

Reconnaissance visit to Bejimiz NP, Ethiopia

(part of Dinder – Alatash – Bejimiz Lion Conservation Unit)



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Summary

The objective of this mission was to gather information on the status and ecology of Bejimiz National Park in western Ethiopia, with special reference to the lion (*Panthera leo*), and to assess the feasibility of further studies there. Bejimiz is part of the larger Dinder-Alatash-Bejimiz Transboundary Ecosystem, composed of Dinder NP and Biosphere Reserve in Sudan, Alatash NP in Amhara state and Bejimiz NP in Benishangul Gumuz state in Ethiopia. While lions are definitely present in Alatash NP and Dinder NP (we had direct observations in both parks), we did not have any direct evidence for lions in Bejimiz NP. However, based on local informants and on a situation analysis, we are confident that further field surveys will find lions there. Our mission found no indication that the area might have elephants, giraffes or any other large bodied species (>250kg). However, a camera trap survey recorded 14 vertebrate species in 34 detections over 66 camera trap nights, which is indicative of a substantial small and medium mammal prey base. However, there is no indication that the area might have elephant, giraffe or any other large bodied species (>250kg). Bejimiz NP has been established recently, and enforcement of regulations is still in its infancy, with limited capacity on the government side and a limited awareness on the community side.

Our main conclusions are:

1. Bejimiz is not rich in megafauna and in infrastructure; in consequence it has very limited touristic potential. However, it does have high biodiversity value, and considering the higher availability of surface water and related productivity, it can potentially become a cornerstone of the Dinder-Alatash-Bejimiz ecosystem.
2. Transboundary cooperation is important; Bejimiz hosts at least two species that have not been observed in the rest of the ecosystem (banded mongoose and common duiker). Connectivity needs to be guaranteed into the future, to facilitate exchanges between sub-components of the park.
3. Due to remoteness and logistics, the efficiency of any field research in Bejimiz NP is low; we recommend investing in park management based on the precautionary principle, without waiting to know precise population sizes of the larger mammals there.
4. In conservation, size matters. By adding 1,820km² of habitat to the Transboundary Protected Aras Complex it makes it more robust to threats and enhances its potential to harbour more viable wildlife populations. Bejimiz NP is therefore important for wildlife conservation in Ethiopia and current efforts to recognise and increase management support to the area should be encouraged.

Team

The team was composed of:

1. Hans Bauer (WildCRU)
2. Gidey Yirga (MU)
3. Eskinder Hailegeorgis (driver)
4. Shiwabaw Dagneu (EWCA, scout)
5. Claudio Sillero (WildCRU – logistic support from UK)

Introduction

During a previous mission (Bauer et al., 2016), we ascertained the occurrence of lions in the Dinder-Alatash Transboundary Ecosystem, composed of Alatash NP (ANP) in Ethiopia and Dinder NP (DNP) in Sudan. A convention for transboundary cooperation of the area was signed by the two countries in 1994. Here, we report on a reconnaissance mission to the recently created Bejimiz NP (BNP) in Benishangul Gumuz Regional State in Ethiopia, an addition to the transboundary area.

The lion is a charismatic species and there is considerable international interest in its status. Recent publications have highlighted declines of lion range and numbers across Africa, especially in West, Central and East Africa (Bauer, 2015a). The lion is listed as Vulnerable on the IUCN Red List of Endangered Species (Bauer et al, 2015b).

The mission reported here was undertaken with permission from the Ethiopian Wildlife Conservation Authority. It was implemented in partnership with the Wildlife Conservation Research Unit, University of Oxford (WildCRU), Ethiopian Wolf Conservation Programme (EWCP) and Mekele University (MU). The operational costs were generously covered by the Born Free Foundation and Leipzig Zoo.

Methods

We used the following methods:

1. Camera trap survey (eight in total; 4 x Bushnell Trophycam and 4 x Doerr). These cameras were fixed to trees, and automatically took a picture whenever their sensor detected movement in front of the camera). The cameras were operational for a total of 66 trapping-nights.
2. Surveying for tracks and signs (walking transects looking for footprints in sand or clay substrate, or looking for scats).
3. Listening for roars and other sounds.
4. Interviews with park staff and community members, north and south of the Park.
5. Reviewing unpublished reports.

