World Heritage Sites

Protected Areas and World Heritage

DARIÉN NATIONAL PARK
PANAMA

This is one of the most species-rich expanses of lowland and highland rainforest in the world, possessing endemism over a broad range of taxa. Because of the wide variety of habitats it is an area of outstanding biodiversity, and with two Amerindian tribes living in the Park, is culturally rich. Threats to the site: completion of the Pan-American Highway through the site.

COUNTRY
Panama

NAME
Darién National Park

NATURAL WORLD HERITAGE TRANSBOUNDARY SITE
1981: Inscribed on the World Heritage List under Natural Criteria vii, ix and x.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

INTERNATIONAL DESIGNATION
1983: Designated a Biosphere Reserve under the UNESCO Man and Biosphere Programme (626,000 ha).

IUCN MANAGEMENT CATEGORY
II National Park

BIOGEOGRAPHICAL PROVINCE
Panamanian (8.2.1)

GEOGRAPHICAL LOCATION
Located in the province of Darién, extending along 90% of the country's border with Columbia, between the Serranía del Darién which parallels the Caribbean, and the Pacific coast: 7°12'-8°31'N, 77°09'-78°25'W.

DATES AND HISTORY OF ESTABLISHMENT
1972: The area became part of the Alto Darién Protection Forest (700,000 ha) under Decree No.84;

1980: Declared a National Park by Presidential Decree No. 21;

1983: Recognised as part of a UNESCO Biosphere (859,333 ha).

LAND TENURE
The state owns over 90%. Almost 10% are traditional tribal lands. The Park is managed by the National Conservation Association (Asociacion Nacional para la Conservacion de la Naturaleza, ANCON)

AREA
597,000 ha. Forms a transboundary site with Los Katios National Park, Colombia (72,000 ha).

ALTITUDE
Sea-level to 1,875m (Cerro Tacarcuna in the Serranía del Darien)

PHYSICAL FEATURES
Darién National Park is at the southernmost end of the land bridge between Central and South America. The Park, which is the largest protected tropical forest in Central America, extends from mountains on the continental divide only 16 km from the Caribbean, along the border with Columbia to the Pacific coast. The centre of Darién province is a long flat lowland valley fringed by mountains: on the northeast, the Serranía del Darién, on the southwest, the Serranía del Jungurudó, Cordillera de Juradó and the coastal Serranía del Sapo and, discontinuously across the south, the isolated ranges of the Serranía de Pirre, Serranía de Setetule and Altos de Quía. Tributaries flow from these mountains through the wide central valleys of the Tuira, Balsas and Sambú Rivers flowing northwest into the Gulf of San Miguel. In the southeast, Cerro Tacarcuna in the Serranía del Darién (1875m) is the highest mountain between the Andes and western Panama, only 32 km inland from the Caribbean coast of the Gulf of Urabá, into which flow the vast lowland swamps and lagoons of the Atrato River over the Colombian border. The Park's southwestern coast on the Pacific, is some 50 km of rocky shores and sandy beaches.

Most of the mountains originated in a volcanic island arc which emerged during the Middle Eocene. The region's lowlands emerged in the late Pliocene through tectonic activity. The southern mountains and the Caribbean slope of the northeastern mountains are largely of volcanic origin, while the inland slope of the Serranía del Darién is of Cenozoic sediments. Natural erosion has resulted in numerous landslides with deep cuts and gorges. The sea-level has fluctuated from 100m below to 50m above present levels, the most recent being during the early Pleistocene. Where not alluvial the lowland clay soils are lateritic, generally derived from late Miocene shale with layers of dolomite and calcareous sandstone. Where sloping, the soils are leached of nutrients by the high rainfall (Golley *et al.*, 1975; INRENARE & ANCON, 1988). 48% of the Park's lands are in class VIII which is unsuitable for agriculture and forestry; 35.5% are in class VII which is marginal for forestry (OEA, 1978).

CLIMATE
The annual rainfall ranges between 3,000-4,000mm on the Caribbean coastal mountains, 1,800mm-2,500mm in the low central valleys and 4,000-5,000mm on the Pacific side. There is a marked dry season (weaker near Colombia) with less than 100mm a month from January through March. The temperature generally varies between 16°-35°C, with an annual mean of c. 26°C (INRENARE & ANCON, 1988).

