English summary of the report:

Study on the liberation from human and livestock pressure of Lake Banzena in the Gourma of Mali

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The importance of the elephant population
Elephants once occupied a largely continuous range across West Africa, from the coastal forests to the Sahara, but are now restricted to small, highly fragmented, geographically isolated populations, with over half containing fewer than 100 individuals. The elephants of the Gourma region in Mali are a notable remnant population, representing 12% of all West African elephants and as one of the most important in the West African region, it is accorded a high priority in the regional elephant strategy of the World Conservation Union. This population is the most northerly in existence since the extinction of the Mauritanian elephants in the Assaba mountains in the 1980s, and has evolved a nomadic strategy that includes a unique migration circuit of 600km to cope with the widely dispersed and variable nature of the Gourma’s resources.

The elephant migration and the importance of Banzena
This study focuses on a small portion of the migration: Lake Banzena that represents the only source of drinking water for the Gourma elephants for the last few months of the dry season. It is therefore the keystone of the elephant migration route. (For further information about the migration see Canney et al., 2007)

Figure 1: The Mali elephant range. Brown points represent the GPS locations of 3 elephants (one with an intermittent collar) in 2000-2001. Yellow arrows indicate the migration route (map courtesy of Save the Elephants).

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Until the 1980s elephants were able to survive in this region because of the presence of two large lakes - Gossi and Benzena – which held water throughout the dry season. Since then settlement around Lake Gossi has prevented the herds from using this lake and they have become dependent on Benzena for water during the last few months of the dry season. This dependence has been heightened by increasing settlement and livestock using other water-holes in the dry-season range. As a result, these dessicate more rapidly and the elephants (and herdsmen) are forced to converge on Benzena sooner, thereby increasing the scope for human-elephant conflict. The increased pressure of use is causing degradation of the vegetation and forest, increasing the probability of elephant death from starvation at the end of the dry season (even if there is water) because they are unable to travel far enough from water to find food. The high use pressure is also increasing soil erosion and lake siltation.

**The elephant reserve**

The lake is situated in a protected area designated for the elephants, “La Reserve Partielle des Elephants”. Hunting is the only activity that is prohibited in the Reserve’s statutes, and there are no personnel specifically responsible for this reserve. It is surrounded by seven forestry posts but none have the required resources for its management and protection. Since its creation in 1959 the droughts of the 1970s and 1980s, coupled with increased use and degradation, have reduced the grazing land and agricultural areas surrounding the reserve, while increasing population and settlement has been accompanied by the diversification of production systems, water development programmes and the construction of roads. At the same time there has been a weakening of the power of the Forest Service and the creation of new municipalities by the democratic movement of the 1990s. All these elements mean that the reserve exists in name only.

![Location of Banzena in the elephant reserve](image)

**Figure 2**: The limits of the reserve (shown by a dotted line) taken from the key reference points listed in the 1959 decree on the reserve’s creation
**Recent developments at Banzena**

Before 1990, Banzena and its surroundings were virtually empty of human settlement in the dry season. In 1996, two boreholes were sunk by the State to provide water for the elephants in times of drought. A caretaker for the boreholes was recruited. His relatives then settled nearby and invited others to settle in their turn. In 2000 the NGO Aide de l'Eglise Norwegienne dug a well next to the lake, which resulted in more settlement. At the same time, transhumants from neighboring regions with large and growing herds have steadily increased the pressure on the lake’s resources. When it became clear that Banzena was going to dry prematurely in February 2009, the boreholes were repaired and ground-water was pumped into the lake as an emergency measure.

A long-term solution to this problem is clearly needed and so the National Directorate of Waters and Forests (DNEF) and The Wild Foundation have combined their ideas and efforts to initiate this study on the human pressure surrounding Banzena and to use its results to develop an operational plan for this keystone of the elephant migration.

The objective of this study was to collect the data required to devise a phased plan to achieve a long-term solution to this problem. For this plan to be sustainable it is important that it was supported by the chief actors - the resident and the transhumant populations using the lake, the elected community leaders, and the government technical services. Their opinions and attitudes were sought to be able to characterize the social, economic and cultural aspects of the situation, and to develop a sense of participation in the elaboration of the plan to ensure that any interventions engage with the physical and social realities of the situation.

