some of them dry for more than a month, according to the Malaysian Meteorological Department. The abnormal lack of rain is raising concerns about the pace of climate change in the region. In Malaysia, the dry weather can hurt palm oil yields, push up palm oil prices, damage rice crops, and increase the risk of forest fires. In Singapore, the dry spell has been blamed for the mass death of fish stocks. *The Guardian*

**Singapore takes the lead on green building in Asia.** New structures in Singapore underscore the country's commitment to greening its built environment through generous incentive schemes and a building rating tool that encourages improvements such as sun-shading exteriors, water-efficient fittings, computer modeling of energy flows and carbon emissions, and highly efficient air conditioning and ventilation systems. Since the rating tool launched in 2005, Singapore's Building and Construction Authority has certified 1,534 new buildings and 215 pre-existing ones. Green building in Asia has the potential to produce large energy savings and make polluted cities more habitable while partially mitigating the impacts of global warming. *GreenBiz.com*

## THAILAND

**2014 International Conference and Utility Exhibition on Green Energy for Sustainable Development held in Thailand.** Industrialization, modernization and urbanization translate to an increased demand for energy, and increasingly higher greenhouse gas emissions. Incorporating elements of low-carbon green growth in economic strategies would cover technological, financial and investment aspects, as well as national and regional energy development policies geared towards achieving a sustainable green future. These issues provide the context for the 2014 International Conference and Utility Exhibition (ICUE) on Green Energy for Sustainable Development, which was organized by the Asian Institute of Technology (AIT), Thailand. A low-carbon based type of economy will help mitigate environmental pollution and $CO_2$ emissions caused by fossil fuel use, help reduce reliance on dwindling fossil reserves, and encourage technological innovations. ICUE 2014 brought together energy professionals, policy makers, researchers, members of the academia, engineers, and members of the energy supply sector from almost 30 countries to exchange research ideas, experiences, technical, social, financial, economic and policy issues covering greening energy utilization. The conference also provided an opportunity to showcase research findings, technological innovations, transformative emerging technologies, and discuss burning global, regional and national issues in energy utilization for development and environment policies and programs.

*Asian Institute of Technology*

**Asian elephants console other elephants in distress.** A study led by Joshua Plotnik of Mahidol University in Bangkok provides the first evidence of consolation in elephants. He stated that Asian elephants reassure other elephants in distress with physical touches and vocalizations. Consolation behavior is rare in the animal kingdom, with empirical evidence previously provided only for the great apes, canines and certain birds in the crow family. The current study focused on a group of 26 captive Asian elephants living on about 30 acres at an elephant camp in northern Thailand. For nearly a year, the researchers observed and recorded incidences when an elephant

displayed a stress reaction and the responses from other nearby elephants. The initial stress responses came from stimuli such as a dog walking past, a snake or other potentially dangerous animal rustling the grass, or the presence of another, unfriendly elephant. A nearby elephant would go to the side of the distressed animal and use its trunk to gently touch its face, or put its trunk in the other animal's mouth. The responding elephants also showed a tendency to vocalize. Elephants frequently responded to distress signals of other elephants by adopting a similar body or emotional state known as "emotional contagion," which may be related to empathy. Groups of nearby elephants also were more likely to bunch together, or make physical contact with each other.

*Environment News Service*

**Protest proving a boon for environment.** The Bangkok shutdown campaign has already made an environmental impact - a sharp decrease in hazardous fine dust particles in the air due to fewer cars on the usually congested roads. Levels of PM 10, particulate matter with a diameter of 10 microns or less, have fallen by about half in the LatPhrao, Chatuchak, and Yannawa areas, according to the Pollution Control Department. The dust, about one seventh the width of a human hair, can cause breathing disorders and damage lung tissue. Other areas experienced similar results.

*Bangkok Post*

## VIET NAM

**South Africa, Viet Nam vow to end rhino poaching.** In 2013, South Africa and Viet Nam signed a Memorandum of Understanding to cooperate on efforts to control illicit wildlife trade, particularly of rhinoceros. The cases of rhino poaching in South Africa and on the continent have risen sharply in the past few years and are threatening to reverse the hard-won progress made by conservation authorities. Since January 2014, 189 rhinos have been killed, 121 of which were poached and killed in Kruger National Park. In 2013, a total of 1,004 rhinos were poached, up from 668 in 2012. With tireless efforts to stop poaching, South Africa continues to engage with countries where rhino horn is traded and consumed. Authorities are trying to trace the whole chain to better address all components of illegal trade in wildlife. Viet Nam reiterated its commitment to the MOU and is set to implement a plan to increase public awareness of the significance of wildlife and reduce demand for endangered species. *SABC*

