IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 27 May 2014

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

Sangha Trinational

SITE INFORMATION

Country:
Cameroon, Central African Republic, Congo
Inscribed in: 2012
Criteria:
(ix) (x)

Site description:
Situated in the north-western Congo Basin, where Cameroon, Central African Republic and Congo meet, the site encompasses three contiguous national parks totalling around 750,000 ha. Much of the site is unaffected by human activity and features a wide range of humid tropical forest ecosystems with rich flora and fauna, including Nile crocodiles and goliath tigerfish, a large predator. Forest clearings support herbaceous species and Sangha is home to considerable populations of forest elephants, critically endangered western lowland gorilla, and endangered chimpanzee. The site’s environment has preserved the continuation of ecological and evolutionary processes on a huge scale and great biodiversity, including many endangered animal species. © UNESCO

SUMMARY

2014 Conservation Outlook

Significant concern

The values of TNS are considered to be intact, but pressures on the faunal values are intense in the buffer zone. In particular, elephant poaching has increased linked to the strong international demand for ivory. The long term outlook for the ecological integrity of the site is relatively good since almost all the site is surrounded by logging concessions which have sustainable forestry management plans (low impact logging) or have (or are engaged in) FCS certification. The risk of habitat loss through forest clearance is therefore low, although the development of dense road networks by logging companies brings other problems (notably the possibility to access areas for hunting). TNS collaborates actively with some of these companies to enforce wildlife laws and promote sustainable alternative revenue generation. However, results are variable and much greater commitment will be needed both from the logging companies and the Forestry Ministries in order for the buffer zones to provide effective protection of the site.Significant efforts must be made by the governments and the logging companies in the buffer zones to improve law enforcement, particularly those relating to hunting and the transport of meat, illegal settlements (new camps/villages) and the movement of people to logging camps. While protection and management inside the TNS function relatively well, there is clearly room for improvement. In particular, the recently granted mining exploration concessions in Congo and the mining exploitation in CAR partially encroaching upon the property and its buffer zone those two countries are of significant concern. Political commitment to cross border collaboration for management of the TNS needs to be translated into more concrete actions on the ground. The growing capital endowment of the TNS Foundation indicates good progress towards financial sustainability and is a positive indicator that management effectiveness will continue to improve. The site has exceptional tourism potential despite an unfavorable context (insecurity, difficult access, unreliable local transport, and lack of sufficient competent local operators). TNS

has exceptional potential for scientific research.

Current state and trend of VALUES

Low Concern
Trend: Data Deficient

The structural integrity of the forest in the TNS is intact and not threatened by deforestation. However, while the best available information indicates that floral and faunal diversity is intact inside the TNS there is clear evidence of intense pressure on wildlife resources in the buffer zone through poaching for bushmeat and ivory.

Overall THREATS

High Threat

Bushmeat commerce, involving a long chain of actors (hunters, transporters, middlemen, suppliers of money and weapons, corrupt law enforcement officials) is intense in the peripheral zones of the TNS. Elephant poaching has also increased linked to the strong international demand for ivory. As wildlife becomes impoverished here it is likely that pressure will increase on wildlife in the TNS. The rapid expansion of the road network, and the fact that the three countries are now linked by good roads, has significantly intensified the hunting pressure in this hitherto inaccessible forest block and means that greater quantities of bushmeat can be transported greater distances more rapidly. Controls on these trans-border roads are difficult to enforce and require the collaboration of government services that often do not meet the standards of good governance necessary. However, where roads pass through logging concessions in the periphery of TNS that are FSC certified (or in the process of obtaining certification) controls of vehicles are more rigorous and there is constructive collaboration between the logging companies, park management authorities and their NGO conservation partners. Management of numbers of people living in logging camps, and regulating their activities, is a challenge for logging companies and has not always been a success. Hunting levels increase and outsiders are often involved (Poulsen et al. 2009). Where camps are located near the TNS (eg Loundougou in Congo) the risk of illegal activities in the park increases.
Several large scale industrial mining operations will be operational within 150-200km of the TNS in the near future. Construction of roads, railways, dams and

other infrastructures are under way. The net result of all these activities will be to attract many tens of thousands of people into this vast forested area. It is almost bound to increase pressures on the TNS, notably for bushmeat. The recently granted mining exploration concessions in Congo and the mining exploitation in CAR could significantly affect the property as they are partially encroaching upon the property and its buffer zone.

