Report on the Elephant Water crisis in Mali

By Jake Wall
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In January 2009, I was contacted by my colleague, Mr. El Mehdi Doumbia, of the DNCN in Mali. El Mehdi is the local 'Chef d'Antenne' at a town called Indianatafane and works for the Malian Directorate National de la Protection de la Nature (DNCN). El Mehdi reported that there had been severely diminished rains in the Gourma during the 2008 season and that the local Touareg nomads were predicting that the lakes that normally hold water during the dry season would dry-up. This could be disastrous for both elephants and people.

Save the Elephants then sent me to spend the first two weeks of the year with El Mehdi driving to all the critical points in the Gourma collecting information. We talked extensively to local nomads, DNCN officials, politicians and anyone that might have some insight into the developing situation. Everyone had the same message, that it had been 26 years since the last time they had seen the water levels so low.

In 1983, I was told, the army had come to the rescue of the elephants with water sent in tanker trucks. 2000 was also a drought year, and the Mali government built two boreholes with submerged pumps for pumping water at the most important lake for elephants, Lake Banzena. The two wells were about 95m deep and reached the water table. They were equipped with diesel powered generators to run them.

In January 2009, we found that the pumps had not been used for 8 years and it was uncertain whether they were functional or not. I gave a presentation to the DNCN about what we had learned and how serious the situation could be. We recommended immediate refurbishment of the pumps in the short-term and stressed the need for a longer term strategy for protection of the elephants at Banzena.

In March 2009, a project under DNCN, 'Projet de Conservation et de Valorisation de la Biodiversité du Gourma et des Elephants (PCVBG–E)', acted on these recommendations and had the pumps tested and equipped with new generators and they provided sufficient diesel for their use. I learned that they started pumping water in as early as March. There is however a danger of putting in new waterpoints in the Sahel in that they usually attract huge surpluses of livestock and create a mini-desert around themselves. In this case timing was of the essence.

Banzena is a key resource in the Gourma not only for the elephants but for the local herdsmen because it carries water throughout the year and can be depended on as a place to find water even after other lakes and water points have dried up. Our radio-tracking data show that many elephants congregate at Banzena from mid-March until early June which is also the hottest and driest time of year. But the water also attracts thousands of cattle and people from all over the Gourma and the elephants are forced to compete for water which can result in human-elephant conflict.

We have discovered that the migration of the Mali elephants covers huge distances. For example, one elephant we tracked walked a total of more than 3000 kms over the course of a year. We believe long distance movements are necessary for them to find the necessary nutrients, food and water for their survival. However, the migration also plays a more complex ecological function because it alleviates pressure on the landscape. For example, the 'Taborak' forest at Banzena is intensively used during the dry season but it has 9 months to recover when the elephants move away and on to new areas. If the elephant range were to shrink, and they were forced to remain at Banzena year round, they would quickly destroy the forest. The migration is directly linked to the water cycle in the Gourma and the elephants can only reliably move if they know that the place they are heading to holds water. Equally, livestock should not remain in one place rooted to a water supply as they too will severely degrade the habitat.

In May of this year I returned to Mali to work with a BBC film crew in the Gourma and check up on the elephant situation. By May 10th the stress levels and hardship were high. Temperatures reached the high 40's in the shade. Approximately 2000 – 3000 cattle were around the lake during the daytime. There were many dead animals and stinking carcasses. The lake was down to about 30 cms of muddy, bacteria filled slush. The BBC filmed some elephants trapped on the lake shore by hundreds of cows descending to drink. Two pumps were operating, one on the north-west shore and the other on the south edge, but the water was spilling out directly onto the ground and was only being contained by makeshift mud walls that the herders had erected. At night, when the elephants finally got a chance to drink, the walls would be knocked down and the water would turn to mud.

On May 11 there was some light rain and the elephants immediately left. One of our collared female elephants was in the group, and I was able to track them with my cell phone and GPS. By May 13 the elephants had ventured into the sand dunes 20 kms to the south of Banzena and had found pockets of water Tabouchoute and Teche. While we were away following the elephants, the remaining fuel for the generators had been given by the Biodiversity project to a handful of herdsmen in the belief that the elephants had vacated Banzena. However, by the night of the 14th the elephants returned to Banzena to an almost empty lake.

