Iguaçu National Park

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: Brazil  
Inscribed in: 1986  
Criteria: (vii) (x)  

The park shares with Iguazú National Park in Argentina one of the world’s largest and most impressive waterfalls, extending over some 2,700 m. It is home to many rare and endangered species of flora and fauna, among them the giant otter and the giant anteater. The clouds of spray produced by the waterfall are conducive to the growth of lush vegetation. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 02 Dec 2020

The overall outlook for the conservation of the site’s World Heritage values is of significant concern. Main threats include unnatural changes in water levels related with the presence of upstream dams in the upper Iguazu River watershed, hunting inside the Park, water-borne pollutants from agriculture, biological isolation and potential ecosystem changes driven by climate change. In general, protection and management of the Park is mostly effective within its boundaries. A recent study (da Silva, X. et. al, 2018) concluded that the Park harbours a rich terrestrial large mammal fauna including species that are rare or extinct in most Atlantic Forest remnants, finding no evidence of temporal declines in occupancy over a five-year period for any of the large mammal species, indicating that the occupancy of jaguar, jaguarundi and puma also recently increased in the Park. However, results concluded that the spatial distribution of most terrestrial large mammals have been negatively affected by edge effects from human-modified landscapes, tourism and to a lesser extend hunting. Concern also exists that riverine biota in the Upper Iguazu River may be suffering negative impacts due to agricultural pollution and alteration of river levels caused by hydropower dams. Ongoing monitoring programmes will generate valuable data and information to address threats inside and outside the Park. However, relatively little can currently be done to reduce or mitigate threats originated outside the Park, including biological isolation, the effects of existing dams, water-borne pollutants from agriculture or climate change.
FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ One of the largest and most impressive waterfalls in the world

Criterion: (vii)

Iguazu National Park shares with Iguazu National Park in Argentina one of the world’s largest and most impressive waterfalls comprised of a system of numerous cascades and rapids within the setting of a lush and diverse sub-tropical broadleaf forest (World Heritage Committee, 2016; IUCN, 1986). The site’s main attraction is the waterfalls system of the Iguazu (or Iguazu) river, renowned for its visual and acoustic beauty, with vertical drops of up to 80 meters. The river, named after the indigenous term for “great water”, forms a semi-circle in the heart of the two parks and constitutes the international border between Argentina and Brazil before flowing into the mighty Paraná River, 25 kilometres downstream from the park (World Heritage Committee, 2016). The permanent water cloud from the cataracts forms an impressive scene that surrounds the forested islands and riverbanks resulting in a visually stunning and constantly changing interface between land and water (World Heritage Committee, 2016; IUCN, 1986).

▶ Exceptional biodiversity and rare charismatic species

Criterion: (x)

Iguazu National Park and the neighbouring Iguazu National Park constitute a significant remnant of the Atlantic Forest, one of the most threatened global conservation priorities. The rich biodiversity includes countless invertebrate species, over 400 species of birds and possibly as many as 80 mammals, including some endangered and vulnerable species such as the puma (Puma concolor), the margay (Leopardus wiedii), the jaguarundi (Puma yagouaroundi), the harpy eagle (Harpia harpyja), the giant otter (Pteronura brasiliensis), the black-fronted piping guan (Aburria Jacutinga), the tapir (Tapirus terrestris), the bush dog (Speothos venaticus), the pygmy brocket (Mazama nana), the monjolo or surubim of the Iguazu (Steindachneridion sp), the piranajuba (Brycon orbignyanus) and the fasciated tiger heron (Tigrisoma fasciatum) (World Heritage Committee, 2016). Rare charismatic species also include the broad-snouted caiman, giant anteater (Myrmecophaga tridactyla), ocelot (Leopardus tigrinus) and the jaguar (Panthera onca) (World Heritage Committee, 2016; IUCN, 1986).

▶ Exceptional plant diversity with high level of endemism

Criterion: (x)

Iguazu National Park, together with the contiguous World Heritage property of Iguazu National Park in Argentina and adjacent protected areas, forms the largest single protected remnant of the Paranaense subtropical rainforest, which belongs to the Interior Atlantic Forest. Both parks host over 2000 species of vascular plants, including some rare and iconic species such as the Juçara-palm, the Peroba and the critically endangered Paraná-pine (World Heritage Committee, 2016; IUCN, 1986).

