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MISSION REPORT / RAPPORT DE MISSION

Niokolo-Koba National Park (Senegal) (N 153) / Parc National de Niokolo-Koba
(Sénégal) (N 153)

21-27 January 2007 / 21-27 janvier 2007

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Mission Report
UNESCO/IUCN joint monitoring mission to
Niokola-Koba National Park, Senegal

21-27 January 2007



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SUMMARY

From 21 to 27 January 2007 a joint UNESCO/IUCN monitoring mission visited Niokola-Koba National Park, in accordance with the world heritage committee decision 30 COM 7B.1 of July 2006. The mission spent three days at Niokola-Koba and two days in Dakar consulting with a wide range of stakeholders. The results of a comprehensive recent field survey indicate that the site has lost most its large mammal fauna to commercial poaching, and its integrity is threatened by high levels of human activity, particularly cattle grazing. The site is further threatened by plans for a new dam on the Gambia river. In view of this degradation, and the magnitude of the ongoing threats, the mission concluded, in consultation with Senegal's Department of National Parks, that the site should be included on the List of World Heritage in Danger.

Conservation values and integrity. The site is one of the largest protected areas in West Africa, covering some 9,130 km² of Guinea savanna woodland, and supporting a diverse fauna including many rare species and taxonomically distinct types. The site was inscribed on the basis of its diversity of wildlife and the presence of endangered species. It remains free of human settlement, and agricultural encroachment is limited to a few small areas along the periphery of the park. The integrity of the natural habitats within the park is quite well preserved across large areas, although there are significant impacts from (1) illegal cutting of *Borassus* palms and other trees, (2) uncontrolled use of fire, often associated with hunting, (3) drying of flooded grasslands (so-called 'Mares') and invasion of these critical dry-season habitats by woody vegetation, (4) heavy grazing pressure by cattle and other domestic stock, (5) bush encroachment in areas formerly kept open by elephants and (6) agricultural encroachment along the periphery of the park where the boundary is not physically demarcated.

Despite the relatively good condition of the habitats within the park, the site is perilously close to becoming an 'empty forest', as most of the large mammal fauna has been lost to commercial poaching. The results of a detailed census (carried out in May 2006 by the African Parks Foundation, a Dutch NGO), suggest that populations of all ungulate species have suffered serious recent declines, with elephant now on the verge of extinction, buffalo reduced to about 457 individuals from an estimated 8,000 in 1990, roan numbering only 710 (from 6,000), and hartebeest 149 (from 5,000 in 1990). Overall, there are now estimated to be a total of only about 2,115 large and medium sized ungulates (belonging to 11 species) in the park, and these are outnumbered by three times as many cattle, goats and sheep.

Threats. Clearly, the most significant threat is poaching for the commercial bushmeat trade. The high value of bushmeat provides a strong incentive for poaching, particularly in this poor rural area with few alternative livelihood options. Other threats that are already affecting the integrity of

habitats within the park are mentioned above, and potential new threats include (1) the proposed construction of a new dam on the Gambia river, just outside the park and (2) the proposed construction of a major trans-national highway linking Senegal (Tambacounda) with Guinea (Koundara).

The mission evaluated each of the existing and potential threats in relation to the Outstanding Universal Values for which the park was inscribed on the world heritage list, and concluded that all threats could be ameliorated sufficiently to allow recovery of the site. Most of the site management problems can be attributed to inadequate infrastructure, equipment, funding, expertise and political will (in the past) to enable the authorities to manage the park effectively. A potentially more serious long-term threat is the proposed construction of a dam on the Gambia river at Mako, just upstream of the park. As far as the road construction is concerned, a decision to re-align the road outside the park (some distance to the west of its boundary) has been taken, and its long-term impact on the park remains to be seen.

Management effectiveness. It is clear that the high standards of site management which existed at the time of inscription on the world heritage list have not been sustained, despite the efforts of the Department of National Parks, and recent support from the international donor community. The park's location close to international borders, regional insecurity and the proliferation of automatic weapons during the 80s and 90s resulted in unrelenting poaching pressure at a time when park budgets and staffing levels were being cut. Furthermore, the park has not yet gained the trust and support of local communities, many of whom were evicted from park lands when it was established, and still feel alienated. For many years there was a progressive deterioration in park infrastructure, withdrawal of staff from critical security posts, and general deterioration in management capacity.

There have been three major donor-assisted projects at Niokola-Koba since 1994. Two of these were regional projects supported by the European Community with significant components aimed at improving natural resource management in and around the trans-frontier Niokola-Koba-Badiar park complex on either side of the Senegal-Guinea border. These two projects were operational between 1994-99 and 2001-05, and resulted in improvements in park infrastructure, surveillance and the participation of local communities in sustainable resource use. The third project, supported by the French government between 1998 and 2002, involved the development of a park management plan, institutional support, further rehabilitation of park infrastructure and additional activities designed to provide income-generating opportunities for local communities associated with the park. Despite the considerable investment in these three projects animal populations have continued to decline throughout this period, and the second of the regional projects (Projet AGIR) was closed before the committed funding had been fully utilised. The donor community is now interested in supporting new approaches to park management, rather than 'more of the same'. Public- private partnership arrangements, such as those proposed by the Dutch-based African Parks Foundation (see below) are seen by several key donors as providing the greatest hope for reversing the fortunes of Niokola-Koba.

Prospects for change. A significant recent development has been the invitation by the government of Senegal to the Dutch-based NGO African Parks Foundation to consider a partnership arrangement for conservation of the site. With support from the Royal Netherlands government, African Parks Foundation has conducted an extensive needs assessment at Niokola-Koba, (including a detailed animal census) and submitted a proposal for the establishment of a new autonomous foundation to oversee management of the park under a 25-year contract. The African Parks Foundation would provide 25% of the necessary finance, with government providing 17%, and the remaining 58% coming from other sources (not yet identified) in a public-private

partnership. A three-year emergency rehabilitation plan has been proposed at a cost of 6.4 million Euro.

