IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 10 November 2017

Please note: this is an archived Conservation Outlook Assessment for Central Amazon Conservation Complex. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Central Amazon Conservation Complex

SITE INFORMATION

Country:
Brazil
Inscribed in: 2000
Criteria:
(ix) (x)

Site description:
The Central Amazon Conservation Complex makes up the largest protected area in the Amazon Basin (over 6 million hectares) and is one of the planet’s richest regions in terms of biodiversity. It also includes an important sample of varzea ecosystems, igapó forests, lakes and channels which take the form of a constantly evolving aquatic mosaic that is home to the largest array of electric fish in the world. The site protects key threatened species, including giant arapaima fish, the Amazonian manatee, the black caiman and two species of river dolphin. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

Overall, the conservation values of this very large property are in good condition, with only minor human impacts around settled areas. While local riverside communities engage in subsistence agriculture, hunting, fishing, and extraction of timber and non-timber forest products human population density remains low and impacts are limited to narrow bands of higher land on natural levees along stream courses. Overall, protection and management of the conservation complex is quite effective in spite of the chronic lack of trained staff. Despite the currently very good state of conservation, the expected consequences of anticipated climate change and large scale forest fires and potentially increasing pressures due to urban expansion and better access (provided by the construction of the Rio Negro bridge and the paving of access roads) give rise to some concerns.

Current state and trend of VALUES

Low Concern
Trend: Stable

Overall, the conservation values of this very large property are in good condition, with only minor human impacts around settled areas. While stable, there are serious concerns in the longer run due to the expected impacts anticipated of climate change and forest fires. The recent development boom in the areas around Anavilhanas National Park brought about by the construction of the bridge over Rio Negro causes some concern.

Overall THREATS

Low Threat

While local riverside communities engage in subsistence agriculture, hunting, fishing, and extraction of timber and non-timber forest products human

population density remains low and impacts are limited to narrow bands of higher land on natural levees along stream courses, and to the effects of traditional harvest of fish and other aquatic organisms. However, the recent development boom in and around the city of Novo Airão brought about by the construction of the bridge over Rio Negro, connecting Manaus metropolitan area to Rio Negro's right bank, is likely to bring unprecedented pressures to the area, particularly the Anavilhanas NP. Over the long run, projected climate change effects and increased forest fires could be severe, substantially modifying the property's current ecosystems and species compositions.

Overall PROTECTION and MANAGEMENT

Some Concern

The property consists of four components - Jaú National Park, Amanã Sustainable Development Reserve, Mamirauá Sustainable Development Reserve and Anavilhanas National Pak. Each of these units is actively managed, and law enforcement is carried out by ICMBio, IBAMA, IPAAM and Forest Police. Overall, protection and management of the conservation complex is effective, although the parks remain severely understaffed and thus, at great risk of invasion and illegal exploitation. There is concern about sustainable finance for management of the Sustainable Development Reserves in particular since the recent major budgetary cut suffered by Mamiraua Institue.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► Ongoing ecological processes in the development of terrestrial and freshwater ecosystems

Criterion:(ix)

The vast site exceeding 5.2 million hectares with parts of Solimões/Amazonas and Negro rivers, some of their important tributaries and lands, including landscapes and biodiversity comprised of a constantly changing and evolving mosaic formed by rivers courses, amazon tropical rainforests (e.g. Terra Firme Forests, Várzeas and Igapós), wetlands, lakes, rivers, and islands. It enables ongoing large-scale ecological processes in the development of these diverse forest and freshwater ecosystems, in particular white and black water systems. In Solimões/Amazonas the high sediments concentration maintains a myriad of life forms dependent on huge biomass formed in the wetlands, like the floating, constantly moving mats of vegetation typical of the white waters courses host a significant number of endemic species. In the black waters, the acid pH and low concentrations of dissolved nutrients contribute to a singular and well adapted freshwater biodiversity, with low biomass but high number of species. The terrestrial landscapes represent important variation regarding vegetation types and associated fauna (World Heritage Committee, 2015).