I returned to Bamako, and called the DNCN to inform them that the elephants were still urgently in need of water at Banzena. I was informed that the Biodiversity project had used up the entire diesel supply and would no longer be able to pump water for the elephants. What was STE going to do to help? I was asked. I quickly called Iain about the urgent need for diesel and for transport so that we could get back up to Banzena to help get the pumps going. Save the Elephants immediately contacted concerned individuals and NGOs. There was an immediate and generous response.

Friends at the Central African Mining Company (CAMEC) also generously donated helicopter time to make a quick recce. At DNCN I was put in contact with Mr. Biramou Sissoko the director of the Biodiversity project. I arranged we should fly together in the helicopter to see the situation firsthand. On our way to Banzena, we over-flew an area

60km's to the south west of Banzena called Imanane, and saw that some additional rains had fallen in this area. Some of the elephants including collared animals "Tombouctou" and "Mariam", had managed to get this far and were probably going to be alright but 60 kms of barren, waterless Sahel and sand dunes separated the others who were now essentially dependent on the rapidly drying Lake Banzena.

When we touched down at Banzena on May 19th we found that the lake had dried further and nothing more than an inch of wet mud with two shallow ponds remained, one each on the south and north sides. Birds were attacking catfish who were now hopelessly struggling in these two ponds. M. Sissoko had come to discuss management of the pumps with the herders and to inform people of the 1,000 liters of diesel that STE had contributed. After the meeting he left in the helicopter and I rejoined El Mehdi and a vehicle that had come up from Mopti to meet me with food and supplies.

Between 60 and 80 elephants remained at Banzena and were now becoming desperate for water. During the day we watched them constantly moving from the forest edge out to the mud and back. They would stand, stare, some would put mud on their backs but they did not seem to know what to do next or where to go. Infants were uncharacteristically inactive and chose to stay under the shade of the adults. Several times they approached the pumps but the sheer numbers of cattle and people discouraged them again and again. As soon as the sun had set and the cattle were leaving they descended on the water left over from the livestock but this swiftly became muddied.

On May 20th El Mehdi and I drove to Indianatafane where the lake, also suffering the effects of the drought, had already been bone dry for months. Unbelievably 6 bulls had remained including one of collared bulls known as Ali Farka Toure, although another one, Amadou, had died. They had been surviving by drinking out of shallow wells known as 'puissards' which are dug by the herdsmen to reach water. Incredibly these bulls had learned to kneel down and extend their trunks through the well opening to the water table below. I measured the depth with a rope and found it to be nearly 3 meters! This was clearly an operation only the biggest elephants could manage.

By May 21 Banzena had dried up completely and the water situation had reached a critical point. Thousands of cattle and livestock remained and were now in direct competition with the elephants for the water from the pumps. Unfortunately, because the local herdsmen were now running the pumps, there was a dispute about how the diesel was to be used. Although the Biodiversity project had originally supplied the pumps and diesel for elephants, the herdsmen naturally didn't want it being used to water elephants while their cattle were dying in huge numbers. We ended up trying to run the pumps at night for the elephants once the cattle had left.

On May 22 I sent out another SOS to Save the Elephants, this time about the need for a concrete basin that could at least hold the water that was being pumped and not to let it run back into the ground. We received the funds necessary, and with help from the DNCN, I commissioned a builder based in Timbuktu to construct a reservoir to be erected and operated under their supervision.

Several times that day the elephants had approached the pumps only to be scared off by the numbers of cattle. By 15:00 however, some bulls got the courage to push their way in to get at the water. The female groups stood in the nearby forest and waited. At 16:30 we were hit with a sandstorm bringing with it the promise of rain. We could smell rain that night and saw distant flashes of lighting with the rumble of thunder. At 19:00 a herd of ~25 elephants who had been circling the pumps all day were finally able to have a quick drink before heading in the direction of the lighting. Using the STE GeoSMS system I was able to plot on the map the movements of the elephants down to a place called Norahi, roughly 32 kms south-west as the crow flies from Banzena. By nightfall every elephant had left.