**The methodology**

A preparatory phase involved a series of scoping meetings to introduce the study, raise awareness as to its aims, and to listen to the chief concerns and perceptions raised by the different parties. This enabled the study area and target groups to be identified, the study to be structured and the survey methodology to be defined.

The principle groups involved were:

- Representatives of the government administration at commune and regional level
- The elected representatives of the commune
- The various technical services including foresters, livestock and agriculture,
- The local communities surrounding the lake
- The local communities in adjacent areas, to take into account the interdependence between these areas
- Civil society groups
- Individuals with relevant knowledge and expertise

A team of three undertook the survey: Nomba Ganame, the principal investigator, accompanied by Boubacar Bah and Agassoumame Maiga. The methodology used for
the local community involved a combination of formal and informal interviews to ensure that every clan chief and every head of household were interviewed, and all the inhabitants in the area invited to give their opinion, both individually and collectively, to gather the information necessary for a hard-hitting analysis of the situation regarding human pressure around Banzena.

**Figure 3**: An individual survey and a group survey

At the end of each interview the team met to evaluate the results to distinguish an “official” viewpoint required by the social context, from the truth of the situation and to determine whether more investigation were required for clarification. Triangulation of multiple perspectives was also used to gain a deeper understanding of the issues, while those who either spoke little or monopolized the discourse were noted and visited informally by the surveyors to better understand their attitude. Gestures were also noted to help discern the real views of the speaker.

GPS co-ordinates were recorded of the active encampements, significant plant communities, the limits of the lake, and the suggested relocation sites.

**Results and overview of the study**

In 2008 the census registered 440 residents and 800 transhumants. The others exploiting the resources of the lake could not be counted but were estimated at 240 by the “Conseil Communal”. This study identified 730 residents and 95 transhumants during the month of December 2009. These came from three regions of Mali (Mopti, Segou, Toumbouctou), and from 2 neighbouring countries (Niger and Burkina Faso).

Before 1919 the Tamacheq herders used this area in the wet season for the salt resources before returning to the left bank of the river. In around 1930 internal conflicts caused the big tribes to splinter and disperse into the Gourma. They were not able to stay in the area of the lakes to the south of the River Niger, adjacent to the zone of Banzena, due to conflict with existing agriculture. Around 1932 the colonial
administration established agreements for the zone to be shared between farmers and herders, and under these agreements the area of Banzena was designated for exclusive pastoral use. Thus the area has been historically one of nomadism and settlement of the lake has been relatively recent.

The population using the lake can be divided into “residents” and transhumants and these populations are described separately.

The resident population
There are 11 clans of which 2 are situated at 9-10km of Banzena and the rest between 300m and 6km. This distinction is important because they represent different ways of using the resources of Banzena and its surrounding catchment area, which need to be taken into account during negotiations regarding the removal of human settlement from the lake and areas of important elephant habitat. These 11 clans can be divided into three social groupings.

The majority of the resident population is Tamacheq and Tamacheq Bella, former slaves of the Tamacheq. Each of these clans settled at different times, and each has their own perception as to land-use rights and access to resources. For the Tamacheq, the Gourma is governed by a liberal body of customs and law that denies the principle of appropriation of nature: water, pasture, land and salt are open to all. The exclusive right of use can only be based on work, such as that which was necessary to dig a well. But there is no obstacle in principle to the use of grazing. There are rules regarding the location of settlements. A community that sets up its tents for four consecutive years in the same place acquires a permanent and transferable right to the site and any other occupant will have to strike camp if asked. Apart from these areas, anyone can pitch a tent wherever they want and will be the sole user of the place as long as they remain there.

Traditionally the Tamacheq define their land as being the area used by them and their herds, but the groups settled at Banzena regard all the land around the lake and their camps as being their domain. The Tamasheq have socio-political and religious standing, and regard the Tamacheq Bella as being marginal and of low status. The Tamacheq Bella tend to practice agro-pastoralism, and consequently their perception of land rights is closer to that of agricultural peoples, claiming that they were the first to settle at the lake and therefore have the rights over its resources. Presently, the fraction Bella Abdou Koudous claims to hold power over the management and control of the lake and its adjacent lowlands, but this is far from being recognized by the other inhabitants. In fact there is no traditional power or control over the lake and its surrounding area: none of the residents claimed that they had come to Banzena because the land belonged to them, but because they wanted to use its resources.

