

# EFFECTS OF HISTORIC HUMAN SETTLEMENT ON BAOBAB AND CHIMPANZEE DISTRIBUTION IN SOUTHWESTERN MALI

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This presentation explores ecological effects of human settlement practice in Mali by examining the distribution of settlements, baobab trees (*Adansonia digitata*), and chimpanzees (*Pan troglodytes verus*).

Researchers have assumed that settlement establishment and baobab reproduction are spatially and temporally dependent because baobabs are abundant in many settlement sites in semi-arid Africa. To test this spatiotemporal relationship, all baobabs ( $n=1240$ ) were located, mapped, and measured in a study area of 183 km<sup>2</sup>, and habitat characteristics recorded for each individual. Next, all occupied ( $n=7$ ) and abandoned ( $n=80$ ) settlements were located and mapped. Interviews provided settlement occupation dates, and indigenous knowledge of human-baobab interaction. Various statistical and spatial analyses determined baobab habitat preferences, and spatial relationships between baobabs and settlements. The results show that: 1) Human settlement and baobab recruitment are spatially dependant. 2) Settlement leads directly and indirectly to the development of baobab groves. 3) Human activities cannot account for baobab presence in many parts of the landscape, especially cliffs along bedrock outcrops. 4) Baobab abundance in settlements does not result simply from human seed dispersal, but also from other aspects of settlement practice that ensure dry, fire-protected sites.

Baobab groves at abandoned settlement sites represent potentially valuable wildlife habitat. In particular, past observations from southwestern Mali suggest that chimpanzees frequently nest near fruiting baobabs, at least seasonally. To determine if these casual observations accurately indicate chimpanzee behavioral ecology, and if chimpanzees specifically use baobab groves at abandoned settlement sites, several types of data were used: 1) systematic surveys of chimpanzee abundance, 2) analysis of chimpanzee diet, 3) mapping of chimpanzee food-plant patches, and 4) ethnographic interviews on chimpanzee behavior. The results show that chimpanzees heavily use baobab groves at abandoned settlement sites when baobab fruit is an important dietary component. During other times of the year, forest patches along bedrock outcrops—where permanent water sources and food patches are more abundant—are more heavily used. Anthropogenic baobab groves increase the abundance and distribution of chimpanzee food patches. Chimpanzees and humans share wild fruit resources by foraging in different parts of the landscape; this relationship should be used as a basis for chimpanzee conservation policy in Mali.

Recognizing indirect human-wildlife interactions that arise from the natural and social history of rural landscapes is crucial to understanding how land-use change may affect ecosystem structure and function over decades to centuries.

**Keywords:** Vegetation history, Biogeography, Africa, Forest islands, Conservation