Whilst these assessments and negotiations are underway, the Department of National Parks has made significant changes in its management operations at the park level. Staffing levels have been doubled over the past three years, staff have been re-deployed to the field, salaries and operational budgets have been substantially increased; and several new vehicles deployed to help with anti-poaching patrols. The mission was impressed by the sense of purpose, commitment, understanding of issues and pragmatism of the new management team in the field.

Conclusion and recommendations. The mission recommends that the site be included on the List of World Heritage In Danger, at least until such time as monitoring programmes indicate a reduction in the level of threat and a significant recovery in large mammal populations.

Furthermore, the mission recommends that the State Party undertakes the following immediate actions to secure the site:

- Implement urgent steps to halt poaching, using the DPN's aircraft for surveillance, with ground support provided by a mobile 'striking force';
- Develop and implement an emergency action plan to address the urgent threats to the OUV and integrity of the property. The emergency action plan recently developed by the expert mission funded by APF can be an excellent base for this plan;
- Accord the necessary priority to conservation of the site in national policy, planning and budgets, and take pro-active measures to solicit donor support for site management;
- Provide urgent training to the newly-recruited staff in the park, focussing on park security procedures and general 'orientation' to integrated management approaches;
- Survey and demarcate the park boundary;
- Introduce a long-term moratorium on the hunting of giant eland, and a hunting quota system in buffer areas surrounding the park that is based on reliable animal census statistics.
- Modify the park ecological monitoring programme to focus on a limited number of indicators and benchmarks which can be measured in a cost effective manner, including elements not previously included (such as animal flight distances and numbers of *Borassus* palms);
- Enhance trans-boundary co-operation, and measures to protect buffer zone and ecological corridor areas outside the park;
- Revise the 2000 Management Plan, and begin implementation of the new plan, including all aspects of infrastructure rehabilitation, re-equipping the park, institutional reform and capacity building, community relations, tourism development, etc;
- Develop and implement 'Species Survival Plans' for key endangered species, in collaboration with appropriate international expertise;
- Consider rejecting the proposed dam project which would potentially have important negative impacts to the values of the property and its conditions of integrity.

Indicators and benchmarks. Because of the difficulty of obtaining precise estimates of most ungulate populations in the field, the mission recommends that a combination of different measures and techniques be employed to monitor recovery and provide appropriate benchmarks against which to measure success. Some suggestions are made on changes that could be expected after periods of one, three and five years; and criteria that might be used to trigger decisions by the World Heritage Committee over the site's inclusion on (and subsequent removal from) the List of World Heritage In Danger.

1. Background To The Mission

Niokolo Koba National Park, which covers a vast area of 913,000 hectares, was created as a hunting reserve in 1926, and was later re-classified as a forest reserve in 1951, then a fauna reserve in 1953, and finally as a national park in 1954. The Park was enlarged by Decrees in 1962, 1965, 1968 and 1969, and given international recognition as a Biosphere Reserve under UNESCO's Man and the Biosphere Programme. Niokolo Koba was inscribed on the World Heritage List in 1981 under Criteria X, which recognises a site *“to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science and conservation”*.

The current conservation issues facing the park and its fauna and flora were brought to public attention in 1993, when the National Parks authorities produced a “white book” (livre blanc), and began to solicit donor support. An impressive number of organizations (nearly twenty) were supporting the park during the 90s, with projects in the interior and the buffer zones and communities surrounding the park. Nevertheless, the park continued to degrade and organized poaching intensified, whilst the capacity of the National Parks authority declined.

Contrary to the recommendations contained in the ‘White Book’ the Department of National Parks, in collaboration with its partners, began in 1994 to transfer certain mammal species from Niokolo Koba National Park to other protected areas. Initially, three Buffon’s Kob were transferred to Bandia (private) reserve, followed by further translocations of roan (to a wildlife ranch in South Africa), derby’s eland and other species (to the privately run parks of Bandia and Fathala in Senegal).

By 2000, the World Heritage Committee noted the alarming state of conservation of Niokolo Koba and at its twenty-fourth session in Cairns (Australia) requested the Government of Senegal to invite a reactive monitoring mission to review the state of conservation of the property. The mission took place in July 2001, aiming to: (1) make an estimate of the population status of key large mammals such as roan, Derby’s eland, hartebeest, kob and buffalo; (2) examine the condition of the park’s natural habitats; (3) examine the impact of the translocation of animals on the wildlife populations; and (4) determine the measures necessary for rehabilitating the park and its wildlife.

Despite the recommendations of the 2001 mission and the subsequent decisions of the Committee, Niokolo Koba continued to deteriorate. In 2006, through its Decision 30COM7B.1, the Committee having examined its Document *WHC-06/30.COM/7B.Add*, and having noted with great concern the reports of ongoing and potential threats to the values and integrity of the property, requested the State Party of Senegal to submit to the World Heritage Centre:

1. a full copy of the Environmental and Social Impact Assessment of the proposed road upgrading project as well as the final report on the wildlife inventory that took place in May/June 2006;
2. invitation for a joint World Heritage Centre/IUCN mission to assess the state of conservation of the property, in particular the status of key wildlife populations and the causes of the reported declines in their population sizes, as well as potential impacts of the proposed road construction project; and requested the State Party to,

3. provide the World Heritage Centre with a detailed report by **1 February 2007** on the state of conservation of the property, in particular the status of key wildlife populations, the causes for their decline and steps to be taken to improve the management of the property and potential impacts of the proposed road construction project, for examination by the Committee at its 31st session in 2007.

2. National Policy for Management of the World Heritage Property

Senegal has six national parks, covering about 4% of the country's total area. Furthermore, 11% of Senegal's total land area is protected within some kind of national park or reserve, including forest reserves (where large mammals are classified by law as partially or completely protected).

