

IUCN Conservation Outlook Assessment 2014 **(archived)**

Finalised on 15 September 2014

Please note: this is an archived Conservation Outlook Assessment for Atlantic Forest Southeast Reserves. To access the most up-to-date Conservation Outlook Assessment for this site, please visit <https://www.worldheritageoutlook.iucn.org>.

Atlantic Forest Southeast Reserves

SITE INFORMATION

Country:

Brazil

Inscribed in: 1999

Criteria:

(vii) (ix) (x)

Site description:

The Atlantic Forest South-East Reserves, in the states of Paraná and São Paulo, contain some of the best and most extensive examples of Atlantic forest in Brazil. The 25 protected areas that make up the site (some 470,000 ha in total) display the biological wealth and evolutionary history of the last remaining Atlantic forests. From mountains covered by dense forests, down to wetlands, coastal islands with isolated mountains and dunes, the area comprises a rich natural environment of great scenic beauty.

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SUMMARY

2014 Conservation Outlook

Significant concern

Along with two other distinct properties encompassing the most valuable remnant of the Interior Atlantic Forest (Iguaçu National Park) and a cluster of the key fragments of the Northeastern Atlantic Forest (Discovery Coast Atlantic Forest Reserves), respectively, this serial property is a most encouraging response to the fate of the biome and recognition of its global importance. The establishment of protected areas within the remaining Atlantic Forest was an important step to prevent the irreversible loss of a unique and exceptionally diverse forest ecosystem altogether. However, many of the conservation units that make up the property are very small and vulnerable to outside influences and no broad-scale information about the spatial distribution of Atlantic Forest remnants exist that could guide conservation actions, especially when systematic biodiversity data are not available. However, there are important continuous blocks including Serra do Mar, Carlos Botelho and Intervalos which urgently require increased protection to ensure long-term conservation of the area and remaining connectivity. Much of the implementation, in particular as regards coordination of efforts between actors and stakeholders, remains to be consolidated. Urgent action seems needed to improve integrity and mitigate the existing threats, including ongoing illegal resource extraction and land use. Additional concerns refer specifically to human disturbance in the sensitive coastal areas. In the buffer zone agriculture, ranching, plantation forestry, infrastructure development and mining add up to put increasing pressure on the property. If predicated climate change is added to the factors, considerable erosion of important conservation values seems highly likely in the absence of major responses.

Current state and trend of VALUES

High Concern

Trend: Deteriorating

The establishment of protected areas in this crucial area of the remaining Atlantic Forest halted a longstanding process of deforestation and forest degradation just in time to prevent the irreversible loss of a unique and exceptionally diverse forest ecosystem altogether. The establishment as such, however, will not ensure the long-term maintenance. Further investments in management and coordination are needed in addition to more environmentally-friendly land use in the broader landscape, including forest restoration.

Overall THREATS

Very High Threat

The most significant current threats for the property's conservation units are the ecological and biological isolation of the various components and associated with it edge effect, ongoing illegal resource extraction and land use. Additional concerns refer specifically to human disturbance in the sensitive coastal areas. In the buffer zone agriculture, ranching, plantation forestry, infrastructure development and mining add up to put increasing pressure on the property. If predicated climate change is added to the factors, considerable erosion of important conservation values seems highly likely in the absence of major responses.

Overall PROTECTION and MANAGEMENT

Some Concern

The establishment of protected areas within the remaining Atlantic Forest was an important step to prevent the irreversible loss of a unique and exceptionally diverse forest ecosystem altogether. However, many of the conservation units that make up the property are very small and vulnerable to outside influences and no broad-scale information about the spatial distribution of Atlantic Forest remnants exist that could guide conservation actions, especially when systematic biodiversity data are not available (Ribeiro et al. 2009). However, there are important continuous blocks including Serra do Mar, Carlos Botelho and