The third social grouping consists of a few families Peul and Songhai, who act as landlords for the transhumants, fishermen, woodcutters, hunters and livestock traders.

Overall the population live in demountable tents that are dispersed around the lake, each one establishing themselves where they wish. It is a mobile semi sedentary population especially with regard to the Tamacheq Bella. This group performs small movements around the lake. From the first heavy rains in July, they leave the
immediate vicinity of the pond to occupy the dunes where they exploit water resources, pastures, the plains of fonio and cram-cram located between 5 to 10 km from Banzena. They stay there until October-November when the drying of the small seasonal ponds causes them to approach to within 3 to 9 km of the lake. By the time of the hot season from March – June they are at the edge of the lake, at the same time as the elephants.

The transhumant population
Formerly, the transhumant herders from neighboring areas used the resources of Banzena in a complementary fashion, moving into the area during the wet season to use the salt pans.

Faced with the concurrence of increased degradation and increased occupation of space by people and livestock, pastoralists in remote and outlying areas are now undertaking massive displacements that take in the area of Banzena, where they settle and use the resources without restriction.

The long-distance transhumants arrive at the same time as the elephants and are there during the critical months for the elephants when all other water has dried, or is dominated by humans. This group has no particular attachment to the land but come for the easy access to water, forage and salt, which they will exploit while they are available, and abandon as soon as they are no longer available. Once it rains the elephants leave for the food resources of the south, while the transhumants may stay if conditions at their place of origin are unfavourable (e.g. resource degradation, agricultural encroachment, devastation of pasture by bush fires). Conversely, if conditions at Banzena deteriorate, they will immediately move on to go elsewhere.

This group with their enormous herds represent the greatest threat to the production, regeneration and sustainability of the natural resources of the area.
Relationships between the different users of Lake Banzena and its surrounds

Relationships between those using the resources of Banzena are not always harmonious. The situation is not explosive but could become so if decisions concerning Banzena are not taken soon. There is also distrust between the resident communities and their neighbours, who they regard as trying to take control over the area. The neighbouring groups charge the residents with being poor and having no power to control the area.

The transhumants are regarded as pillaging the pastoral resources, contaminating the area with animal diseases brought from the river, the instigators of bush fires and the theft of animals. The transhumants look down on the residents as being poor because they have few cattle, and they consider Banzena as an area of free access where there is no traditional power governing resource access.

These rivalries and jealousies are not noticeable for most of the time but can rapidly turn into open conflict when external interventions (e.g. creation of water points) are provided without regard for the social dimension. Then, open conflicts rapidly arise between the different communities regarding access and the influence and power to control space.

Impact of human activities

The pressure of humans and their livestock is intensifying and accelerating due to population increase coupled with a reduction in available resources; while the users of the resources bear no responsibility for their management leading to anarchic overexploitation. This study recorded an alarming expansion in existing activities and the development of new ones such as commercial wood extraction.
Current activities include herding, agriculture, the gathering of NTFPs, cutting branches to facilitate the gathering of fruits; commercial fire-wood extraction; and the construction of infrastructure.

**Herding**

Herding is the dominant activity at Banzena and its surroundings. On the basis of our surveys the residents declared 3,963 livestock of which 982 were cows, 61 were camels, 270 donkeys and 2,650 shoats. The number of cows declared by the transhumants was 23,159, with each transhumant possessing between 50 and 300. Although our observations suggest that these numbers were an under-estimate (this reluctance to under-declare the true numbers of livestock is common among pastoralists), it is clear that they are an extreme threat to the integrity of Banzena’s environment and the regeneration of its resources.