The national policy for conservation and protection of natural resources is further enhanced by Senegal's participation in international agreements under the Conventions on World Heritage, Biodiversity, Climate Change, Traffic in Endangered Species, Hazardous Wastes, Law of the Sea, Marine Life Conservation, Nuclear Test Ban, Ozone Layer Protection, Wetlands and Whaling. The country has also signed but not ratified the Conventions on Desertification and Marine Dumping.

At present Senegal has four properties inscribed in the World Heritage List: two cultural and two natural. This is commendable in view of the fact that several African countries that have ratified the 1972 Convention are yet to nominate national properties for inscription. Niokolo Koba National Park is one of the biggest national parks in West Africa, and supports a unique suite of species and taxa, some of which are restricted to the West African sub-region.

In the vicinity of Niokola Koba, efforts have been made to initiate projects aimed at improving the livelihood of the surrounding populations, thereby reducing the pressure on the park. The extent to which these projects and initiatives have assisted the park is not evident, as the park continues to degrade and the animal populations continue to decrease. In recent years the Department of Environment and Nature Protection has carried out various donor-assisted studies in Niokolo Koba National Park which have documented the alarming state of conservation of the park and its wildlife.

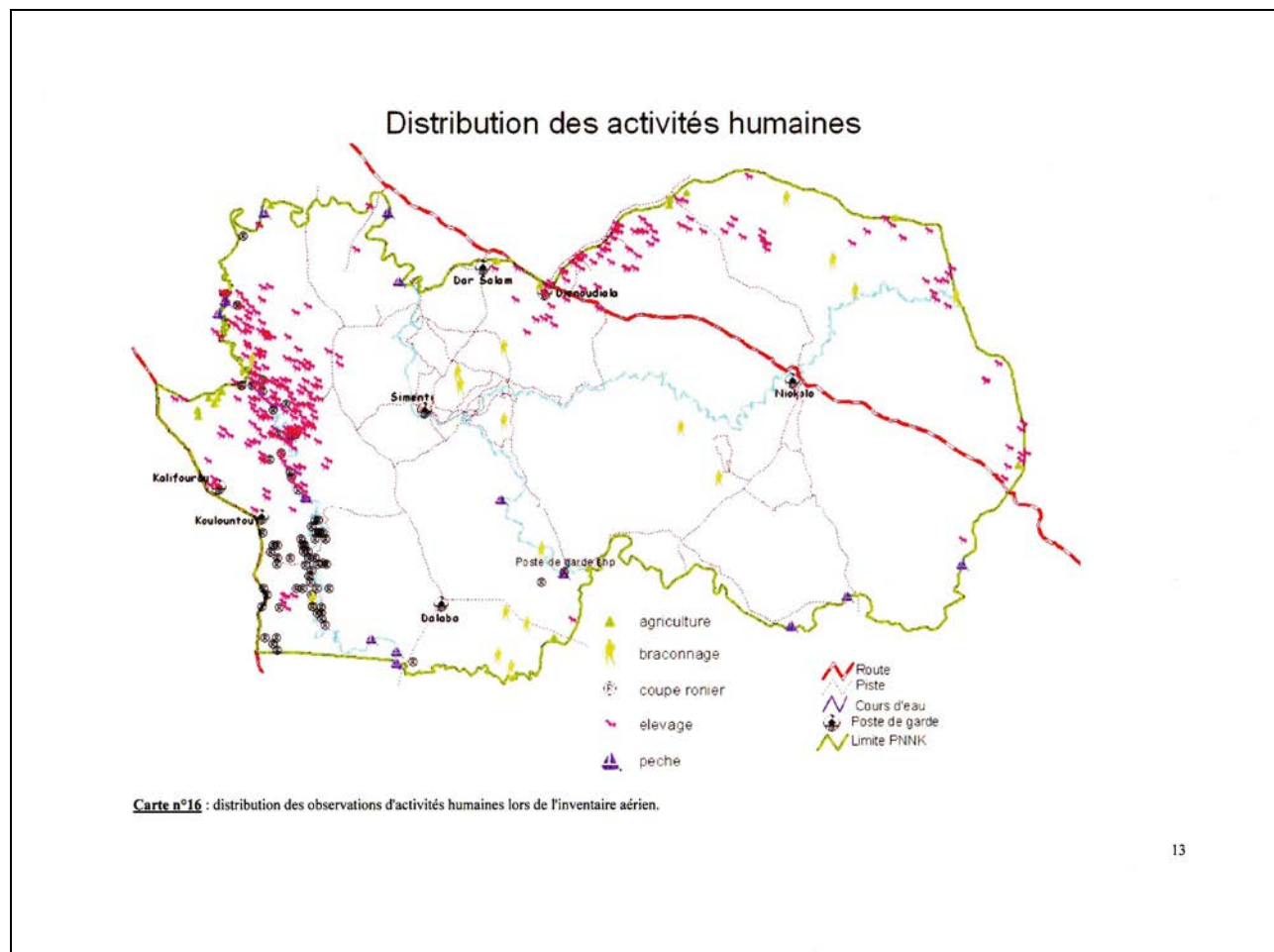
3. Identification and Assessment of Conservation Issues and Threats

3.1 Threats

3.1.1 Poaching

Commercial poaching is undoubtedly the single most important threat to the site. Animal census statistics suggest that it has been a major threat throughout the period since the property was inscribed on the world heritage list in 1981. There has been a progressive, ongoing reduction in all large mammal species throughout this period, up to the present day. The most recent census of the park, (conducted by African Parks Foundation in May 2006) recorded poaching activity throughout the park, with 17 poaching locations visible from the air (see map 1) and a further 27 locations found along walked transects where poachers' camps, traps or the remains of animal carcasses killed by poachers were found.

