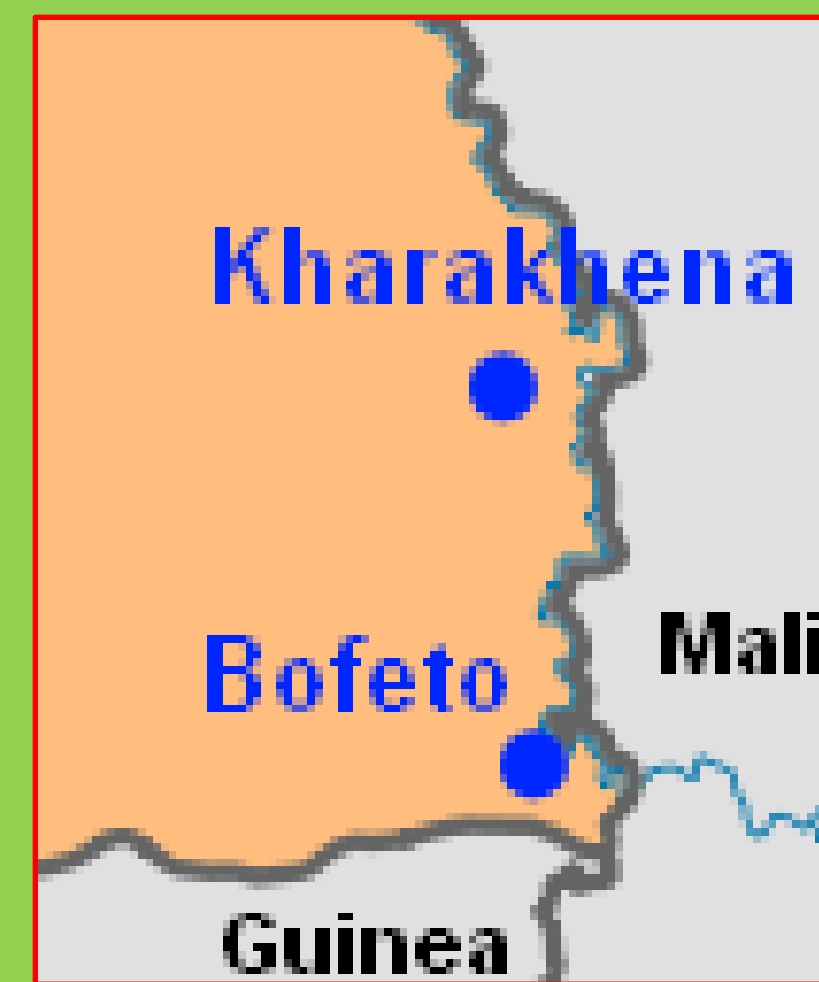




# Extraction to Extinction? Chimpanzee Conservation in the Mining Zone of Senegal

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## Introduction

As part of the long-term Fongoli Savanna Chimpanzee Project (FSCP), study of behavior and ecology of chimpanzee populations in southeastern Senegal since 2001, this study specifically addresses imminent conservation concerns affecting previously unstudied chimpanzee communities.

