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Second International Barcode of Life Conference and Regional Collaborative Meetings for East Asia

The Second International Barcode of Life Conference and Regional Collaborative Meetings for East Asia was co-organized by the Research Center for Biodiversity at the Academia Sinica (RCBAS) and the Consortium Barcode of Life (CBOL) in Taipei from 18 to 20 September, 2007, bringing together around 350 scientists from 46 countries to discuss ways to use the latest biotechnology—DNA barcoding—in consumer rights protection, food safety, disease prevention and environmental monitoring.

The Barcode of Life (BOL) concept was put forward in 2003 by Dr. Paul D. N. Hébert, Director of the Biodiversity Institute of Ontario, Canada and University of Guelph research chair in molecular biodiversity. It is an innovative, easy, and fast biological identification system by employing a fragment of mitochondrial DNA to mark the species. The DNA barcoding system provides a globally-recognized method of

identification similar to the ISBN system used by the publishing industry and gives a unique ID to each species. After this innovative species identification system was proposed, it received much attention and support from various nations and private foundations. Already 290,000 DNA barcodes have been collected in the database from over 40,000 species.

At the conference, researchers assessed the latest progress and priorities in current DNA barcoding research and put forward the most up-to-date technology breakthroughs and research ideas from various fields, while exchanging opinions on the technology from different standpoints. In addition, delegates discussed current bottlenecks in the execution of DNA barcodes, as well as other relevant issues.

Species diversity in Asia, particularly Southeast Asia, is extremely high, said Dr. Shao Kwang-tsoo Director of RCBAS. However, relatively few species have actually been researched and recorded. The Barcode of Life system unites molecular technologies with traditional taxonomy to bring about a

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cost-effective research method with concrete applications in the research of areas that have yet to be surveyed and investigated, and to protect biological diversity. Shao said that this was the reason why people in Asia had been pleased to see this global meeting held in Asia and had actively sought their participation in the project. In recent years, Taiwanese researchers have made outstanding achievements in the areas of the systematics of fish, amphibian reptile, bird, insect, plant, fungi and marine biology, evolution research, and the establishment of biological

diversity databases, and this was the main reason why the Second International Barcode of Life Conference was held in Taiwan.

DNA barcoding has huge potential in a variety of applications, resulting in almost unlimited research methodologies, consequently, governments and research institutes from all over the world, particularly those in North America, are currently accelerating the pace of investment in Barcode of Life research in the hope of using this new technology to identify known and unknown species more rapidly, more economically and more accurately using fragments of DNA. The importance of the Barcode of Life to conservation is that it can be used to help develop strategies for preserving high levels of species diversity, and it can be used to solve the difficulty of determining the species type of eggs, juveniles and remnant tissues that were previously unidentifiable.



Protected Turtle Smuggling Operation Busted

Taiwan's coastguard recently busted an operation to smuggle protected softshell turtles from Thailand into Taiwan. Aided by Taipei customs officials, Coastguard Administration officials discovered the 199 Asiatic softshell turtles (*Amyda cartilaginea*) in a shipment of 31 polystyrene cases at Chiang Kai-shek

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International Airport, August 4, 2007. With a street value of around NT\$ 1 million, the protected turtles were labeled on import documents as being Chinese softshell turtles (*Pelodiscus sinensis*), a species for which international trade is permitted; however, customs officials became suspicious after inspecting the cargo and finding that the turtles were bigger than normal. Asiatic softshell turtles are a CITES appendix II protected species. Customs officials said that the turtles were probably being smuggled into Taiwan for the aquaculture industry. Deputy Director of the Yunlin Team of the Coastguard Administration said that the largest Asiatic softshell turtle in the shipment weighed 5 kilos and that the total consignment weighed 434 kilos. Due to their protected status, the turtles will not be destroyed, but will be temporarily housed at the Taipei Zoo.



Penghu Joins in with 2007 World Water Monitoring Day

As part of 2007 World Water Monitoring Day activities from September 18 through October 18, 2007, the Penghu County Government Environmental Protection Bureau, organized an investigation of its water resources by local residents. Dozens of elementary and high school teachers and students, community members, NGOs and the people from all walks of life from Penghu County came together on

September 20 to monitor the archipelago's valuable water resources, and play their part in the conservation of the world's water.

World Water Monitoring Day (WWMD) was started in 2003 by Robbi Savage, President and CEO of America's Clean Water Foundation. WWMD is an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens in conducting such monitoring of local bodies of water. This is the 4th year that Penghu County has participated in this global activity.

As part of the movement, Penghu County EPA staged water quality monitoring team training in which various aquatic environment team members were taught the proper overall monitoring process. Then each team decided on a date for the monitoring of marine areas in their locality. A record was made of the results of each monitoring activity.