Intervales which urgently require increased protection to ensure long-term conservation of the area and remaining connectivity (IUCN Consultation, 2014). Much of the implementation, in particular as regards coordination of efforts between actors and stakeholders, remains to be consolidated. Urgent action seems needed to improve integrity and resilience given the increasingly unfavorable conditions in the wider landscape.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Exceptional natural beauty**

Criterion:(vii)

The Atlantic Forest South-East Reserves World Heritage site is located in the states of Paraná and São Paulo. It contains some of the best and largest examples of Atlantic forest in Brazil. The 25 protected areas that make up this site (some 470,000 ha in total) display the biological wealth and beauty of the last and highly threatened remaining Atlantic forests that cover densely forested mountains with hundreds waterfalls and over 300 splendid caves down to wetlands, dunes, estuaries, marshes and mangroves, as well as numerous bays and coastal islands, the area comprises a very diverse natural environment of great scenic beauty. Two of the caves are specially interesting: Casa de Pedra with the largest opening in the world and Santana, with a beautiful ornamentation (draft SoOUV, 2011; IUCN Consultation, 2014).

► **Highly diverse forest region**

Criterion:(ix)

Partially isolated, the Atlantic Forest has historically evolved into a highly diverse forest region. As a consequence of the high diversity of ecosystems (from mountainous to coastal and marine) represented in the area coupled by the relative isolation of this biome during millennia, its degree of endemism is extraordinarily high. It is estimated that 53% of the tree species are and 77% of other plants are endemic to this biome. (Fernandes, 2003). Current knowledge indicates that this complex biome contains a species

diversity higher than most of the Amazon forests (Colombo and Joly, 2010). As one of the most important conservation mosaics of the Atlantic Forest, the property is of key importance for the conservation of the entire terrestrial biome, including its interlinkages with coastal and marine ecosystems nearby (draft SOUV, 2011).

► **High species diversity**

Criterion:(x)

More than 450 woody species per hectare have been recorded in some areas of the site, among the highest values recorded anywhere. There is a very diverse fauna with numerous species of conservation interest. There are over 200 species of mammals, with over 60 species of bats and several species of primates, some of which are endangered, such as the southern muriqui (*Brachyteles arachnoides*), the largest primate of the Americas, and the black-faced lion tamarin, *L. caissara*, first described in 1990, which is endemic to the region. Over 50 fish species are found in the inland waters and many more in the marine area. About 100 species of amphibians are found in the Paraná State alone. The avifauna is also very diverse with 350 recorded species, including the red-tailed parrot and the scarlet ibis (draft SOUV, 2011; IUCN Consultation, 2014).

Other important biodiversity values

► **Other international designations**

The site lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Ecoregion, a WWF/IUCN Centre of Plant Diversity, a BirdLife-designated Endemic Bird Area and a UNESCO Biosphere Reserve (UNEP-WCMC, 2011).

Assessment information

Threats

Current Threats

Very High Threat

The most significant current threats for the property's conservation units are the ecological and biological isolation of the various components, ongoing illegal resource extraction and land use. Additional concerns refer specifically to human disturbance in the sensitive coastal areas (UNEP/WCMC). In the buffer zone, agriculture, ranching, plantation forestry, infrastructure development and mining add up to put increasing pressure on the property.

► Other

Very High Threat

Inside site

Outside site

Many of the conservation units that make up the property are very small and vulnerable to outside influences. The isolation is being exacerbated by human interventions that further degrade and fragment habitats, and by climate change and will result in the loss of biodiversity over time (Birdlife International, 2012; UNEP-WCMC, 2011; WWF, n.d., Perry, 2011). A study of the entire Atlantic Forest showed that "more than 80% of the fragments are <50 ha, almost half the remaining forest is <100 m from its edges, the average distance between fragments is large (1440 m), and nature reserves protect only 9% of the remaining forest and 1% of the original forest (Riberiro et al. 2009).

► Crop production, Logging/ Wood Harvesting, Subsistence hunting

Very High Threat

Inside site

Outside site

Poaching, timber extraction, non-timber forest products, palm harvest, subsistence agriculture, and commercial fishing are significant threats for the conservation units, causing further fragmentation of habitats, and degrading wildlife populations (Birdlife International, 2012; UNEP-WCMC, 2011; Parks watch, 2002; WWF, n.d.).