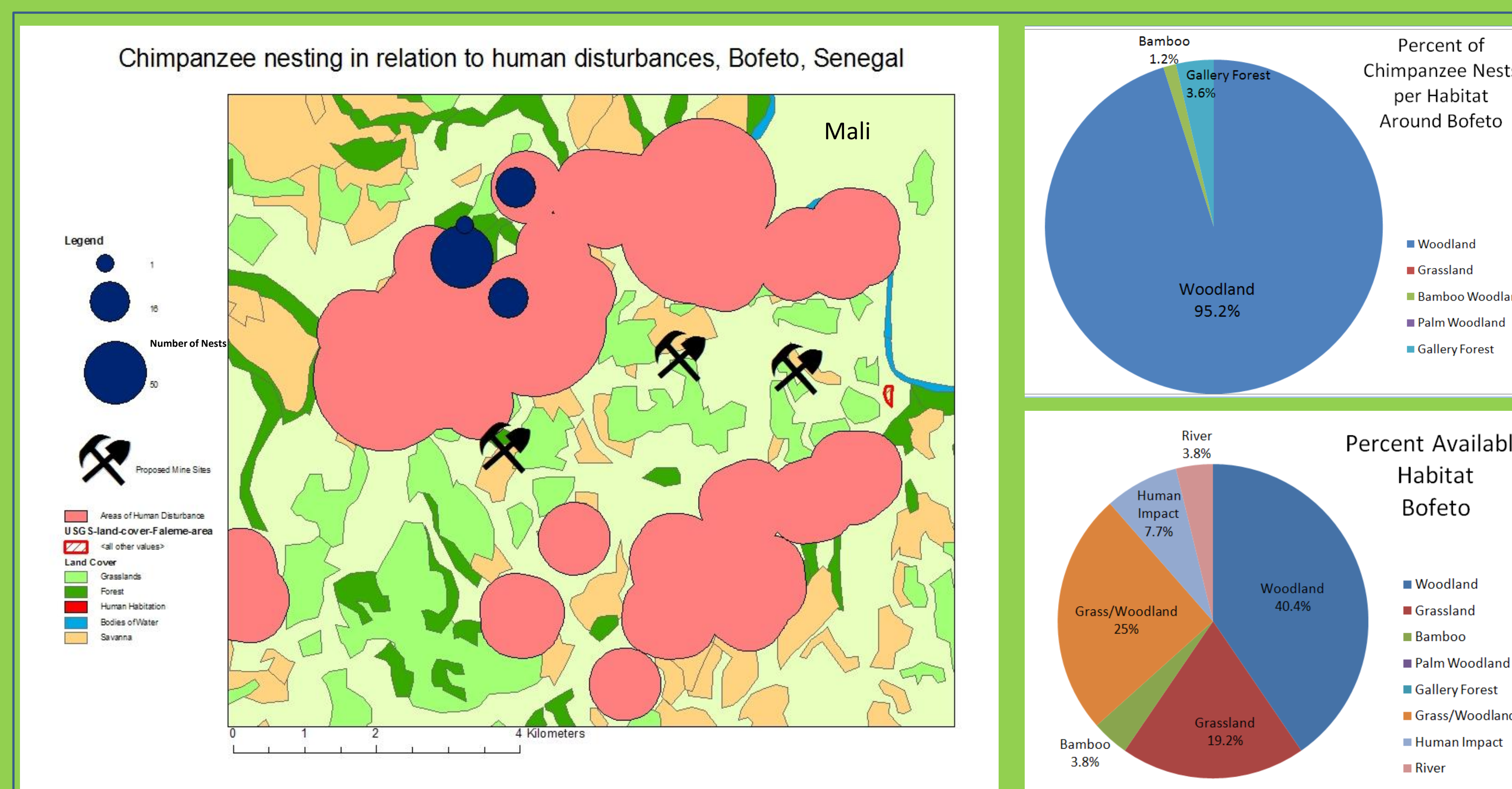
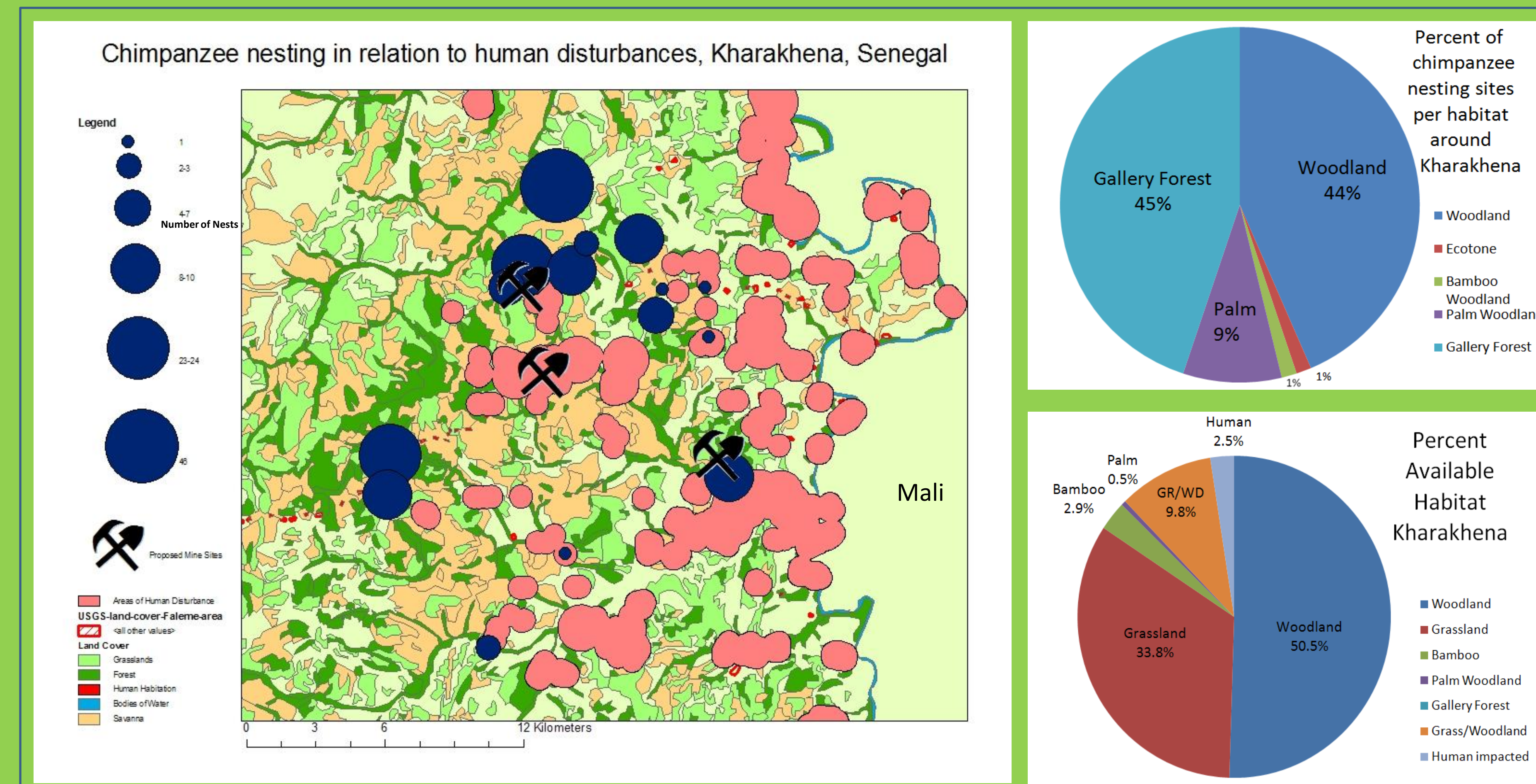
The study focuses on the development of a large-scale iron ore mining operation that will be located within the Falémé region of southeastern Senegal. International steel company ArcelorMittal has signed an agreement with the government of Senegal to begin extraction of iron ore at two sites in this region near the villages of Kharakhena and Bofeto starting in 2012. **The purpose of this study was to provide an assessment of chimpanzee populations and local habitat available to them, as well as existing human disturbances surrounding the targeted areas prior to construction of the mine.**

