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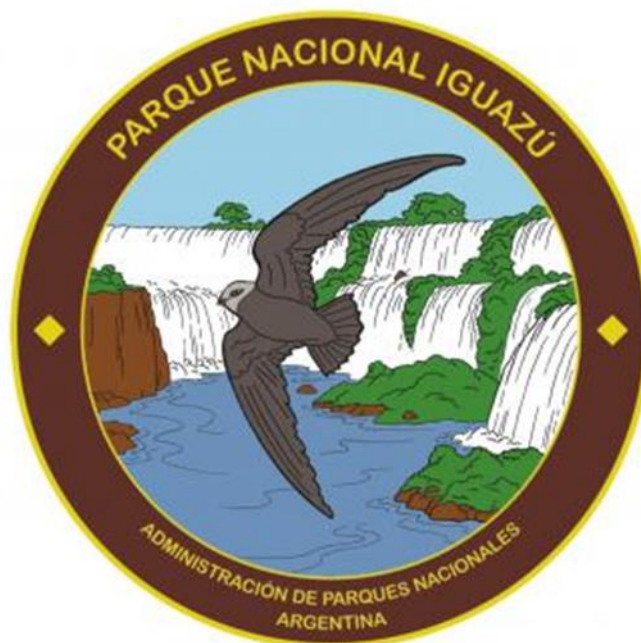
НАЦИОНАЛЬНЫЙ ПАРК ИГУАСУ
IGUAZU NATIONAL PARK AS
THE BIGGEST IN SOUTH AMERICA

АННОТАЦИЯ. Целью статьи является описание природы национального парка Игуасу, его географического положения, а также рассмотрение возможностей для отдыха и туризма на территории, основных достопримечательностей и туристических маршрутов. Особое внимание уделено проблеме преобразования естественных ландшафтов в районе национального парка, а также увеличение антропогенной нагрузки вследствие хозяйственной деятельности человека и браконьерства.

ABSTRACT. The purpose of this paper is to describe the nature of Iguazu National Park, its geographical location, as well as consideration of opportunities for recreation and tourism in the territory, the main attractions and tourist routes. Particular attention is paid to the transformation of natural landscapes, as well as increasing anthropogenic factors because of human activities and poaching.

КЛЮЧЕВЫЕ СЛОВА: национальный парк, водопады, ландшафты, река, туризм, лес, природа.

KEY WORDS: national park, waterfalls, landscapes, river, tourism, forest, nature.



Located in Misiones Province in the Northeastern tip of Argentina and bordering the Brazilian state of Parana to the north, Iguazú National Park, jointly with its sister park Iguacu in Brazil, is among the world's visually and acoustically most stunning natural sites for its massive waterfalls. It was inscribed on the World Heritage List in 1984. Across a width of almost three kilometers the Iguazú or Iguacu River, drops vertically some 80 meters in a series of cataracts. The river aptly named after the indigenous term for "great water" forms a large bend in the shape of a horseshoe in the heart of the two parks and constitutes the international border between Argentina and Brazil before it flows into the mighty Parana River less than 25 kilometers downriver from the park. Large clouds of spray permanently soak the many river islands and the surrounding riverine forests, creating an extremely humid micro-climate favouring lush and dense sub-tropical vegetation harbouring a diverse fauna. In addition to its striking natural beauty and the magnificent liaison between land and water Iguazu National Park and the neighbouring property constitute a

significant remnant of the Atlantic Forest, one of the most threatened global conservation priorities.



This forest biome historically covering large parts of the Brazilian coast and extending into Northern Argentina and Uruguay, as well as Eastern Paraguay, is known for its extreme habitat and species diversity, as well as its high degree of endemism. Around 2000 plant species, including some 80 tree species have been suggested to occur in the property along with around 400 bird species, including the elusive Harpy Eagle. The parks are also home to some several wild cat species and rare species such as the broad-snouted Caiman.

Jointly with contiguous Iguazu National Park in Brazil, which was inscribed on the World Heritage List in 1986, it constitutes one of the most significant remnants of

the so-called Interior Atlantic Forest. Today, the parks are mostly surrounded by a landscape that has been strongly altered due to heavy logging, both historically and into the present, the intensification and expansion of both industrial and small-scale agriculture, plantation forestry for pulp and paper and rural settlements. Jointly, the two sister parks total around 240,000 hectares with this property's contribution being c. 67,000 hectares. Iguazú National Park and its sister World Heritage property Iguazu National Park in Brazil conserve one of the largest and most spectacular waterfalls in the world comprised of a system of numerous cascades and rapids and almost three kilometres wide within the setting of a lush and diverse sub-tropical broadleaf forest. The permanent spray from the cataracts forms impressive clouds that soak the forested islands and river banks resulting in a visually stunning and constantly changing interface between land and water.