Area description – Bejimiz NP

The BNP encompasses 1,820km² of dry savannah in western Ethiopia, Benishangul Gumuz Regional State, on the boundary with Amhara and not far from the border with Sudan, in the Dangur and Guba weredas of Metekel zone (Fig. 1; Yadeta & Hailu, 2013). The altitude is around 550m *asl.*. There are many seasonal rivers, the only permanent river is in the north of the park and is called Ayma (Ethiopian name) or Dinder (Sudanese name). With Ayma, Bejimiz, Anja, Durba, Hidata and Awazika rivers and many pools and ponds, there is much more surface water than in Alataash NP during the dry season, and there is abundant groundwater; the underground water table is very shallow.

Three habitats can be distinguished; dryland forest, bamboo forest and grassland. Plant species include *Cordia africana*, *Albiza cafra*, *Acacia spp.*, *Adonsonia digitata*, *Stereospermum canthianum*, *Lonchocarpus luifolium*, *Oxitenanthera abyssinica*, *Jasminium abyssinica*, *Combretum spp.*, *Lonchocarpus luifolium*, *Ekebergia capensis*, *Ficus mochsteri*, *Cassia singueana*, *Euphorbia Arabica*, *Gladielus spp.*, *Boswelia spp.*, *Ischemum fasciocalatum*, *Piliostigma thoningii*, *Tamarindus indica*, *Diospyros spp.*, *Clerodendum spp.*, *Anivona senegalensis*, *Dombeya spp.*, *Cariss edulis*, *Ganrdenia lutea*, *Heliotropicum cineroseems*, *Ximenia americana*, *Hyperrhenia spp.* and *Penisetum spp.* (Yadeta & Hailu, 2013).

The main threats to BNP are poaching, livestock encroachment, and in the longer term agricultural encroachment. Human presence in the park was evident from tracks and interviews. There is currently a large agricultural investment in all the surrounding woreda's (districts); ample areas of bushland are being converted to small and medium size plantations for commercial agriculture. This was very visible from the fires and the number of tractors on the road.

A specific threat to lions is indiscriminate killing, especially by nomadic herdsman and prime among them are the 'Felata', who are pastoralists originally from West Africa but now with Sudanese nationality. They are armed with modern and traditional weapons and spend several months per year inside the park, with their livestock. We did not encounter any Felata or livestock; the grass was still too high for any grazing opportunity, but they are expected to turn up later in the dry season.

BNP is managed by EWCA, there is no warden yet but there are eight scouts in various communities; we worked with the single scout in Anjakwaya. There is a Park HQ building, but the keys are in Assossa, so we were unable to use it or to see the facilities inside.

BNP is in a region with low human population density, few roads and limited infrastructure. There is no infrastructure inside the Park, except for one ~70 km long single road that runs North-South and which is considered to be a public road, primarily used by tractors and trucks of surrounding commercial farms (access not regulated by EWCA). There are no bridges, crossing the seasonal rivers is impossible for passenger cars.

There has been a recent boom from the construction of the nearby Great Ethiopian Renaissance Dam (GERD, see Fig. 1) and the road towards it. There is another boom from investments in commercial agriculture (sometimes referred to as 'land grabbing'). However, there is still a lot of habitat outside BNP, and in similar condition to that of the park in the region.