VEGETATION
The forests of Darién Province are relatively undisturbed and contain the most diverse and species-rich terrestrial ecosystems of tropical Central America. Some samples suggest that they are as rich as Amazonian forests (Herrero-MacBryde, 1997). The Park includes nine major vegetation types: from rocky coasts and sandy beaches with occasional mangroves, coastal dry forests, riverine forests, palm forest swamps and lowland forests to premontane and above 200m, lower montane rainforests, cloud forests and low elevation elfin forest on Cerro Pirre which is a result of the isthmian effect (INRENARE & ANCON, 1988). The province has a characteristic flora. In the mountains this reflects the region's past geological insularity and isolation: upland elements show affinities with Costa Rica, and during Pleistocene climatic shifts it may have been a refugium. In the relatively recently formed lowlands, the trees and lianas have affinities with Amazonian forests, with the flora of the neighbouring Chocó

region of Colombia and even with the ancient Guayanan region; and the epiphytes and understorey shrubs have northern Andean affinities. The Missouri Botanical Garden has recorded 2,440 species for Darién Province and since 1970, collecting in the wetter forests of Panama has revealed many new species. However, collecting in the Park has been limited and only 700 species have been recorded there (Herrero-MacBryde, 1997).

Occasional mangroves occur along the coast: *Avicennia nitida*, *Rhizophora mangle*, *Mora oleifera* and *Pterocarpus officinalis*, but they are nowhere luxuriant as in the Golfo de San Miguel. In the west there is an isolated strip of thorn woodlandand seasonally deciduous to semi-deciduous trees such as *Albizia caribaea*, *Bombacopsis quinata*, *Cochlospermum vitifolium*, *Prosopis juliflora* and *Sabal allenii*. Along the Tuira and Balsas rivers there is an evergreen riparian forest of over 220 identified species, including 66 trees (Duke, 1975), many understorey palms and pure stands of *cativo, Prioria copaifera,* which can reach 55 m tall (Hartshorn 1981) and is the most utilised timber tree in the region. Freshwater marshes and swamp forests often have palms *Manicaria*, *Jessenia*, *Euterpe* spp. or stands of *Copaifera aromatica*, *C. panamensis*, *Pachira aquatica*, *Pterocarpus rohrii* and various canopy dominants *cativo*, *Pterocarpus officinalis*, *Tabebuia rosea* and *Swartzia panamensis* (Porter 1973; Nations & Komer 1983; Herrero-MacBryde, 1997).

The semi-deciduous lowland tropical forest of the unflooded areas of the Tuira and Balsas basins is the most extensive on the Central American Pacific coast. 10% of the Park is in this life zone. Much of it may be secondary growth on savanna created by Amerindians but abandoned after the coming of the Spanish some 500 years ago. Some dominant trees may be secondary species that have attained great size but are not reproducing (Golley *et al*.,1975; INRENARE & ANCON,1988). The most abundant species in the area is the tall (to 40m) deciduous *cuipo, Cavanillesia platanifolia*. Some 400 species, including over 200 canopy and subcanopy trees have been identified in the tropical moist forest (Duke,1975). The dominant emergents are *Cavanillesia platanifolia* and *Ceiba pentandra*, supported by the equally tall wild cashew *Anacardium excelsum*. Frequent canopy trees include *Bombacopsis quinata* (VU), *B. sessilis*, *Enterolobium cyclocarpum*, *Licania hypoleuca*, *Platypodium elegans*, *Pseudobombax septenatum*, *Sterculia apetala*, *Terminalia amazonia*, *Tetragastris panamensis* and *Vitex cymosa*. In the subcanopy *Mouriri parviflora* is dominant and palms *Sabal allenii* are frequent. The dominant shrubs are *Faramea luteovirens, Mabea occidentalis* and *Piper pinoganense*. Lianas do very well in the canopy and subcanopy in this formation whereas epiphytes and ferns are relatively scarce (Golley *et al*., 1975; Hartshorn 1981).

Premontane wet-warm transitional forest, and montane forests in slightly higher and/or wetter areas above 200m, show several botanically interesting ecosystems. About 60% of the Park is in these two life zones. Major tracts of primary and secondary forests cover most of the terrain and eroded landslides and associated gorges host successional plant communities. Dense low premontane rainforest occurs to 500m, with many subcanopy palms; lianas are common. *Brosimum* and *Dipteryx* species are frequent in the canopy and *Cephaelis elata* is a dominant shrub; ferns are most common in this zone. To 500-600m there is seasonal yet evergreen tropical wet forest which extends into the northern Chocó of Colombia. *Anacardium excelsum* is dominant in the canopy and these trees are frequent: *Bombacopsis quinata* (VU) and *B. sessilis*, *Brosimum guianense*, *Ceiba pentandra*, *Cochlospermum williamsii*, *Dipteryx panamensis* and *Myroxylon balsamum*; the main subcanopy tree is *Oenocarpus panamanus*. The dominant understorey shrub is *Mabea occidentalis* and frequent shrubs include *Clidemia* spp., *Conostegia* spp. and *Miconia* spp. Epiphytes are abundant and canopy lianas common.