► **Tourism/ visitors/ recreation**

High Threat

Inside site

Some areas experienced a tourism boom in late 90s that threatened both their environment and their native communities with rapid unregulated development. Restrictions on developments and day limits for visitors have been introduced since then

(http://www.geographical.co.uk/Magazine/Brazil_Nov07.html)

► **Housing/ Urban Areas, Tourism/ Recreation Areas, Roads/ Railroads**

Very High Threat

Inside site

Outside site

Infrastructure in the buffer zone such as settlements, mining, roads, tourism facilities, water impoundment, and drainages degrade and fragment natural habitats, impede habitat restoration, contribute to pollution and sedimentation, and impact wildlife (BirdLife International, 2012; UNEP-WCMC, 2011; Parkswatch, 2002; WWF, n.d.).

Potential Threats

High Threat

Climate change is a significant threat that is expected to accelerate the loss of biodiversity in the property.

► **Temperature changes**

High Threat

Inside site

Outside site

Climate change is already causing extreme weather events, which are projected to increase in frequency and severity in the future together with increased temperatures and rainfall, and sea-level rise. The property is rated as being among the top 20 natural World Heritage sites to be impacted by climate change (Nobrel, 2012; Perry, 2011). General result shows not only a significant reduction in the potential distribution of the species studied but also that the Atlantic Forest may be restricted to a more southern position in Brazil (Colombo and Joly, 2010). Other studies project that species in upper elevations in the Atlantic Forest are at risk from climate change as restriction to mobility towards less warm higher elevations will not be possible (Sodhi and Ehrlich, 2010). A study on climate change scenarios concerning sugarcane for the production of ethanol in Brazil until 2035 predict a high pressure on biodiversity mainly in Atlantic Forest biomes, “with 52.1% of the cases, aggravating the situation of an already highly degraded ecosystem, identified among the 25 world hotspots” (Margulis and Burke, 2011). This will increase pressure in conservation units.

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

In the past, relationships with local people have been strained at times. The management units have set up Advisory Councils to better involve stakeholders in the management (UNEP-WCMC, 2011; WDPA, 2011; Organização Roberta Guagliardi. 2009; IUCN, 1999; de Oliveira, 1998).

► Legal framework and enforcement

Some Concern

The legal framework for the property has been developed by a mosaic of 10 conservation units established by federal decree (1 National Park, 1 Ecological Station, 3 Wildlife Zones, 3 Environmental Protection Areas); 11

conservation units in Sao Paulo State established by state decree (6 State Parks, 3 Ecological Station, 1 Wildlife Zone, 1 Environmental Protection Area); 8 conservation units in Parana State established by state decree (5 State Parks, 1 Ecological Station, and 1 Environmental Protection Areas); and 1 Private Natural Heritage Reserve. Law enforcement is carried out by Forest and Environmental Police (UNEP-WCMC, 2011). However, federal and state budgets for protected areas is limited and staff numbers and equipment are insufficient to ensure effective law enforcement (IUCN Consultation, 2014).

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

Serious Concern

The establishment of the individual protected areas and their consideration as one coherent property represents an adequate attempt to increase the scale of conservation intervention. The fundamental challenge to promote more sustainable land and resource use in the broader landscape remains.

► **Management system**

Serious Concern

Management of the property is divided among federal and the two concerned state protected area authorities, and the administration of the private reserve. The management of each conservation unit is guided by a management plan, though several are outdated and their implementation is limited by insufficient human and financial resources. (UNEP-WCMC, 2011; Organização Roberta Guagliardi. 2009; IUCN, 1999; de Oliveira, 1998; IUCN Consultation, 2014). For example, the environmental management plan for the Guaraqueçaba Ecological Station is the same as for the environmental protection area, with the same name, dating from 1995 (ICMBio and WWF-Brazil ,2012). The key concern is the coordination of management among the many conservation units that make up the property (UNEP-WCMC, 2011). More recently, progress has been made in the further development of the "conservation mosaic", but this is has not been translated into the formal design of the World Heritage property as of yet.