Two days later we followed the elephants south and caught up with a lone bull in the dunes. He had been left behind and was too weak to keep up with the others. His skin was literally hanging off him and he looked in really poor condition as did every other animal we saw in the Gourma. I took a picture of him alone in the dunes, thirsty but knowing he had to keep moving to reach water. Further south we found the elephants at Norahi and on the north edge of the Inani forest. Rain had fallen here and cattle were already starting to descend on its shallow pools. Using the collar data I could see that the elephants called Mariam and Tombouctou were still at Imanane. Clearly the rains had been very localised and the herders we met were still worried the water would not last.

We returned to Banzena and spent the next week racing to complete the construction of the concrete basin. After several days of scorching temperatures some elephants returned and began using the water pumped during the night. Another light rainfall came on May 28 and the elephants again left for the south. This made us hope there would be enough rain to last the elephants until the water tank had hardened. But if no more rain came the elephants could come back and find guaranteed water. Moreover, the DNCN had stationed an officer to oversee the orderly pumping of the water in such a manner that the elephants as well as the herders would have an adequate chance to drink. DNCN signed an MOU which I signed on behalf of Save the Elephants that DNCN would supervise the final construction paid and the distribution of water.

However, at the time of writing, 13th June, the elephants are still in the South. The big rains generally start in mid June or July. Hopefully this will happen and the lakes and water points to be replenished. If not then the tanks will be ready and the elephants can be assured of pumped water

My assessment is that it was a very close call for the Gourma elephants this year. Had the rains not started when they did, and if the elephants had been forced to stay at Banzena for even another week, it would have been a disaster. The tension between the herders and the elephants was extremely high and I'm sure there would have been fatalities on both sides if the situation had not been alleviated. It was obvious watching the elephants at Banzena that they are desperately in need of some peace and a place that isn't over-run with people and livestock. This is really the tragedy of what is happening in the Gourma right now. The Mali elephants are actually remarkably tolerant of people and I have

personally witnessed goats eating at the feet of a massive 6 ton elephant with no hostility at all. The nomads of the Gourma are likewise accepting of the elephants and even rely on the elephants to pull down branches to feed goats or to know when and where water might exist. They have never poached elephants or used ivory. Last year I came across a bull elephant carcass which still had massive tusks intact despite lying there for several days. But the fate of the elephants is irrevocably linked to the human footprint in the Gourma and if they don't have areas that are protected and reserved exclusively for their use they will be edged out completely.

Elephant numbers and range in the Gourma has shrunken dramatically in recent years. There are now between 350 to 500 elephants in the Gourma. Environmental change and desertification are also factors that are being compounded by the over-use of existing resources by humans and livestock. The drying up of Banzena this year could be the result of a simple climatic fluctuation, but it is almost certainly linked to the environmental degradation around the lake. There is very little grass cover now and every exposed nub of grass has been grazed over several times. Herders already need to march their cattle up to 20 kms away from the water in order to find any meaningful grass cover for their cattle. This contributes to desertification and erosion of sand and soil into the lake which makes the lake shallower each year and less capable of holding water. Tree cover also suffers since it becomes harder for new trees to take root in a barren sandy surface. No one has actually determined what the carrying capacity of Banzena is for livestock but the number has clearly been exceeded. Wood cutters from Mopti are often seen at Banzena collecting firewood.

The elephants will get through this year because of the early rains and the back up we have facilitated of working pumps and a concrete water tank. However, their future is uncertain in the Gourma, and their range and water requirements need to be protected. The current water crisis needs to be converted into an adequate plan for their long term survival using the information we now know about their detailed movements and migration patterns.

I would like to thank DNCN for their response to the elephant water crisis and for their support in the emergency action and all the donors who rallied to help.

Emaciated elephant at Banzena

Elephants circling the pumps but unable to approach due to heavy livestock presence

The scene at the pumps on May 22. Blocking the elephants access to water.

Building the concrete reservoir at Banzena.

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One of six dead elephants that we believe may have died from water quality which became full of sediment and bacteria as the water levels dropped.

A sandstorm created by rains to the south that allowed the elephants to leave Banzena.

A lone elephant we caught up with in the dunes wandering alone South of Banzena and far behind the other herds.

El Mehdi on project motorbike