Assessment information

Threats

Current Threats

Very High Threat

Biological isolation due to agriculture, livestock farming, roads and infrastructure outside the Park and the presence of dams in the upper Iguazu River watershed, specially the Baixo Iguazu hydropower plant recently constructed, represent very high threats to the OUV. Other important (high) threats are the
increase in visitors aligned with ICMBio policy to raise visitation to protected areas; water-borne pollutants from agricultural systems outside the property, that include nutrients, toxic chemicals and sediments, whose exact impacts still need to be evaluated; hunting and trapping of terrestrial wild animals, as well as illegal fishing, inside the Park; and climate change including an increase in rainfalls, temperatures and extraordinary floods that lead to changes in forest composition. The impact of tourism infrastructure and activities, and the illegal extraction of palmito (Euterpe edulis) are lower and more manageable threats (State Party of Brazil, 2020; da Silva, X. et al. 2018; APN, 2017; IUCN, 2015; IUCN and UNESCO, 2008).

**Tourism/ visitors/ recreation**

*(Increasing visitor numbers)*

ICMBio seeks to increase visitation to protected areas. The Park is the second most visited federal protected area in Brazil, visitor numbers have increased from 645,000 in 2002 to 1,9 million in 2018. On national holidays the Park received up to 13,000 visitors a day. Park management is considering to have a booking system for peak times, to manage the timing of arrivals. Management of increasing visitors is been carefully considered in order to develop solutions that would maintain visitor experience and ensure that the outstanding scenic values of the property are preserved in the long-term (State Party of Brazil, 2020; IUCN, 2015).

**Dams/ Water Management or Use**

*(Dams on the Upper Iguaçu River watershed)*

The dams located outside the property, have considerably altered the rate and periodicity of water flow that feeds the waterfalls. On weekends, when the demand for electricity is low, the dams are closed causing the waterfall to have less water during the beginning of the week. The decreased flow damages the aesthetics of the waterfalls. The unnatural fluctuation in water levels and rates of flow also affect riverine flora and fauna, though the specifics are unknown (IUCN and UNESCO, 2008).

**Livestock Farming / Grazing**

*(Agriculture, livestock farming, roads and other infrastructure outside the site)*

The Park is an island in a sea of ranching and farming right up to the Park’s boundaries, limiting connectivity within the Atlantic Forest Biome in Brazil, primary by low forest cover along Iguaçu river. Large cats from the Park that prey on livestock and peccaries that consume crops outside the Park are eliminated. Connectivity to the Atlantic Forests remaining in Argentina is limited by the area known as the “Argentine Peninsula Bottleneck” (IUCN and UNESCO, 2008).

A recent study highlight that the spatial distribution of most terrestrial large mammals within the Park have been negatively affected by edge effects from human-modified landscapes (and tourism and to a lesser extent hunting). For large mammals, that range widely and come into frequent contact with Park limits and beyond, the altered areas overexpose them to human-induced mortality such as road kills, hunting and persecution. In addition, favor biological invasions like the domestic dog across the Park, an example of an edge-induced invasion (da Silva, X. et al. 2018).

**Tourism/ visitors/ recreation**

*(Tourism infrastructure and activities)*

Tourism infrastructure spoils natural aesthetic values and the visual integrity of the waterfalls. The most prominent and direct intrusions are: i) the Naipi Souvenir Shop and Elevator from the lip of the canyon to the elevated walkways to the Santa Maria falls and ii) the Porto Canoas Restaurant and souvenir shop placed at the very edge of the falls. The Hotel das Cataratas is considered a large intrusion in the landscape as well as the Sheraton Hotel located in the Argentina side but visible from the Brazilian side (IUCN and UNESCO, 2008). The Management Plan indicates the urgency to develop a Plan for Public Use, that integrates needs for reforming or implementing new infrastructures for visitors that improve the quality of visitors experience, without compromising the site’s aesthetics (ICMBio, 2018).
IUCN World Heritage Outlook: https://worldheritageoutlook.iucn.org/

Iguazu National Park - 2020 Conservation Outlook Assessment

► **Agricultural effluents**

*(Water-borne pollutants from agricultural systems that include nutrients, toxic chemicals and/or sediments)*

Inside site, extent of threat not known

The northern boundary of the property is clearly marked by the limit of the forest and the start of intensive farming. The streams that run from the agricultural zone into the property and down to the river Iguazu carry heavy sediments. What exactly the sediment carries, in terms of agricultural pollutants (pesticides and nitrates) is a concern. The sediment load of those streams carrying the agricultural run-off is greater than that of the tributary whose entire catchment areas lies in the eastern part of the National Park (IUCN, 2015).