► Biological diversity of the Central Amazon

Criterion:(x)

This vast property constitutes one of the largest complexes of protected

areas in the tropics harboring unparalleled biological diversity. This unparalleled biodiversity results from a unique combination of different factors. In terms of ecology, this property encompasses a huge variation of vegetation types due to underlying variation of soil types, biochemistry and fertility of waters. The diversity in primary producers (plants) translates into an equally diverse consumer community assemblage (animals) that specialises on the myriad available niches. In addition, this complex of protected areas spans several biogeographically distinct areas. Species overlap in composition is thus minimal contributing to the overall regional species diversity. The property holds one of the highest recorded diversity of primates including the vulnerable and endemic Vanzolini's squirrel monkey (Saimiri vanzolinii), with its entire range within the Mamirauá Sustainable Development Reserve (1,124,000 ha), the iconic and vulnerable white bald uakari monkey (Cacajao calvus) restricted to the flooded forests of Mamiraua, the golden-backed black uakari (Cacajao melanocephalus), and the black faced black spider monkey (Ateles chamek). Other iconic species include the yellow caiman (Caiman crocodilus), jaguar (Panthera onca), harpy eagle (Harpy harpyja), the "pirarucu" (Arapaima gigas), the largest freshwater fish in South America, and two species of river dolphins (Inia geoffrensis and Sotalia fluviatilis) (World Heritage Committee, 2015; IUCN Consultation, 2014, IUCN Red List, 2017).

Assessment information

Threats

Current Threats

Low Threat

While local riverside communities are engaged in subsistence agriculture, hunting, fishing, and extraction of timber and non-timber forest products, human population density remains low and impacts are limited to narrow bands of higher land on natural levees along stream courses, and to the effects of traditional harvest of fish and other aquatic organisms. However, the recent

development boom in and around the city of Novo Airão brought about by the construction of the bridge over Rio Negro, connecting Manaus metropolitan area to Rio Negro's right bank, is likely to bring unprecedented pressures to the area, particularly the Anavilhanas NP.

► Tourism/ visitors/ recreation

Low Threat
Inside site, localised(<5%)

Infrastructure in and around the city of Manaus has improved dramatically over the past 10 years, including the construction of a bridge across Rio Negro. Access by road to nearby towns and municipalities has increased promoting a rapid urban development of the region. The increased rate of visitation has not been matched by the PA ability to cope with it. There is a general lack of infrastructure and trained personnel in Anavilhanas NP to receive and regulate large numbers of visitors (ICMBio Anavilhanas, 2011). In January 2017, Anavilhanas and Jau NP floating HQs and Visitor Centres were closed to the public and severely understaffed. The fastest growing touristic attraction in Anavilhanas is the interactive tourism with Amazonian pink dolphins (Inia geoffrensis). This potentially detrimental activity is now organized by the National Park authorities to minimize the impact on wild pink dolphin populations (ICMBio Anavilhanas, 2017). In spite of ICMBio efforts to control this activity, new unregulated tour operators are working in and around the Park. To date, there are no Federal or State laws regulating interactive tourism with river dolphins, only a set of recommendations. If well regulated, this activity can be very beneficial to local eco tourism and to the conservation of the region as this activity can be a useful tool to educate the people of the benefits of conserving the environment (Vidal et al, 2013).

► Poaching, Logging/ Wood Harvesting, Fishing / Harvesting Aquatic Resources, Other Biological Resource Use

Low Threat
Inside site, localised(<5%)
Outside site

The last demographic census carried out inside Mamiraua Sustainable Development Reserve (in 2011) recorded 10,867 people living inside the Reserve or using its natural resources (Instituto Mamiraua, 2017). In Jau NP, a 2012 census recorded 1,074 people living inside the Park and in its buffer