On the highest peaks and ridges lower montane rainforest occurs. Cloud forest can commence at c.750m and elfin forest is found on the highest exposed elevations. A distinctive montane oak forest of *Quercus humboldtii* is present above 1,400m on Cerro Malí and above 1,500m on nearby Cerro Tacarcuna. The dominant trees in the cloud forest are *Oenocarpus panamanus*, and in elfin forest *Clusia* spp. (Porter 1973; Golley *et al*. 1975; Gentry 1977, 1985). Some studies have been conducted on and near Cerro Pirre and Cerro Tacarcuna, where many endemics occur (Lewis 1971; Gentry 1985). The limited collections (90% identified) from high on Cerro Tacarcuna show 23% endemism

and some 25% new species, including the new genus *Tacarcuna* (Euphorbiaceae) and three specimens only of the tree *Freziera forerorum* (CR) newly found on the summit of Mt. Tacarcuna. Other similar areas are presumed to have high angiosperm endemism, especially in isolated cloud forests. These mountain life zones cover about 30% of the Park (Herrero-MacBryde, 1997).

FAUNA

The region has a rich fauna, still imperfectly known because of its relative inaccessibility. However, the Nature Conservancy states (2004) that the Park is home to 169 species of mammals, 533 birds, 99 reptiles, 78 amphibians and 50 fish. Endemism is considerable. The presence of adjacent lowland and highland moist forests allows the altitudinal migration of many species, increasingly rare in the tropics as lowland forests are destroyed. The avifauna is particularly rich.

Mammals include northern night monkey or douroucoulis *Aotus trivirgatus*, Ecuadorian mantled howler monkey *Alouatta palliate aequatorialis* (VU), brown-headed spider monkey *Ateles fusciceps rufiventris* (CR), brown-throated sloth *Bradypus variegatus*, giant anteater *Myrmecophaga tridactyla* (VU), capybara *Hydrochaerus hydrochaeris*, central American agouti *Dasyprocta punctata*, spotted paca *Cuniculus paca*. The giant pocket gopher *Orthogeomys grandis,* broad-footed climbing mouse *Rhipidomys latimanus,* and slaty slender mouse-opossum *Marmosops invictus* are found only here. There are also bush dog *Speothos venaticus*, spectacled bear *Tremarctos ornatus* (VU), jaguar *Panthera onca*, ocelot *Leopardus pardalis*, margay *L. wiedii* and jaguarundi *Puma yagouaroundi*, oncilla *L. tigrinus* (VU), white-lipped peccary *Tayassu pecari* and Central American tapir *Tapirus bairdii* (EN). It is probable that some of the 20 species of cetaceans, 33 species of shark and four species of turtle found elsewhere off Panama's Pacific coast will occur offshore.

The extensive lowland forests bounded by isolated mountains are at the centre of two Endemic Bird Areas, the Darién and Urabá Lowlands below c.900m, and above this, the East Panama and Darién Highlands. Of the 533 species. at least 30 are restricted-range species, some confined to a single mountain like Cerro Tacarcuna and Cerro Pirre. Notable species include the world's largest population of the harpy eagle *Harpia harpyja*, black and white hawk-eagle *Spizaetus melanoleucus*, red-throated caracara *Ibycter americanus,* great curassow *Crax rubra* (VU), crested guan *Penelope purpurascens*, marbled wood-quail *Odontophorus gujanensis*, russet-crowned quail-dove *Geotrygon goldmani*, four macaw species including great green macaw *Ara ambiguus* (EN), rufus-vented ground cuckoo *Neomorphus geoffroyi*, crested owl *Lophostrix cristata*, brown violet-ear *Colibri delphinae,* green-crowned brilliant *Heliodoxa jacula* and black-cheeked woodpecker *Melanerpes pucherani.*