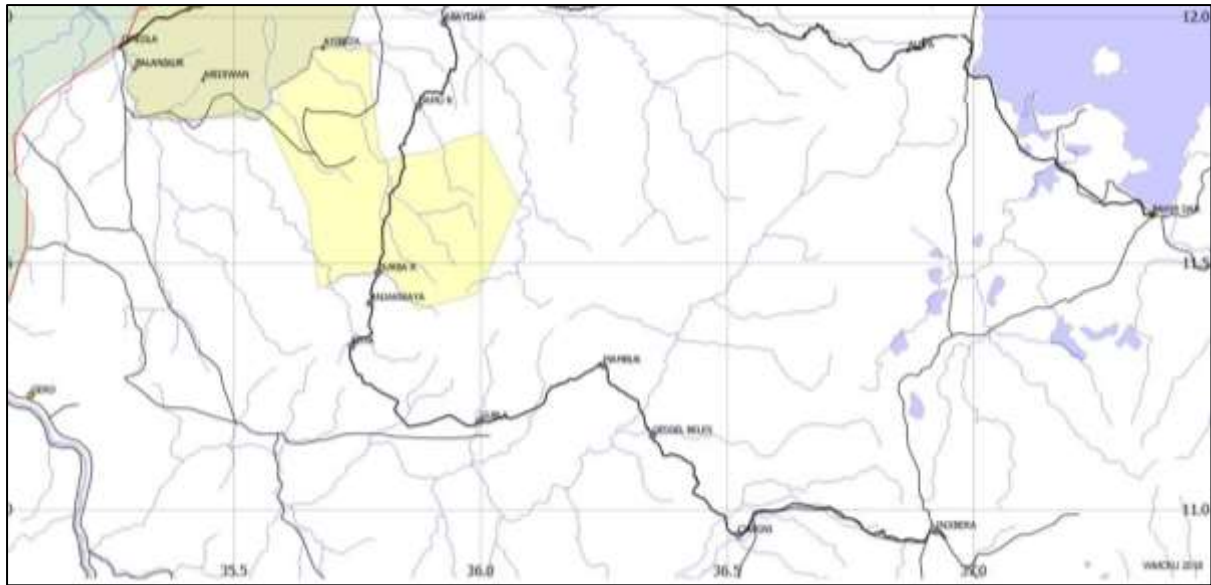


Figure 1: Location of Bejimiz NP (yellow) in western Ethiopia, roads and waypoints from our GPS.

Area description – Alataash NP & Dinder NP

BNP is part of a much larger ecosystem and cannot be seen in isolation; it is important to elaborate on the context. The Dinder-Alataash transboundary complex of Protected Areas is composed of the 10,291km² Dinder National Park (NP) in Sudan, recognised as a Biosphere Reserve, and the 2,666km² Alataash NP in Ethiopia (Fig 2). Dinder-Alataash is located in the East Sudanian Savannah Ecoregion, the most easterly part of the Sudanian savannah belt that runs across northern Africa south of the Sahara, starting on the Pacific coast of Senegal in the West and running to the Ethiopian plateau escarpment in the East. As a result, biological diversity has a lot in common with West and Central African savannas, despite being located in East Africa.

The main rivers are Gelego and Dinder (known as Ayma in Ethiopia); in the dry season riverbeds are mostly dry but with numerous ponds that contain water throughout the year. These rivers define the northern and southern boundary of Alataash NP, respectively, which has no other permanent water sources. Both rivers run through the centre of Dinder NP, which in addition has the River Rahad, as northern boundary, and many wetlands. It is dominated by Combretum-Acacia-Balanites woodland, with patches of bamboo, doum palm and grasslands.

We visited Dinder NP three times, and Alataash NP twice during November 2015 to May 2018 (Bauer et al., 2016; Bauer et al., 2017). Our observations are mostly from sightings on day and night drives on the few existing roads. Additionally we used camera traps; in Dinder NP opportunistically for a total of 48 trap-nights; in Alataash NP we established a camera trap grid in March-May 2017 totalling 977 trap-nights.

Table 1: Medium and large mammal species recorded in Dinder NP and Alatash NP during five field trips (2015-2018)

English name	Scientific name
Carnivores	Carnivora
Lion	<i>Panthera leo</i>
African civet	<i>Civettictis civetta</i>
African wolf	<i>Canis lupaster</i>
Striped hyaena	<i>Hyaena hyaena</i>
Spotted hyaena	<i>Crocuta crocuta</i>
Egyptian mongoose	<i>Herpestes ichneumon</i>
White-tailed mongoose	<i>Ichneumia albicauda</i>
Wild cat	<i>Felis sylvestris</i>
Leopard	<i>Panthera pardus</i>
Serval	<i>Felis serval</i>
Honey badger	<i>Mellivora capensis</i>
Common genet	<i>Genetta genetta</i>
Ungulates, even-toed	Cetartiodactyla
Common warthog	<i>Phacochoerus africanus</i>
Buffalo	<i>Syncerus caffer</i>
Bushbuck	<i>Tragelaphus scriptus</i>
Waterbuck	<i>Kobus ellipsiprymnus</i>
Roan antelope	<i>Hippotragus equinus</i>
Greater kudu	<i>Tragelaphus strepsiceros</i>
Heuglin's gazelle	<i>Eudorca tilonura</i>
Bohor reedbuck	<i>Redunca redunca</i>
Oribi	<i>Ourebia ourebi</i>
Common duiker	<i>Sylvicapra grimmia</i>
Kob	<i>Kobus kob</i>
Primates	Primates
Olive baboon	<i>Papio anubis</i>
Moustached monkey	<i>Erythrocebus poliophaeus</i>
Grivet monkey	<i>Chlorocebus aethiops</i>
Senegal bushbaby	<i>Galago senegalensis</i>
Other	
Crested porcupine	<i>Hystrix cristata</i>
Aardvark	<i>Orycteropus afer</i>

