

World Heritage Sites

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Areas and
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IGUAZÚ NATIONAL PARK ARGENTINA

Iguazú National Park shares one of the great waterfalls of the world with Iguazu National Park in Brazil. The parks are also an island of the highly endangered Atlantic forest in an area denuded of forest for agriculture. It is one of the most complete remnants of a beleaguered ecosystem, 95% of which, in Brazil and Paraguay, has been eradicated. It still harbours one of the great concentrations of biodiversity in Argentina: almost 44% of its avifauna and several threatened mammals.

Threats to the site: the scenery and biodiversity of both sites is being degraded and there is no ongoing rehabilitation.

COUNTRY

Argentina

NAME

Iguazú National Park

NATURAL WORLD HERITAGE SITE

1984: Inscribed on the World Heritage List under Natural Criteria vii and x.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

IUCN MANAGEMENT CATEGORY

Iguazú National Park: II National Park
Iguazú National Reserve: VI National Reserve

BIOGEOGRAPHICAL PROVINCE

Brazilian Rainforest (8.8.2)

GEOGRAPHICAL LOCATION

The Park and Reserve adjoining it to the west are in Misiones Province in far northeastern Argentina. They lie 5 km east of the confluence of the Iguazu and the Parana Rivers where Brazil, Argentina and Paraguay meet. The Iguazú River forms its northern border and part of the southern border of Iguazu National Park in Brazil. Located between 25°31' to 25°43'S and 54°08' to 54°32'W.

DATES AND HISTORY OF ESTABLISHMENT

1909: A park to protect the falls decreed by Law 6.712;

1934: The National Park officially established by Decree-Law 12.103;

1970: The National Reserve between Puerto Iguazú and the waterfall was excised from the Park by Decree-Law 18.801;

1971 The town of Puerto Iguazú was excised from the Park by Decree-Law 18.991;

1972: A further 12,600 ha incorporated into the Park by Decree-Law 19.473.

LAND TENURE

State. Administered by the Administracion Nacional de Parques Nacionales (ANPN).

AREA

Total area: 55,500 ha, comprising the National Park 49,200 ha and National Reserve 6,300 ha (UNESCO, 2008a). It adjoins the southern end of Iguazu National Park in Brazil (170,086 ha). The Urugua-i Provincial Reserve (86,000 ha) abuts the Park to the southeast.

ALTITUDE

150m to 170m

PHYSICAL FEATURES

The stupendous Iguazú Falls occur where the Iguazú River, which rises near the Atlantic 500 km to the east, cascades into the valley of the Rio Parana off the edge of a basalt plateau which covers a million square kilometres of Brazil, Argentina, Paraguay and Uruguay. This was formed when Mesozoic lavas surfaced through faults over part of a Triassic desert and is interbedded with layers of sandstone. The Falls form a central horseshoe cataract 72m high and 2,700m long, of which 800m are in Brazil. They are flanked by a proliferation of elongated islands, islets and rocks creating some 150-270 subsidiary falls, their extent depending on the seasonal water flow, which varies between 500 and 6,500 cu.m/sec. These head a narrow 80m-wide canyon, *el Garganto de Diablo*, cut back over the last 20,000 years from the junction with the Parana river 18 km downstream. The rest of the Park is a gently undulating plateau of nutrient-poor semi-lateritic soils, crossed by several small river valleys some 60m deep, notably the Rio Central and Rio Santo Domingo, which drain northwards into the Iguazú River. The Reserve flanks the gorge downstream from the Falls, alongside *el Garganto*. Five hydroelectricity dams on the Iguazu River in Brazil upstream from the parks, the Salto Caixas dam being only 20 km from their east end, contribute heavy siltation, rapid runoff, high diurnal temperature variations, and marked variations in the water flow, especially at weekends, which affect the scenic and probably the biological quality of the site (UNESCO, 2008a).

CLIMATE

The climate is humid subtropical with hot summers averaging between 20-32°C but which can reach an absolute maximum above 42°C. The annual mean temperature is 20°C; the average winter temperatures fall between 11°C and 23°C. Rainfall is abundant year round averaging 1,800mm per annum. Relative humidity is high: 75% to 90%, with fogs forming in winter and during the night (Anon., 1983). The river flow is highest in the wet season between January and March.