Threatened lowland species include the Baudo oropendula *Psarocolius cassini* (EN), Choco tinamou *Crypturellis kerriae* (VU) and spiny-faced ant-shrike *Xenornis setifrons* (VU). Most mountain species are not threatened at present but their very small range sizes leave them vulnerable to disturbance (Stattersfield *et al*., 2000). 23% of the species found on the Serranía del Tacarcuna are endemic, for instance the Tacarcuna wood-quail *Odontophorus dialeucos* (VU), Tacarcuna tapaculo *Scytalopus panamensis* (VU), Tacarcuna bush-tanager *Chlorospingus tacarcunae,* and violet-capped hummingbird *Goldmania violiceps.* The Serranía de Pirre has the Pirre bush-tanager *Chlorospingus inornatus*, green-naped tanager *Tangara fucosa,* rufus-cheeked hummingbird *Geothalsia bella*, violet-capped hummingbird, beautiful tree-runner *Margarornis bellulus* and Pirre warbler *Basileuterus ignotus* (VU). Among the many reptiles are the Central American bushmaster *Lachesis stenophys*, Roatan coral snake *Micrurus ruatanus* (CR), the deadly fer-de-lance pit-viper *Bothrops asper,* cayman *Caiman crocodilus* and American crocodile *Crocodylus acutus* (VU). There are also many species of butterflies.

CONSERVATION VALUE

This is one of the world's most species-rich areas of moist lowland-highland rainforest, with exceptional endemism over a broad range of taxa. It has a very wide variety of habitats, outstanding biodiversity and is culturally rich, with two Amerindian tribes living in the Park. It lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Marine Eco-region,

a WWF/IUCN Centre of Plant Diversity and in two of the world's Endemic Bird Areas. It is also a UNESCO Biosphere Reserve.

CULTURAL HERITAGE

The area is both anthropologically and historically rich, with a number of sites and two major indigenous groups: the Emberás and Wounaan (also known as Chocós) and Kunas. The area was visited by Spanish conquistadors and the coast was explored by Christopher Columbus in 1502. In 1510, the town of Santa Maria la Antigua del Darién was established possibly somewhere within the Park boundaries. As a result of Spanish mistreatment, many of the natives moved away. The Kuna, thousands of whom also live in the next province, have been studied extensively; their language and behaviour are in part directed by their relationships with wild animals and plants and the symbolic and magical features they represent (Chapin, 1991). Goldmining, first worked by the Spaniards at the Espiritu Santo mine at Cana, was still practised in the early 20th century, when the town had 16,000 people. Mining within the Park has been prohibited by the government and the area is now reverting to jungle.

LOCAL HUMAN POPULATION

In 1992 approximately 3,000 Emberás and Wounaan who are linguistically and culturally close to the Emberà (Polsky,1992), with in 1987, 250 Kuna Indians and 400 long established negroes, lived in traditional villages along the riversides in the Park, living on small agricultural plots and a little hunting. Two Emberá Districts lie partly within the Park and buffer zone, one on the Sambú River and others at the foot of their sacred mountain, Cerro Tarcacuna. These groups have maintained their traditional forest culture through centuries of European contact. They use forest palms for weaving, thatching and carving but the recent over-exploitation of forest resources, especially for high quality timber, has not benefited them. In the buffer zone there were some 40 communities with more than 8,000 people in 1988 (INRENARE & ANCON, 1988). Many inhabitants of the nearby towns El Real de Santa María and Boca de Cupe have farms and small plots near and within the Park, several without title deeds. The tribes mix with the Afro-Darién populations, who have for centuries lived alongside them in an ethno-cultural mosaic without parallel in Central America.

The population of Darién is growing at about 5% per year (TNC, 2005). Kuna displaced from Columbia are flooding in from the south and Ladino farmers coming from the north along the Pan-American Highway are diluting the native cultures. Moreover, the National Park management plan originally recommended relocation of native villagers and the prohibition of hunting and fishing in certain areas of the Park necessary to their livelihoods (Dalfelt & Morales, 1978); it also prohibited all hoofed animals, on which the Emberá largely subsisted, within twenty-five miles of the Colombian border (Houseal *et al*., 1994). Following this decision by the government, the group quickly evolved into a logging-dependent culture instead (Houseal *et al*., 1994; Houseal *et al*., 1984), selling their rights to logging companies. The indigenous inhabitants, who have so far resisted invasion of their lands, are sandwiched between two national development plans, Plan Puebla Panama and Plan Colombia.