► **Hunting and trapping, Fishing / Harvesting Aquatic Resources**

*(Hunting or trapping terrestrial wild animals for subsistence, commercial and recreational purposes. Illegal fishing)*

Inside site, widespread (15-50%)

The protection given by the Park allowed the increase of wildlife populations attractive to hunters. The Park hosts most of the terrestrial large mammals known to have occurred around 20 years ago, at the time of the first systematic study. Although the population of jaguar remains low, the occupancy has increased, with reports of about 22 jaguars within the Park in 2016, compared to an estimated 11 in the 2009 census and an increase from 40 to 100 outside the Park. Jaguarundi and puma populations also recently increased. The only exception is the white-lipped peccary, not recorded in a recent study. Illegal hunting appears to have particularly serious impacts on the population of jaguar, as poachers often target its prey species (State Party of Brazil, 2020). Paca and agouti, medium size rodents, are among the most frequently hunted species within the Park, both are also important seed dispersers with a key role in forest regeneration (da Silva, X. et al. 2018; State Party of Brazil, 2020). The Park has a very active program to detain hunters, including joint patrolling with the neighboring Iguazu National Park, however they still venture into the Park for cultural, commercial (sale of meat and fur) and subsistence reasons. There is evidence of sport hunting activities in the region (ICMBio, 2018; IUCN, 2015). Operations are also in place to control illegal fishing (State Party of Brazil, 2020).

► **Dams/ Water Management or Use**

*(Baixo Iguazu hydropower plant)*

Very High Threat

The newly constructed Baixo Iguazu hydropower plant (HPP) went into operation in December 2018 and is located just a few hundred metres from the eastern boundary of the Park. The OUV of the Park are monitored by several programmes run by the Chico Mendes Institute for Biodiversity Conservation (ICMBio) and partners, as well as by the operator of the Baixo Iguazu HPP in response to the environmental licensing requirements (License was issued on 25 August 2015 by the Government of the State of Paraná and by ICMBio through the Authorization No. 01/2015). According to the first monitoring reports, the operation has been following the conditions imposed by ICMBio and the Environmental Institute of Paraná. The data reported indicate that a minimum flow of 350 m3/s was respected, even during the dam’s filling period (State Party of Brazil, 2020). However, it remains unclear whether a specific assessment of all potential impacts of the construction and operation of the dam on the OUV has been conducted, as requested by the World Heritage Committee (UNESCO, 2018).

► **Habitat Shifting/ Alteration**

*(Increased rainfall, temperature extremes and extraordinary floods and droughts)*

High Threat

The Iguazú National Park (Argentina) Management Plan reports an increase in rainfalls and temperatures especially during spring and winter, as well as extraordinary floods. Affectation of sensitive species like the amphibians and changes in the forest composition and physiognomy are expected (APN, 2017). The Iguazu National Park Management Plan highlights that the protected forest provides carbon...
sequestration and local climate regulation, among other ecosystem services (ICMBio, 2018).

**Collection of non-timber forest products (NTFPs)**

*Illegal extraction of palmito*

Illegal extraction of palmito (Euterpe edulis) has been maintained over the years, mainly due to cultural reasons since the extraction, consumption and commercialization of palmito is passed from generation to generation (ICMBio, 2018).

**Potential Threats**

As of 2019, the Colono Road is still closed and the road area is in advanced stages of forest regeneration. However, there are two Bills passing through National Congress that propose the reopening of Colono Road: a) The House of Representatives, the new Bill, PL 984/2019, alters Law no. 9.985, of July 18, 2000, to create a category of Protected Area called Park-Highway and institutes the Colono Road Park-Highway in the Iguazu National Park. The project is being analyzed by 5 Commissions and has been approved by one; b) The Senate is analyzing Bill PLC 61/2013 to create a category of Protected Area called Park-Highway and institutes the Colono Road Park-Highway of the Iguazu National Park. The Bill was approved by the House of Representatives in 2013 and was sent to the Federal Senate where it was assigned the number PLC 61/2013. It will be analyzed by the Committees of Infrastructure Service, of the Environment, and of Regional Development and Tourism. The Brazilian government is monitoring this closely and is committed to providing updates about the proceedings of the respective Bills. Even if the Bills are effectively approved, the road's reopening must consider the Brazilian law that protects the Atlantic Forest (Law no. 11.428, of December 22, 2006) and the current Management Plan (State Party of Brazil, 2020).