zone (ICMBio Jau, 2017). The 53 families that used to live in Anavilhanas NP were relocated to the nearby town of Novo Airão on the right bank of Rio Negro when the reserve was created (Rodrigues, 2010). Currently, local people engage in subsistence agriculture, hunting, fishing, and extraction of timber and non-timber forest products. Some products, such as amazon nuts, fibres such as Arumã, and oils are legally commercialized while others illegally enter markets, such as turtles and bush meat and pirarucu fish. Arumã (Ischnosiphon gracilis) fibre is currently sustaining a thriving industry of handicrafts in the town of Novo Airão (FVA, 2017). The exploitation of this fibre is forbidden inside Anavilhanas NP however, which is causing a social tension between locals and the PA authorities. Fishing is also considered illegal inside Anavilhanas NP creating further social tension. To accommodate local peoples needs and traditional ways and alleviate the conflict between locals and Park authorities, a Union of local fishermen was created to demand fishing rights for locals. Today over 2,000 fishermen are registered and allowed to fish within the NP (Rodrigues, 2010). Although human population density overall remains relatively low, the recent development boom in and around the city of Novo Airão brought about by the construction of the bridge over Rio Negro, connecting Manaus metropolitan area to Rio Negro’s right bank, is likely to bring unprecedented environmental problems to Anavilhanas NP.

► Temperature extremes, Fire/ Fire Suppression

High Threat
Inside site, scattered(5-15%)
Outside site

Forest fires have become a serious problem in this WHS with increasing intensity and frequency, in particular in Jau NP. In January 2016, an unprecedented forest fire inside Jau NP burned an area of more than one thousand hectares killing many animals such as turtles, caimans and anteaters. In 2015, Amazonas State broke its own record of forest fires with 15,170 sources of heat registered by the Brazilian Space Research Institute (INPE, 2017).

Potential Threats

Low Threat

Potential threats include increase in visitation and impacts of ships traffic which are both low threats. Projected climate change effects and increased forest fires could be severe over the long run, substantially modifying the property's current ecosystems and species compositions.

▶ Tourism/ visitors/ recreation

Very Low Threat
Inside site, extent of threat not known
Outside site

The construction of a bridge below Manaus has dramatically improved road access to the town of Novo Airao on the edge of Analvilhanas NP, which is much closer to the large metropolitan population of Manaus now, just 2 hours awayThis means that one of the component areas of the Central Amazon WHS will be much more accessible to visitors from the state of Manaus by road which if properly managed could help promote local visitation and appreciation of the WH site. A new floating visitor center is also being planned (IUCN Consultation, 2014).

▶ Shipping Lanes

Low Threat
Inside site, extent of threat not known
Outside site

Anavilhanas NP lies along a navigable river portion of lower Negro river with regular transit of large ships carrying, among other things, petroleum products, since there are municipalities along this river only reached by boat and plane. There are no buoys or any other system in place to reduce the danger of a ship going aground in the archipelago: an oil spill upstream could do great damage to the fragile resources of the area (IUCN, 2003). The increase in tourism also means an increase in the numbers of boats circulating around the islands and inside the NP. To date, there are no rules and regulations in place that establishes shipping lanes, mooring sites, waste management, among other issues (ICMBio Jau 2017).

▶ Temperature extremes

High Threat

Inside site, throughout(>50%)
Outside site

Models suggest that by the year 2050, temperatures in the Amazon may increase by 2–3°C. Jointly with an anticipated decrease in rainfall during dry months this will significantly increase the vulnerability of the forests. Longer and more severe droughts will result in substantial changes in seasonality and in the risk of large scale forest fires. (WWF, 2016). Drought can potentially change forest species composition and biomass as it kills trees selectively. It also results in massive amounts of carbon being released into the atmosphere due to reduced plant growth and dying trees (Philips et al 2009). The predicted increase in frequency and intensity of El Niño years with climate change is predicted to result in even greater carbon loss due to a reduced net ecosystem productivity and carbon sequestration. Forest fires have already become a serious problem in this WHS with increasing intensity and frequency, in particular in Jau NP.