VEGETATION

The Park in Misiones Province and the neighbouring states, is part of the largest protected subtropical rainforest in the world, the southernmost end, known as the *Selva Paranaense* of the beleaguered interior Atlantic forest of Brazil. In this forest, six layers can be identified: emergent, large, medium-sized and intermediate-sized trees, shrubs and herbs; it is also rich in lianas and epiphytes. The emergent trees 30-40m high, include white *guatambú*, black laurel, *cancharana*, *incienso*, *ybira puita*, and *rabo molle*. Larger trees include the *pacara* and strangler fig. Smaller trees include pindo palm *Butia capitata*, star apple *Chrysophyllum cainito*, yellow laurel and *peteribi*, *Cordia gerascanthus*. The intermediate layer is of smaller trees of the same associations with tree ferns *Cyathea* and fruit trees. The bush layer develops in shade mixed with many ferns and huge impenetrable cane thickets (Cinti, 1983). In total, there are some 2,000 vascular plant species present. A partial list has been published (Anon., 1978).

Three main plant associations can be distinguished: humid subtropical deciduous forest, humid subtropical rain forest and mist forest beside the Falls. The first is *guatambú-laurel-palo rosa* forests in

the highest sections of the Park to the southeast. Here there are associations of palo rosa *Aspidosperma polyneurum* and palmito *Euterpe edulis* trees. The second forest type is laurel-guatambú forest whose main tree species include white guatambú *Balfourodendron riedelianum* (EN), *Nectandra salgina*, *N. lanceolata*, *Cabrlea oblongifolia*, *Lonchocarpus muehlenbergianus* (*rabo molle*), *L. leucanthus*, earpod tree *Enterolobium contortisiliquum* (*pacara*), strangler fig *Ficus maroma*, *Peltophorum dubium* (*ybira puita*), *Tabebuia ipe* (*lapacho*) and false pimentero *Schinus molle* (*inciense*). The understory contains ferns, including the tree fern *Dicksonia selowiana*, Piperaceae, Leguminosae, Mirtaceae and bamboos. There is a great variety of climbing plants from the Compositae, Bignoniaceae, and Sapindaceae. Epiphytes include more than 60 species of orchids, *Oncidium*, *Miltonia*, *Catasetum*, and *Warmingia* among other genera. Bromeliads are represented by the genera *Aechmea*, *Vriesea*, *Tillandsia* and others. The third vegetation type is the mist forest near the falls and nearby islands. Constant wetting due to spray with high insolation and humid-padded ledges determine a fairly distinctive flora, known as *cupay* forest of *Copaifera langsdorffii*, with *Anadenantera macrocarpa* and *Xilopia brasiliensis* at the highest level. Hygrophilus species such as *Paspalum lilloi* with the orchid *Habenaria bractescens* and *Dickya* sp. form grasslands in the wettest areas close to the falls. In this habitat, aquatic plants such as *Podostemon comata*, *P. aquirensis* and *Mourera aspera* are found.

FAUNA

The Park's fauna is rich though still incompletely studied. It includes at least 68 species of mammals, 422 birds, over 40 reptiles, 18 amphibians, and 250 butterfly species, a number of all of which are nationally threatened or vulnerable. According to Straube & Urban-Filho (2005) the Parks together have 83 species endemic to the Atlantic forest (40% of the total biome).

Mammals include capuchin monkey *Cebus apella*, red howler monkey *Alouatta guariba*, a tree-climbing armadillo, the southern tamandua *Tamandua tetradactyla*, the greater naked-tailed armadillo *Cabassous tatouay*, giant anteater *Myrmecophaga tridactyla* (VU), bush-dog *Speothos venaticus*, coatimundi *Nasua nasua*, crab-eating raccoon *Procyon cancrivorus*, capybara *Hydrochoerus hydrochaeris*, giant otter *Pteronura brasiliensis* (EN), La Plata otter *Lutra platensis*, neotropical otter *Lontra longicaudis*, jaguar *Panthera onca*, ocelot *Leopardus pardalis*, tiger cat *L. tigrina*, jaguarundi *Puma yagouaroundi*, white-lipped peccary *Tayassu pecari* and lowland tapir *Tapirus terrestris* (VU). Also found in the Parks according to Straube & Urban-Filho (2005) are little water opossum *Lutreolina crassicaudata*, Ipanema fruit bat *Pygoderma bilabiatum* and spiny rice rat *Abrayaomys ruschii*.