Overall PROTECTION and MANAGEMENT

Some Concern

Protection and management activities inside the TNS are operational, but could certainly be improved with more resources (funds, equipment and training). In particular increased government budgetary support is needed. TNS is highly dependent on support from external partners. However the steadily increasing endowment capital of the Trust Fund (TNS Foundation) is a positive indicator that the quality of protection and management will continue to improve. Innovative inter-government agreements for the coordinated management of the TNS, a first for central Africa, indicates political commitment for TNS but this needs to be translated into more effective concrete actions on the ground (increased government budgets, sustainable development of parks personnel, effective law enforcement). Management of pressures in the buffer zone, particularly unsustainable bush meat hunting and ivory poaching, remains a major challenge for park management in the three countries, and monitoring of these issues needs to be strengthened.
TNS is one of the rare sites in the Congo basin forest ecosystem that has considerable tourism potential, but realising its full potential is constrained by a number of factors beyond the control of park management (insecurity, difficult access, unreliability of local transport systems and tourism operators). Sport hunting (including for bongo and, in the case of Cameroon, elephant) is also practiced in the buffer zones and revenues are shared with local communities. However quotas are not based on sound scientific assessments and despite revenue sharing illegal activities continue in these areas.
The TNS offers exceptional opportunities for research and ecological monitoring and current activities are providing remarkable scientific insights.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Extensive area of intact lowland tropical rainforest containing a wide range of habitat types and high biodiversity.**
  Criterion:(ix)

  Astride the boundaries of three countries (Congo Republic, Central African Republic, Cameroon) the Sangha Trinational (TNS) is a very large area of interconnected and divers lowland tropical rainforest habitats located in the transition zone between the Lower Guinea and Congolian floristic sub-regions of endemism. The size of the area and the low human pressure means that the complete faunal and floral communities, ecological and evolutionary processes, are largely intact. The plant assemblage of the TNS is highly representative of the Congo basin flora (Wieringa and Sosef, 2011). A dense hydrographic network also plays a critical role in the maintenance of habitat diversity, wildlife and their connectivity. There is a fully connected mosaic of very diverse habitats, including numerous types of ecologically remarkable forest clearings attracting major wildlife aggregations and many plant species otherwise not found in the forest landscape (SoOUV, 2012).The area contains a particularly high number of forest clearings (bais and yangas) which attract large numbers of mammals (particularly forest elephant, gorillas, bongo, giant forest hog Hylochoerus meinertzhageni , sitatunga Tragelaphus spekii, forest buffalo Syncerus caffer nanus) in search of food and mineral salts and play a key role for intra-specific social interactions, acting as hubs for social and genetic exchanges.

▶ **Presence of emblematic and endangered mammal and plant species**
Criterion:(x)

The TNS protects several endangered and charismatic large mammal species, including forest elephant Loxodonta africana cyclotis, lowland gorilla Gorilla gorilla gorilla, chimpanzee Pan troglodytes troglodytes, bongo Tragelaphus euryceros. These flagship species occur at high density in and around the property. Other rare animal species include the Oustalet's red colobus Procolobus rufomitratus ssp.oustaleti and the bare headed rock fowl Picathartes oreas. The TNS also harbours critically endangered tree species and acts as an important sanctuary for the protection of threatened biodiversity. A particularly important value of the site is the fact that tool using behaviors, unique to this site, have been documented in gorillas (use of branches to test water depth in bais; Breuer et al. 2005) and chimpanzees (tools to feed on honey, termites and ants; Sanz and Morgan, 2009).

Assessment information

Threats

Current Threats

High Threat

Bushmeat commerce, involving a long chain of actors (hunters, transporters, middlemen, suppliers of money and weapons) is intense in the peripheral zones of the TNS. Elephant poaching has also increased linked to the strong international demand for ivory. As wildlife becomes impoverished here it is likely that pressure will increase on wildlife in the TNS. The rapid expansion of the road network, and the fact that the three countries are now linked by good roads, has significantly intensified the hunting pressure in this hitherto inaccessible forest block and means that greater quantities of bushmeat can be transported greater distances more rapidly. Controls on these trans-border roads are difficult to enforce and require the collaboration of government services that often do not meet the standards of good governance. However

where roads pass through logging concessions in the periphery of TNS that are FSC certified (or in the process of obtaining certification) controls of vehicles are more rigorous and there is constructive collaboration between the logging companies, park management authorities and their NGO conservation partners. Management of numbers of people living in logging camps, and regulating their activities, is a challenge for logging companies and has not always been a success. Hunting levels increase and outsiders are often involved (Poulsen et al. 2009). Where camps are located near the TNS (eg Loundougou in Congo) the risk of illegal activities in the park increases.

