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Special Report: Anti-poaching in Southern Africa-an Update

In early 1996, an American Champion "Super Scout" aircraft, funded by a grant to Wilderness Conservancy from the Council of Agriculture (COA) of the Republic of China, was put into anti-poaching operation in Kruger National Park, South Africa.

The introduction of the Scout aircraft in anti-poaching activities was an experiment to see if an "eye in the sky" could reduce poaching by allowing larger tracts of bush veldt to be covered faster and more efficiently than by men on foot. The Scout aircraft could also spot poachers more easily and keep them in view until ground patrols had taken them into custody. The "experiment" was a huge success and the aircraft soon worked itself out of a job. During the time the plane was based at Kruger National Park, its operation helped reduce the poaching of rhinos and elephants in that beautiful park to zero.

The Scout aircraft is now based at Shamwari Game Reserve in the Province of the Eastern Cape where it patrols both land and marine reserves. Earlier this year, lions were released in Shamwari Game Reserve (the first free-roaming lions in the Eastern Cape in decades), where they are being carefully monitored through radio tracking. The Scout aircraft helps keep the lions "in sight" so that their territory can be mapped and any threat to domestic livestock minimized.

Shamwari Game Reserve is also home to the family of elephants purchased by Wilderness Conservancy from the South African National Parks Board in 1996. The family was relocated to Shamwari to avoid the being culled at Kruger National Park. That family has since given birth to four healthy calves and is doing very well.

The second aircraft funded by a grant to Wilderness Conservancy from the COA early in 1998 was a 1972 Cessna U206F. The Cessna was placed in the service of two South African agencies: the Wildlife Breeding Resource Center (WBRC) headquartered at the Atomic Energy Facility near Pretoria, and the

Endangered Species Protection Unit (ESPU) of the South African Police Service (SAPS).

With the WBRC, the Cessna served to relocate cheetahs caught by farmers in Namibia to safe havens and then to release them back into the wild. The Cessna was also used to collect, process and cryopreserve gametes (sperm and egg-cells) and embryos from rare and endangered species and, thus, create a genome resource bank—in effect a third (frozen) population, the other two being those in the wild and those in captivity.

While in service with the ESPU, the Cessna carried police teams domestically and internationally in law-enforcement operations, resulting in the capture of poachers and the collection of contraband including ivory and rhino horn. The ESPU established that the use of aircraft is a valuable tool in their specialized field of law enforcement. The SAPS now makes its air wing aircraft available to the ESPU and the Cessna's service with the ESPU ended successfully.

The Cessna has been returned to the United States where it is being upgraded and prepared for its next mission. That project will serve conservation and humanitarian roles in Baja, California, and Sonora, Mexico.

In conservation, the plane (the only such aircraft involved in such an operation) will be working with Hubbs-Sea World Research Institute and several prominent NGO to patrol southern gray whale migration routes and calving grounds. The aircraft will also patrol the nesting sites of endangered sea turtles (to protect from turtle and egg poachers), and locate Orca pods (killer whales) in the Sea of Cortes. After one or more in a pod have had transmitters attached, the plane will be used to track the pods to identify calving grounds and migration paths.

In its humanitarian role, when not serving its primary mission in conservation, the aircraft will carry medical supplies, equipment and doctors to remote villages and also transport sick and injured indigent people to healthcare facilities. (By Dr. Robert N. Cleaves, President of Wilderness Conservancy)

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INSIDE

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Third APEC Genetic Resources Workshop Ends Successfully

The Third APEC Workshop on Conservation and Utilization of Plant and Animal Genetic Resources (APEC Genetic Resources Workshop), held by the APEC Agricultural Technical Cooperation Experts Group (ATCEG), came to a successful close on November 3, 2000. The ROC is a strong advocate and a driving force behind the ATCEG. Representatives from Japan, Thailand, Vietnam and other member nations attended the four-day workshop, which focused mainly on the conservation and utilization of aquatic genetic resources in the Asia-Pacific region. Discussion was heated and opinions were widely exchanged during the workshop. Participants agreed that the governments of APEC economies must highlight plant and animal genetic resource conservation and utilization by drafting the relevant government policies to prevent loss of genetic resources and to maintain the sustainable use of genetic resources.