![Livestock by the lake (left) and smallstock (right)](image)

**Figure 6 :** Livestock by the lake (left) and smallstock (right)

**Subsistence agriculture**

This involves clearing the woody vegetation during the dry season ready for sowing during the wet season. The principal crops are millet, sorghum and melons but after one - two years the soil is exhausted and the field is abandoned and exposed to erosion. This activity is principally practiced by the Tamacheq Bella who think there is enough available land to support this shifting practice. Significant areas have been cleared particularly 11km to the south-west of the lake. 51 parcels were identified covering over 50 hectares. The harvest is generally very feeble but the danger is that it only requires one good harvest for others to try the same thing, causing this practice to spread. This activity must therefore be immediately forbidden.
Gathering of non-timber forest products (NTFPs)
This is practiced by a considerable proportion of the population and concerns in particular wild cereals, water lilies and cram-cram, as well as wild plants, fruits and leaves. The collection of cram-cram from the dunes involves the complete denudation of the herbaceous layer, resulting in dune mobilization and the loss of topsoil and its associated seed bank. Harvesting fonio requires a tool made from the roots of 4-6 Acacia Senegal trees. Taking these roots severely destabilizes these trees and is the reason for their tendency to topple after wind storms.

Wood-cutting
Some years ago the practice of cutting only concerned goatherds who cut branches to feed their goats. This is already damaging but in addition to this the collection of dead wood and the cutting of timber have recently begun in the area. This is practiced by
residents or by others with their complicity. Some cut wood to sell to those with a means of transport, while others are actively recruited by truck owners.

Figure 9: Stack of wood awaiting transport for sale in urban markets, and a cut tree

Infrastructure
Rural development policy has been characterized in recent years by the provision of water to support the livestock in pastoral areas. These new water points allow new development and concomitant pressure on the environment, and in attracting incomers from elsewhere, create tensions with those residents who originally obtained the external assistance. This has been amply proved in the south of the Gourma where the provision of waterpoints has destroyed elephant refuges, encouraged settlement and generated conflict. Such infrastructure at Banzena includes the well and the vaccination centre.

Figure 10: The well and the livestock vaccination centre
**Health and sanitation**

The heavy use of the lake by people, livestock and elephants has resulted in a deplorable health situation, with endemic bilharzia, stomach problems, vomiting, and miscarriages. Those most affected by these diseases are children and women. Of 311 children, 67% are infected with bilharzia, and 42% of stomach aches and vomiting. Of the 227 women, 54% are suffering from stomach pains and vomiting, and 37% have suffered miscarriages in the past 2 years. According to health workers, all these diseases are linked to consumption of contaminated water from the lake.

![Figure 11: Lake water used by the surrounding population](image)

**Perceptions of Banzena, its surroundings, and the elephant reserve**

The different users of the zone perceive it in different ways according to their interests or training. Thus the resident populations think it's a place where all human activities can take place; the transhumants think it's a space reserved only for herding; the elected representatives of the commune feel that it is a heritage area with multiple uses; the technical services such as the foresters say that it is a protected area, classified for the elephants; while the technical services such as herding claim it as a pastoral area for domestic livestock and elephants.

The dialogue between these actors is very limited, and the process of evacuating the lake and the establishment of its new management regime needs to facilitate this dialogue.

**The local population**

Only 3 out of the 11 chiefs knew that Banzena was reserved for elephants and only 2 that it was situated in the elephant reserve. The figures were even less for the 161
heads of households, of which only 13% knew that the lake was reserved for elephants. 56% thought that the lake was primarily reserved for domestic livestock and secondarily for elephants, while 54% felt that the lake was a gift of God and therefore could be used by all living beings. For them the main problem was the massive numbers of transhumants who drink the lake dry, decimate its resources, and bring disease. They had no knowledge of the elephants as a national heritage or that they were of international importance. For them, the elephants belonged to the State. However they did believe that it was necessary to protect the elephants because the presence of elephants is associated with water and trees, and white people come to Banzena to see the elephants.

None of the transhumants knew that the lake was reserved for elephants or of their wider importance. Around half thought that they should be protected because the elephant is the grand father of all other animals; it is associated with water and forest and it is the source of stories to tell to others. The other half of the transhumants were neither for nor against their protection.

When asked about the possibility of relocation, one of the chiefs (of the Bella Abdou Koudous clan) was ready to evacuate the lake without conditions but the other 10 said that it would be difficult without an alternative area of pasture and water. The population was guided in proposing areas that fulfilled the following criteria: available pasture, outside areas frequented by elephants; at least 35 km from the lake; in a zone of non-conflict.

**The government technical services**

Government technical services identified the main problems as the degradation of resources at the same time as the increase in human settlement and water-points inside the reserve. To these they added the lack of land management and community organization as well as the non-application of the legal texts protecting the elephant reserve.

