

HABITAT MODELING OF BONOBOS IN RELATION TO BUSHMEAT HUNTING, SLASH AND BURN AGRICULTURE, AND TIMBER HARVEST

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The bonobo (*Pan paniscus*) is a globally endangered great ape endemic to the Democratic Republic of Congo (DRC) that is threatened by habitat fragmentation through slash-and-burn agriculture and timber harvest, as well as by bushmeat hunting. Determining effects of these activities on current bonobo distribution can guide future research and aid landscape planning efforts. We were interested in predicting relative bonobo-habitat suitability based on limited available spatial data for the Maringa-Lopori-Wamba (MLW) Landscape. Due to the dearth of spatial data for this region of the world, we identified indirect environmental variables that may serve as surrogates for measuring habitat fragmentation and accessibility of areas to hunting in order to predict relative bonobo-habitat suitability using nest-site locations collected in 2009. Moving-window analyses were conducted across the entire MLW for mean edge density (fragmentation), and for 2 measures of human accessibility; distance-from-fire and distance-from-river. We hypothesized that bonobo nest-site occurrence would increase with distance from fire and distance from river because of reduced exposure to hunters. We then used program MaxEnt (3.3.1) to generate relative habitat-suitability models with presence-only data of bonobo nest sites observed on random stratified transects. Model results indicate that edge density and distance-from-river were both important components of the model. The Area Under the Curve (AUC) for both training and test data was substantially better than random, suggesting we identified a plausible model with low error rates and high prediction success. Identification of highly suitable habitats will aid in planning the arrangement of conservation and exploitation zones.

Keywords: habitat, modeling, bonobo, nests