During the workshop, it was resolved that the Fourth APEC Genetic Resources Workshop should be divided into two one- or two- day workshops. Furthermore, the relevant decision-making bodies of member governments and experts from various fields would be invited to attend the workshops. Training in the techniques for genetic resource conservation would also be undertaken in week-long courses specializing in the three fields of aquatic, animal farming and crop resources so that the knowledge and technical ability of those involved in genetic resource conservation in the Asia-Pacific region might be upgraded.

In addition to the main theme of the current status of conservation and utilization of aquatic genetic resources in the APEC region, the Third APEC Genetic Resources Workshop also reported on member nations' technologies for the management of aquatic (animal and crop) resources. Discussion focused on biotechnology and cryopreservation as conventional and innovative management and conservation technologies. Those present also discussed the establishment of an Asia-Pacific plant and animal genetic resource database and the exchange of related information, as well as issues like maintaining the biological diversity of genetic resources and their sustainable usage. The organizer, the Taiwan Agricultural Research Institute of the COA invited experts from Japan, the United Kingdom and the United States to present papers on cutting-edge technologies for aquatic, animal and crop resource conservation and utilization.

Following the workshop, participants were invited to visit the agencies in Taiwan responsible researching for crop, farm animal and aquatic genetic resource conservation and management. Participants were also taken on a tour of the National Museum of Marine Biology Aquarium.

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ROC to Become Party to the Western and Central Pacific Convention

The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (the Western and Central Pacific (WCP) Convention or "the Convention") was passed on Sept. 4, 2000 at the seventh session of the Multilateral High Level Conference on South Pacific Tuna Fisheries (MHLC) in Honolulu. According to the Convention and the Arrangement, the ROC may become party to the Convention's permanent Commission (the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean) as a fishing entity under the name Chinese Taipei after the Convention enters into force.

The COA pointed out that, since the United Nations General Assembly agreed to resolution number 46-215, which requested a global moratorium on all large-scale pelagic drift-net fishing on the high seas of the world's oceans and seas by December 31, 1992, "freedom of fishing" on high seas, as defined by International Law, has rapidly been restricted. Subsequently, a succession of international treaties, pronouncements and action plans have been agreed to and have come into effect. At the same time, various regional tuna species resource management organizations including the Commission for the Conservation of Southern Bluefin Tuna (CCSBT, 1993) and the Indian Ocean Tuna Commission (IOTC, 1996) were established. Important conventions like the Inter-American Tropical Tuna Commission (IATTC, 1998) and the International Commission for the Conservation of Atlantic Tunas (ICCAT) were also formed. In the end, the only ocean region still lacking an organization for the management of regional tuna resources was the Western and Central Pacific Ocean area.

To remedy this situation, in April 1994, distant water fishing nations and South Pacific Island nations convened the first session of the MHLC to jointly investigate the feasibility of establishing an organization for the sustainable management and development of regional fisheries. In 1995, following the passing of the United Nation Implementation Agreement (UNIA), distant water fishing nations and South Pacific Island nations had the basis for further discussion leading to the second session of the MHLC in 1997, at which the Majuro Declaration was passed. This Declaration declared member parties' commitment to establishing a mechanism for the conservation and management of the highly migratory fish stocks of the region in accordance with the 1982 United Nations Convention on the Law of the Sea and the UNIA within a time-frame of three years from June 1997. Following continued negotiations at five sessions of the MHLC in the interim period, the WCP Convention was finally passed in September 2000.

The ROC is one of the world's six major distant water fishing nations. The ROC harvests

approximately 800,000 tons of fish annually from distant water fishery activities, particularly in the Western and Central Pacific Ocean area, making Taiwan the second largest distant water fishing nation in the world. The ROC's harvest of bonito tuna alone is almost 300,000 tons. The WCP Convention will affect many hundreds of ROC tuna liners operating in distant waters and also several thousand ROC tuna liners operating in coastal and near water regions. Consequently, the WCP Convention is an important agreement that will affect the continued existence of ROC tuna fishing activities in the region. Since the second session of the MHLC, the ROC (Chinese Taipei) has actively participated in negotiations towards the Convention. Furthermore, the ROC has been able to participate in the full resolution process in its dual capacity of coastal state and distant water fishing nation on an equal basis.