Penghu County Government says that it hopes that through these water-monitoring team training activities, it can foster key 'seed' teachers to take environmental education into schools where they can take root at a fundamental level and enable the training of other environmental monitoring volunteers. By raising public awareness of environmental conservation, they hope to ensure that the people of Penghu can continue to use water safely.



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Green Island Conservation Taskforce Created

The Coast Guard Administration of the Executive Yuan, September 3, 2007, established Taiwan's first marine conservation taskforce on the offshore island of Green Island. The force will be responsible for marine conservation, uncovering smuggling and other illegal activities, and assisting in emergency rescue operations in the marine areas around Green Island and Lanyu (Orchid Island). The team will ensure the increased protection of Green Island's valuable marine resources.

The sea around Green Island has abundant and diverse ocean resources, including 315 species of fish, 176 species of stony coral, 27 soft corals, over 700 mollusks, and numerous marine invertebrates, according to a survey conducted by Academia Sinica research fellow Dr. Ming-shiou Jeng. However, the ongoing development of the island's burgeoning tourism industry has caused the gradual loss of species diversity and damage to the ecology.

To remedy this situation and rapidly provide Green Island and its surrounding marine area with the protection it so desperately requires, the Executive Yuan called a meeting in February this year to discuss ways to urgently establish effective mechanisms to conserve Green Island's marine ecosystem. Those present

at this meeting decided to establish the Green Island Conservation Taskforce under the jurisdiction of the 15th Marine Patrol Team. The taskforce shall have 12 members and two 20-ton patrol boats, enabling the team to get from Green Island to Taitung in only 35 minutes.

During a ceremony to inaugurate the new taskforce, the Director of the Coast Guard Administration Lin Fu-an said that since the taskforce began operations on August 25, their main duty had been to protect the marine environment and fishery resources surrounding Green Island. At the same time, the team also focuses on stamping out illegal coral collection and other infringements of the Fisheries Act. In line with this mandate, in the early hours of September 2, the taskforce received notice of illegal activity in the Jhongliao Conservation Area, where they apprehended the crew of the Chyuanliansing, a fishing boat registered in Penghu, and sent to Taitung County Government for investigation.

Green Island Township mayor Chen Jia-wen said that the establishment of the Green Island Conservation Taskforce under the Coast Guard Administration was the next step in protecting the island's marine environment, ensuring the livelihoods of its fishermen, and providing emergency rescue services to its citizens, following the creation of an offlying island healthcare network.



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Tropical Flora Protection Center Opens in South Taiwan

Taiwan's first species preservation center for tropical plants will partially open to the public in January, according to officials at the center founded by the Taiwan Cement Corporation and three other Taiwan-based companies in south Taiwan.

The Tropical Flora Protection Center, which is located at Taihe Farm in Gaoshu Township, Pingdong County is part of a five-year tropical plant species preservation project that aims to collect and preserve some 6,000 species of tropical flora by 2012.

Since its establishment in March, the center has already gathered over 1,300 tropical plant specimens. Next year, the center aims to open up part of the collection to teachers from senior high schools and centers of higher education to increase their knowledge of tropical plants.

The center was founded in response to the daily loss of plant species due to global climate change, said Taiwan Cement Corp. Chairman C. Y. Ku. Taiwan Cement has donated five hectares of land to the center, which aims to make Pingdong County a global center for tropical flora preservation alongside the Pingdong County Agricultural Science Park.

The center's four sponsors have each contributed NT\$ 20 million (US\$ 600,000) this year and have pledged to maintain the same level

of funding for the next four years. Furthermore, several members of the public and experts have come forward with donations of seeds and seedlings.

The center is managed by Li Chia-wei who is also the Director of the Institute of Molecular and Cellular Biology at the Hsinchu-based National Tsing Hua University. During a meeting with county government leaders, Li said that the world has only two major floral reserves: the Royal Botanic Gardens at Kew in London and the Missouri Botanical Garden in the United States, both of which are dedicated to the preservation of temperate zone flora. The world has yet to see a top-notch facility for tropical and sub-tropical flora, he said.

Since March, staff at the center had already gathered 1,300 specimens, 300 more than targeted. They expect this number to reach 1,600 by the end of the year and to top 2,000 by early 2008. The collection includes rare species native to Taiwan such as wild orchids. "The ultimate goal is a collection of 25,000 species," said Ku. "We hope the center will become a global leader in tropical plant preservation."



Review and Amendment of Taiwan's Sustainable Development Indicators Network

Taiwan's environment and social pressure on it are diverging away from sustainability,

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while economic pressures and the responses of environmental agencies are tending towards sustainability, according to a series of indicators released on World Environmental Day by the Executive Yuan. However, at a meeting to review the indicators, scholars and experts called on the government and people of Taiwan to value and take heed of these important indicators so that something concrete might be done to improve Taiwan's sustainability.