► Commercial hunting

High Threat
Inside site
Outside site

Ivory poaching and bushmeat commerce, involving almost all vertebrate species, is intense and thus affects the biodiversity values of the TNS. There is also a significant illegal trade in grey parrots (Psittacus erithacus) and green pigeons (Treron australis) captured in forest clearings in the Cameroonian section of TNS. Parrot hunting has also started more recently in the Congo sector and there has been an increase in poaching linked to the strong international demand for ivory (SOC 2014).
Although most of the bushmeat and ivory poaching occurs outside the TNS cases of poaching inside the site also occur. For example indices of illegal human activities in Lobeke National Park (LNP) increased by 160% between 2002 and 2009 while elephant dung density decreased by 20% over the same period (Nzooh, 2009). The rapid expansion of good roads makes is easier to supply the bushmeat markets in the urban centres around the TNS, as well as cities further afield. Logging camps also usually have bushmeat markets. Some irresponsible logging companies encourage hunting in order to avoid having to provide meat protein for their workers. For example up to 80% of duikers have been lost over a 5 year period in a logging concession south-east of NNNP (Maisels et al., 2012).
The impact of elephant poaching for ivory over the past 3 years has been dramatic. For example in the UFA’s on the Congolese side of the TNS elephant densities have plummeted. A recent analysis by WCS (Maisels et al. 2012) suggests that 5.000 elephants have may have been lost from the Ndoki-Likouala landscape between 2006 and 2011 (NB this landscape

extends well beyond the nominated boundary of the TNS buffer zone on the Congolese side). While elephant densities appear to be stable in the Nouabalé Ndoki National Park (NNNP) they have virtually disappeared from the logging concessions that are not implementing anti-poaching activities in the periphery of NNNP. The situation is likely to be similar in the peripheral zones of the Cameroon and CAR sectors of TNS, but recent survey data is not currently available.

Ivory poaching and commercial bushmeat trade require strong law enforcement capacities (both at the site level and at the regional and national levels) and strong political leadership. Politically and/or economically influential actors are often implicated in the trade or turn a blind eye to it because it would be socially conflictual to try to stop the illegal trade in bushmeat. Since park management alone cannot resolve this issue the threat assessment is considered high.

While the recent unrest in the Central African Republic and the proliferation of firearms are of significant concern in this context, the recent tripartite transboundary anti-poaching cooperation agreement between CAR, Cameroon and Chad and the adoption by the Economic Community of Central African States (ECCAS) of a short-term Extreme Emergency Anti-Poaching Plan (PEXULAB) and a medium and long-term Emergency Anti-Poaching Plan (PAULAB), are a welcome development to strengthen anti-poaching efforts (SOC 2014).

► Tourism/ visitors/ recreation

High Threat
Outside site

Sport hunting concessions exist in the buffer zones of Cameroon and Congo. However the quotas set by the government are not based on sound scientific data. A concession for sport hunting for bongo has recently been attributed to a South African operator in the buffer zone of the NNNP. To make this activity “legal” the GOC removed the bongo from the list of fully protected species without any scientific justification (In April-May 1997 a massive outbreak of a biting fly Stomoxys caused massive die off of Bongo and other ungulates. There is currently no data available to demonstrate that the population has recovered sufficiently to envisage sport hunting). In contrary landscape surveys still show extremely low bongo dung encounters.

