

Maintenance of Biodiversity

The unprecedented rate of global biodiversity loss must be halted by immediate actions. In addition to understanding the current trends and status of biodiversity, we need to take proactive actions in biodiversity conservation. Important actions include setting up protected areas to protect unique ecosystems and species, preserving germplasm (genetic resources) for adaptation to rapid environmental change, preventing and managing alien invasive species, etc. .

► National System of Protection Areas

The CBD defines a protected area as "a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives." Depending on different goals and environmental conditions, protected areas embrace a wide range of different management approaches, from strictly protected sites where only scientific research and monitoring are allowed, and sites where visitors are welcome to participate in education and interpretation on conservation, to sites where regulated sustainable utilization of natural resources is permitted. Protected areas are pivotal in maintaining biodiversity and environmental stability.

Up to now (May 2010), protected areas aimed for natural conservation in Taiwan include 20 Nature Reserves, 8 National Parks, 17 Wildlife Refugees, 34 Major Wildlife Habitats, 6 Forest Reserves with a total area of 1,089,234.11 hectares. These protected areas are designed to form a network (e.g. Central Mountain Range Network of Protected Areas)

where series of protected areas are connected by corridors to conserve different portions of biological diversity. In addition, the Ministry of Interior set up 75 Wetlands of Importance, with a total area of 44,348 hectares in 2007 and is now undertaking a major effort to resolve the conflict of conservation and development as well as to form a green belt of these wetlands.

Protected Areas	Number	Area (ha)		
		Land area	Sea area	Total
Nature Reserve	20	64,641.76	11.74	64,653.50
National Park	8	312,677.14	403,105.04	403,105.04
Wildlife Refuge	17	25,531.80	295.88	25,827.69
Major Wildlife Habitat	34	324,373.25	295.88	324,669.13
Forest Reserve	6	21,171.43		21,171.43
Total*		685,821.45	403,412.66	1,089,234.11

* After deduction of overlapping areas

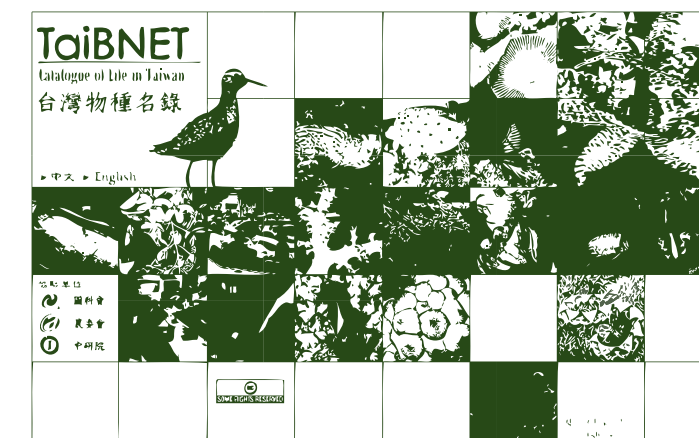
► National Germplasm Banks

The national germplasm banks preserve live individuals, seeds, tissues, cells, cultures, and/or DNAs of crops, domestic animals, aquatic animals, wildlife, and/or microorganisms. Such banks preserve precious genetic sources for agriculture improvement and help meet the needs for food and health in the future.

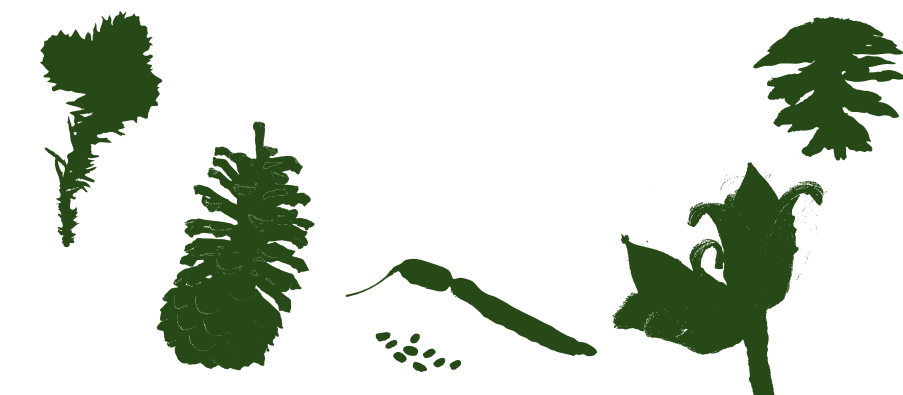
Seed storage vaults, *in vitro* cultures and field repositories of the National Plant Genetic Resources Center (NPGRC) of Taiwan Agricultural Research Institute has preserved 74,398 accessions of crop germplasm and established a database for medicinal plants, as well as maintaining the National Plant Genetic Resources Information System. In addition to linking with the Taiwan Biological Information Facility for more efficient information diffusion, the NPGRC also encourages international germplasm exchange and scientific collaboration.