On June 5 (World Environmental Day) each year, the Taiwan government releases a set of sustainable development indicators for Taiwan. The system of 42 indicators describes the current state of Taiwan's environment and resources, the pressures brought upon it by economic activities and society, and the response of environmental institutions in terms of policymaking and laws relating to legal enforcement, and is aimed at enabling Taiwan's residents to find out whether or not Taiwan is tending towards sustainability.

Subsequently, a seminar for the review and amendment of the system of Sustainable Development Indicators for Island Taiwan was held September 19, 2007, by the Taiwan Institute of Urban Planning and commissioned by the Evaluation Commission of the Executive Yuan. The meeting aimed to hear the opinion of non-government organizations, government agencies, and scholars on the indicator system's

ability to reflect national sustainable development or not. The seminar was the first time in five years that the indicator system had been held up for adjustment and amendment.

The amendment or abolition of various indicators was hotly disputed by those present; however, the most worrying obstacles to progress in Taiwan's sustainability were the apparent apathy of government bodies and general public disinterest.

"The reason why national sustainable development has so far failed to receive the respect it deserves is because environmental education has not been emphasized by the government," said Yeh Shin-cheng, Chairman of the Taiwan Environmental Education Association. Public pressure is the only means to elicit a response from administrative agencies, he said. Therefore, efforts to promote 'sustainable development education' or raise 'public environmental awareness' should be incorporated within the response aspect of the system. Public training and the strengthening of people's understanding of sustainable development could be used to affect a government response, he said.

The sustainable development indicators and data from various government departments should be available to the public via websites so that people could truly understand the status of

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the environment and pressures on it, said Wild at Heart founder Robin Winkler. To promote government accountability even further, the Chairman of the Green Consumers Foundation Jian Fang said that the sustainable development indicators should be seen as a management system; therefore, the sourcing and verification of data, and the review of the credentials of relevant personnel should be strictly controlled. The annual release of the indicators should not be an opportunity for government and administrative bodies to fix the statistics and play number games, he said. Finally, the sustainable development indicators should be used by the Legislative Yuan as a review mechanism for their approval of executive agency budgets, and also included in the audit considerations of the Auditing Commission.

In summing up, moderator Wang Jyun-shiou said that the forum served as a platform where people and groups concerned with national sustainable development could come together to share information and opinions. He hoped that the discussion would help select indicators that more appropriate and meaningful, so that the system of sustainable development indicators might become an important mechanism for assessing government policy and increasing accountability in the future.



Buzzard Protection Force Established

South Taiwan residents have initiated a system of civilian patrols to protect an endangered buzzard species that winters in their area. What is more, over half of those taking part in the task force are people who once trapped these magnificent birds for food.

The grass-roots movement to protect the Grey-faced buzzard (*Butastur indicus*) began on September 28, 2007, when people from Manjhou Township in Pingdong County came together on their own initiative to set up the patrol.

A regular visitor to the island, the Grey-faced buzzard passes through Taiwan in large numbers in early October each year on its annual migration from Japan, Siberia, northeastern China and Korea to the Philippines, Malaysia and Indonesia. According to Raptor Research Group of Taiwan (RRGT) secretary-general Lin Wen-horn, no more than 100,000 individuals exist in the world.

During the crossing, the Manjhou area hosts the largest colony of buzzards with tens of thousands of birds arriving around National Day on October 10. In the past, Manjhou residents would catch the birds as they roosted in the surrounding trees at nightfall to make a seasonal delicacy: buzzard and ginger soup. In recent

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years, however, this tradition has been outlawed by the Wildlife Conservation Law and enforced by the Kenting National Park Administration and other agencies. They say that, although buzzard poaching has been dramatically reduced, every year, they still arrest a number of trappers.

In an effort to eradicate the problem and help regenerate the local economy, the Kenting National Park Administration has enlisted the help of elders from the Shetou village, including several trappers, to train community leaders as ecology guides. The elders have been able to transform their hunting knowledge into a valuable eco-tourism resource that they can use for economic gain instead of hunting local wildlife.

Having witnessed the efforts of these people, other Manjhou residents were moved to establish an association for native plant protection with 70 to 80 members. The group is dedicated to developing eco-tourism in Manjhou by recovering many of the native plant species widely seen in the older generation's childhood.

One of the association's first projects was the establishment of the 30-person strong migrant buzzard protection task force. Over half the members of the buzzard patrol once trapped the birds for food.

This is the first time that local people have come together to protect, rather than catch, the

buzzards, said officials from the Kenting National Park Administration. While the local authorities actively train local people as eco-tourism guides—transforming hunters into protectors—they say that it will take time to persuade locals of the economic benefits of protecting rather than killing migrant birds, some of which sell for up to NT\$1,000 a bird. But they are optimistic that the Native Plant Protection Association's goals of protecting the buzzards, as well as local streams and native plants, is a step in the right direction for eco-tourism in Manjhou Township.



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