Gregorio Lezama was the first owner of this land and, considering them of barely no value, sold them at a public auction using a sign that read "Rainforest area surrounded by many waterfalls". The following owner, Domingo Ayarragaray, developed it a bit further by building a hotel and roads so that visitors could see the waterfalls, and he also exploited local wood resources until President Hipólito Yrigoyen's Government acquired the land. The history of creation of this park dated back 1909. After becoming a national heritage, on October 09, 1934, it was declared National Park by Act 12.103

In November 11, 2011, Iguazú Falls were chosen one of the World's Natural Wonders in a global poll organized by the Swiss Foundation New Seven Wonders, an honor shared with other destinations: The Amazon, Ha Long Bay, Jeju Islands, Puerto Princesa Underground River, Indonesia's Komodo National Park, and the Table Mountain. In 2013, UNESCO awarded Iguazú National Park once again for its Exceptional Universal Value, being a site of such extraordinary cultural and natural value transcending national borders, a site of value for humanity's present and future generations

The name of the Iguassu National Park refers to the Iguassu River, which in the Guaraní language means "large water". It has 185,262.5 thousand hectares and

houses an enormous biodiversity. The Iguazú River flows into the Paraná River, is 1,500 meters wide (0.9 miles), and runs through a number of island and islets to finally fall from a lava cliff formed 120 million of years ago.

Let's pay attention to geographical location. Iguazú Falls are located within the Iguazú National Park, a protected area extending over 67,720 hectares (167.34 acres) on the Northern border of the Province of Misiones, Republic of Argentina. The Park comprises a series of 275 waterfalls at the heart of the Paranaense Rainforest, located 17 kilometers (10.5 miles) from the Iguazú River mouth into the Paraná River, where the Argentine, Brazil and Paraguay borders meet, and where the cities of Puerto Rico (Argentina) and Foz do Iguazú (Brazil) are. The total area is 55,000 ha, the National Park 49,200 ha, and National Reserve 6,300 ha. The altitude ranges from 150 meters (m) to 170 m. Iguazú National Park is part of a large plateau formed by basaltic lavas during the Mesozoic Era, more than 135 million years ago. Lava surfaced through tectonic faults and cracks, without formation of volcanic cones, and covered some one million square kilometers (km²) in Brazil, Paraguay, Argentina and Uruguay. The lava covered a broad portion of the Botucatu Triassic Desert and interleaved layers of sandstone and basalt have formed. The Iguazú River has its source in the Serra do Mar mountains at an elevation of 1,300 m, a short distance from the Atlantic Coast, and flows west for over 500 km into the Parana River, immediately to the west of Puerto Iguazú. The Iguazú Falls, located in the west of the park, are made up of 150-270 subsidiary falls depending on the flow rate, which seasonally varies between 300 cubic meters per second (m³/sec.) and 6,500 m³/sec.. The falls form a semi-circular front of 2,700 m, of which 800 m is under Brazilian jurisdiction. A proliferation of elongated islands, islets and rocks create numerous waterfalls which together form the large fan of the Iguazú Waterfalls. The falls drop an average of 72 m and the river immediately turns into a narrow, 80 m deep canyon, which has been enlarged by erosion of the basalt bedrock. The falls were probably initially located at the confluence of the Iguazú and Parana Rivers some 20,000 years ago, but erosion has caused them to recede 28 km upstream to their present location. The remainder of the park is a gently undulating basalt plateau with a number of small rivers draining

northwards into Iguazú River, notably the Central and Santo Domingo in valleys up to 60 m deep. There are a series of smaller islands, with Isla de San Agustín being the only one longer than 1 km.