Cold-storage vaults of Taiwan Forestry Research Institute has preserved seeds of at least 248 tree species, 40 more *in vitro* cultures, and catalogued gene barcodes of 44 native species of Fagaceae. Germination trials have been constantly conducted for testing seed viability. The Taiwan Forestry Research Institute also actively exchanges seeds with other international institutes.

National Germplasm Bank of aquatic organisms was built in Lukang Freshwater Aquaculture Research Center and Penghu Marine Biology Research Center of the Taiwan Fishery Research Institute in 2006 to secure the genetic resources for aquaculture. A National Germplasm Bank Database is being established and is expected to finish soon.



台灣生物多樣性資訊網首頁: <http://taibnet.sinica.edu.tw>



► Control of Invasive Alien Species

Increasing travel, trade, and tourism associated with globalization and expansion of the human population have facilitated intentional and unintentional movement of species beyond their natural biogeographical barriers, and many of these alien species have become invasive. Invasive alien species (IAS) can cause substantial economic damage, threat human health and reduce local biological diversity and distinctiveness. Aggregated effects of multiple invasive species can have large and complex impacts on ecosystems.

It is very difficult to eradicate an invasive alien species once it invades. Preventing international movement of IAS is the first and least costly line of defense. Customs check, inspection of shipments and setting quarantine regulations to limit the entry of invasive species are crucial. Equally important is to assess the risk of potentially invasive species.

■ Quarantine and Prevention of Invasive Alien Species

The Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ) is in charge of the quarantine of animals, plants and their products. A total of 1,022 quarantine pest detection points has been set up. As a law enforcement agency, the Directorate General of Customs checks import items and intercept smuggling at ports. A total of 1,150 tree roots and orchids were seized by custom office in 2006. In addition, the Coast Guard Administration intercepted 5,400,000kg of smuggling agricultural, fishery, domestic animal products and 6,844 live animals in 2006 and 2007.

■ Identification and Risk Assessment of Invasive Alien Species

The Endemic Species Research Institute has drafted the procedure of risk assessment of IAS, including risk assessment form and criteria of assessment. The Institute also set up a database to include results of wildlife survey and pet shop survey in the past ten years. Totally 334 records of alien species, 47 records of species released into the wild for religious ceremonial purposes, and literatures related to IAS were kept in the database as baseline information to help control of IAS in the future.

The Department of Animal Industry of the Council of Agriculture has established a list of alien species, risk assessment method and regulation

of introduced pet species, and list of vertebrates that are forbidden from import and raise between 2005-2007. The Department also conducted pet shop survey and identified 630 species in trade.

The Fisheries Agency formed a committee to evaluate application of importing alien aquatic species for the first time. Those species that are introduced for the first time but are not in the list of live wildlife that are permitted for importation will not be allowed for import without the approval of all member of the committee. The Environmental Protection Administration has also surveyed and established list of alien species in 10 major rivers and 6 estuaries.

■ Eradication and Controlling Invasive Alien Species

The BAPHIQ established National Red Imported Fire Ants Control Center to coordinate control of the red imported fire ants by different agencies, including the Ministry of Defense. Up to 2007, fire ant control has been conducted to cover about 45,000 ha of land area in Taipei, Taoyuan and Jiayi. Control of golden apple snail (*Pomacea canaliculata*), Mile-a-minute (*Mikania micrantha*), Asiatic Painted Frog (*Kaloula pulchra*), Brown Anole (*Anolis sagrei*), and Red-billed Blue Magpie, (*Urocissa erythrorhyncha*) are also conducted by various agencies, including the Forestry Bureau.

■ Information Sharing, Communication and Education

The Government Information office has been promoting public awareness on IAS by disseminate relevant information at airports and public areas by character generator and advertisement lightboxes. The Endemic Research Institute and the Biodiversity Research Institute of the Academia Sinica have provided information of IAS on their web sites.

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The Achievement of Taiwan's National Biodiversity Action Plan (NBAP) II

Maintain Our Biodiversity



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