The Park harbours approximately 44% of Argentina's avifauna, of which at least 180 species are resident. Species of particular concern are black-fronted curassow *Pipile jacutinga* (EN), Brazilian merganser *Mergus octosetaceus* (CR), vinaceous-breasted parrot *Amazona vinacea* (EN) though this may be extinct there, purple-winged ground dove *Claravis godefrida* (CR), helmeted woodpecker *Dryocopus galeatus* (VU), russetwinged spadebill *Platyrhincus leucoryphus* and Sao Paulo tyrannulet *Phylloscartes paulista*. Unconfirmed from the site but said by Straube & Urban-Filho (2005) to exist in the Parks, are the fasciated tiger heron *Tigrosoma fasciatum*, the near threatened harpy eagle *Harpia harpyja* and Guiana crested eagle *Morphnus guianensis*, orange-breasted falcon *Falco deiroleucus*, whitebearded antshrike *Biatas nigropectus*, silky-tailed nightjar *Caprimulgus sericocaudatus*, and strange-tailed tyrant flycatcher *Alectrurus risora* (VU), purplebellied parrot *Triclaria malachitacea*, Temminck's seed-eater *Sporophila falcirostris* (VU) and buffyfronted seed-eater *S. frontalis* (VU).

Reptiles include lance-headed viper *Bothrops alternatus*, rattlesnake *Crotalus durissus*, false water cobra *Cyclagras gigas* and, according to Straube & Urban-Filho (2005), a rear-fanged colubrid snake *Clelia plumbea*, Brazilian steppe iguana *Urostrophus vautieri* and Williams' side-necked turtle *Phrynops williamsi*. A large population of spectacled caiman *Caiman latirostris* nest in the islands with dwarf caiman *Paleosuchus palpebrosus*. Amphibians include the giant cane toad *Rhinella marina*. The ichthyofauna is mostly endemic due to the biogeographical isolation created by the Falls (Straube & Urban-Filho, 2005). Species include spotted and squeaker catfish *Pimelodus maculatus* and *P. clarias*.

CONSERVATION VALUE

Iguazú shares one of the great waterfalls of the world with Iguazu National Park in Brazil. The parks comprise an island of the highly endangered *Paranaense* Atlantic forest in an area denuded of forest for agriculture. It is one of the most complete remnants of a beleaguered ecosystem, 95% of which, in Brazil and Paraguay, has been eradicated. It still harbors one of the great concentrations of biodiversity in Argentina: almost 44% of its avifauna and several threatened mammals. The Park lies within a C.I.-designated Conservation Hotspot, a WWF Global 200 Freshwater Eco-region, and in one of the world's Endemic Bird Areas.

CULTURAL HERITAGE

The first inhabitants of the area were the Caingangues. This tribe was succeeded by the Tupi-Guarani whose name for the Falls, I-guassu means 'big water'. Displaced from the forest by the Park, and slowly losing the remainder to forestry companies, almost their only remaining local resource is to make tourist mementoes based on their traditional crafts. The first European to reach the Falls was the Spaniard Don Alvar Nuñez Cabeza de Vaca in 1541 and some ten years later Spanish and Portuguese colonisation began. There are at least two sites of particular archaeological interest within the Park.

LOCAL HUMAN POPULATION

Currently, there are no settlers within the Park. However, it is located in a region of rapid population growth and development, with three large nearby towns, Foz do Iguazu in Brazil, Ciudad del Este in Paraguay and neighbouring Puerto Iguazú (30,000 inhabitants) in Argentina. The Park's limits are bound to suffer growing pressure from the surrounding population, especially from clearances for agriculture, pine plantations and grazing land (ANPN, pers. comm., 1995).

VISITORS AND VISITOR FACILITIES

The Falls are the third largest tourist destination in Brazil and visitation to Iguazu is now over one million a year (UNESCO, 2008a). In 1993, there were approximately 530,300 visitors to Iguazú Park, the highest concentration being during Holy Week, when about 10,300 people visited. Some 2,500 people per day currently visit the Falls area and during Holy Week celebrations, visitation increases to over 8,000 a day, with foreign visitors being roughly 60% of the total. Access by the public is limited in area but well organised, with good information, and the guides who take care of 70% of visitors are university trained. Facilities include hotels (one visually very conspicuous) lodge, restaurants in the Park, youth camp, camp and picnic grounds, kiosks, a small train to the falls, walkways and catwalks among the falls and a new visitors' centre. Activities include walking and trekking a network of signposted trails, guided drives and boat trips, helicopter overflights, rafting, canoeing, rock-climbing and rappelling down cliff sides or off the international footbridge downstream of the falls. Many facilities are also available in Puerto Iguazú where there are four small museums. There is an international airport nearby,

SCIENTIFIC RESEARCH AND FACILITIES

The waterfalls and their environs have been studied since the end of the last century though the biota is still relatively unknown. Increasing the size of the Park to improve the long term survival of species such as tapir, peccary, and jaguar, has been suggested in several studies. During 1994, an environmental impact assessment was carried out in conjunction with the proposal to improve facilities. A Centre for Subtropical Research (*Centro de Investigaciones Tropicales*) was established in 1988. The Centre is responsible for any scientific research programmes within the Park. A newly created Technical Delegation for the Northeastern Region (*Delegación Técnica Regional NEA*) is also based in the Park, and coordinates conservation and research activities, not only for Iguazú but also for other protected areas in the region (ANPN, pers. comm., 1995). A bibliography is given in the World Heritage nomination (Anon., 1983). Ongoing studies of the flora and fauna of the property are providing baseline data for monitoring the biodiversity of the area (UNESCO, 2010).