The Convention was negotiated by 28 Pacific nations and territories, including the ROC, the United States, China, Japan, South Korea, France, Indonesia, the Philippines, Australia, New Zealand and Canada. The ROC's signing of the Convention marks its commitment to conserving and managing highly migratory fish stocks in the Pacific Ocean region jointly with other Pacific nations. This is a positive step and highly significant for the ROC's efforts to promote participation in other international fishery organizations. Through participation in the Convention, the ROC's distant water fishing interests in the Western and Central Pacific will be reasonably protected. Furthermore, the ROC will be able to cooperate with other nations to conserve the fishery resources of the Western and Central Pacific regions.

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Taipei Hosts International Seminar on Wetland Management

The Seminar on International Wetlands Management was held from September 7 to 8, 2000 by the Taipei Wild Bird Society (TWBS) at the International Conference Hall of the Taipei Municipal Zoo. Leading wetlands proponents from South Africa, Hong Kong, Japan, Australia, Canada, the United States, Malaysia were invited to share their valuable experience of wetlands conservation and management.

Over the past century, wetlands around the world have come under increasing pressure from rapidly growing human populations and environmental pollution. Unprecedented human development and utilization of wetland resources poses a grave threat to the ecosystem, species and genetic resources of our wetlands. And this threat is continuing to grow. The protection of our disappearing wetlands has only recently become a global issue.

Wetlands are the vital link between water and land. They help regulate water levels within watersheds; improve water quality; reduce flood and storm damages; protect coastlines; provide important fish and wildlife habitat; increase fishing harvests; support a variety of life-support systems; and provide other functions. Wetlands are among the most

productive ecosystems in the world. In recent years, as our understanding of the ecological processes of wetlands improves international wetlands-related treaties and organizations are gradually being set up and wetlands are becoming an important aspect of environmental protection. Thus wetlands conservation is being actively promoted throughout the world.

Even though wetlands conservation in the ROC began relatively late, noticeable results have already been achieved. To promote wetlands conservation, the government has already incorporated many of Taiwan's wetlands into protected areas within the national parks, coastal reserves, wildlife refuges, nature reserves, etc. established according to the relevant laws. For instance, the Tamsui River Mangrove Nature Reserve, Kuantu Nature Reserve, Yuanyang Lake Nature Reserve, Watzuwei Nature Reserve, Ilan County Wuwei Harbor Waterbird Refuge, Taipei City Waterbird Refuge, Tainan City Ssutsao Wildlife Refuge, Tatu Rivermouth Wildlife Refuge and Lanyang Rivermouth Waterbird Refuge are all areas of wetland conservation. Every year, Taiwan's government allocates large financial resources to the management of these areas.

The COA stressed that wetlands conservation and management are global trends and, therefore, the common goal of all nations requiring cooperation and international effort. By holding seminars like this, Taiwan aims to learn from the experience of experts from all over the world and to actively promote the cause of wetlands conservation in Taiwan. Furthermore, Taiwan hopes to meet international standards of wetlands conservation and to strengthen cooperation in international wetlands conservation to collectively promote the sustainable use and development of our environment.

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Taiwan's 15th Endemic Bird-the Taiwan Bush Warbler

Taiwan is already recognized as having 14 endemic bird species. But a new addition may be made based on international taxonomists and ecologists' belief that Taiwan's Mountain Scrub Warbler (*Bradypterus seebohmi*) should in fact be classified as an independent species due to its unique call and other factors, even though the bird is also found in some other regions. This would make the *B. seebohmi* Taiwan's 15th endemic bird species.

Due to its unique geographical position and habitat characteristics, Taiwan is an important resting point for passing wild birds on their migratory paths each year. The island has been separated from Asian continent for many millions of years and this has given it a high proportion of endemic species. According to data from the Wild Bird Federation Taiwan (WBFT), 14 of the 500 bird species found in Taiwan are endemic.

According to the WBFT, Taiwan's *B. seebohmi* was originally listed as a subspecies along with the Philippine, Thai and Vietnamese *B. seebohmi*. But in the year 2000, the majority

of international taxonomists and ecologists stated that Taiwan's *B. seebohmi* was not only noticeably different from the *B. seebohmi* of other regions in external appearance, but its call was also very different. Furthermore, its different call made interbreeding between subspecies difficult. In addition, the reproductive isolation of Taiwan's *B. seebohmi* was extremely obvious. Therefore, international taxonomists and ecologists believe that the bird should be classified as an independent bird species under the name Taiwan Bush Warbler (*Bradypterus alishanensis*).