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

In the National Parks (Jaú and Anavilhanas), consultative councils provide a regular mechanism to discuss management decisions, and build the technical capacity of stakeholders. The Sustainable Development Reserves (Mamirauá and Amaná) have Governing Councils made up of stakeholder representatives that make management decisions. Leadership training sessions are held in association with Council Sessions. .Mamiraua Institute is a pioneer and a leader in Participatory Management Models in Conservation. This Institute holds annual symposia on this theme, attracting participants from many countries. This event has contributed in a decisive way to the development of participatory management initiatives for tropical forest areas across the globe. (Mamiraua Institute, 2017; SOUV, 2017; WDPA, 2017). Fundacao Vitoria Amazonica (FVA) is currently hosting a participatory review of Jau National Park’s 1998 management plan (FVA, 2017). This new

management plan will make the case that the approximately 1,000 people currently residing inside the Park should stay as they represent the “best guardians of the park's integrity “ (Socioambiental, 2017) - current Brazilian law dictates that people are not allowed to establish residence inside National Parks.

► Legal framework

Mostly Effective

Jaú National Park was established by Federal Decree in 1980. The Anavilhanas conservation unit was declared an Ecological Station by Federal Decree in 2001, and later re-categorized as a National Park in 2008. Mamirauá, the first Sustainable Development Reserve in Brazil, was legally established in 1996 by the government of Amazonas State. The Amanã Sustainable Development Reserve was later established by the Amazonas State government in 1998. Each of these units is actively managed, and law enforcement is carried out by ICMBIO and IBAMA at federal level and IPAAM and Forest Police at State Level (IDSM, 2017; SOUV, 2017, WDPA 2017).

► Enforcement

Some Concern

Overall, enforcement of the relevant laws and regulations appears effective. However, the current situation with the limited human and financial resources certainly also negatively impacts on the enforcement capacity.

► Integration into regional and national planning systems

Mostly Effective

Both the national parks and sustainable development reserves are well integrated into the national (SNUC) and state systems (SEUC) of protected areas and through them to the wider planning systems.

► Management system

Mostly Effective

The management system for the property has several components. Management of the Jaú National Park is a collaborative effort of the Chico Mendes Institute for Biodiversity (ICMBio) and the Fundação Vitória

Amazônica (FVA), with most of the inputs for research, management, and environmental education provided by this Foundation. Anavilhanas National Park is managed directly by ICMBio with partnership with IPE – Instituto de Pesquisas Ecológicas. The management of both national parks is still guided by outdated management plans that are in the process of revision. The Amazonas State Sustainable Development Reserves of Mamirauá and Amaná are managed by the Centro Estadual de Unidades de Conservação (CEUC) in partnership with the Mamirauá Institute for Sustainable Development (IDSM), through a program of participatory management informed by research . Management of the two reserves is guided by revised (2010) management plans and decisions of their Governing Councils (Mamiraua Institute 2010).. Each of the 4 protected areas that make up the property also has specific resource protection, research, and environmental education plans (Mamiraua Institute, 2017; SOUV, 2017; WDPA, 2017).

► Management effectiveness

Mostly Effective

The management effectiveness of Protected Areas in Amazonas was formally evaluated from 2005 to 2010 by WWF’s Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) methodology, in partnership with ICMBio and CEUC. The 2010 rating of Jaú was very high, the highest of all federal protected areas managed by ICMBio in Amazonia region. Management improved significantly moving from a rating of 62% when first evaluated to 84%. On the other hand, the evaluation of Anavilhanas National Park gave it a lower rating of 55% in 2010, having come down from 58% . (ICMBio, 2012). Management of the Sustainable Development Reserves is rated as “good” with Mamirauá and Amanã at 70% and 74% respectively (WWF Brasil, 2011).

► Implementation of Committee decisions and recommendations

Data Deficient

The 2003 World Heritage Committee decision approving the extension of the property encouraged the State Party to "re-nominate the subsidiary area of Mamirauá Sustainable Development Reserve once it fully meets the conditions of integrity." No follow-up is known as of today.

▶ Boundaries

Some Concern

Boundaries are rivers and are understood by communities (SOUV, 2017). The boundaries of the site coincide with the limits of existing state and federal protected areas and include sufficient area to protect the site's heritage values. However, while Jaú, Amana and Mamairauá are contiguous, Anavilhanas, located along the Rio Negro, is separated from Jaú by a predominantly forested corridor consisting of state extractive reserves and an indigenous reserve (IUCN, 2003).