MANAGEMENT

The Park is managed by the *Administración Nacional de Parques Nacionales* (ANPN). An initial management plan was prepared by Giudice *et al.* in 1988, although its implementation was weak, and a

corrective operative plan for the period 1995-1996 was prepared. This has not been updated nor put into effect and needs total revision (UNESCO, 2008a). The parks were not created as a transboundary site from the first. In 1996 conservationists from the three nations, co-ordinated by WWF, agreed to a new cross-border strategy. It aimed to create a genetic corridor of the remaining fragments of the Atlantic Forest from the Mbaracayu Forest Reserve of eastern Paraguay through the Misiones Forest, including the two Iguazu/Iguaçu National Parks and the Argentinian Urugua-i Provincial Reserve (86,000 ha) in a mosaic of nature reserves and private lands managed for the conservation of their resources. Although protected, sustainable uses including farming and some logging would continue on much of the land, especially critical in Paraguay, where more than 90% of all land is privately held. The Argentine Wildlife Foundation (*Fundacion de Vida Silvestre Argentina*) also brought together government officials, local community leaders and organizations, legislators and university researchers to develop a management plan for the region. The first step was to be the establishment of a 300,000-hectare reserve of protected areas, to link the Iguaçu National Park in Brazil, Iguazú National Park in Argentina and the Moises Bertoni Scientific Monument in Paraguay (O'Connor *et al.*, 2001; Villa-Lobos, 1998). An exploratory transboundary project was funded in 2006 and the first steps towards coordinated though separate revisions of the two management plans were taken in 2008 though without mechanisms for cooperation between the managements. By 2010 an international Action Plan on joint management, joint management plans and monitoring of the parks had been prepared (UNESCO, 2008b; 2010).

MANAGEMENT CONSTRAINTS

The Park lies in an area of increasing uncoordinated development and faces several threats. Proposals have been made to transfer some 23% of the Park to the provincial authorities, and to allow greater development of facilities in the area such as a tethered hot air balloon over the falls (rejected). Tourist use is extensive and encouraged by the government in order to increase park system revenues. It is largely concentrated around the waterfalls where infrastructure such as the remains of an abandoned, now fallen, metal walkway, cliff-edge commercial buildings, and activities such as jet-boating the rapids and helicopter overflights detract from the original World Heritage values of the sites: on busy days the noise of over 20 jet boats and helicopter flights is continuous. The five dams on the Iguazu River upstream contribute heavy siltation, rapid runoff, high diurnal temperature variations, and marked weekly variations in the water flow over the falls, especially at weekends, which degrade the scenic and the biological qualities of the site. New hydroelectric dams on both the Iguazú and Paraná rivers are also proposed and one on the Iguazú river is planned in the 20 km between the park and the existing Salto Caixas dam (UNESCO, 2010).

There has been deforestation and agricultural development in a privately owned key biological corridor between the parks known as the Argentine Peninsula Bottleneck, which could begin to limit the genetic flows between the populations of the parks. Some 100 ha of land in the extreme north-west of the Reserve is used as a military base. The Park is also subject to invasion by domestic stock, poaching for hearts of palm and bushmeat, roadkills especially along the national highways which cross both Park and Reserve, illegal logging and forest fires. To manage these problems regular monitoring, research and education of the local people about conservation are needed (UNESCO, 2005; 2008b).

STAFF

In 1994 there was a total of 51 staff: including 25 administrators, five researchers and 21 rangers (ANPN, pers. comm., 1995).

BUDGET

US\$404,541 for 1994, excluding salaries (ANPN, pers. comm., 1995). UNF provided US\$50,000 for fire-fighting plans since 2000. Fees from the facilities and entry provide revenue but sustainable funding is still inadequate since these revenues finance the management of other less-visited national parks. In 2001 UNF provided US\$50,000 for management (UNESCO, 2008a). Improved management for sustainable tourism and other developments in the buffer zone are being funded by Spanish and Japanese agencies (UNESCO, 2010).

LOCAL ADDRESS

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DATE

1984. Updated 5-1989, 5-1990, 7-1995, April 2006, 12-2008, 8-2010, May 2011.