Map 1. Distribution of illegal human activities in the park in May 2006 (from African Parks Foundation report)



3.1.2 Illegal cutting of *Borassus* palms and other trees

The *Borassus* palm ('Ronier') is a highly valued tree providing a durable timber, palm wine and other products from its fruits and leaf fibres. As can be seen from Map 1, it is being harvested extensively in the park, especially along the Koulountou River in the west. This illegal activity is having a major impact on one of the principle park habitats, and is likely to be irreversible given that regeneration is largely dependent on elephants, which are now on the verge of extinction in the park.

3.1.3 Grazing of cattle and other domestic stock

The African Parks Foundation aerial census of May 2006 revealed very extensive grazing of domestic stock, especially in the Koulountou sector, and to the north of the main Tambacounda-Kedougou road (see Map 1). An estimated 4,679 cattle, 1,242 sheep and 75 goats were found inside the park, three times the number of wild animals. Although it is recognised that these figures probably represent a seasonal peak, the occurrence of so many domestic stock – and more importantly the herders who accompany them – represents a major threat to the integrity of the park. The mission was told that pastoralists drive their animals into the park primarily because of the lack of permanent water outside the park, for animals to drink. There was a suggestion that

provision of water points outside the park could ameliorate this threat. However, whilst this may be true in some areas, the majority of the domestic stock recorded during the African Parks survey was seen near the settlements of Dar Salam and Missirah Gounass, from where they could have been driven to permanent water without entering the park. Undoubtedly dry season grazing around the Mares (seasonally flooded grasslands along the banks of the rivers) is a major attraction for the pastoralists. Yet it is the Mares which should be providing a critical dry-season habitat for wildlife, which is now displaced by the domestic stock.

3.1.4 Other aspects of habitat degradation and change

In addition to habitat change brought about by tree cutting and grazing of domestic stock in the park, wildlife habitats are changing in the following important ways:

Burning. Frequent burning, especially when applied late in the dry season as a ‘hot burn’, is eroding some of the gallery forests along watercourses, and the remnant patches of forest on Mount Assirik. These fires are often used by poachers to drive animals from cover, and by pastoralists to reduce woody vegetation and stimulate early growth of pasture. The consequences are most significant for forest-dependent species such as chimpanzee and red colobus monkey, both of which are endangered species.

Drying of Mares. Many of the seasonally flooded grasslands (so called ‘Mares’) along the banks of all the major rivers are drying out and being taken over by *Mimosa pigra* and *Mitragyna*. The ‘Mares’ owe their existence to the changing course of the rivers, and originally formed part of the riverbed, before being isolated as oxbow lakes. It is a part of the natural succession that these are progressively filled with silt, and eventually dry out and become overgrown with woody vegetation. However, this is now occurring unnaturally fast because of the dramatic reductions of large mammal populations, and the disappearance of elephants which would otherwise prevent the spread of woody elements in the Mares. The proposed construction of a dam on the Gambia river at Mako, just upstream of the park would have a devastating impact on the Mares and very probably lead to their total elimination within a couple of decades.

Bush encroachment. Bush encroachment of the park’s more open habitats has not been documented, as far as the mission can tell, but it is an inevitable result of the loss of elephants, which were previously abundant and undoubtedly served a key role as ‘habitat engineers’ at Niokola-Koba, as they do elsewhere in Africa. The encroachment of the Mares by woody vegetation is just one symptom of these changes, which are probably widespread. On a more positive note, encroachment by natural woody vegetation is no doubt also occurring in parts of the park that were cultivated before its creation.

Agricultural encroachment. Agricultural encroachment of park land is not a major problem, the mission was told, but there are a few instances along the periphery of the park, where the boundary has not been demarcated. The African Parks Foundation aerial survey found areas of agricultural encroachment around Dienoundala and Missirah Gounnas and a few other places (Map 1).

3.1.5 Dam construction

There has been a long-standing proposal to build a new dam on the Gambia river at Mako, a few kilometres upstream, to the east of the park. Although this will not flood park lands, it could have a very severe long-term impact on it, by altering the hydrological regime in two important ways. Firstly, the new dam would prevent flooding of the Gambia river during the rainy season, and stop it replenishing the seasonally-inundated Mares along the rivers banks (this flooding is not an annual event, but something that occurs periodically, during exceptionally wet years). This is likely to

accelerate the drying of these mares and the encroachment of woody vegetation, thereby denying wildlife a crucial dry season food resource (as well as losing one of the park's few visitor attractions). Secondly, the gradual release of water from the dam (for power generation etc) will result in a steady year-round water level in the park, and prevent it dropping to levels that enable animals to cross, and sandbanks to be created in the dry season. The long-term ecological effects of these changes are difficult to predict, and the mission was unable to trace an environmental impact assessment of the proposed dam development.

3.1.6 Road construction

Two recent road developments have a direct impact on the park, affecting the conditions of integrity of the world heritage site. The most significant of these is the upgrading of the Tambacounda to Kedougou road which took place in the mid-90s, effectively slicing the park in two. This is now a fast, wide, surfaced road, raised above the level of the land on either side. Inevitably it creates a barrier for wildlife, but more importantly it provides easy access for poachers. Some park checkpoints have been installed on this road, and there is a low speed limit, but it is an open question how effective these controls have been in mitigating the impacts of this road. An alternative route, passing to the north of the park, was considered (and endorsed by the world heritage bureau) but regrettably this was rejected on cost grounds.

The second (more recent) road development to impact the park is a new road to the west of the park, linking the town of Medina Gounas in Senegal, with Koundara in Guinea. This road was subject to a detailed EIA, and a route was chosen which takes the road away from the park boundary, passing through the village of Linkiring. Because it will pass some distance from the park boundary, it may even serve to draw people away from the park. Thus, this new road, which is now under construction, is no longer considered a major threat to the park. The State Party is to be commended for its approach to the planning and selection of this route.