**Roads/ Railroads**

*Pressure to re-open the “Estrada do Colono”*

In 1999, the Committee inscribed the property onto the List of World Heritage in Danger due to the construction of the unauthorized Estrada do Colono (Colono Road) through the centre of the property. In 2001, due the end of road construction activities, the property was removed from the List of World Heritage in Danger. Pressure remains from local interests to re-establish this road (UNESCO, 2012). As of 2019, the Colono Road is still closed and the road area is in advanced stages of forest regeneration. However, there are two Bills passing through National Congress that propose the reopening of Colono Road:

a) The House of Representatives, the new Bill, PL 984/2019, alters Law no. 9.985, of July 18, 2000, to create a category of Protected Area called Park-Highway and institutes the Colono Road Park-Highway in the Iguazu National Park. The project is being analysed by 5 Commissions and has been approved by one.

b) The Senate is analysing Bill PLC 61/2013 (original record - PL 7123/2010), which alters Law no. 9.985, of July 18, 2000, to create a category of Protected Area called Park-Highway and institutes the Colono Road Park-Highway of the Iguazu National Park. The Bill was approved by the House of Representatives in 2013 and was sent to the Federal Senate where it was assigned the number PLC 61/2013. By the end of 2018 the Bill was archived and in 2019, was un-archived and will be analysed by the Committees of Infrastructure Service, of the Environment, and of Regional Development and Tourism. The Committee of Infrastructure Service approved with only one opposing vote. Currently, the Bill is being evaluated by the Committee of the Environment, and finally will be evaluated by the Committee of Regional Development and Tourism, which has the final say.

An online public consultation carried out by the Federal Senate registered 61% votes against and 39% votes in favour of the Bill. The Brazilian government is monitoring this closely and is committed to provide updates about the proceedings of the respective Bills. Even if the Bills are approved, the road's reopening must consider the Brazilian law that protects the Atlantic Forest (Law no. 11.428, of December 22, 2006) and the current Management Plan, both incompatible with the road's reopening (State Party of Brazil, 2020).
**Overall assessment of threats**

High Threat

Biological isolation due to agriculture, livestock farming, roads and infrastructure outside the Park and the presence of dams on the upper Iguaçu River, specially the Baixo Iguaçu hydropower plant recently constructed, represent very high threats to the OUV. The re-opening of the Estrada do Colono (Colono Road) through the centre of the property is a potential high threat. Other high threats are the increase in visitors aligned with ICMBio policy to raise visitation to protected areas; water-borne pollutants from agricultural systems outside the property, that include nutrients, toxic chemicals and sediments, whose exact impacts still need to be evaluated; hunting and trapping of wild animals and climate change including an increase in rainfalls and temperatures and extraordinary floods that lead to changes in forest composition. The visual impact of tourism infrastructure and the illegal extraction of palmito (Euterpe edulis) are lower and more manageable threats (State Party of Brazil, 2020; da Silva, X. et al. 2018; APN, 2017; IUCN, 2015; IUCN and UNESCO, 2008).

**Protection and management**

Assessing Protection and Management

▶ **Management system**

Mostly Effective

Iguaçu National Park is managed by Chico Mendes Institute for Biodiversity Conservation (ICMBio), a semi-autonomous body of the Environment Ministry. The property Management Plan was published in 2018 and the neighbouring Iguazú National Park (Argentina) Management Plan was published in 2017. The participatory development process of both plans feed into each other. The participatory structure of the Management Plan took two years, including the development of a planning conceptual model and conservation strategies with researcher’s participation. The Management Plan serves as a communication tool for different targets; helps focus efforts on resources and priority values for the protection of the Park; provides a basis to ensure consistency in terms of plans, decision and subsequent programs and actions; allows the development or correction of subsequent plans; describes policy guidelines for resources and key values; identifies the conditions, threats and problems in relation to resources and fundamental values; identifies management zones with specific standards and rules, among others (ICMBio, 2018).

▶ **Effectiveness of management system**

Mostly Effective

The Management Plan proposes the structure or update of several action plans to guide management including protection, environmental education, participation, exotic species prevention and control, research, monitoring and public use, among others. Ongoing monitoring initiatives are: i) Monitoring the surroundings, aiming to look at all properties bordering the Park; ii) Water monitoring focused at the Iguaçu River and its tributaries; iii) Monitoring of flora: non-native and invasive species (ICMBio, 2018). The Park has highly professional and motivated staff (IUCN, 2015).

