

Cat Project of the Month – March 2009

The IUCN/SSC Cat Specialist Group's website (www.catsg.org) presents each month a different cat conservation project. Members of the Cat Specialist Group are encouraged to submit a short description of interesting projects

Lions of Pendjari. Analysis of social structure, ecology of lions and human-lion conflicts in Pendjari Biosphere Reserve, Benin



Transhumant herders in Wantehoun (one of the bordering village of Pendjari BR). They are coming from Burkina and going in more humid parts of Benin (Photo Etotépé A. SOGBOHOSSOU).

This project on lion in Benin is an effort to fill the great gap in knowledge of this species in West Africa where lion is classified as Regionally Endangered since 2004. The project aims at assessing characteristics of livestock predation by carnivores, attitudes and perceptions of local people towards carnivores and predation in Pendjari Biosphere Reserve, Benin.

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Etotépé with Missi Sothiré, a collared lioness
(Photo E. A. SOGBOHOSSOU)

Background

Lion (*Panthera leo* L.) due to its continuous decline in West Africa was classified since 2004 in this region as Regionally Endangered while it stays Vulnerable in Africa in general (Bauer & Nowell, 2004). Despite this status, very few studies are done on the species in West Africa compared to East and Southern Africa where several studies are carried out. Data on ecology and ethology of lions of Eastern and Southern Africa are usually applied to lions of West and Central Africa. But first investigations (Bauer et al., 2003; Bauer & de longh, 2005) showed difference between lions from different parts of Africa. Carnivores-livestock conflicts, one of the main threats to carnivore conservation exist in the region. This problem, as important as it threatens biodiversity conservation and local population livelihoods is usually neglected. The lack of data on lion in West Africa compromised the conservation of the species in the region. That's why the present study has been initiated to first assess livestock-carnivores conflicts, one of the main threats to lion and other carnivore conservation and to study lion social structure and ecology in Pendjari Biosphere Reserve.



A view of Pendjari National Park, from a hill in the center of the park (Photo E. A. SOGBOHOSSOU).

Objectives

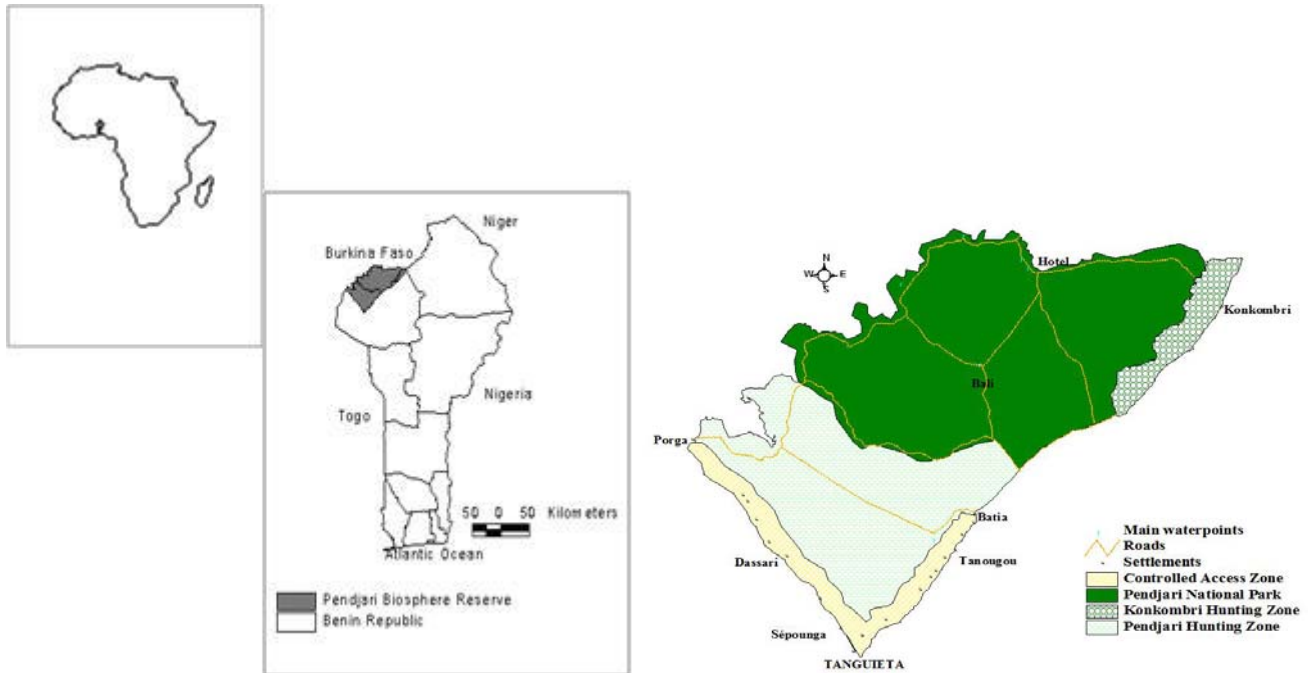
The goal of the project is to investigate the ecology and behavior of lions and conflicts with livestock in Pendjari Biosphere Reserve as a basis for the improved conservation of lions in West Africa.

The specific objectives are:

- to assess the abundance and the density of lions in Pendjari Biosphere Reserve;
- to assess the social structure and the behavior of lions populations in PBR ;
- to determine the home range and movements of lions in PBR;
- to assess characteristics and determinants of livestock-lion conflicts and populations perceptions of carnivores and conflicts.