3.2 Management effectiveness

3.2.1 Historical perspective

It is clear that the high standards of site management which existed at the time Niokola-Koba was inscribed on the world heritage list have not been sustained, despite the best efforts of the Department of National Parks, and recent support from the international donor community. The park's location close to international borders, regional insecurity and the proliferation of automatic weapons during the 80s and 90s resulted in unrelenting poaching pressure at a time when park budgets and staffing levels were being cut. Furthermore, the park has not yet gained the trust and support of local communities, many of whom were evicted from park lands when it was established, and still feel alienated. For many years there was a progressive deterioration in park infrastructure, withdrawal of staff from critical security posts, and general deterioration in management capacity.

There have been three major donor-assisted projects at Niokola-Koba since 1994. Two of these were regional projects supported by the European Community with significant components aimed at improving natural resource management in and around the trans-frontier Niokola-Koba-Badiar park complex on either side of the Senegal-Guinea border. These two projects were operational between 1994-97 and 2001-05, and resulted in improvements in park infrastructure, surveillance and the participation of local communities in sustainable resource use. The third project, supported by the French government between 1998 and 2002, involved the development of a park management plan, institutional support, further rehabilitation of park infrastructure and additional activities designed to provide income-generating opportunities for local communities associated with the park. Despite

the considerable investment in these three projects animal populations have continued to decline throughout this period, and the second of the regional projects (Projet AGIR) was closed before the committed funding had been fully utilised because it was not having the expected impact in reversing this trend.

3.2.2 Recent developments and present management

The Department of National Parks has made significant recent changes in its management operations at the park level. Staffing levels have been doubled over the past three years, staff re-deployed from offices to the field, salaries and operational budgets have been substantially increased; and several new vehicles deployed to help with anti-poaching patrols. The mission was impressed by the sense of purpose, commitment, understanding of issues and pragmatism of the new management team in the field. At the same time, it is clear that the challenges are immense. Most of the park tracks, and all but one of the river crossing points are now impassable, so it is impossible to make rapid deployments of personnel, even if a threat is detected. There is no aerial surveillance capacity - even though a plane has been donated for this purpose – because of lack of funds for fuel (and cumbersome government procedures for transferring funds). Only 19 of the park's 34 surveillance posts are manned, and there's very little communications equipment. The newly recruited staff – who come from a diverse range of training institutions - have received no training in patrol techniques and park management issues, relying instead on what they have picked up informally by working alongside more experienced peers. There are thus still significant challenges of management capacity.

3.2.3 Prospects for improved management

It is clear that the park requires substantial external resources if present trends in resource depletion and degradation are to be reversed. And this support needs to come urgently, as populations of several species – including keystone species such as elephant - are now critically low and face imminent extinction.

Based on past experience, the donor community seems reluctant to support 'more of the same' type of park management projects that have been tried, but failed to reverse the downward trend in animal populations and conservation status of the park. The mission held meetings with representatives of the European Union, USAID, the French and Dutch embassies and UNDP, and received a consistent message that donors are looking for opportunities to support park management initiatives that will be transformative and enduring. There is clearly strong donor interest in public-private partnership arrangements, such as those proposed by the Dutch-based African Parks Foundation (see below).

Towards the end of 2005 the government of Senegal invited the Dutch-based NGO African Parks Foundation to consider a partnership arrangement for conservation of the site. With support from the Royal Netherlands government, African Parks Foundation has subsequently conducted an extensive needs assessment at Niokola-Koba, (including a detailed animal census) and submitted a proposal for the establishment of a new autonomous foundation to oversee management of the park under a 25-year contract. This new foundation would be directed by a board of trustees including representatives of the government, African Parks Foundation, donors, and other stakeholders. The African Parks Foundation would provide 25% of the necessary finance, with government providing 17% (in the form of staff salaries and maintenance of existing levels of operational budgets), and the remaining 58% coming from other sources (not yet identified) in a public-private partnership. A three-year emergency rehabilitation plan has been proposed at a cost of 6.4 million Euro.

The significance of this proposal is that it offers an opportunity to manage the property in a fundamentally different way, which would overcome many of the constraints experienced in the past. Some of the advantages of such an arrangement are that it would provide:

- continuity of funding and management for at least 25 years, long enough to ensure success;
- increased funding due to leverage of private sector funds;
- independence of management and the ability to respond to situations as they arise;
- introduction of a performance-based ‘business culture’, with managers able to hire and fire staff based on performance;
- freedom from cumbersome government bureaucratic procedures, such as those affecting flow of funds and procurement ;

4. Assessment of the State of Conservation of the Property

4.1 Maintenance of Outstanding Universal Values

The outstanding universal values for which the property was inscribed correspond closely with criterion (x) in the new Operational Guidelines, namely:

(x) containing the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

This criterion is still met, although, as discussed elsewhere the drastic reduction in large mammal populations is inevitably having a deleterious impact on the natural processes of evolution of ecosystems and habitats. The near-extinction of elephants, which were abundant in the park at the time it was inscribed on the world heritage list is of special concern because of the role these large mammals play in driving habitat change, dispersing seeds and maintaining habitats on which other species depend.

It is notable that there is no known case of any species becoming extinct in the property since it was inscribed, and although populations of many species are now critically low there remains a modicum of hope that adequate protection can be provided to allow all species to recover to more natural levels.