All mammalian species recorded during these surveys are presented in Table 1. While we present no objective measures of abundance we note that overall mammal densities were much higher in Dinder NP than in Alatash NP, with a remarkable abundance of Bohor reedbuck (*Redunca redunca*) and waterbuck (*Kobus ellipsiprymnus*). Sightings of Northern ostrich (*Struthio camelus camelus*) were also common. Some species were only found on one side of the border (e.g., leopard *Panthera pardus* only in Ethiopia, and buffalo *Syncerus caffer* only in Sudan), but since the boundary is ecologically arbitrary we provide a single species list.

The area is within the historical range of cheetah (*Acinonyx jubatus*) and African wild dog (*Lycaon pictus*), but neither species has been observed in recent times and they should be considered locally

extirpated. The situation of elephants (*Loxodonta africana*) is remarkable: some Ethiopians believe that they are in Sudan, and could occasionally come into Ethiopia in the wet season, whereas some Sudanese believe that they are in Ethiopia and could occasionally come into Sudan in the wet season. The fact that they are not seen in the dry season on either side does not bode well; speculations about presence in the wet season when access is limited may simply persist because they are harder to invalidate. Wildlife departments on both sides have not declared the species locally extirpated and remain hopeful, but we are rather sceptical – we have provisionally not included elephants in our table.

The Dinder-Alatash-Bejimiz Complex is relatively hard-edged in the North, East and West; habitat transitions are even visible on Google Earth, almost as if the purely administrative boundary was a fence. However, in the South, around BNP, there is a smooth transition whereby we can speculate that there is more human impact inside the Park but also that wildlife populations extend far beyond the Park.

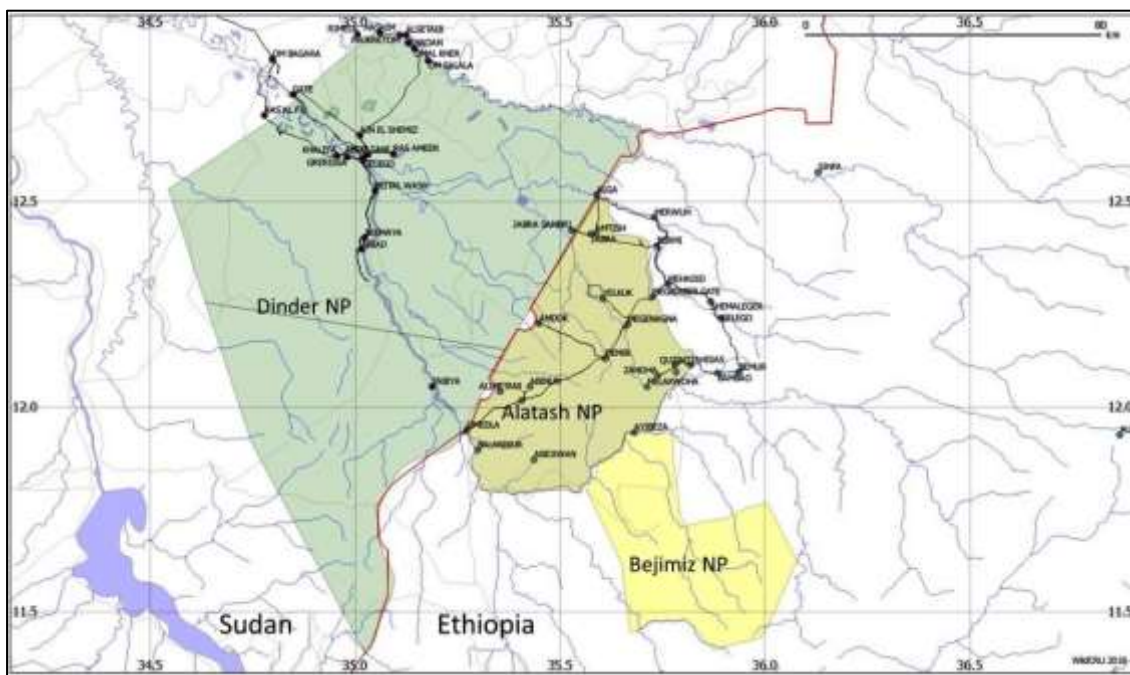


Figure 2: Bejimiz NP in western Ethiopia, along with Alatash NP and Dinder NP.