▶ **Boundaries**

Mostly Effective

Boundaries are clearly defined and respected. The Park does not have a buffer zone, since is not contemplated in the regulatory framework (ICMBio, 2018).

▶ **Integration into regional and national planning systems**

Some Concern

The Park is a federal protected area that belong to the National System of Nature Conservation Units (SNUC), and is located on the border between Argentina and Paraguay, 60 km from the Iguazú National Park in Argentina (ICMBio, 2018). Cooperation between the two parks was formalized in a letter of intent between Administración de Parques Nacionales de Argentina (APN), ICMBio, Iguazú National Park in Argentina and the Iguaçu National Park in Brazil in 2016, promoting increased collaboration (State Party of Brazil, 2020).
Joint actions and collaboration include: constant communication and exchange between both park's managers and rangers, joint patrolling and law enforcement actions, research and monitoring programs. The review process of both park's Management Plans included participation of technicians and stakeholders from both protected areas. It is worth emphasizing that Argentina's Park administration holds a chair on the iguaçu National Park Advisory Board, which carries out four ordinary meetings a year and has councils for technical research, environmental education and public use. Joint efforts are also targeting the Atlantic Forest Green Corridor between Brazil and Argentina. Cooperation strategies in other areas are being established (State Party of Brazil, 2020; ICMBio, 2018).

Regarding connectivity, the greatest concern is the Park's biological isolation since agricultural land uses are established all around its boundaries. Additionally, the Park only has connectivity with Iguazú National Park and through this with other Atlantic Forest areas in Argentina. The ongoing Green Corridor initiative aims to increase the Park’s connectivity with other forest areas, as well as restoring and reforesting 1.700 ha of vegetation on the margins of the Iguaçu River that surround the reservoir of the Baixo Iguaçu hydropower reservoir (State Party of Brazil, 2020; ICMBio, 2018).

**Relationships with local people**

The Park management has been carrying out several activities in partnership with neighbouring municipalities and the assessment is that, with each passing year, the relationship with local populations is improving. Also, the Park management has been in contact with local stakeholders, aiming to promote forest restoration activities to increase forest connectivity. Local key stakeholders participated in the Management Plan development process and some are members of the Park Consulting Board along with governmental actors (State Party of Brazil, 2020; ICMBio, 2018). The Plan for Public Use, currently under development, identified several opportunities to promote visitation to the Park from neighbouring municipalities (they have a discount of 90% of the entrance fee), with the idea to distribute visitation more widely so that local inhabitants will see the Park as an opportunity for job and income generation associated with the development of tourism and recreational activities, which could help decrease pressure for the reopening of the Colono Road (State Party of Brazil, 2020). Ranchers bordering the Park do not appreciate predation of livestock by jaguars and pumas coming out of the Park, and enter into conflict with the Park management when they shoot the cats (ICMBio, 2018).

**Legal framework**

The Park is under the national protected area legislation, in particular the federal law “on environmental protection” from 1991, updated in 2002 and federal law “on specially protected natural areas” from 1995 (IUCN and UNESCO, 2008).

ICMBio (Law 11.516/2007) is responsible of the management, protection, inspection and monitoring of the Park, a federal protected area that belong to the National System of Nature Conservation Units - SNUC (Law 9.985/2000). The current legal framework has been effective in maintaining the site’s values. Other related regulatory bodies are: i) Instituto Ambiental do Paraná - IAP responsible for issuing hydroelectric companies licenses to operate in the Iguaçu River, a state river (a river passing through one federal state only); ii) National Water Agency - ANA a federal agency responsible for water resources use and regulation, and implementation of the national policy on water resources (Law 9.433/1997) grants licenses for using water resources including for the hydroelectric power plants; iii) National Electricity System Operator is a non-profit private entity responsible for the coordination of the generation and transmission within the national interconnected electricity system (ICMBio, 2018).

**Law enforcement**

Law enforcement activities including joint patrolling with the neighbouring Iguazu National Park (Argentina) are effective. However, illegal activities like hunting, trapping, fishing and extraction of palmito remain a threat to the site’s values (ICMBio, 2018).

**Implementation of Committee decisions and recommendations**

The State Party attempts to implement World Heritage Committee decisions and recommendations,
though progress on some measures has been slow. A last report was send to the Committee in December 2019 with information about the implementation of the most recent decisions and recommendations (State Party of Brazil, 2020), however, it remains unclear whether a specific assessment of all potential impacts of the construction and operation of the Baixo Iguazu hydropower dam on the OUV has been conducted, as requested by the World Heritage Committee (UNESCO, 2018).