Study area

The study is carried out in Pendjari Biosphere Reserve (10°30' to 11°30' N and 0°50' to 2°00' E), northern Benin.



Methods

Livestock-predators conflicts

We used questionnaires to assess livestock predation characteristics. Predation characteristics have been investigated through focus group interviews and individual interviews of 610 persons (farmers & herders) in the 21 villages surrounding the reserve. Information collected is about the socio-economic characteristics of respondents, husbandry activities and livestock owned, predation events and characteristics, and other conflicts with wildlife. Populations' perceptions have been investigated by the interview of 293 persons in eight villages chosen around the reserve. The questionnaire was composed of questions on different carnivores' species knowledge, cultural importance, opinion about the park, its management and about predation and ways to avoid it.

A herder with his cattle. The calf close to him was attacked by a hyena which ate his tail the previous night (Photo E. A. SOGBOHOSSOU).

Lion social structure and ecology

To assess the social structure, habitat used and the behaviour of lions, the main method used is the regular monitoring at waterpoints and along roads in the reserve. At each contact, coordinates, characteristics of the observation and habitat are recorded. We are also trying to identify all individuals and groups of lions, as this method appears to be possible and the most efficient in such area. Pictures of individuals are taken if possible and identification will be based on distinctive features like scars and whisker spots. Rangers and hunters observations are also used.



Telemetry from a hill in Pendjari National Park (Photo E. A. SOGBOHOSSOU).

A special attention is paid to herbivores distribution and abundance during lion monitoring. Prey abundance and distribution will be assessed and linked to lion distribution.

Three lions (two males and one female) have been fitted with GPS Plus collars. This collaring will provide us with data on home range size, movements and utilization of habitat by lions in the region.

We are collecting lion scats to analyse lion diet in the area. Data from collared lions also will be used as lion spent more time on feeding sites characterised by points aggregate after data download from collars.



Group interview with local people (Photo E. A. SOGBOHOSSOU).

Involvement of local people

The project creates few jobs in the area. Investigations on livestock predation are done with two local guides/interpreters and field work in the park with a guide who is a former poacher. The driver is also from the local population and we had a local assistant. Because of the importance of livestock predation for local people, regular contacts are established between the PI and the Association of Villagers in charge of the Management of Wildlife Reserve. This Association is composed of all villages that surround the reserve and participate in the management of the reserve with the Wildlife Administration. Results are used by the park management and the Villagers Association for local populations' awareness.

Preliminary results

Livestock-predators conflicts

Three main predators are responsible of livestock depredation around Pendjari Biosphere Reserve: hyena, baboon and lion. Lion is responsible of less predation cases. All livestock species are attacked with shoats as the most predated species. Local populations have a good knowledge of carnivores, which play an important role in their culture. Populations support conservation and are aware of the importance of the park. However their attitudes towards carnivores are mixed and negatively affected by carnivores' attacks on livestock.



A dead cattle at Bori waterpoint in Pendjari Hunting Zone (Photo E. A. SOGBOHOSSOU).



Lion family in Pendjari: a lioness with 3 cubs in the park (Photo E. A. SOGBOHOSSOU).

Lion social structure and ecology

To date, 8 to 10 lion prides were identified in the reserve. Groups encountered are composed of 2 to 9 individuals. At contrary to what some literature suggested, lion could form large group and prides are a reality in West Africa. In the same areas, small and large groups are observed with the same individuals. Further investigations will help to better understand how and when do lion form large groups.

Two lions have been collared only in January 2009 and there is no data on them. The lion collared since may 2008 first because it was the rainy season and the park was almost not accessible. We expected to have soon data from this lion. No data has been collected from the lions yet. Firstly because two were collared only in January 2009 and secondly the lion collared in May 2008 has been difficult to contact due to inaccessibility of the park during rainy season.

Lions are observed mainly in areas with high prey density. Our observations are restricted to the park as it's almost impossible to work in hunting areas during hunting seasons. And in the park some areas are not accessible because of the absence of roads or the bad state of roads. However most places are investigated. We are still collecting scats for diet analysis. When the number of scats will be adequate, we will analyse them for diet composition and their importance in the diet.

Next steps

In the coming months, we will continue with the monitoring of collared and uncollared lions and of herbivores. Scats collection will be intensified and diet analyse done. Data from livestock-predators conflicts will be used in the new project of ROCAL (Network on Lion Conservation in West and Central Africa) around Pendjari Biosphere Reserve. This project aims at reducing conflicts by helping herders to build better enclosures and improving herding techniques.

References

- Bauer H., de longh H.H. & Di Silvestre I. 2003. Lion (*Panthera leo*) social behaviour in the West and Central African savannah belt. *Mamm. Biol.* 88: 239-243.
- Bauer H. & de longh H.H. 2005. Lion (*Panthera leo*) home ranges and livestock conflicts in Waza National Park, Cameroon. *Afr. J. Ecol.* 43: 208-214.
- Bauer H. & Nowell K. 2004. Endangered Classification for West African Lions. *Cat News* 41: 35-36.

Project Information

Duration:	January 2007 – ongoing
Location (see map):	Pendjari Biosphere Reserve, Northern Benin
Sponsor(s):	NUFFIC, Panthera Foundation via Kaplan Award
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Project website www.rocal-lion.org