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Pinglin Taiwan Keteleeria Nature Reserve

Introduction to Taiwan's Nature Reserves

Located in Pinglin Township, Taipei County, the Pinglin Taiwan Keteleeria Nature Reserve was established in 1986 with a total area of 34.6 hectares. The reserve is situated at an elevation of 350 to 650 meters above sea level and enjoys an annual mean temperature of 18.5℃. Annual precipitation is around 3,500 mm. With no significant wet or dry seasons, the climate of the reserve is constantly humid.

The Taiwan Keteleeria (*Keteleeria davidiana* (Franchet) Beissner var. *formosana* Hayata) is one of 11 rare and valuable plants protected by the Cultural Heritage Preservation Law in the Taiwan area. A member of the Pinaceae family genus *Keteleeria*, the Taiwan Keteleeria is a very large, hermaphroditic evergreen tree that grows up to 35 meters high and 2.5 meters in diameter. Most specimens are found at an elevation of 300-600 meters near the mountain ridge. As an endemic species to Taiwan and an ice-age survivor, the species is of important scientific and genetic value. However, the tree is now relatively scarce and is distributed only in unconnected patches at the extreme north and south of Taiwan—in Tawu in the south and near Pinglin in the north.

The Reserve can be divided according to plant type into the following groups: Japanese Cedar (*Cryptomeria japonica*) plantation, Luchu Pine (*Pinus luchuensis*) plantation, natural broadleaf forest and fruit orchards. Luchu pine occupy the largest area. Around 400 Taiwan Keteleeria grow sporadically among the Luchu pine trees. The plant composition of the area of natural forest is relatively diverse, with *Castanopsis carlesii* being the dominant species. Other species include *Schefflera octophylla*, *Persea zuihoensis*, *Diospyros morrisiana*, *Elaeocarpus decipiens*, *Illicium arborescens*, *Cyathea spinulosa*, etc. A total of 234 species from 91 plant families are found within the Reserve, with the Rubiaceae family comprising the majority. Most of the Taiwan Keteleeria found in the Reserve are relatively weak, old trees with diameters of just 25 cm to 120 cm. Although they produce a large number of cones each year, most of their seeds are infertile and empty; thus, the rate of germination is extremely low. Those seeds that successfully grow into seedlings must compete with other plant species for space on the forest floor, so the rate of new growth is poor and the species may soon become extinct.

Large-sized mammals are extremely rare. Only small-sized rodents can occasionally be seen. A relative abundance of bird species can be spotted at the meeting point of the plantation, beside streams and in the broadleaf forest. Those species most prevalent include Brown Dippers (*Cinclus pallasii*), Taiwan Whistling Thrush (*Myiophoneus insularis*), Plumbeous Water Redstarts (*Phoenicurus fuliginosus*), River Kingfishers (*Alcedo atthis*), Little Egrets (*Egretta garzetta*), Gray-cheeked Fulvetta (*Alcippe morrisonia morrisonia Swinhoe*), White-bellied Tree Babblers (*Yuhina zantholeuca*), Rusty-cheeked Scimitar Babbler (*Pomatorhinus erythrogetnys*), Streak-breasted Scimitar Babbler (*P. ruficollis*), Red-headed Tree Babblers (*Stachyris ruficeps praecognitus Swinhoe*), Formosan Blue Magpies (*Urocissa caerulea*), Chinese Bamboo Partridges (*Bambusicola thoracica sonorivox Gould*) and Crested Serpent Eagles (*Spilornis cheela hoya Swinhoe*).

Unregulated development poses significant pressure on the Reserve. For instance, local residents have developed land just outside the Reserve for fruit and tea growing purposes. At present, only 200 or so very old Taiwan Keteleeria are left in the Reserve. As forest has been invaded by a large number of new species, insufficient light reaches the forest floor. This and the Taiwan Keteleeria's poor rate of renewal mean that the status of the species is deteriorating. If steps are not taken to manage the species properly, the Taiwan Keteleeria will ultimately disappear from Taiwan.

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