The study sites lie in the Falémé region of Senegal along the borders of Mali and Guinea, which is located within the Mandingue Plateau, an area home to an estimated 1,500 chimpanzees and listed as an exceptionally important priority in terms of West African chimpanzee conservation (Kormos and Boesch, 2003).

## Methods

The targeted study area lies within a 65km by 15km belt of supergene enriched iron ore deposits containing nine major and 19 minor ore bodies (Schwartz and Melcher, 2004). It is within this area that ArcelorMittal is expected to develop an iron mine. The project's two study sites encompass the largest iron deposits. The northern study site is a 256km<sup>2</sup> area centered on three iron deposits and encompasses the village of Kharakhena. The southern site is a 64km<sup>2</sup> area centered on the iron deposits in mountains of Koudekourou near the village of Bofeto. Data was collected from May through August 2010.

- Used both sweep and line transect surveying methods
- Used distance sampling surveys to estimate population density through nests counts
- Habitat type and structure was sampled along the 20 6km transects in the two study areas every 100 m, as well as indicated for each nesting site.
- Locations of all **human disturbances** likely to inhibit travel by chimpanzees were recorded, including:
  - cultivated areas,
  - villages,
  - mining activity,
  - tree cutting for livestock.



## For Further Information

Please contact me at [kamboyer@iastate.edu](mailto:kamboyer@iastate.edu) or Peter Riger at [priger@houstonzoo.org](mailto:priger@houstonzoo.org). Information on the FSCP and Houston Zoo's chimpanzee conservation project can be found at <http://savannachimp.blogspot.com/> and <http://www.houstonzoo.org/chimpanzees-of-senegal/>

## Results

The data show human habitation and disturbance apparently limiting the chimpanzee population from accessing much of their potential habitat around Kharakhena. Much of the disturbed areas, including villages, areas of cultivation, artisanal gold mining, and tree cutting for livestock, are located to the southeast of the study area, whereas the majority of nesting takes place to the northwest.

Over half of the nests recorded were located in less than 1% of habitat around Kharakhena, palm woodland and gallery forest. The prevalence of gallery forests were so infrequent that it was not sampled on the transects. Protection of these habitats is critical conservation efforts.

The concentration of nests at the Bofeto site strongly suggest that the center of the local chimpanzee community may be located between the villages of Bofeto and Babouya to the south. Eighteen fresh nests were found in one cluster, indicating the minimum group size for the Bofeto community is 18. However, if average group size represents only half the actual group size (Pruetz and Bertaloni, 2009), the Bofeto community may be much larger.

Construction of the proposed mining sites at Bofeto is scheduled to begin December 2011. Further research is needed to the north of the current study site as this appears to be the only potential area of dispersal for the chimpanzee community.

## Future Initiatives

It is not possible to consider the elimination of mining in Senegal, as the industry has the potential to not only better the country's economy but also reduce poverty at a local level, if managed appropriately. The most viable strategy now is to understand the impacts mining has on chimpanzee populations in Senegal, and thus minimize these impacts, as well as to bring awareness to communities on the interconnectedness and interdependence of humans and the environment. In the coming years we hope to:

- Continue monitoring populations in Kharakhena and Bofeto, Senegal as well as expand to gold mining regions.
- Establish education programs school systems throughout the mining zone and distribute educational materials to communities;
- Collaborate with mining companies, conservation organizations, and local governments in pursuing ecologically sustainable practices for the local people.
- Work with local stakeholders in creating community "forests"

## Literature Cited

- Kormos R, Boesch C. 2003 Regional Action Plan for the West African Chimpanzee
- Pruetz JD, Bertaloni P. 2009. Chimpanzee (*Pan troglodytes verus*) Behavioral Responses to Stresses Associated With Living in a Savanna-Mosaic Environment: Implications for Hominin Adaptations to Open Habitats. *Paleoanthropology*. 2009: 252-262.
- Schwartz MO, Melcher F. 2004. The Faleme iron district, Senegal. *Economic Geology and the Bulletin of the Society of Economic Geologists* 99(5):917-939.

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