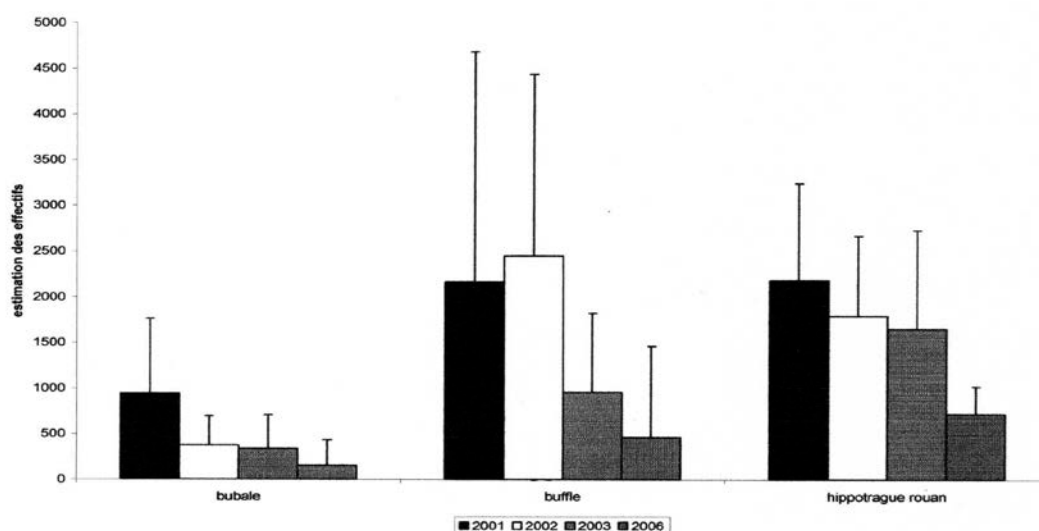
4.2 Conditions of Integrity

In terms of site integrity, it is clear that there has been a severe reduction in the populations of all larger mammal species since it was inscribed on the world heritage list. The mission was unable to source more than a sample of the historical literature and scientific records for the site, and has depended heavily on the work of the African Parks Foundation team (which carried out the needs assessment in 2006) in compiling the present report. The African Parks Foundation report is thorough and quite voluminous (341 pages), so it is clearly beyond the scope of this report to do anything more than quote a few examples to illustrate the degree of change that has occurred. A note of caution is appropriate: collecting and interpreting animal census statistics is difficult and rarely achieves a high level of precision. Nevertheless, censuses have now been carried out using broadly similar techniques (i.e. aerial and ground transects), with international technical support, on a number of occasions since before the site was inscribed, so even if the figures on any one occasion may be subject to wide margins of error, the downward trend is very clear.

Indicator 1. Comparison of total estimated populations of selected large mammals in NKNP in 1990/91 (data collected by ORSTOM) and 2006 (data from African Parks Foundation)

Species	Population 1990/91	Population 2006	% change 1990-2006
Hartebeest	5,000	149	- 97%
Buffalo	8,000	457	- 94%
Kob	24,000	92	- 99%
Waterbuck	3,300	10	- 99%
Giant Eland	150 (max)	171	+ 14%
Roan antelope	6,000	710	- 88%
Elephant	30 (max)	10 (max)	- 66%

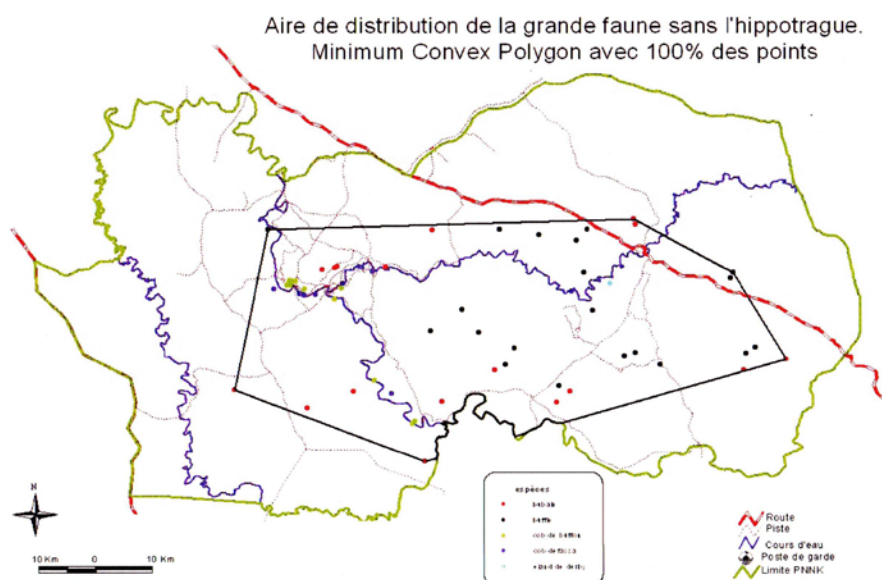
Indicator 2. Comparison of total estimated populations of Hartebeest, Buffalo and Roan antelope over the most recent 5-year period.



Indicator 3. Status of elephants. At the time of inscription (1981) there were reckoned to be several hundred elephants in Niokola-Koba, and they were a prominent feature of any visit to Simenti Hotel. These were mostly hunted out during the 80s and by 1990 ORSTOM estimated a remnant population of 20-30 individuals. No elephants were seen during the African Parks census of 2006, but their signs were detected at 6 locations in the remotest part of the park to the south and west of Mount Assirik. These signs could indicate a maximum surviving population not exceeding 10 individuals.

Indicator 4. Status of giant eland. This species is of special interest because Niokola-Koba probably represents the only remaining viable population of the western race of the world's largest antelope. According to Dupuy (1972) there were more than 300 individuals in the park in the 70s, but the population had declined to an estimated maximum of 150 by the time of the first ORSTOM census in 1990. This population seems to have been maintained, or even increased by 2006, when an estimated population of 171 was recorded (although the reliability of this estimate is questionable because it is based on detection of a single group of 67 animals in a 40% sample of the park).

Indicator 5. Map of Niokola-Koba National Park showing all records of large mammals (except roan antelope) made during the 2006 census. Records are restricted to an area in the centre of the park, representing just 34% of its total area.