**The elected representatives**

The Commune Council is a relatively new institution but it has shown interest in the situation at Banzena, having sent several missions to evaluate the level of pressure and to investigate the sanitary situation. It supported the proposals of the resident community surrounding the relocation of the population to areas with pasture and clean water.

**The plan for the evacuation of Banzena**

The root of the problem is that there are no traditional systems for the control and management of the natural resources of the lake - water, grass, browse, salt licks, fuel-wood, non-timber forest products – and access to them is anarchic and open to all. As a result, over the last few decades this unregulated exploitation has led to progressive and accelerating degradation, a process that has been much exacerbated by the droughts of 1973, 1984 and 1986.
What is needed is to free the lake and its surroundings from all human and livestock pressure to allow the regeneration of its resources and to provide for the elephant population during its 5-6 month presence in the area. At the same time this will reduce the escalation of human-elephant conflict and the transmission of disease, particularly towards the end of the dry season.

To be sustainable, the process of installing the population elsewhere needs to assure the well-being of all, or there is a high risk that people will return to the lake. At the same time it is vital that the community adhere to the rules surrounding their access to the lake and their access to the resources provided for them in return for their relocation. This will depend on the way in which the process is conceived, imposed and conducted.

It requires community organization for collective local decision making that regulates resource use at the local level of traditional authorities, the elected communal and inter-communal structures, and extends to the level of the cercle and region. Thus, at the same time as providing boreholes, the community will need support and facilitation in establishing committees and systems that manage and regulate access to the water and pasture resources by residents and non-residents, police their use, and sanction those who break the rules of access.

In the short term this process needs to be supported by a wide information campaign on the importance of the lake, its location in the elephant reserve and the associated regulations.

In the medium term it is necessary to reinforce the mission of forestry personnel by assigning them specific tasks for the protection of elephants and their habitats in the Gourma, and provide them with adequate equipment to fulfill this mission.

In the long term, it is necessary to redefine the boundaries of the reserve in order to meet the needs of the elephants, take into account years of poor rainfall, and allow for resource regeneration.

**Responsibilities of the stakeholders for the execution of the plan**

The strategy for the implementation of the plan is based on the fundamental principles of partnership and participation, and requires that all players are fully involved and fulfill their roles and responsibilities. The four implicated parties are: the State, represented by the technical services; technical partners and donors; local communities; local and transhumant herders.

**The State** needs to immediately mobilize the necessary political support for the plan and initiate the development and implementation of a management plan for the Gourma elephants; seek national and international funding for the plan; ensure that the owners of large herds from regional capitals and neighboring countries are informed of the situation at Banzena; provide support and advice; monitor and evaluate the implementation of the plan, in conjunction with the other partners to achieve lasting results.
Local communities need to supervise the implementation on the ground of the agreements and structures resulting from the activities itemized in the plan; participate fully in the process to evacuate the lake and its environment; monitor and evaluate the process to ensure that the lake is not recolonized by humans and livestock.

Partners in development need to provide technical and financial assistance, advice and monitoring.

The plan for the liberation of lake Banzena is designed to address the imminent danger to the elephants of Gourma, and is thus intended as a tool to complement other ongoing initiatives in the Gourma.

A plan for the transhumant herds

During the workshop convened by the DNEF to share the results of the study with the directeurs of the technical services involved with rural development and management of natural resources, concerns relating to the control of the tranhumant herds were voiced. All present requested more details on how this question could be addressed intelligently and realistically. The following represents a series of actions addressing this problem from a political and technical standpoint.

Politically :

- Designate the area of Banzena as a core protected area for use exclusively by the elephants where all human activity is forbidden apart from tightly regulated eco-tourism.
- Develop binding rules through the elaboration of local conventions governing the use of Banzena and other water points on the elephant migration routes. These agreements would determine the periods during the year when elephants occupy these areas and when use by transhumants is forbidden.
- Create and equip a forestry surveillance post to prevent activities that disturb the elephants such as its use by transhumants, commercial exploitation of timber, poaching and fishing.

Technically :

- Create waterpoints and pasture reserves outside the elephant range.
- Introduce a system of payment for the use of water and pasture in these areas to discourage use by the transhumants.
- Require that all owners of transhumant herds have a certificate of transhumance.
- Obligatory hygiene controls for transhumant herds.