VISITORS AND VISITOR FACILITIES

Visitor numbers are not high except for birdwatchers, attracted by one of the finest centres in the world for the sport. Fewer than 700 visitors were recently recorded (L.A.Times, 2004). Most transport is still by boat up the Tuira River to Yaviza, the present terminus of the Pan-American Highway, or to el Real, then on by foot. The ANCON Santa Cruz de Cana Field Station located in what was the goldmine on the east slope of the Serranía de Pirre is a main tourist base, and can be flown to. From here a birding trail leads to the top of the mountain. Many natural and historic tracks are kept open all year round in this part of the Park, which is run by ANCON. The Pirre cloud forest camp on the lowland west side of the mountains is another base. An ecotourism project visiting a village of the Emberá Wounaan people combined with birding expeditions has been recently developed. The region has potential for further ecotourism.

SCIENTIFIC RESEARCH AND FACILITIES

The area is of great scientific interest for both natural and social sciences owing to the variety of its natural ecosystems and cultural features. At the time of the Park's establishment the National Institute for Natural Renewable Resources (INRENARE) organised visits to key areas to collect information on its geography, mapping, ecology, socio-economy and ethnography. A few further studies, concerned mainly with vegetation, general ecology and endemic animals on Cerro Pirre and Tacarcuna, have been published. The Smithsonian Tropical Research Institute has set up plots to study *cativo*, the main commercial timber tree, which has been over-logged where accessible. The lowland wet forest is of special importance because it may be a secondary forest almost 500 years old. If further research reveals that this forest is secondary, studies may reveal how to regenerate such a forest with greater success, more regenerative capacity and biodiversity. The International Development Research Centre has sponsored a study of the Emberá. INRENARE has built administration and living quarters in Yaviza, near the Park, which have limited use by scientists. The Cana Environmental Center and Scientific Station complex on the old mine site, is an important bird monitoring centre. There is potential to expand broad ecological research; ANCON has research and development centres for ecotourism at Cana Mining Centre and Punta Patiño Nature Reserve in the buffer zone which has extensive mangrove and semi-deciduous dry forests.

MANAGEMENT

The Park protects a third of the watersheds in Darién Province and is highly important for their social and economic development as well as for the conservation of nature and Amerindian culture. The area has been subject to a decree for the prevention of foot and mouth disease since 1966, 10 inspection guard posts being manned by the Commission for the control of the disease (COPFA) for some years. Before 1980, INRENARE, COPFA and the Wildlands & Watershed Project (CATIE) developed a detailed park master plan. The Park was established with the continued help of INRENARE, including a program for environmental education, public relations and the involvement of the indigenous population in planning and management. Annual operational plans were prepared. The Park was zoned into a Strictly Protected Core zone of over 83,000 ha, an extended Cultural zone of over 180,000 ha, containing Indian settlements following their traditional way of life and culture, a proposed Development zone of some 8,000 ha for tourism and environmental education, and a 40 km-wide Inspection zone (20% outside the Park) running along the Colombian border. Representative species of the Park's terrestrial and aquatic ecosystems were given top priority for preservation, and standards established for entry into and use of both Park and buffer zone for the orderly development of conservation with ecotourism. (LaBastille, 1978; INRENARE & ANCON, 1988). However, definitive boundaries apparently still remain to be legalized by decree.

Since 1986, the National Conservation Association (ANCON) has been actively involved in conservation with INRENARE, WWF and other national conservation bodies. INRENARE rangers cover the critical area next to Mt. Pirre and Cruce de Mono. These numbered 14 in 1989. In 1995, a Biodiversity Conservation project was started up to continue the involvement of local communities in conservation and the sustainable use of resources. In addition, IUCN supported a project for the management of native forest in eastern Panama (INRENARE, pers. comm., 1995). Present forest conservation is being encouraged by the 1998 U.S.Tropical Forest Conservation Act. This was passed to enable the repayment of loans owed to the U.S.A. by encouraging debtor governments to commit money to conserving their forests: $11 million of Panamanian debt may be forgiven this way between 2004 and 2016 (TNC, 2004).

The Park has an administrative office in El Real de Santa María and three ranger stations, at Balsas, Cruce de Mono and Pirre. INRENARE and ANCON have defined and signposted more than 100 km of trails between the three ranger stations. The rangers are provided with training and basic equipment for protection and the enforcement of regulations. There are monthly visits to the most critical areas to evaluate the effects of settlers, hunters and others. ANCON has an environmental education centre at El Real working in cooperation with Park personnel. Environmental education is undertaken in every community in or next to the Park, especially about malaria and foot-and-mouth disease. In the buffer zone, ANCON has established Peresénico Agroforestry Farm near Pirre Ranger

Station and has established an agroforestry programme in the area for habitat restoration using native plants and traditional crops. This provides neighbouring communities with a chance to learn agroforestry techniques and about the Park. The goal is to reduce their pressure on the protected areas. Campaigns to stop land clearances, land mapping to pinpoint forest resources, *cativo* management plans and planting of economically important palms are all measures taken to stem invasive species. Precautions are being taken to avoid and minimize impacts on the ecology from the planned Pan American highway.