**Phu Yen farm protects rare regional turtle from extinction.** Pham Ngoc Hoang, a farmer in Phu Yen Province, has successfully developed a farm raising the rare and endangered Bourret's box turtle (Cuorabourreti), helping to protect them from extinction. Bourret's box turtle is a turtle subspecies found in central Viet Nam and adjacent Lao PDR and commonly called the central Vietnamese flowerback box turtle. Starting with six turtles in 2000, the total number of turtles on the farm has increased to 190, including 30 mother turtles with an average weight of 1.3-2 kg each. The farm is expected to help protect the turtles from extinction by keeping the turtles for breeding purposes and sharing farming experience with others to help more people get involved in the preservation of the species. The species are receiving much attention from the international community for its endemicity. It has a narrow and limited distribution area. The turtles are only found in under flooded zones in central provinces stretching from Da Nang to Phu Yen. Scientists said that the species were on the edge of extinction due to the loss of its natural habitat, cultivation of under flooded areas, and rising pollution.

*Vietnam News Service*

**UNDP hails Viet Nam's environmental sustainability.** Viet Nam has seen considerable achievements in ensuring a sustainable environment over the past years, according to the United Nations Development Programme (UNDP). Sustainable development is part of the country's socio-economic development strategy of 2011 to 2020 and it was also included into the country's socio-economic development plans during the 2006-2010 and 2011-2015 periods. Forest coverage has increased from 28.8 percent in 1990 to 40 percent of all land in 2012 and up to 96 percent of Vietnamese households have access to electricity and other modern sources of energy. UNDP has encouraged the country to continue to prioritize clean water, environmental sanitation, climate change, and biodiversity preservation. Localities have been urged to mobilize the community and their authorities' involvement in ensuring the sustainability of water and environmental services. Viet Nam is one of the most biodiverse countries in the world, rich with a diversity of habitat, species and genes. However, biodiversity is being degraded, and many species are at risk of extinction due to the loss of habitats and environmental pollution. UNDP stressed that attention should be paid to protecting the living environment and biodiversity conservation and the private sector should be encouraged to participate in environmental protection.

*Nhan Dan Online*

# Whale Shark
## *(Rhincodon typus)*

The whale shark is the biggest fish and shark in the world. Despite their massive size, the whale sharks' favorite food is plankton. Its enormous mouth (nearly five feet wide) engulfs large quantities of tiny plankton that it filters through its gills as it swims. The whale shark generally weighs 11 tons and reaches a length of 40 feet.

The head is flattened and the wide mouth, positioned at the tip of the snout, stretches almost as wide as the body. The dorsal fin is particularly large and the tail has a half-moon shape. The patterning of the body is very distinctive with its dark greyish-blue color on the back and sides, and array of pale yellow blotches. The undersurface is pale and stout ridges travel the length of the body, ending at the tail shaft. Five massive gill slits occur on the side of the head and within these there is a sieve like structure of cartilage. The mouth contains around 300 tiny teeth although the function of these is unknown.

The whale shark's pattern of spots is like a human fingerprint as each pattern is unique and allows the sharks to be identified. In the Philippines, the World Wide Fund for Nature (WWF) has identified 458 different kinds of whale sharks.

These sharks are usually solitary. However, loose groups of up to 100 individuals have been sighted, often when they are feeding, making them prime tourist attractions. Whale sharks appear to be highly migratory, and have been tracked for thousands of kilometers. Very little is known about their reproduction. The whale shark is ovoviviparous and thus gives birth to live young.

Found throughout the world's oceans in temperate and tropical waters, the whale shark most commonly occurs in a global band around the equator between 30° to 40° latitude.

Whale sharks are highly valued on international markets because of huge demand for their meat, fins and oil. They are victims of bycatch, the accidental capture of non-target species in fishing gear. They are currently listed as a vulnerable species. They are also affected by tourism, as feeding changes migratory behavior, and they are oftentimes injured by boat propellers.

***References:***

*World Wide Fund for Nature (http://worldwildlife.org/species/whale-shark)*

*National Geographic (http://animals.nationalgeographic.com/animals/fish/whale-shark/)*

*ARKive (http://www.arkive.org/whale-shark/rhincodon-typus/)*

# Megamouth Shark
## *(Megachasma pelagios)*

The megamouth shark *(Megachasma pelagios)* is one of the most mysterious and least understood of all the sharks. It was first recorded in 1976 and is so different from other shark lineages that it has been placed in its own family: Megachasmidae. The currently valid genus Megachasma is derived from the Greek *megasor megalos* (great); and *chasma* (cave). The species name *pelagios* means "of the sea".