**Sustainable use**

Data Deficient

**Sustainable finance**

Data Deficient

The Park is visited by more than a million tourists every year, with a peak of 1.9 million visitors in 2018. Some of the entry tickets funds should be used to finance the property management, however, there is no data available regarding the Park finances.

**Staff capacity, training, and development**

Some Concern

Park staff belongs to the ICMBio, Green Rangers from Paraná State Police Force and outsourced administrative, maintenance and security personnel (IUCN and UNESCO, 2008).

**Education and interpretation programs**

Mostly Effective

Environmental education programs promoted by the Park (Parque Escola) targeting communities along the Park boundaries were very well recognized as a space for dialogue and actors participation, however, their activities have been declining (ICMBio, 2018). There is no updated information about interpretation programs available.

**Tourism and visitation management**

Some Concern

ICMBio seeks to increase visitation to protected areas. The Park is the second most visited federal protected area in Brazil, visitor numbers have increased from 645.000 in 2002 to 1.9 million in 2018. On national holidays the Park received up to 13.000 visitors a day. Park management is considering to have a booking system for peak times, to manage the timing of arrivals. All tourist services inside the Park are provided by private concessionaires. The Management Plan indicates the urgency to develop a Plan for Public Use, that integrates needs for reforming or implementing new infrastructures for visitors that improve the quality of visitors experience and at the same time ensure that the outstanding scenic values of the property are preserved in the long-term (State Party of Brazil, 2020; ICMBio, 2018).

**Monitoring**

Mostly Effective

Monitoring initiatives implemented directly by ICMBio inside and outside the Park: i) The Monitora Programme, a biodiversity monitoring initiative; ii) Monitoring the BR-468 Highway inside the Park; iii) Iguazu Jaguars project that works directly with the Yaguareté project in Argentina monitoring jaguar populations in both parks and surroundings; iv) Monitoring the surroundings aiming to monitor all properties bordering the Park; v) Water monitoring focused on the Iguazu River and its tributaries; vi) Monitoring flora: non-native and invasive species (State Party of Brazil, 2020; ICMBio, 2018). Several programmes run by ICMBio, Baixo Iguazu HPP and other partners, monitor the OUV of the Park from outside, as part of the Baixo Iguazu HPP environmental licensing process requirements. These include: i) Strengthening the Green Corridor to connect the Park with isolated fragments of surrounding forest by restoring and replanting 1.700 ha of degraded land; ii) Hydro-sedimentology Monitoring Programme; iii) Natural Resource Inspection Programme; iv) Aquatic Environment Monitoring Programme: limnology and water quality); and v) Aquatic Environment Monitoring Programme: ichthyofauna. According to the monitoring reports, the Baixo Iguazu HPP operation has been fulfilling the conditions imposed by ICMBio and IAP (State Party of Brazil, 2020).

**Research**

Highly Effective

The Park is a dynamic living laboratory that provides excellent opportunities to conduct scientific research on species, ecosystems and conservation, that generates new knowledge (ICMBio, 2018). Most
Overall assessment of protection and management

In general, protection and management of the Park is mostly effective within its boundaries. The Management Plan is a roadmap to guide management and research activities and collaboration with the Iguazú National Park in Argentina contributes to both properties’ effective management. The need to develop a Plan for Public Use, that integrates needs for reforming or implementing new infrastructures for visitors (due to number of visitors on peak days) is an issue that raises some concern. Threats outside the Park, like biological isolation due to agriculture, livestock grazing, roads and infrastructure; water pollutants from upstream agriculture; hunting, fishing and trapping wild animals; illegal extraction of palmito (Euterpe edulis) and climate change are still of serious concern, despite being addressed through monitoring programs (State Party of Brazil, 2020; ICMBio, 2018; IUCN and UNESCO, 2008).

Assessment of the effectiveness of protection and management in addressing threats outside the site

ICMBio and Park management implement a series of monitoring programs that provide valuable data and information to address threats outside the Park, the main programmes include the Iguazú Jaguars project that works directly with the Yaguareté project in Argentina monitoring jaguar populations in both parks and surroundings; Monitoring the surroundings programme that aims to monitor all properties bordering the Park and promote forest restoration activities; Water monitoring programme focused on the Iguazú River and its tributaries. Other series of monitoring programmes are carried out by ICMBio, Baixo Iguazu HPP and other partners, to monitor the OUV of the Park from outside, as part of the Baixo Iguazu HPP environmental licensing process requirements.