► Logging/ Wood Harvesting

High Threat
Outside site

Logging camps in the buffer zone of TNS constitute a threat because in addition to the legitimate workers and their families, they tend to attract many hangers-on. Logging companies have generally not been successful in controlling and limiting the numbers of people living in these camps. As a result hunting pressure and deforestation for slash and burn agriculture tends to increase in the vicinity of the camps. Certain camps have become very large (eg , Pokola whose population has risen from 300 to approx.15.0000 inhabitants in 20 years) (State of Forests Report, 2008; Atok & Borner, 2012). The bushmeat market in Pokola, located some 70km from the nearest boundary of the TNS, is one of the biggest in the region. The nearer the camps are to the TNS boundaries the greater the threats to the site.
Logging companies engaged in sustainable forest management and FSC certification collaborate with park managers to control illegal hunting in their concessions and prevent transport of bushmeat in company vehicles. Although the level of commitment to wildlife protection by logging companies is variable, the presence of FSC certified logging companies in the buffer zones of the TNS is considered beneficial for the TNS since the logging companies, in addition to providing tangible economic benefits for local communities, are required by law to regulate activities in the concession (settlements, agriculture, hunting, immigration, etc..).

► Roads/ Railroads

High Threat
Outside site

As a result of industrial logging, the expansion of the road network in the TNS landscape, particularly in the northern Congo sector (which has always been the most inaccessible sector of the three countries) has been very rapid indeed over the past 10 years. Motorable roads now link all three countries and this has a) rendered hitherto “pristine” areas accessible for hunting, b) greatly increased the speed with which bushmeat can reach markets and the distance that it can be transported to them (Bangui, Brazzaville and Yaoundé can now all receive regular supplies of bushmeat from the forests

surrounding the TNS). As the forests in the periphery of the TNS are depleted of their wildlife there will be increasing pressure on the last remaining “healthy” wildlife populations inside the TNS. Effectively controlling what is transported along these transnational roads requires resources and a level of good governance (by a variety of government services) that is currently inadequate. Road accidents with wildlife are also increasing.

► Mining/ Quarrying

Low Threat
Outside site

Artisanal mining for diamonds and gold is widespread in the buffer zones of TNS. In virtually all cases the activity is illegal. There are few controls on where the mining takes place, how it is done, and who is involved. The activity constitutes a threat to the TNS since mining is accompanied by deforestation, pollution (particularly of waterways) and hunting. It attracts many “hangers-on” – gold and diamond dealers, general tradesmen, hunters, etc. Artisanal gold exploitation works are also installed in the Cameroon part of the property and steps are underway to remove the people living at these work sites (SOC 2014).

► Crops

Low Threat
Outside site

Slash and burn agriculture occurs in the buffer zone, but this is relatively small scale compared with the overall surface area of the buffer zone.

Potential Threats

High Threat

Several large scale industrial mining operations will be operational within 150-200km of the TNS in the near future. Construction of roads, railways, dams and other infrastructures are under way. The net result of all these activities will be to attract many tens of thousands of people into this vast forested area. It is almost bound to increase pressures on the TNS, notably for bushmeat. Inter-ministerial consultation between sectors impacted by mining is extremely limited so there is a high risk that mining decisions will be taken without due

consideration for the negative impacts for biodiversity conservation in the TNS. The recently granted mining exploration concessions in Congo and the mining exploitation in CAR could significantly affect the property as they are partially encroaching upon the property and its buffer zone in the Congo and the CAR.

► Other

High Threat
Inside site

The population of lowland gorillas and, to a lesser extent, chimpanzees in Odzala National Park (to the south west of TNS) was devastated between 2002 and 2004 by Ebola (Walsh et al. 2003). Several tens of thousands of gorillas died during this period. The disease has not yet made an appearance in the TNS, but it remains an ever present threat.
Ape populations in north eastern Gabon and north western Congo were decimated by ebola between the mid 90s and 2004 (Walsh et al., 2003). No cases appear to have occurred in TNS but there is a very real risk that it could appear in the future. Since no measures can be taken to prevent an outbreak occurring, nor to prevent it spreading from ape to ape once it appears, the threat to great ape populations, a key value of the site, is considered high.

► Mining/ Quarrying

High Threat
Inside site

Although there are, as yet, no plans for large scale industrial mining in the immediate vicinity of TNS, several very large mining initiatives (mainly iron ore) are starting up within 150-200km of the TNS. Major infrastructures in support of these initiatives (roads, dams, railway line) are being developed and this will inevitably attract many tens of thousands of people to the area. The environmental impact of this massive influx of people into a forested region will be very significant and widespread (notably a massive increase in demand for bushmeat).
Two mining exploration concessions have been granted in the Congo, and in the CAR a mining exploitation permit (gold and diamonds), all of which infringe on the property and its buffer zone, despite the legislation in force. Environmental impact studies are necessary to evaluate their potential

impact on the property's OUV (SOC 2014).