▶ Sustainable finance

Some Concern

Jaú and Anavilhanas National Parks receive funding from ICMBio and from the Amazonian Protected Areas Project - ARPA, the largest tropical forest conservation program in the world leaded by Brazilian Environment Ministry, which is administered by FUNBIO the Brazilian Fund for Biodiversity. Mamirauá and Amanã Sustainable Development Reserves receive funding from the Amazonas State Government. All the 4 PAs receive support from partner projects such as FVA, IDSM and IPE. ARPA is expected to conclude its phase II this year (2017) . IDSM (Mamiraua Institute) has recently (2015) suffered a severe budgetary cut due to an on going political crisis in Brazil.

▶ Staff training and development

Some Concern

Low core staff numbers and retention appear to be a problem. It is a lengthy process to name new staff to the component reserves by ICMBio. There are just several professionals at Anavilhanas and Jaú for millions of hectares and a number of unfilled posts. There is no process in place to easily hire individuals from neighbouring communities or even professionals from the state of Amazonas, who have to compete in national calls of interest (IUCN Consultation, 2014). This situation has become critical due to budgetary cuts in Government spending due to an on going political crisis in Brazil.

▶ Sustainable use

Mostly Effective

The twin objectives of conservation and sustainable resource use are the focus of management for the Sustainable Development Reserves. The Mamirauá Sustainable Development Institute supports the sustainable use objective through research, training, and technical assistance. 72 communities received technical assistance in 2011. For the case of Jaú National Park a process is in place to develop an agreement for managed use of resources by the communities, a legal mechanism previewed in Brazilian law. (Mamiraua, 2017; WDPA, 2017; IUCN Consultation, 2014).

► Education and interpretation programs

Mostly Effective

Environmental Education Plans guide the work in this area in all 4 of the property's conservation units. Fundação Vitória Amazonica (FVA) and IPE are particularly active in environmental education in the national parks, while the Mamirá Institute carries out the Program in Mamiraua and Amanã Sustainable Development Reserves. In all of the conservation units of the property the focus is on the training of community leaders and conservation of biodiversity in a participatory way (Mamiraua, 2017; WDPA, 2017).

► Tourism and visitation management

Mostly Effective

There are low levels of tourism in most of the conservation units of the Property. There is a Visitor Centre at the entrance to Jaú National Park (although temporarily closed due to lack of staff and funding), and in Mamirauá the Institute has developed a lodge (uakari lodge) which won an award for excellence from National Geographic Traveler (Mamiraua, 2017; WDPA, 2017). In Anavilhanas, tourism has increased significantly in recent years but the National Park has not managed to adapt to this growing demand and currently its Visitor Centre and its floating headquarters is closed to the public and understaffed.

► Monitoring

Mostly Effective

Biodiversity monitoring is carried out on a regular basis by the Victoria Amazonas Foundation in Jaú and by the Mamirauá Sustainable Develoment

Institute in Mamirauá and Amaná. ARPA has its own system of Biodiversity monitoring although data have not been collected in a regular and systematic way. ICMBio has recently developed its Program of Biodiversity Monitoring in PA recently implemented in Jaú National Park and Unini Reserve (ICMBio Monitoramento, 2017).

▶ Research

Mostly Effective

In Jaú, research is promoted and carried out by Fundação Vitória Amazonica (FVA), which has carried out multi-disciplinary studies since 1992, inventorying flora, fauna, soils, and landscape types to support protection, education, and administration. The Foundation uses a Geographic Information System to generate topographic and thematic maps. Anavilhanas National Park has a floating base and another base on the mainland. Both have accommodation, laboratory and lecture space for visiting scientists and an administrative office in Novo Airão City. At the time of writing, the floating base was closed due to lack of funding and staff. Research output is one of the six main indicators of management effectiveness for Mamirauá Sustainable Development Institute. In 2016, they had 16 approved and 6 under-review research grants ranging from ecology, ecotourism, sustainable use of natural resources, health, and archaeology. In total, 16 books and 36 peer reviewed scientific articles, were published in 2016 (Mamiraua Institute, 2016).