► **Implementation of Committee decisions and recommendations**

Some Concern

In its inscription decision, the Committee recommended that the State Party

"should be encouraged to restore natural conditions in the Serra do Mar State Park, which potentially could be incorporated in the site". No action has been reported to this effect.

► **Sustainable finance**

Some Concern

Conservation of the Atlantic Forest is considered a very high conservation priority at the state, national, and global level, and over the years a large number of projects have been financed by multilateral and bilateral organizations, national and state governments, and international and national NGOs and foundations over the years to consolidate management (UNEP-WCMC, 2011; Organização Roberta Guagliardi, 2009; IUCN, 1999; de Oliveira, 1998). Currently (2010-2013), FUNBIO, a Brazilian conservation trust fund, has in place the Atlantic Forest Conservation Fund, which provides funding on a competitive basis for projects (FUNBIO, 2012). Significant support was provided by the Brazilian Foundation Boticario both in research and in situ conservation (IUCN Consultation, 2014).

► **Sustainable use**

Some Concern

Conservation and research are the main uses of the conservation units that make up the property, and in some units, tourism and recreation are encouraged. In general, research activities are being carried out in an adequate and sustainable manner; however, tourism and recreation are very poorly controlled in some areas and might become a source of new risks (Organização Roberta Guagliardi, 2009; IUCN Consultation, 2014).

► **Tourism and interpretation**

Mostly Effective

When the property was inscribed, it was reported that the entire area was visited by around 1.3 million people in 1997. However, forest conservation is the paramount aim of the reserves, so that visitation to many of the sites is restricted to certain areas or trails, as at the research stations. These latter do encourage ecotourism, ecological researchers and environmental education. However, there are also

16 visitors' centers in all, 7 being in the four Paranapiacaba reserves. The oldest, Alto Ribeira State Park, long visited for its caves, averaged 26,850 visitors a year between 1996 and 1998. It has three visitor centers with lodging facilities, auditorium and tourist routes. Thirty caves are opened to visitors, but cave excursions are made with experienced local guides. Many other caves are restricted to registered speleologists. Carlos Botelho and Intervale State Parks are also well equipped, have information centers with visitor facilities and good trails but access is otherwise limited. Camping is allowed on sites near visitor centers (UNEP-WCMC, 2011; Organização Roberta Guagliardi, 2009). Overall, tourism and its impacts are localized; however, their concentration in some areas might be too high and these areas become over-utilized (IUCN Consultation, 2014).

► **Research**

Mostly Effective

There 6 Ecological Stations in the property have research facilities. Their great value is in the preservation of genetic resources and good samples of Atlantic forest biodiversity, for research into speciation and into the future of sustainable exploitation of indigenous species, especially for their medical uses (UNEP-WCMC, 2011; Organização Roberta Guagliardi, 2009). Significant research is funded by a number of foundations, such as Boticario Foundation, as well as various universities (IUCN Consultation, 2014).

► **Management effectiveness**

Some Concern

According to the ICMBio and WWF Brazil (2012) management effectiveness evaluations, some of the conservation units within the WHS had a rather low level of management effectiveness, for example, the Ecological Station Guaraqueçaba, while others, for example Superagui National Park scored high. The Ecological Station obtained a general index of 11% during the 2010 exercise which was much lower than the 2005-2006 result of 35%. Superagui National Park's only low score is for financial resources and its general index was 76% in 2010 and 38% for 2005-06. The overall key challenge, however, is the poor coordination of management across the entire serial property.

► **Boundaries**

Serious Concern

Many of the conservation units that make up the property are very small and vulnerable to outside influences.

► **Staff training and development**

Serious Concern

The severe staff shortages are of serious concern. Much higher levels of staffing are needed to ensure adequate management (UNEP/WCMC, 2011; IUCN Consultation, 2014).