Protection and management

Assessing Protection and Management

▶ Education and interpretation programs

Mostly Effective

Effective education and sensitisation activities are conducted by the various partners in the areas where they work.

▶ Tourism and interpretation

Some Concern

The TNS is one of the rare forest protected areas in the Congo basin that has genuine tourism potential. This is because of the abundance of forest clearings (bais) which attract large numbers of emblematic large mammal species including lowland gorilla, forest elephants, forest buffalo, bongo, sitatunga, giant forest hog. In APDS and NNNP there are also habituated groups of gorillas that are used for gorilla tracking. Although annual tourist numbers to TNS probably do not exceed 1.500 visitors (Management Plans) there is a clear international demand for this type of tourism. However the destination remains high risk (security, access, reliability of local operators) for most international tourism operators and the market will not develop fully until this situation changes. Operational costs are also high and private investors are lacking.

▶ Relationships with local people

Some Concern

Relations with local communities are difficult due to the level of poverty of local communities, their relative isolation and their high dependence on natural resources. However in all three country sectors of the TNS park management undertakes community activities aimed at encouraging sustainable use of natural resources and sustainable income generating activities. However the proper management of these activities is constrained by corruption, and hunting quotas are not based on scientific data.

Community hunting zones (for subsistence hunting) have also been set up in the buffer zones of CAR and Cameroon but here again results are very mixed and there is, as yet, little evidence that hunting in these zones is sustainable. As regards classic development activities (health, education, agriculture etc) the management authorities recognise the limited results that they have had and are increasingly recognising that their role should be to act as a catalyst for development activities carried out by organisations with the appropriate experience and competence (Proposition d'inscription, 2012).
Given the relatively high densities of elephants in the TNS human-elephant conflict is a regular management problem for which no sustainable solution has yet been found.

► Legal framework and enforcement

Some Concern

The TNS is composed of the following protected areas:
• Cameroon: : Lobeke NP (LNP)
• Congo: ; Nouabalé Ndoki NP (NNNP)
• RCA: Dzanga-Ndoki NP (DNNP) separated into two sectors by the Dzanga-Sangha Special Forest Reserve (DSSFR). At least 4.000 people live in the DSSFR.
Several interstate agreements have been signed regarding the management of the TNS (a first for Africa):
• A Tri National cooperation agreement between the three governments
• A Tri National agreement on anti-poaching activities (including provision for a Tri National Brigade, with a base near where the three parks meet on the Sangha River). This agreement formalises the principle of joint bi- or tri-national patrols that have been conducted for the past decade.
• A Tri National agreement on the cross border movement of TNS parks personnel.
• A Tripartite transboundary anti-poaching cooperation agreement between CAR, Cameroon and Chad

While these agreements are essential (and ground-breaking for Africa) implementation of the agreements, in terms of concrete actions on the ground, needs to improve considerably.
Enforcement remains a challenge because resources, particularly numbers of guards, remain inadequate in relation to the size of the area to protect. For

example NNNP, which is 4.268km ^{2}, currently has only 16 guards (whose running costs are largely supported by external funding sources), but also 25 guards in the periphery. In LNP there are about 20 guards for an area of 2.178 km^2.
However law enforcement activities are conducted throughout the TNS and PNL and NNNP have maintained LEM (law enforcement monitoring) data bases for several years. A standardised LEM system, based on MIST, has recently been established in all three sections of the TNS and should soon be fully operational. Successful prosecution of arrested poachers is inadequate due to corruption and the dysfunction of the legal systems in each country. This is one of the major constraints to effective law enforcement in the TNS.Concerns are raised, however, as two mining exploration concessions in the Congo, a mining exploitation permit (gold and diamonds) in the CAR has been granted despite the legislation in force, all of which infringe on the property and its buffer zone (SOC 2014).

► Integration into regional and national planning systems

Some Concern

The existence of the three Tri National agreements referred to above, together with the existence of a Tri National protected areas land use plan (Proposition d’inscription, 2012) is an indication of a certain level of political commitment to integration in regional planning systems. However in all three countries inter-ministerial collaboration and communication is very weak, particularly with respect to infrastructure development (roads) and industrial mining and, more recently, oil palm plantation development. As a result major decisions in these sectors are taken without any consultation with TNS.