What can we say about climate? Humid subtropical with hot summers. Annual mean temperature is 20°C: average summer and winter temperatures are 26°C and 14°C, respectively. During summer absolute maximum temperatures may exceed 42°C. Rainfall is abundant year round averaging 1,600 millimeters (mm) per annum. Relative humidity is high (75% to 90%) with fogs forming in winter or during the night. Iguazu National Park is located in the ecological region, bearing the name of "Paraná Atlantic Forest." The flora is rich and diverse and includes more than 2 thousand species of plants. On the banks of the Iguazu and numerous islands in its delta is growing set of water-loving plants, many of which are hardly found in other parts of the country. In the park grows - *Aspidosperma polyneuron*, one of the endangered species of trees, which is rarely found outside the park because of deforestation due edible fruits. Marked is a type of cabbage palms - *Euterpe edulis*, Phoebe, holly, *Podocarpus*, recently rarer *Cedrela*, *Araucaria*, Palo rose. In addition, there are trees *Burseraceae* family, as well as many other vascular plants. Of the interesting species of flowers in the park there are various types of bromeliads and orchids. The park is rich in fauna and includes 68 species of mammals, 422 of birds, 38 of reptiles, and 18 of amphibians, a large number of which are threatened or vulnerable. Mammals include giant otter *Pteronura brasiliensis* (V), La Plata otters *Lutra platensis* (V), jaguar *Panthera onca*, ocelot *Felis pardalis*, tiger-cat *F. tigrina*, jaguarundi *F. yaguarundi* (K), bush-dog *Speothos venaticus* (V), capuchin monkey *Cebus apella*, giant anteater *Myrmecophaga tridactyla* (V), tamandua *Tamandua tetradactyla*, crab-eating raccoon *Procyon cancrivorus*, coati *Nasua nasua*, and tapir *Tapirus terrestris*. The park harbors approximately 44% of Argentina's avifauna, of which at least 180 species are resident. Species of particular concern are black-fronted piping guan *Aburria jacutinga* (E), Brazilian merganser *Mergus octosetaceus* (E), purple-winged ground dove *Claravis godefrida* (E) and helmeted woodpecker *Dryocopus galeatus* (V). Reptiles include pit viper or urutú *Bothrops alternatus*,

rattlesnake *Crotalus durisus* and *Cyclagras gigas*. A large population of spectacled caiman *Caiman latirostris* nest in the islands. Amphibians include *Bufo marinus*. Fish include leopard catfish *Pimelodus maculatus* and *P. clarias*.

Protection and management requirement is paid much attention to. Iguazú National Park has a long conservation history dating back to the early 20th Century and was declared a national park in 1934 illustrating the longstanding recognition of its quality. The integrity of Iguazú National Park must be considered in conjunction with the sister property in neighbouring Brazil. Jointly, the two properties constitute a valuable remnant of a once much larger forest area and adequately conserve the splendid system of waterfalls. Effective management of the protected areas and mitigating land use impacts in and from the surrounding landscape increase the likelihood of maintaining many of the values the property has been inscribed for, and contribute to the survival of species that live in the property and wider landscape. The prominent role as a major international and domestic tourism destination makes Iguazú National Park a highly visible property. Threats to it are likely to draw strong attention and there are important political and economic incentives to invest in the future of the property. Iguazu National Park is owned by the national government and is an integral part of Argentina's National System of Federal Protected Areas SIFAP (under the National Parks Law N° 22351) and was created as early as 1934 (Law N° 12103). The management of this protected area is in the hands of trained professionals, including rangers. A budget is available to secure the infrastructure and equipment needs to carry out their duties responsibly. A regional technical office lends professional support, and there is a sub-tropical research centre engaged in ecological studies. Water levels are artificially modified through power plants upriver in Brazil, such as the José Richa or Salto Caxias Hydroelectric Plant, causing scenic and ecological impacts. These impacts require monitoring and mitigation and future impacts need to be prevented. Tourism management is a key task in the property minimizing the direct and indirect impacts of heavy visitation and maximizing the opportunities in terms of aware-raising for nature conservation and conservation financing. The value of the property is consolidated by the contiguity with the much

larger Iguazu National Park in Brazil but requires corresponding effective management on both sides of the international border. Over time, an increasing harmonization of planning, management and monitoring is highly desirable and indeed necessary. Ideally, a joint approach will encompass commitment at the highest political levels all the way to tangible activities on the ground based on existing efforts.

And now we must mark the principal problem of the park. Among the threats requiring permanent attention are existing and future hydro-power development upriver, ongoing deforestation in the broader region, including in the adjacent forests in nearby Brazil and Paraguay, agricultural encroachment, as well as poaching and extraction of plants. Tourism and recreation and corresponding transportation and accommodation infrastructure have undoubtedly been impacting on the property and can easily pass the limits of acceptable change. Given the ongoing transformation of the landscape around the properties in the recent decades future management will have to develop longer term scenarios and plans taking into account this reality. Beyond the relatively small park it will be important to strike a balance between conservation and other land and resource use in Misiones Province so as to maintain or restore the connectivity of the landscape. This will require working with other sectors and local communities. Eventually, the property should be buffered by adequate and harmonized land use planning in the adjacent areas in Argentina, Brazil and Paraguay. The topical attractiveness of the park is due to tourist destinations. They are very unusual and have different names:

1. «Upper Circuit» begins two hundred meters from The Rainforest Train Cataratas Station and along its way visitors can enjoy a panoramic view of the semicircular chain that begins at Dos Hermanas Waterfalls, going through Chico, Ramírez, Bosetti, Adán y Eva, and Bernabé Méndez Waterfalls, ending at Mbiguá Waterfall lookout as a first stop. It is characterized by having its trails set on top of the waterfalls edge, which allows a vertical view from the top, something really electrifying. It has places to rest, which makes the tour a source of energy and relax in contact with water. After Mbiguá Waterfall

lookout, the gangway crosses the Superior Iguazú River to reach the edge of the second largest fall of this beautiful system: the San Martin Waterfall. This balcony has the best and widest panoramic view of the whole Park: you will be able to see the Hotel Das Cataratas and the elevators on the Brazilian side, and the Sheraton Hotel, the Old Water Tank Tower, the balconies of Upper and Lower trails, the San Martin island and the gangway to Devil's Throat on the argentinian side. To exit this circuit, the gangway runs snaking back through islets in the Upper Iguazú delta, to finally reach Cataratas Station.

2. «The Rainforest Ecological Train» was designed and built for transporting tourists in the Cataratas Area of the Iguazu National Park. It runs on liquefied petroleum gas (LPG), which does not pollute the environment and has clean combustion, leaving no solid waste. It travels at 18 km/h (12 mph) maximum, and has barely no noise impact. Exclusively designed for the Iguazú National Park by the English company Alan Keef Limited (expert on leisure locomotives, supplier of other parks in Asia and Europe), it adapts to the climate special characteristics, the surrounding thick vegetation, and it preserves the area. It is not fully enclosed so that its 250 passengers can have direct contact with the environment and experience a journey into the forest, its sounds, scents and wetness. It starts at Central Train Station, very close to the services and shop areas, and where the access to Macuco Trail is located. From there, groups depart every 15 or 20 minutes, depending on demand. Cataratas Train Station is the intermediate stop, where the access to the Upper and Lower Circuits is located and visitors can board the boat to San Martín Island. It ends at the Devil's Throat Train Station, where the 1,100 meters long (1,203 yards) footbridge begins and leads across the Upper Iguazú River to the lookout from which this wonderful waterfall can be seen.
3. «Lower Circuit» consists of footbridges which go into the forest foliage to where Dos Hermanas, Chico and Ramírez Waterfalls falling waters break and to the end of this part of the Circuit, where visitors can enjoy the bottom of the great water wall of Bosetti Waterfall. On the way out of this waterfall, 20 meters

away, there is an access to the quay from where visitors can board a boat to San Martín Island. The Circuit goes on along the border of the Iguazú River opposite to the island, and visitors will marvel at its beaches and cliffs. The second part of the Lower Circuit ends at the lookout on top of where this branch of river meets the Iguazú canyon, and the impressive Devil's Throat and its typical mist can be seen at the far. Up to here, all the visited locations are 100% accessible. The third and last parts of the Circuit, which lead back to Dos Hermanas Square, have stairs and go through the Lower Iguazú shore where Alvar Núñez, Elenita, and Lanusse steep waterfalls can be enjoyed.

4. «Macuco Trail and Arrechea Waterfall» trail has the name of a bird of the South American partridge family, a brown bird bigger than a chicken. The thickness of the surrounding environment makes it hard to see the fauna, which is why all the senses must be sharpened. Visitor should walk carefully and look for animal tracks and watch the colorful variety of insects. Luckily, caí monkeys can be spotted as this is their natural habitat. They live on trees, are restless and very curious. They move in groups of no more than 20 individuals. They eat fruits, and the forest has everything they need. It is advised that visitors should not approach them or feed them, and simply watch their natural behavior without interfering. Along this path, there are six interpretation stations that help visitors understand some of all the area rich biodiversity. The Macuco Trail ends at the edge of the Iguazú canyon. Thousands of years ago, the Falls were located at this point, and gradually moved backwards to their current location. Nowadays, their old location has been taken up by many streams that flow into the Iguazú River, such as the Arrechea Stream, which has an amazing, paradisaical 20 meters high (65.62 ft) cascade before the end.
5. The Majestic «Devil's Throat» tour allows visitors to approach a few meters from the most important and mighty waterfall of the Iguazu Falls, whose image has traveled all around the world, similar to a giant funnel that swallows the planet. The itinerary begins about 1,100 meters before the monumental fall, after getting off the Ecological Jungle Train at Devil's Throat Station, which