► **Education and interpretation programs**

Mostly Effective

Past projects have given significant emphasis to environmental education, and a number of programs have been developed (WDPA, 2011; Organização Roberta Guagliardi, 2009).

► **Monitoring**

Some Concern

Despite monitoring being carried out in many of the property's components, an overall monitoring system for the property remains absent. Overall, for the Atlantic Forest Biome “there is very limited direct observation, let alone geo-referenced monitoring data, on the states, trends and functions of ecosystem services and biodiversity indicators. Thus, decision - makers lack fundamental information to guide them” (IADB, 2009)

Overall assessment of protection and management

Some Concern

The establishment of protected areas within the remaining Atlantic Forest was an important step to prevent the irreversible loss of a unique and exceptionally diverse forest ecosystem altogether. However, many of the conservation units that make up the property are very small and vulnerable to outside influences and no broad-scale information about the spatial distribution of Atlantic Forest

remnants exist that could guide conservation actions, especially when systematic biodiversity data are not available (Ribeiro et al. 2009). However, there are important continuous blocks including Serra do Mar, Carlos Botelho and Intervalles which urgently require increased protection to ensure long-term conservation of the area and remaining connectivity (IUCN Consultation, 2014). Much of the implementation, in particular as regards coordination of efforts between actors and stakeholders, remains to be consolidated. Urgent action seems needed to improve integrity and resilience given the increasingly unfavorable conditions in the wider landscape.

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

Serious Concern

At this point in time, the establishment of buffer zones appears to reflect intentions rather than tangible conservation action. While an important first step, consolidation is needed to prevent decreasing overall landscape integrity and connectivity.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► **Exceptional natural beauty**

Low Concern

Trend:Stable

The Atlantic Forest South-East Reserves World Heritage site remains an area of exceptional natural beauty with a high variety of landscapes (draft SoOUV, 2011).

► **Highly diverse forest region**

Critical

Trend:Deteriorating

Only 8% of the original Atlantic Forest remains; however, probably as much

as 60% of it is highly degraded and what remains is isolated and fragmented and often limited to heavy slopes (IUCN Consultation, 2014). The establishment of protected areas in this crucial area of the remaining Atlantic Forest halted a longstanding process of deforestation and forest degradation just in time to prevent the irreversible loss of a unique and exceptionally diverse forest ecosystem altogether. The establishment as such, however, will not ensure the long-term maintenance. Further investments in management and coordination are needed in addition to more environmentally-friendly land use in the broader landscape, including forest restoration.

► **High species diversity**

High Concern

Trend:Deteriorating

Recent studies suggest that a number of species are highly threatened by climate change with an alarming reduction in the area of possible occurrence of 25% in the optimistic scenario and 50% in the pessimistic scenario (Colombo and Joly, 2010). The fragmentation and isolation of conservation units that make up the property poses a serious threat to the long-term conservation of some species. However, there is a significant lack of consolidated data on the current state of key species populations and their trends.

Other important biodiversity values

► **Other international designations**

The site lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Ecoregion, a WWF/IUCN Centre of Plant Diversity, a BirdLife-designated Endemic Bird Area and a UNESCO Biosphere Reserve (UNEP-WCMC, 2011).

Summary of the Values

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

High Concern

Trend: Deteriorating

The establishment of protected areas in this crucial area of the remaining Atlantic Forest halted a longstanding process of deforestation and forest degradation just in time to prevent the irreversible loss of a unique and exceptionally diverse forest ecosystem altogether. The establishment as such, however, will not ensure the long-term maintenance. Further investments in management and coordination are needed in addition to more environmentally-friendly land use in the broader landscape, including forest restoration.

Additional information

Key conservation issues

► **Agriculture, ranching, mining, and forest plantations in the buffer zone.**

Local

Agriculture, ranching, mining, and forest plantations in the buffer zone degrade and fragment natural habitats, disturb and displace wildlife, and impede restoration of natural habitats (Birdlife International, 2012; UNEP-WCMC, 2011; Parkswatch 2002; WWF, n.d.).