Results

In 66 trapping nights, we had 34 detections of 14 species (Table 2). Annex 2 shows some of the camera trap and other photos. We had four pictures of people, one of those also included a donkey. In addition, we observed moustached monkey (*Erythrocebus poliophaeus*), Nile crocodile (*Crocodylus niloticus*), puff adder (*Bitis arietans*) and guttural toad (*Amietophrynus gutturalis*). Out of all these observations, two stand out as peculiar: a first record of banded mongoose (*Mungos mungo*, rarely observed in Ethiopia and has never been captured in any of the cameras throughout the ecosystem before), and the high capture rate of common duiker (captured in ANP and DNP, but much less frequently than oribi and reedbuck).

Table 2: results of camera trapping

English name	Scientific name	Number of pictures
Carnivores	Carnivora	
African Civet	<i>Civettictis civetta</i>	1
Spotted hyaena	<i>Crocuta crocuta</i>	1
Egyptian mongoose	<i>Herpestes ichneumon</i>	3
White-tailed mongoose	<i>Ichneumia albicauda</i>	1
Banded mongoose	<i>Mungos mungo</i>	1
Slender mongoose	<i>Herpestes sanguineus</i>	1
Common genet	<i>Genetta genetta</i>	3
Ungulates, even-toed	Cerartiodactyla	
Bushbuck	<i>Tragelaphus scriptus</i>	1
Oribi	<i>Ourebia ourebi</i>	2
Common duiker	<i>Sylvicapra grimmia</i>	10
Primates	Primates	
Olive baboon	<i>Papio anubis</i>	1
Senegal bushbaby	<i>Galago senegalensis</i>	1
Other		
Crested porcupine	<i>Hystrix cristata</i>	7
Domestic dog (feral)	<i>Canis lupus familiaris</i>	1

Apart from our wildlife observations, we also participated in daily life in Anjakwaya and talked to many community members. We do not have a structured survey or quantitative information, we report only anecdotal information. It is clear that the Gumuz people use BNP intensively. Many people enter the park, reportedly to work on small illegal agricultural plots hidden off the tracks, to hunt, or to cross the park for any purpose on the other side (employment at commercial farms, market, family visit). Most people concurred that there are lions in BNP, but everyone agreed that there are no elephants or giraffes. Our visit was too short to really win the confidence of people, if people had any wildlife products (e.g. skins) they remained hidden from us.

The people of Anjakwaya and surrounding communities were very friendly and welcoming. At the same time, it is clear that they rarely host strangers, and naïve tourists could easily run into trouble if they were to visit without proper handlers. It will be challenging to find a park management model that provides local development opportunities for the people while safeguarding the interests of conservation.

Discussion and recommendations

We were unable to find evidence of lion presence in BNP, but we are confident that the area should be mapped as an extension of the lion population in ANP and DNP. The viability of lions and other species in ANP is boosted by connectivity to DNP, which appears to be the core of their distribution. Even though wildlife in BNP is not abundant and not easily observed, the biodiversity of BNP, and of the entire ecosystem, is locally, regionally and globally relevant.

We make the following recommendations for the Dinder-Alatash-Bejimiz transboundary ecosystem:

1. Promote further cooperation between Sudan and Ethiopia, aiming at harmonisation of management, particularly in terms of infrastructure development, law enforcement and ecological monitoring;
2. Seek joint dialogue with stakeholders, especially Gumuz communities;
3. Actively seek international financial support for this important wildlife area.

Recommendations for BNP, Ethiopia:

1. Promote increased law enforcement efforts. Scouts have so far only been instructed to engage with communities to create awareness about the park. This is understandable in the beginning, but a more mature form of park management should implement patrols and monitoring by these scouts;
2. Develop and implement a park management plan. The challenges and the ecology of the area are too complex to be assessed in a single reconnaissance visit, we would encourage further efforts leading to a science-based and community-led management plan.