► Management system

Some Concern

All three parks of the TNS have approved management plans which are being partially implemented within the constraints of the current context (particularly limited resources).

► Management effectiveness

Some Concern

Management effectiveness is not as strong as it should be because of lack of

resources (shortage of properly trained and equipped staff, and inadequate funding for running costs). Issues of lack of motivation and corruption within the guard force are problems common to all three countries.

► Implementation of Committee decisions and recommendations

Mostly Effective

Requests to the State Parties so far largely implemented; nonetheless new concerns have emerged and remain to be dealt with.
So far, the State Parties of the Economic Community of Central African States (ECCAS) have adopted a short-term Extreme Emergency Anti-Poaching Plan (PEXULAB) and a medium and long-term Emergency Anti-Poaching Plan (PAULAB) (SOC report, 2014).
All three States Parties have also taken measures to ensure security in the area of the property.

► Boundaries

Some Concern

At least 50% of the TNS boundaries are “artificial” in that they do not follow natural features. Most of them are poorly marked (if marked at all) and therefore require considerable resources to maintain. Recently efforts have been made to mark the borders.
In each country there is a defined resource-use buffer zone around the protected areas.

► Sustainable finance

Mostly Effective

Government contributions to funding of the management structure are inadequate (currently about 10% of overall budget for TNS, essentially for salaries) so there is still heavy reliance on external sources of funding (Proposition d’inscription, 2012).
In 2008 the TNS Foundation was created and recognized under British and Cameroon laws with the objective of attaining financial sustainability for the three parks that make up the TNS. Its endowment capital currently stands at 23 million €. Key contributors are Germany (through KfW), France (through AFD), Great Britain and Norway (through Congo Basin Forest Fund) and EC (through CAWHFI programme). Private foundations and individuals have also

contributed. Although the fund is not yet large enough to cover all running costs the perspectives are good that over the next few years sufficient capital will be secured.

► Staff training and development

Some Concern

Staff training and development in the three parks is supported by the long term technical partners who have been working on the sites for over 20 years (WWF in PNL and DNNP/DSSFR; WCS in NNNP). WCS and WWF mobilise a wide variety of public and private funding sources to support the staff training activities which include basic guard training and training in survey and monitoring techniques (wildlife and socio-economy). However ensuring follow-up and supervision of staff has proved to be challenging over the years. The absence of adequate motivation and career development possibilities (stable and secure salaries, appropriate working conditions, career advancement possibilities) is a problem that the respective governments need to address in order to maintain standards and avoid a stop-start approach to staff development.

► Sustainable use

Some Concern

Tourism (wildlife viewing) is permitted in the three national parks that comprise the TNS but no extractive activities are allowed.
Sustainable use of wildlife, in the form of safari hunting or community based hunting, is supposed to occur in the buffer zones of TNS. However safari hunting is generally poorly managed and supervised. The quotas are not set on the basis of sound scientific data there is inadequate monitoring to measure the impact of the activity. With regards to community-based subsistence hunting activities in the TNS buffer zone, ensuring adequate control and supervision is proving very challenging and there is a clear tendency for overexploitation of the resource as people find ways of circumventing the rules and regulations for hunting in the buffer zones (Management Plans).

► Monitoring

Mostly Effective

Monitoring activities are conducted in all three parks and in the buffer zones. Monitoring focuses particularly on populations of the emblematic wildlife species for which the TNS became a World Heritage Site. Periodic wildlife surveys, looking at wildlife and hunting abundance indices, are conducted in and around TNS (Maisels et al. 2012; Nzooh et al. 2003, 2006, 2009). This includes GPS-collared elephants. Several forest clearings are regularly monitored as frequency of use is a good indicator of the population status of the key large mammal species.
Large scale systematic sampling wildlife surveys require considerable resources (time, people, funds) so it is not possible to do them more than once every four or five years (and sometimes longer). However they provide the most reliable data on wildlife abundance and illegal activities. TNS's current LEM system is not yet sufficiently effective to provide the quality of empirical data on the levels of poaching and wildlife abundance that systematic surveys provide (for example the apparent loss of 5.000 elephants in the Ndoki-Likouala buffer zone of NNNP between 2006 and 2011 was not picked up by LEM data).
Other parameters that are monitored are tree phenology, community hunting, safari trophies, socio-economic parameters, demography and climate data.
A transmissible disease monitoring programme for great apes and parks staff has also been operational for several years.