The information generated by all monitoring programmes will provide data for informed decision making. However, the combined effects of threats from outside the Park, like upstream dams; biological isolation due to agriculture, livestock grazing, roads and infrastructure; water pollutants from upstream agriculture; hunting, fishing and trapping wild animals; illegal extraction of palmito (Euterpe edulis), combined with climate change, are difficult to address and will need an integrated assessment to propose and implement integrated measures (State Party of Brazil, 2020; ICMBio, 2018; IUCN and UNESCO, 2008).

Best practice examples

Iguazu Jaguars project that works directly with the Yaguareté project in Argentina monitoring jaguar populations in both parks and surroundings is an example of a joint wildlife research and monitoring programme for an emblematic species (ICMBio, 2018; State Party of Brazil, 2020).

State and trend of values

Assessing the current state and trend of values

World Heritage values

One of the largest and most impressive waterfalls in the world

The presence of several dams on the upper Iguazu River, specially the Baixo Iguazu hydropower plant recently constructed, represent a very high threat to the OUV of the waterfalls. Other threats with a direct impact on the waterfalls are the increase in visitors aligned with ICMBio policy to raise visitation...
to protected areas; water-borne pollutants from agricultural systems outside the property, that include nutrients, toxic chemicals and sediments, whose exact impact still need to be evaluated; climate change with a potential increase in rainfalls, temperatures and extraordinary floods that lead to changes in water flows and forest composition; and tourism infrastructure and activities. As part of the Baixo Iguacu HPP environmental licensing process, ICMBio, Baixo Iguacu HPP and other partners, are monitoring the impact of the hydropower plant on water quality and quantity. Such monitoring results will provide the necessary data to improve water management in the upper Iguacu River and contribute to maintain the aesthetic value of the waterfall (State Party of Brazil, 2020; ICMBio, 2018; APN, 2017).

- **Exceptional biodiversity and rare charismatic species**

  Low Concern

  **Trend:** Improving

  Biological isolation due to agriculture, livestock farming, roads and infrastructure; the presence of dams on the upper Iguacu River, specially the Baixo Iguacu hydropower plant recently constructed; increase in visitors; water-borne pollutants from agricultural systems outside the property; hunting, fishing and trapping of wild animals; illegal extraction of palmoto (Euterpe edulis); and climate change impact with an increase in rainfalls, temperatures and extraordinary floods, are the main threats to the exceptional biodiversity and rare charismatic species of the property (State Party of Brazil, 2020; ICMBio, 2018; APN, 2017).

  According to a recent study, the Park still harbours most of the terrestrial large mammals known to have occurred in the Park about 20 years ago, including species that are rare or extinct in most Atlantic Forest remnants. The study did not find evidence of temporal declines in occupancy over a five-year period for any of the large mammal species in the Park, not even for species of conservation concern such as the jaguar whose populations declined drastically in the past, indicating that the rate of decline of this endangered species may have been reduced in recent years. The occupancy of jaguari and puma also recently increased in the Park. The only exception is the white-lipped peccary, not recorded in the study. Results concluded that the spatial distribution of most terrestrial large mammals have been negatively affected by edge effects from human-modified landscapes, tourism and to a lesser extend hunting (da Silva X. et. al, 2018).

  There is also concern that the riverine biota of the Upper Iguazu River may be suffering negative impacts due to diffuse pollution from agriculture and the alteration of river levels caused by the hydropower plants on the river (State Party of Brazil, 2020).

- **Exceptional plant diversity with high level of endemism**

  Data Deficient

  A recent study about the Park's forest structure, composition and richness identified a total of 54 families, 135 genera and 218 species of plants. Euterpe edulis Mart. was the most frequently occurring species, which together with Aspidosperma polynemon Müll. Arg. characterize the seasonal forests in the central and south regions of the Park. In the north region, located 700 masl, Araucaria angustifolia (Bertol.) Kuntze and Ilex paraguariensis A. St.-Hil. were observed along with some seasonal species, characterizing a transitional environment between seasonal and ombrophillous forests. In general, forests in the Park were classified in advanced stages of ecological succession (Souza, R. et. al, 2019).

  However, not enough data is available to assess the trend of the exceptional plant diversity with high level of endemism.