Carte 5 : délimitation de la zone centrale contenant la plus grande biodiversité animale.

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4.3 Actions taken in response to previous world heritage committee decisions

In 1990, the committee expressed concern over the alignment of the Tambacounda to Kedougou road, and urged the State Party to source the necessary additional funds to allow alignment outside the property. Regrettably, this option was not followed, and the road was constructed in the mid-90s straight through the property.

More recent recommendations of the World Heritage Committee focussed on the management of giant eland, following the capture and translocation of 9 individuals from Niokola-Koba to Bandia reserve in May 2000. In accordance with these recommendations, there have been no further captures of giant eland (or other species) from the park, and six individuals surviving the translocation to Bandia have formed the basis of a successful semi-captive breeding herd numbering 43 individuals. This provides essential security for the western race of the giant eland, which otherwise survives only at Niokola-Koba and a few other scattered locations. Census data for the wild population at Niokola-Koba suggest that it has remained stable over the six-year period since the capture operation, despite the heavy poaching pressure that has impacted other species. Nevertheless, it is noteworthy that the captive population has increased at a rate close to 40% annually, against a modest 5% annual increase (at best) in the wild population. Priority attention must be given to protection of the wild population, and no re-introductions should be attempted at present, since there is a risk of disease transmission from individuals in the semi-captive herd, if they are brought back to Niokola-Koba.

5. Conclusions and Recommendations

In conclusion, the mission notes that the integrity of the site has suffered a dramatic and continuing decline since the property was inscribed on the world heritage list. This is due primarily to excessive poaching pressure, which the authorities have been unable to bring under control. Populations of several key species are now critically low, and there is a real possibility of local extirpation. The site now requires substantial, urgent assistance if this decline is going to be halted and reversed, and should immediately be placed on the List of World Heritage in Danger. Unless remedial actions are taken urgently, further degradation of the site is likely to result in irreversible change, forcing removal of the site from the list of world heritage properties.

5.1 *Site management actions to be taken by the State Party*

A comprehensive three-year emergency action plan has been developed for the site with the assistance of the African Parks Foundation. The mission considers that implementation of such a plan would go a long way towards saving the site, but notes that the necessary funding and other commitments are not yet in place. A comprehensive integrated programme of park management is clearly necessary, and the elements of such a programme are already well articulated in the African Parks Action Plan. The mission's recommendations are therefore focussed on short-term measures that should be taken within the next twelve months, prior to implementation of the African Parks plan (or an alternative). The mission recommends that the State Party should take the following urgent actions to secure the site:

- Implement urgent steps to halt poaching, using the DPN's aircraft for surveillance, with ground support provided by a mobile 'striking force';
- Develop and implement an emergency action plan to address the urgent threats to the OUV and integrity of the property. The emergency action plan recently developed by the expert mission funded by APF can be an excellent base for this plan; Accord the necessary priority to conservation of the site in national policy, planning and budgets, and take pro-active measures to solicit donor support for site management;
- Provide urgent training to the newly-recruited staff in the park, focussing on park security procedures and general 'orientation' to integrated management approaches;
- Survey and demarcate the park boundary;
- Introduce a long-term moratorium on the hunting of giant eland, and a hunting quota system in buffer areas surrounding the park that is based on reliable animal census statistics.
- Modify the park ecological monitoring programme to focus on a limited number of indicators and benchmarks which can be measured in a cost effective manner, including elements not previously included (such as animal flight distances and numbers of *Borassus* palms);
- Enhance trans-boundary co-operation, and measures to protect buffer zone and ecological corridor areas outside the park;
- Revise the 2000 Management Plan, and begin implementation of the new plan, including all aspects of infrastructure rehabilitation, re-equipping the park, institutional reform and capacity building, community relations, tourism development, etc;
- Consider rejecting the proposed dam project which would potentially have important negative impacts to the values of the property and its conditions of integrity.

5.2 Special protection measures for endangered large mammals

Given the dramatic decline in large mammal populations at Niokola-Koba, and the critically low numbers of certain key species, it is recommended that Species Survival Plans are developed and implemented for selected species, including (initially) derby's eland, elephant, hartebeest and chimpanzee. These should be developed in close collaboration with international experts, including members of IUCN's Species Survival Commission (SSC). These plans are likely to differ in detail, but there would be elements common to all of them, including the need to carry out a more detailed assessment of present population levels and present range within the park, and a focussed monitoring programme linked to improvements in park management. In the case of Derby's eland, the management and genetic viability of the semi-captive population needs to be carefully considered and a plan developed to manage all viable sub-populations (including the semi-captive population) within the broader meta-population. This may require genetic enrichment of the semi-captive population (i.e. the translocation of an additional male from Niokola-Koba, since the present semi-captive population is based on a single founder male), and may ultimately involve re-introduction to Niokola-Koba.

5.3 International support and action

In the short to medium term the future of the property will depend to a large extent on financial and technical support from the international community. Therefore the mission recommends that all signatories to the convention consider ways in which they might assist.

Furthermore, in order to draw attention to the state of conservation of the site the World Heritage Committee should include it on the List of World Heritage in Danger. The Committee should monitor the site closely, and must consider the case for De-listing if it suffers irreversible degradation.

5.4 Benchmarks and timetable

5.4.1 Changes to be effected within one year

It is recommended that the actions outlined in section 5.1 and 5.2 above be undertaken within the next twelve months. Substantial funding commitments are required from the State Party's development partners during this period, if the decline of large mammal populations is to be arrested and reversed in subsequent periods.

5.4.2 Changes to be effected within three years

Within three years, implementation of the three year 'emergency action plan' should be advanced, and there should be early signs of recovery in large mammal populations. Illegal grazing and cutting of *Borassus* and other trees should have been completely halted.