Overall assessment of protection and management

Some Concern

The property consists of four components - Jaú National Park, Amanã Sustainable Development Reserve, Mamirauá Sustainable Development Reserve and Anavilhanas National Pak. Each of these units is actively managed, and law enforcement is carried out by ICMBio, IBAMA, IPAAM and Forest Police. Overall, protection and management of the conservation complex is effective, although the parks remain severely understaffed and thus, at great risk of invasion and illegal exploitation. There is concern about sustainable finance for management of the Sustainable Development Reserves in particular since the recent major budgetary cut suffered by Mamiraua

Institue.

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

Some Concern

The conservation complex is extremely large exceeding the size of Switzerland, and there are no significant threats from surrounding areas. Thus, there is currently little tangible concern about exogenous threats. In the longer term, the combination of anticipated climate change and large-scale deforestation elsewhere in the Amazon does raise serious concerns and more recently the urban expansion in the lower Negro river course increased the deforestation and pressure for natural resources mainly in Anavilhanas NP and surrounding PAs.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Ongoing ecological processes in the development of terrestrial and freshwater ecosystems**

Low Concern
Trend:Stable

Overall, the conservation values of this very large property are in good condition, with only minor human impacts around settled areas. While stable, there are serious concerns in the longer run due to the expected impacts anticipated of climate change and forest fires (IUCN Consultation, 2014).

▶ **Biological diversity of the Central Amazon**

Low Concern
Trend:Stable

Aside from localized overfishing and overharvesting of some species no major concerns are known (IUCN Consultation, 2014). The recent development boom in the areas around Anavilhanas National Park brought

about by the construction of the bridge over Rio Negro causes some concern.

Summary of the Values

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

Low Concern

Trend: Stable

Overall, the conservation values of this very large property are in good condition, with only minor human impacts around settled areas. While stable, there are serious concerns in the longer run due to the expected impacts anticipated of climate change and forest fires. The recent development boom in the areas around Anavilhanas National Park brought about by the construction of the bridge over Rio Negro causes some concern.

Additional information

Benefits

Understanding Benefits

► **Knowledge, Importance for research**

Research is an important activity in all of the conservation units of the complex, in particular in Mamirauá and Amanã.

► **Food, Legal subsistence hunting of wild game, Collection of wild plants and mushrooms, Fishing areas and conservation of fish stocks**

The natural resources of the property provide for subsistence livelihoods of small indigenous communities within the property.

The current lack of law enforcement and park rangers due to lack of funding may encourage overexploitation of fishing stocks and game. The effects of climate change are more difficult to predict but it is expected that it will

affect rainfall patterns, which can negatively affect food availability.

Summary of benefits

At the international level, the property is highly valued for conservation and the generation of knowledge. The natural resources of the property are of critical importance for the communities within the property and no doubt valued as such.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Wildlife Conservation Society and Fundação Vitória Amazônica FVA		Consolidation of the Lower Rio Negro Mosaic of PAs. Financed by the Gordon & Betty Moore Foundation.
2	Mamirauá Sustainable Development Institute		Implementing Models of Biodiversity Conservation and Management in Wetlands for ARPA. Financed by the Gordon & Betty Moore Foundation.
3	Mamirauá Sustainable Development Institute		16 Special Projects funded and ongoing in 2016 for environmental education, public health, river dolphin studies, manatee conservation, river otters, new species discoveries, use of drones in conservation and clean energy.
4	FUNBIO, Amazon Region Protected Areas Program Phase II (ARPA)		Provides financial support to management of Jaú and Anavilhanas National Parks until 2017.
5	IPE – Ecological Research Institute		Seven ongoing projects in the Lower Rio Negro including Anavilhanas National Park on the conservation of manatees, Socio-biodiversity, Sustainable production chains among others.

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	N.A.	Include funding for the Mamirauá and Amanã Sustainble Development Reserves in the Amazonas Region Protected Area Project, and build long-term solutions for sustainable finance. Increase funding streams for the National Parks via ARPA to improve and re open floating HQ and Visitor Centres and to hire more staff including park rangers and technical personnel. Implement and enforce laws regulating the interactive tourism with pink dolphins.	

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