Megamouth sharks can reach over five meters in length and weigh around 800 kilograms. The head is large with a short snout and, as the name would suggest, an extremely large mouth. The mouth contains over 50 rows of very small, hooked teeth. The body is tapered with a fleshy appearance, and is blackish-brown above and white below. There are two unequal sized dorsal fins and the tail has a longer upper lobe.

From its discovery in 1976, only 54 sightings have been recorded, including seven in the Philippines. In March 2009, mackerel fishers caught a 13-foot-long (4 meters) megamouth shark weighing 1,102-pounds (500 kilograms) off the city of Donsol, Sorosogon, Philippines. The Florida Museum of Natural History dubbed it Megamouth 41, the Philippine specimen's official name. The megamouth died during its capture but it had facial scars from past run-ins with gill nets. The shark's last meal was shrimp larvae.

Majority of the sightings of the megamouths have been of dead specimens, either accidentally caught or stranded. Consequently, very little is known of the megamouth shark's natural ecology and behavioral observations have only been possible from the tagging of one individual (Megamouth 6) for a brief two-day period in 1990. This shark was observed to undergo vertical migrations, spending the day in deep water and ascending to midwater at night. It is likely that this migration is undertaken in response to the movements of prey species such as krill. Megamouth sharks are thought to feed by swimming through groups of small prey items with their mouths open, although there is no scientific proof to this behavior.

Found in the open ocean, the megamouth shark is believed to occur at depths of 150 to 1,000 meters and have been reported from the Indian, Pacific and Atlantic Oceans. As with the two other filter-feeding sharks, the basking and whale sharks, this species is wide-ranging. However, the megamouth is considered to be less active and a poorer swimmer than the basking or whale sharks. Poor mobility likely is a reflection of its flabby body, soft fins, asymmetrical tail, lack of keels and weak calcification.

The megamouth shark is classified as Data Deficient on the IUCN Red List.

***References:***

*National Geographic (http://news.nationalgeographic.com/news/2009/04/090407-megamouth-shark-eaten-picture.html)*

*Florida Museum of Natural History (http://www.flmnh.ufl.edu/natsci/ichthyology/Gallery/Descript/Megamouth/megamouth.htm)*

*Sharks World (http://www.sharks-world.com/megamouth_shark/)*



ASEAN CENTRE FOR BIODIVERSITY

# Common Thresher Shark
## *(Alopias vulpinus)*

Thresher sharks are one of the most instantly recognizable of all sharks because of the long upper lobe of the caudal fin. They grow up to a maximum of about 25 feet (760 centimeters) in length and their whip-like tail fin can be as long as the body. The body is blue-grey to dark grey or blackish on top, with silvery or coppery sides and white undersides. The pectoral fins are curved and taper to a point, and the snout is short and pointed. The eyes and jaws are relatively small, but the thresher shark's sharp teeth are efficient at capturing slippery prey. The common thresher shark can be distinguished from other threshers by the position of the first dorsal fin, which has its leading edge situated above the trailing edge of the pectoral fins.

The thresher shark is an active strong-swimming fish that is occasionally seen leaping out of the water. Bony fish make up 97 percent of the thresher's diet. They feed mostly on small schooling fish such as menhaden, herring, Atlantic saury, sand lance, mackerel, bluefish, butterfish, bonito, squid, and have been known to kill sea birds. It uses its unique tail fin to herd fish together in tight shoals, and then stuns them with powerful swipes of the tail, before turning to swallow the stunned or dead prey. This is often done in pairs or groups.

The common thresher shark inhabits tropical and cold-temperate waters worldwide and is a pelagic species found in both coastal and oceanic waters. It is most commonly observed far from shore and inhabits waters to 1,800 feet (550 meters) deep, although it wanders close to the coast in search of food. Thresher sharks are observed infrequently jumping out of the water.

The thresher shark is an ovoviviparous and gives birth to two to seven pups with each pregnancy lasting about nine months. They reproduce annually and are thought to reproduce throughout the species range.