► Research

Highly Effective

Research in the TNS over the past 20 years by many scientists and organizations has revealed many remarkable insights into ecology and behaviour of forest animal species (including forest elephant, lowland gorillas, chimpanzees and bongo) and general forest ecology (A complete list of scientific references is given on pp 121-152 in the "Proposition d'inscription"). Of particular interest is the discovery of tool using in both gorillas and chimpanzees.
The presence of research activities contributes significantly to protection of the sites where research is ongoing. The famous Dzanga and Mbeli bais in APDS and NNNP, where long term elephant and gorilla research has been conducted for many years, are particularly good examples of researcher

presence improving the protection of an area.

Overall assessment of protection and management

Some Concern

Protection and management activities inside the TNS are operational, but could certainly be improved with more resources (funds, equipment and training). In particular increased government budgetary support is needed. TNS is highly dependent on support from external partners. However the steadily increasing endowment capital of the Trust Fund (TNS Foundation) is a positive indicator that the quality of protection and management will continue to improve.
Innovative inter-government agreements for the coordinated management of the TNS, a first for central Africa, indicates political commitment for TNS but this needs to be translated into more effective concrete actions on the ground (increased government budgets, sustainable development of parks personnel, effective law enforcement). Management of pressures in the buffer zone, particularly unsustainable bush meat hunting and ivory poaching, remains a major challenge for park management in the three countries, and monitoring of these issues needs to be strengthened.
TNS is one of the rare sites in the Congo basin forest ecosystem that has considerable tourism potential, but realising its full potential is constrained by a number of factors beyond the control of park management (insecurity, difficult access, unreliability of local transport systems and tourism operators).
Sport hunting (including for bongo and, in the case of Cameroon, elephant) is also practiced in the buffer zones and revenues are shared with local communities. However quotas are not based on sound scientific assessments and despite revenue sharing illegal activities continue in these areas.
The TNS offers exceptional opportunities for research and ecological monitoring and current activities are providing remarkable scientific insights.

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

Some Concern

Given the almost complete absence of effective inter-ministerial consultation between different sectors, park management authorities are likely in the future to find themselves reacting to decisions rather than being proactive.

This will undermine their effectiveness to address threats outside the TNS.

State and trend of values

Assessing the current state and trend of values

World Heritage values

- **Extensive area of intact lowland tropical rainforest containing a wide range of habitat types and high biodiversity.**
  Low Concern
  Trend:Stable

  The structural integrity of the forest in the TNS is intact and not threatened by deforestation. Human induced deforestation inside the TNS is nil, and it is very limited in the buffer zones because they are occupied by logging concessions most of which are engaged in low impact logging and are required by law to regulate the human activities in their concessions. Faunal diversity however is threatened in the buffer zone because of unsustainable levels of hunting for bush meat hunting and ivory. Floral diversity is intact.

- **Presence of emblematic and endangered mammal and plant species**
  Low Concern
  Trend:Deteriorating

  Available survey and monitoring data (Proposition d’inscription, 2012; Maisels et al. 2012) indicate that populations of emblematic and endangered species within the boundaries of the TNS are probably not declining. However ivory poaching in the buffer zone is intense and there is clear evidence that elephants have declined in the Congolese part of the TNS buffer zone. A similar situation is likely to be the case in CAR and Cameroon. The absence on scientifically based quotas for sport hunting of bongo (all three countries) and elephant (Cameroon) in the buffer zones is also serious concern.

Summary of the Values

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

Low Concern

Trend: Data Deficient

The structural integrity of the forest in the TNS is intact and not threatened by deforestation. However, while the best available information indicates that floral and faunal diversity is intact inside the TNS there is clear evidence of intense pressure on wildlife resources in the buffer zone through poaching for bushmeat and ivory.

Additional information

Key conservation issues

▶ **Excessive commercial hunting in the buffer zone for bushmeat and ivory**

Local

If the unsustainable level of hunting for bushmeat and elephant poaching for ivory in the buffer zones of TNS continues at the current level the values of TNS itself will be affected in the short to medium term as poachers turn to areas where wildlife is still abundant (ie inside the TNS). The resolution of this problem requires greater commitment from the governments to enforce wildlife laws, and ensure effective prosecution of law breakers. Corruption and lack of motivation of law enforcement agencies and the judiciary need to be addressed. Better cross-border collaboration to break up illegal wildlife trafficking networks and circulation of weapons is also needed. With the recent opening of major highways linking, for the first time, the three countries and open to general traffic (instead of just logging company vehicles) controlling the illegal circulation of wildlife products and weapons will be particularly challenging.