► **Infrastructure in the buffer zone**

Local

Infrastructure in the buffer zone such as settlements, mining, roads, tourist facilities, water impoundment, and drainages degrade and fragment natural habitats, impede habitat restoration, contribute to pollution and sedimentation, and impact wildlife (Birdlife International, 2012; UNEP-WCMC, 2011; Parkswatch, 2002; WWF, n.d.).

► **Illegal extraction of natural resources**

Local

Poaching, timber extraction, non-timber forest products, palm harvest (for

palm hearts), and inadequate commercial fishing are significant threats for the conservation units, causing further fragmentation and degradation of habitats and populations (Birdlife International, 2012; UNEP-WCMC, 2011; Parkswatch, 2002; WWF, n.d.).

► **Ecological and biological isolation**

National

Many of the conservation units that make up the property are very small and vulnerable to outside influences. (BirdLife International, 2012; UNEP-WCMC, 2011; WWF, n.d., Perry, 2011). However, there is an important continuous block including Serra do Mar, Carlos Botelho and Intervales which urgently requires increased protection to ensure long-term conservation of the area and remaining connectivity (IUCN Consultation, 2014).

Benefits

Understanding Benefits

► **Outdoor recreation and tourism**

The property is located in the vicinity of Sao Paulo, South America's largest city and metropolitan area suggesting a touristic potential in attractive areas, in particular near the coast.

► **Importance for research**

As the last remnants of the southern Atlantic Forest, the property is of great value for researchers as it provides an opportunity to study the great biodiversity of this region in the last unaltered natural expressions of the biome.

► **Collection of genetic material**

The numerous endemic organisms are unique and could harbor highly valuable substances.

► **Is the protected area valued for its nature conservation?**

Inscription of the property as a World Heritage Site is evidence of the national and international appreciation of the area's conservation values and benefits.

Summary of benefits

Because of the massive alteration of the Atlantic Forest Biome, the benefits of the property for conservation and for knowledge generation are highly valued at the state, national, and global levels.

Projects

Compilation of active conservation projects

No	Org aniz atio n/ indi vidu als	Pr oje ct du rat ion als	Brief description of Active Projects
1	FUN BIO		Atlantic Forest Conservation Fund which aims to contribute to the protection, sustainable management and recovery of the Atlantic Forest. The fund seeks to support the identification of stakeholders and the establishment of Conservation Units (CUs) and Private Natural Heritage Reserves (RPPNs); stimulate projects on Payments for Environmental Services (PES) and the creation of a system of monitoring for the biome. The Project is part of the International Initiative for Climate Protection (ICI) of the Ministry of Environment, Nature Conservation and Nuclear Safety of Germany (BMU), which provides financial support through KfW Entwicklungsbank (Development Branch of the German Reconstruction Bank), through FUNBIO.
2	SOS Mata Atla ntica		Several projects in the Atlantic Forest Biome.
3	GEF- IADB - Brazi l's gov.		Brazil: Recovery and protection of climate and biodiversity services in the Paraíba do Sul basin of the Atlantic Forest of Brazil. The multifocal area project expects to contribute in the protection and restoration of ecosystem services of global importance in the Southeastern Brazilian Atlantic Forest (IADB, 2009).

Nº	Org aniz atio n/ indi vidu als	Pr oje ct du rat ion als	Brief description of Active Projects
4	IADB Loan		Environmental and Social Recovery of Serra do Mar and Marine Atlantic Forest Mosaics (including Jureia Itatins Ecological station. Overall the project expects to improve infrastructure and existing conservation units, monitoring, reducing impacts from population, etc.) (IADB, 2009)
5	TNC		In 2008, TNC launched a campaign to restore one billion native trees to the Atlantic Forest (note: not necessary in the Property) - See more at: http://www.nature.org/ourinitiatives/regions/southamerica/brazil/placesweprotect/atlantic-forest.xml#sthash.va66KAIJ.dpuf

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