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Annex 1: Camera trap locations

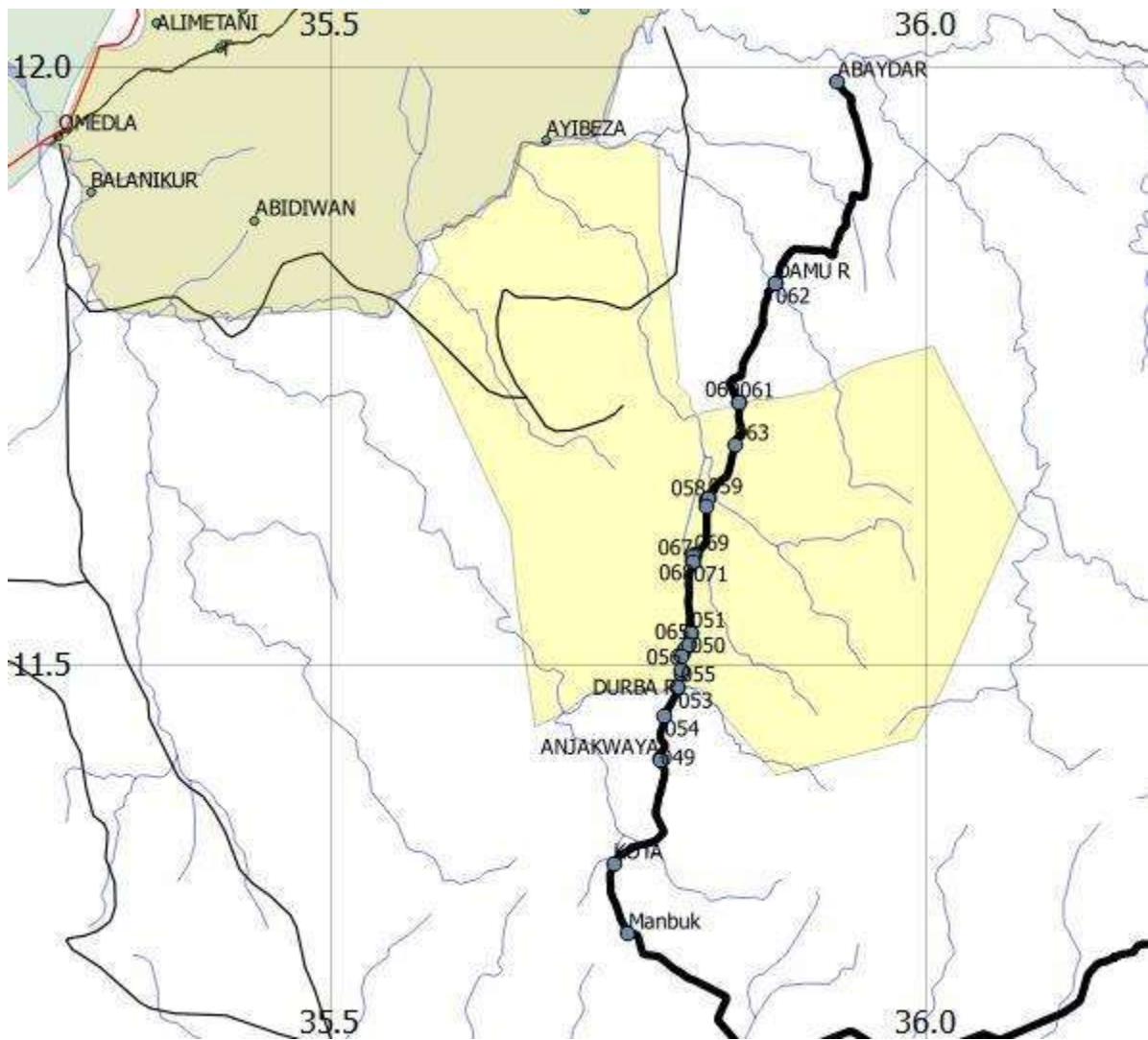


Figure 1: Waypoints of camera traps and other points of interest (POI) in Bejimiz NP.

Annex 2: Additional pictures



Figure 2: Spotted hyaena



Figure 3: Bushbuck



Figure 4: Oribi



Figure 5: Common duiker



Figure 6: Common genet



Figure 7: Ichneumon mongoose



Figure 8: Banded mongoose



Figure 9: Guttural toad



Figure 10: Typical savannah habitat



Figure 11: View of Anjakwaya village



Figure 12: Nile crocodile



Figure 13: Campsite