▶ **Insufficient engagement by logging companies and governments to address conservation issues in the logging concessions that**

constitute much of the buffer zone.

National

This issue is closely related to the one below, but concerns specifically the legal obligations of logging companies to fulfill the requirements of their management plans. Logging companies are legally required by their management plans to ensure respect of wildlife laws, and are also required to regulate the movement of people into the concession, particularly the establishment of new settlements (often along the roads) in the logging concession. The engagement by logging companies to fulfil these obligations has generally been inadequate for a variety of reasons:
• the economic uncertainties of the logging industry resulting in unwillingness to commit sufficient funds on a long term basis for anti-poaching,
• the poor performance of state institutions in creating the enabling environment for the implementation of the forestry management plans (helping to resolve socially conflictual issues such as the establishment of illegal settlements in the concessions or dealing with the bushmeat trade; poor quality and management of forest guards provided by government for anti-poaching in the concession);

Benefits

Understanding Benefits

► Is the protected area valued for its nature conservation?

The TNS is highly valued for its faunal and floral diversity and the presence of healthy populations of several emblematic and or endangered forest animal species. The TNS contains a major proportion of the Congo basin floral diversity. If managed properly the TNS would be a vital reservoir of wildlife species for legally operating subsistence hunters in the buffer zone.

► Carbon sequestration, Water provision (importance for water quantity and quality)

The TNS is covered by a dense river network which is important for maintenance of habitat diversity, fish diversity, and regulation of downstream water flows. The 7,463 km² of park, and the 17,879 km² of

buffer zone around it, constitute an important carbon sink. This vast area of intact and continuous rainforest almost certainly has an important regulating effect on regional and continental climate systems.

Summary of benefits

The national and global benefits in terms of nature conservation (central African humid forest biodiversity) and environmental services (water, carbon, and climate regulation) are exceptionally important.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Relevant Forestry Ministries in Cameroon, Congo, RCA: • Ministère des Forêts et de la Faune (Cameroon) • Ministère de l'Economie Forestière et du Develpment durable (Congo) • Ministère des Eaux et Forêts, Chasse et Pêche (RCA)		In charge of park management in the three countries. Receive support from NGO technical partners, the TNS Foundation and international funding agencies (public and private).

№	Organization/ individuals	Project duration	Brief description of Active Projects
2	WWF – Central African Regional Office		WWF supports many aspects of park management (surveillance, LEM, surveys, training),and buffer zone activities (animation of local CBNRM structures, micro-projects) in the Cameroonian and CAR sectors of the TNS. It mobilises many sources of public and private funding including GIZ, KfW, USAID (CARPE), USFWS, UNESCO, EU, DGIS, BAD, TNS Foundation, WWF private donors.
3	Wildlife Conservation Society		WCS supports many aspects of park management (surveillance, LEM, surveys, training) and buffer zone activities in the Congo sector of the TNS. It mobilises many sources of public and private funding including USAID (CARPE), USFWS, UNESCO, EU, OIBT, AFD/FEEM, TNS Foundation, WCS private donors. The buffer zone activities are part of PROGEPP (Projet de Gestion des Ecosystèmes Périphériques du Parc national de Nouabalé-Ndoki), an initiative developed in collaboration with logging companies and the government since 2002 to integrate sound conservation principles into the management plans of collaborating logging companies (anti-poaching, regulated hunting, zoning, development activities, etc...). WCS also plays a central role in designing and implementing large scale wildlife surveys to monitor wildlife population trends and illegal human activities. WCS also carries out important conservation related research.
4	Logging companies		Certain of the logging companies in the buffer zone of Congo and Cameroon collaborate with park management structures and their NGO conservation partners to improve conservation measures in the concessions (regulation of hunting, anti-poaching, sustainable socio-development activities). CIB (Congolaise Industrielle de Bois – part of the group OLAM), that has three FSC-certified concessions in the buffer zone of NNNP has collaborated closely with the Ministry and WCS for over a decade and has probably had the most lasting impact of any of the logging companies in terms of conservation.

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