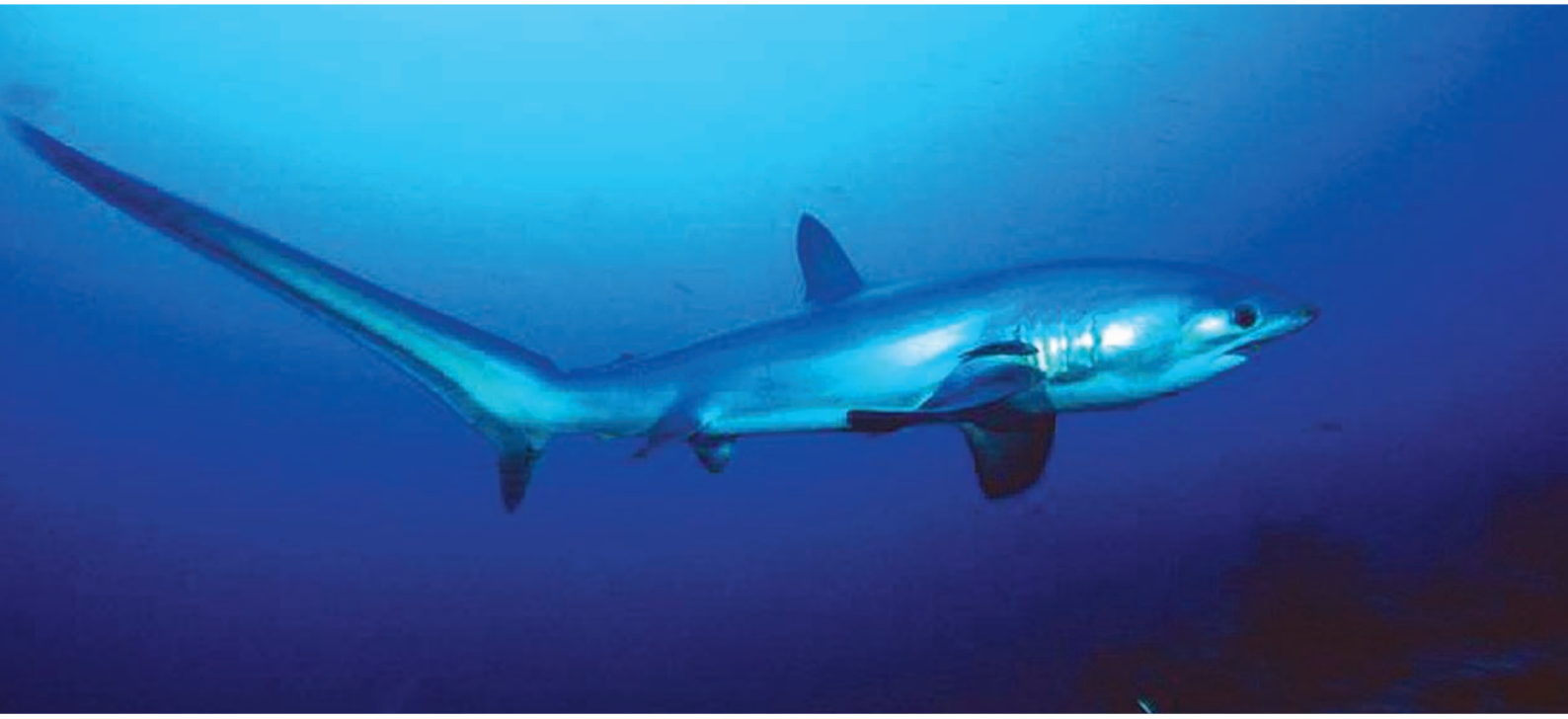
All members of genus *Alopias,* the thresher sharks, are listed as Vulnerable globally because of their declining populations. This is the result of a combination of slow life history characteristics, hence low capacity to recover from moderate levels of exploitation, and high levels of largely unmanaged and unreported mortality in target and bycatch fisheries.

***References:***

*ARKive (http://www.arkive.org/thresher-shark/alopias-vulpinus/)*

*Florid Museum of Natural History (http://www.flmnh.ufl.edu/fish/Gallery/Descript/ThresherShark/ThresherShark.html)*

*Goldman, K.J., Baum, J., Cailliet, G.M., Cortés, E., Kohin, S., Macías, D., Megalofonou, P., Perez, M., Soldo, A. & Trejo, T. 2009. Alopiasvulpinus. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 02 April 2014.*



# Pelagic Thresher Shark
## *(Alopias pelagicus)*

The pelagic thresher shark *(Alopias pelagicus)* is an oceanic species whose biology and behavioral ecology are largely unknown due to study limitations. Fisheries and by-catch data indicate that it is found in warm and temperate offshore waters, that it matures late, has low fecundity (ability to produce healthy offspring) and is vulnerable to over-exploitation.

In the Philippines, the Thresher Shark Research and Conservation Group have been studying pelagic thresher sharks found at Monad Shoal along Malapascua Island, Cebu. Early morning presence of pelagic thresher sharks on the shoal drives the local dive and tourism industries, fuelling 80 percent of the regional economy.