was designed with the purpose of generating the least possible environmental impact. The gangway leading to the balcony that faces the waterfall is just over a kilometer in length, is safe and quiet, either on wheelchair or by walking, due to the absence of obstacles and its absolutely flat character. The folding system of gangways was designed to preserve them from being damaged due to an important increase in the flow of Iguazu River. In normal circumstances, when the river is low, the railings are raised and the gangways allow the people get to the Balcony of the Devil's Throat. When the river increases its flow, railings are fold to allow the flow to pass through, by reducing the resistance, and thereby also enabling to pass a trunk floating above. And if the river level is very high, the flow velocity increases, and that is the moment when the gangways detach themselves, to avoid compromising the concrete structure. Once the flow is down again, all the structure is reset. When this process eventually occurs, access is not enabled for people, but the Iguazu National Park never closes its doors, and those who are visiting us, can come to enjoy the splendor that acquire the rest of the falls when the river rises, due to an unusual majesty that can only be appreciated in opportunities like these. This system of gangways and security, proposed and approved by the National Parks Administration was possible because of the replacement of all the old wood gangways by these current ones, characterized by an ecological architectural development, and specially designed for structural piles safeguard, preventing the circuit being closed long periods of time, as occurred decades before.

In conclusion we can say that the Iguazu National Park of South America contains one of the wonders of the natural world, the Iguazu waterfalls or Cataratas del Iguazú in Spanish. Located on Argentina's northern border with Brazil, the Iguazu Falls attract nearly 2 million visitors each year making it one of the most popular sites in the whole of South America. People travel from all over the globe to experience the power of one of the world's largest waterfalls. The Iguazu National Park is also home to an array of exotic flora and fauna. Since 1984 the park has benefited from its

status as one of UNESCO's World Heritage Sites. The waterfalls split the upper and lower levels of the vast Iguazu River, which forms a significant part of the Parana River, South America's second largest river after the Amazon. Overall, the Iguazu Falls are made up of an impressive 275 waterfalls with drops that vary from 60-82 meters at the highest point. The edge of the upper plateau, from which the water drops, stretches for 1.7 miles and is broken up by numerous islands that form the separate falls. One of the most impressive features of the Iguazu Falls is a narrow chasm known as the "Devil's Throat". This 150 meter wide and 700 meter long U-shaped enclave is the best place to truly appreciate the raw power of Iguazu Falls as water thunders down from all sides. Over half of the water that passes over the Iguazu Falls does so through the "Devil's Throat". This dramatic site is what gave rise to such an evocative name as is Devil's Throat. In terms of average annual water flow, Iguazu River is ranked after North America's Niagara Falls. However, when Iguazu River is at its highest, Iguazu Falls becomes the largest waterfall on the planet with a maximum recorded water flow of 452,000 cubic feet per second. With a superior height than that of Niagara Falls, and less restricted views than that of Victoria Falls in Zimbabwe, some argue that Iguazu Falls is the most impressive set of waterfalls in the world. In fact, the New Seven Wonders of the World Foundation selected Iguazu Falls in Argentina as one of the New 7 Wonders of Nature. These famous falls are located in the Iguazu National Park, one of thirty Argentine national parks. The first Argentine national parks were founded as far back as 1903 in Patagonia's Lake District. The Iguazu Park has maintained national park status since 1934, providing protection to local flora and fauna by prohibiting hunting and logging in addition to putting tight restrictions on development in the area. The Iguazu National Park currently spans 212 square miles on the Argentina side alone, continuing on the Brazilian side of the Iguazu River to create an even larger protected area for wildlife and plants. Animals that can be found in the Iguazu Park are typical to those found in any South American rainforest. The most impressive species include jaguars, tapirs, anteaters and the elusive ocelot which is considered to be a type of dwarf leopard. Many of these animals are on endangered species lists and the

Iguazu National Park provides an integral role in protecting them from the threats of poaching and deforestation. Despite the massive tourist appeal of Iguazu Park, authorities are keen to reduce the impact humans have upon the natural surroundings when they visit. Access to Iguazu Falls is restricted and a special “Rainforest Ecological Train” is used to carry passengers from the park entrance, through the jungle and to the falls. Alternatively the falls can be reached via a series of forest trails of varying grades of difficulty.

On the other side of the Iguazu River lies the Brazilian park of the same name (Iguazu National Park). Both parks are almost in the same area so they are very similar. The view of the waterfalls in Brazil is more panoramic, although the park there is much more compact in size. Argentina seems to organize better tourism in the national park - there is a lot souvenir shops, cafes, where you can rest in the unbearable heat. Also in the park there are many viewing platforms and walkways leading to the waterfalls. So Iguazú National Park can not be compared to any, because it is a grandiose natural structure, which surprises with its power and beauty, and of course is the main tourist attraction of South America.

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