---

**Summary of the Values**

- **Assessment of the current state and trend of World Heritage values**

  High Concern

  **Trend:** Stable

  The natural beauty of the Iguacu waterfalls is being negatively impacted mostly from unnatural changes in water levels related with the presence of several dams in the upper Iguacu River watershed, in addition to other threats like increase in tourism, water-borne pollutants from agricultural systems outside the property and climate change (State Party of Brazil, 2020; ICMBio, 2018; APN, 2017).
Studies tend to indicate that the exceptional biodiversity and rare charismatic species are being conserved. However, there is a concern that riverine biota of the Upper Iguazú River may be suffering negative impacts due to agricultural pollution and alteration of river levels caused by the hydropower dams.

A recent study concluded that the Park harbours a rich terrestrial large mammal fauna including species that are rare or extinct in most Atlantic Forest remnants, finding no evidence of temporal declines in occupancy over a five-year period for any of the large mammal species, indicating that the occupancy of jaguar, jaguarundi and puma also recently increased in the Park. However, results concluded that the spatial distribution of most terrestrial large mammals have been negatively affected by edge effects from human-modified landscapes, tourism and to a lesser extend hunting (da Silva, X. et. al, 2018). A study about the Park forest structure, composition and richness concluded that forests in the Park are in advanced stages of ecological succession (Souza, R. et. al, 2019).

Additional information

Benefits

Understanding Benefits

► Direct employment

The waterfalls of Iguazu National Park are one of the major tourist attractions in South America and attract around 1.5 million national and international visitors each year, which results in a major tourist industry with a multiplier effects throughout the local economy. Opportunities are being developed to disperse tourism, currently mainly concentrated around the falls, to visit the Park from neighbouring municipalities, generating more jobs and income for local people (State Party of Brazil, 2020).

Factors negatively affecting provision of this benefit:
- Overexploitation: Impact level - Low, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

The dams located upstream of the property have considerably altered the rate and periodicity of water flow that feeds the waterfalls. The decreased flow damages the aesthetics of the waterfalls.

► Sacred natural sites or landscapes

The waterfalls of Iguazu National Park are a sacred site for indigenous peoples living in the Park surroundings.

Factors negatively affecting provision of this benefit:
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Moderate, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

The dams located upstream of the property have considerably altered the rate and periodicity of water flow that feeds the waterfalls. The decreased flow and pollution from agriculture damages the aquatic ecosystem and the aesthetics of the waterfalls. Some tourism infrastructure also spoils natural aesthetic values and the visual integrity of the waterfalls.
Carbon sequestration,  
Soil stabilisation,  
Flood prevention,  
Water provision (importance for water quantity and quality),  
Pollination  

The park protects significant portions of Atlantic Forest and aquatic ecosystems, providing important ecosystem regulation services, like species habitats conservation, downstream hydrological regulation, maintenance of biological and genetic diversity of species. It also provides cultural services related with education, research, tourist use and aesthetic values, allowing visitors well-being.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - High, Trend - Continuing
- Pollution: Impact level - High, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

Pollutants from agricultural systems, outside the Park, that include nutrients, toxic chemicals, pesticides and nitrates and/or sediments have a negative impact on ecosystem services.

Summary of benefits

The Park contributes to local economy through direct employment of people from neighbouring communities. Indigenous peoples living in the surroundings of the Park, consider the waterfalls as a sacred site or landscape. The Park Atlantic Forest and aquatic ecosystems provide a series of ecosystem services important for peoples wellbeing at local, regional, national and international levels.

Projects

Compilation of active conservation projects

<table>
<thead>
<tr>
<th>№</th>
<th>Organization</th>
<th>Brief description of Active Projects</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WWF Brazil, WWF Paraguay and Fundación Vida Silvestre Argentina (WWF associate in Argentina)</td>
<td>Ecoregional Action Plan (2014 – 2018) established a vision that states that by 2020, the Upper Parana and Serra do Mar ecoregions will maintain landscapes that guarantee the conservation of biodiversity, functioning corridors, and environmental services, providing equitable economic and social development for local people.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
REFERENCES

<table>
<thead>
<tr>
<th>№</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>World Heritage Committee (2016). Decision 40 COM 7B.70. Iguazu National Park (Brazil).</td>
</tr>
</tbody>
</table>
IUCN World Heritage Outlook: https://worldheritageoutlook.iucn.org/
Iguaçu National Park - 2020 Conservation Outlook Assessment

<table>
<thead>
<tr>
<th>№</th>
<th>References</th>
</tr>
</thead>
</table>