The thresher sharks regularly visit seamounts, presenting a unique opportunity to study this rarely observed oceanic shark. The seamount is an open water site rising 250 meters from the sea floor to 15 - 25 meter depths. Studies have identified significant relationships between shark presence and cleaning activity conducted by resident cleaner and moon wrasses (*Labriodes dimidiatus* and *Thalasso malunare*) at seamounts. This explains why these mainly oceanic sharks venture into shallow coastal waters, where they are vulnerable to fishing and disturbance from dive tourism.

Thresher sharks are among the more demanded shark species for global fisheries. They are prized for their high quality meat which is used fresh, frozen, smoked and dried-salted. Their fins are prized for shark-fin soup, their livers for vitamin extraction and their hides are used in the production of leather goods. *Alopias pelagicus* represents 12 percent of Taiwan's shark catch with an average 3,100 units (222 metric tons) taken per annum. They have a low fecundity of two pups per litter over long gestation periods. Their habitats are subjected to high intensity oceanic fisheries, raises concern over the sustainability of the species. In 2002, experts estimate that 80 percent of global thresher shark populations have been lost to fishing pressure over the past 15 years.

International conventions have recognized some shark species to be vulnerable or threatened, promoting nations to implement protection policy. Conservation organizations continue to show stakeholders that pelagic thresher sharks are more valuable alive than dead as they earn millions in dive tourism compared to trade as meat or other by-products. Environmentalists also work with governments and local communities in promoting environment friendly interaction with thresher sharks and development of protective legislation.

***References:***

*The Thresher Shark Conservation Project (http://www.threshersharkproject.org/TSRCP/Home.html)*



ASEAN CENTRE FOR BIODIVERSITY

# Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets

2011-2020 United Nations Decade on Biodiversity

The Strategic Plan for Biodiversity 2011-2020 is a ten-year framework for action by all countries and stakeholders to save biodiversity and enhance its benefits for people.

The Strategic Plan is comprised of a shared vision, a mission, strategic goals and 20 ambitious yet achievable targets, collectively known as the Aichi Targets.

**VISION:** "By 2020, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

**MISSION:** "Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach."

# THE AICHI BIODIVERSITY TARGETS

## Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

### PUBLIC AWARENESS
By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

### MAINSTREAMING BIODIVERSITY VALUES
By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

### ELIMINATION OF INCENTIVES HARMFUL TO BIODIVERSITY
By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

### SUSTAINABLE PRODUCTION AND CONSUMPTION
By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

## Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

### HABITAT LOSS
By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

### FISHERY RESOURCES
By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

### AGRO-BIODIVERSITY
By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

### POLLUTION
By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

### INVASIVE ALIEN SPECIES
By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

### CLIMATE CHANGE AND MARINE ECOSYSTEMS
By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

## Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

### PROTECTED AREAS
By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

### SPECIES EXTINCTION
By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

### GENETIC EROSION OF AGROBIODIVERSITY
By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

## Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

### ECOSYSTEM SERVICES
By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local com munities, and the poor and vulnerable.

### ECOSYSTEM RESTORATION AND CARBON STOCKS
By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

### ACCESS AND BENEFIT SHARING
By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

## Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

### NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS
By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

### TRADITIONAL KNOWLEDGE
By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

### SCIENCE-BASED KNOWLEDGE
By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

### RESOURCE MOBILIZATION
By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties.

Convention on Biological Diversity

ASEAN CENTRE FOR BIODIVERSITY

For more information, visit:

http://www.cbd.int
http://www.aseanbiodiversity.org
http://chm.aseanbiodiversity.org

ASEAN CENTRE FOR BIODIVERSITY

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ASEAN

# Are you a Biodiversity Champion?

## The search is on for the 2014 ASEAN Champions of Biodiversity.

The ASEAN Champions of Biodiversity is a recognition programme for outstanding initiatives on biodiversity conservation and advocacy in Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.

**Deadline for submission of nominations is on 15 August 2014.**

For more details, visit **champions.aseanbiodiversity.org**.
For questions, e-mail **champions@aseanbiodiversity.org**.

ASEAN CHAMPIONS OF BIODIVERSITY

## CATEGORIES

Three awards will be given:

### Business Sector

Most Outstanding Biodiversity Conservation Project by an Individual or Institution in the Business Sector

### Media Sector

Most Outstanding Biodiversity Reportage by a Journalist/ Broadcaster or a Media Organization

### Youth Sector

Most Outstanding Biodiversity Conservation Project by a Young Person or a Youth Organization

2011-2020
United Nations Decade on Biodiversity