5.4.3 Changes to be effected within five years

Within five years the recovery of fauna at Niokola-Koba should be well underway (though clearly full recovery will take very much longer and require a sustained effort for several decades). Useful indicators of recovery might include monitoring data showing (1) a 90% reduction in the number of signs of human activity encountered within the park; (2) an extension of the area in which signs of large ungulates are encountered, from the present 34% to 85% of the area of the park; (3) an increase in counts of all species of larger ungulate for three consecutive years; and (4) a reduction in animal flight distances along selected sections of road in the park interior. These benchmarks can

be readily measured using existing monitoring techniques, and evaluated against the ‘baseline’ data derived from the recent African Parks Foundation census.

5.4.4 Conditions for removal from the List of World Heritage in Danger

Assuming that the Committee accepts the mission’s recommendation to include the property on the List of World Heritage in Danger, it will become necessary to define the benchmarks and indicators which could be used to monitor its recovery and lead to its removal from the Danger list. Achievement of the benchmarks recommended in section 5.3.3 would provide a strong indication that the present trends in resource degradation have been halted and could be used to guide a committee decision to remove it from the List of World Heritage in Danger.

5.4.5 Conditions for De-listing

As indicated above, there is still considerable uncertainty over the future management of the site, and it is conceivable that insufficient resources and political will are mobilised soon enough to prevent further, irreversible degradation. Compared with other African savanna woodland sites, Niokola-Koba’s large mammal fauna is relatively species-poor, and one key species (giraffe) has become extinct during the past half-century. Any further large mammal extinctions from the site would signify a loss of Outstanding Universal Value, and should lead to De-listing from the world heritage list. Similarly, construction of the dam at Mako, without adequate provision to mitigate its impact on the flooding regime and hydrological cycles in the park should trigger a decision to De-list the site.

6. ANNEXES

6.1 *Terms of Reference*

Undertake the joint UNESCO-WHC / IUCN Reactive Monitoring Mission from 22 to 26 January 2007 to the **Niokolo-Koba National Park** World Heritage property in **Senegal**.

The mission should:

- (i) Assess the state of conservation of this property and the factors affecting the Outstanding Universal Value of the property, in particular the status of key wildlife populations and the causes of the reported declines in their population sizes, as well as potential impacts of the proposed road construction project;
- (ii) Hold consultations with the Senegalese authorities and relevant stakeholders in examining the progress made in relation to the recommendations of the joint 2001 UNESCO-WHC / IUCN monitoring mission and the detailed report requested by the last World Heritage Committee (see Decision 30 COM 7B.1 attached);
- (iii) On the basis of the foregoing findings, make recommendations to the Government of Senegal and the World Heritage Committee for a better conservation and management of the property;
- (iv) Prepare a joint report on the findings and recommendations of this Reactive Monitoring Mission, following for example the attached format, and submit it to the UNESCO World Heritage Centre and IUCN Headquarters by 28 February 2007 at the latest in hard copy and an electronic version.

6.2 *Itinerary and Programme*

Monday 22 Feb 07	Briefing UNESCO/ Directrice Travel by charter plane from Dakar to Simenti, Niokola-Koba NP Canoe trip on Gambia River through park near Simenti
Tuesday 23 Feb 07	a.m. Field visit to sites around Simenti: Poste de garde du Damantan- Gué de Damantan- Mare de Kountadala- Mare de Simenti – p.m. Field visit to Camp du lion Meeting with senior parks staff at Simenti
Wednesday 24 Feb 07	a.m. Meeting with senior parks staff at Simenti p.m. return by charter plane to Dakar
Thursday 25 Jan 07	09h00: Meeting at Union Européenne 10h00: Meeting at Ambassade Pays Bas 13h30: Meeting at Ministère de l'Environnement et de la protection de la Nature 16h00: Meeting with Wetlands International
Friday 26 Jan 07	09h00: Stakeholders debriefing at the Direction des PARCS NATIONAUX 15h00 : Meeting at USAID

6.3 Composition of Mission Team

UNESCO:

Dr. Elisabeth Wangari, Chief, WHC/Africa, UNESCO

Dr. Noëline Rakotoarisoa, Programme Specialist, UNESCO/Dakar

IUCN

Dr. Peter Howard, IUCN consultant

DPN Dakar:

Dr. Mame Balla Gueye, Director of National Parks, Senegal

Cpt Fatou Samb, Responsible for Training and WH sites, Direction des Parcs Nationaux

6.4 List and contact details of people met

Union Européenne :	Mme Bénédicte Génin, Chargée de programme
Ambassade Pays Bas :	Jan Hijkoop, Premeir Secrétaire
	Alioune Diallo, Chargé de programme
Ministère de l'Environnement et de la protection de la Nature :	Souleye Ndiaye, Conseiller
Wetlands International :	Seydina Issa Sylla, Représentant régional
USAID:	Peter C. Trenchard, Agriculture and Natural Resources Advisor

Staff of the Direction des Parc Nationaux who accompanied the mission at Niokola-Koba

Name	Grade	Function
Mame Balla Gueye	Colonel	Directeur Parcs Nationaux
Samuel Diémé	Commandant	Conservateur PNNK
Fatou Samb	Capitaine	Division Formation (DPN)
Cheikh Mouktar Sylla	Sous Lieutenant	Chef de Zone Centre au PNNK
Sarany Diédhiou	Sergent	Chef de Poste de Simenti
Arouna Seydi	Caporal Chef	Garde
Waly NGom		Garde
Alassane Sané		Garde
Adama Diarra		Garde
Alioune Sylla		Garde
Mambel Nakouye		Garde

List of Persons attending the Stakeholders Debriefing at DPN on 26 January 2007

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6.5 Map of Niokola-Koba, showing current boundaries, topography and other features

Source: http://www.senegalaisement.com/senegal/carte_niokolo.html, Image retrieved 30/04/07