MANAGEMENT CONSTRAINTS

Since the 1980s, the government has made the province a priority for major development of natural resources and it became first choice for farmers displaced elsewhere (INRENARE & ANCON 1988). The Pan-American Highway was completed to Yaviza, 24 km away. Mining concessions, since rescinded, were granted in the Park. The areas most under pressure from colonists and timber companies are wetlands and lowland forests; a wide swath of forest has been legally cleared either side of the main highway (Duke 1968, 1975). New settlers have taught local inhabitants that clearing the land for cattle is more profitable than field crops. Darién lumber is an important export, mainly from wetland forests: the widespread *cativo* tree is already over-exploited. Mangroves in the buffer zone are used for charcoal and tannin. On the Colombian border most of the usable slopes have been cleared, except in Los Katíos Park, but due to the natural barrier of mountains and swamps and the lack of direct access, the Panamanian slopes have so far been relatively untouched except where secondary roads have already opened up some of the interior (Polsky, 1992).

In 1971, to facilitate international trade, tourism, and the economic integration of Panama and Colombia, the U.S. Congress agreed to hold $100,000,000 for eventual use by the Secretary of Transportation to fund two-thirds of the work needed to complete the highway (LLI, 2005). It was expected to bring cheaper US goods to South America and encourage manufacturing there. By 2007, the last stretch of the Pan-American Highway to Yaviza is to be asphalted (L.A. Times, 2004). The 87 km route continuing into Colombia through the Tuira River valley and a large area of undeveloped swampland, mountain and forest is surveyed but not yet built. It will bisect the Park and cut the edge of Los Katios Park, introducing many pressures into their fragile environments. Local conservationists and the defenders of native rights have opposed the link for many years. The decision to complete it however, was postponed less for local environmental concerns than by the fear that it might channel foot-and-mouth disease into North America (Herlihy, 1989).This disease is now eradicated from Colombia. In August 2005 Congress therefore authorised the construction of 250 km of the Darién Gap Highway section of the Inter-American Highway (LLI, 2005) to be funded via the International American Development Bank. With the road will come an electricity transmission line, hotels, gas stations and the possibilities of a future pipeline and railroad.

When the road is completed through the two sites, potential consequences could include the invasion of some 50 plant diseases threatening to native species and crops, uncontrolled forestry, flooding, poaching and the social disruption of native societies. Roadside lands will be cleared by large numbers of land-hungry settlers who, when the thin soil is exhausted, will move on, the fields probably becoming cattle ranches. This has already happened along the road into Darién from the north where 60% of the forests had already gone by 1999 (TED, 1999). Both parks have regulations permitting construction of the Highway. The road to Yaviza is being paved and Colombia has funded feasibility studies for its continuation. At present Panama is demurring as free movement of people and goods between Panama and Colombia may also import the Colombian civil conflict, illegal trafficking of wildlife, people and drugs, more slash-and-burn farmers, cattle ranchers, and cheap products from Colombia, which will all require a strong well-funded force to control.

STAFF

In 1995 there were one Superintendent, one specialist in environmental education and eleven full time rangers only, who lack sufficient radios and vehicles (L.A. Times, 2004).

BUDGET

The budget for 1995 was US$665,000: US$110,000 from INRENARE and US$555,000 from UNEP/GEF. A further US$265,000 was allocated for the Biological Conservation project (INRENARE pers.comm.,1995). Financial support to conservation has since come from The Nature Conservancy, partly through the Parks in Peril and the Last Great Places campaigns, the U.S. Agency for International Development, Oro Verde, the World Wildlife Fund-U.S. and World Wildlife Fund-U.K. 2004 The Nature Conservancy committed US$1.3 million in a debt-for-nature swap to increase protection of the Park over the next 12 years.

LOCAL ADDRESSES

National Parks and Wildlife Department (RENARE), Apartado 2016, Panama City, Panama.

Asociación Nacional para la Conservación de la Naturaleza (ANCON) Apartado 1387, Panama City. Panama.

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