PRIMATE SOCIETY OF GREAT BRITAIN
CONSERVATION GRANT
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Project title

Seeking people-primate coexistence: primate community response to anthropogenic activities and land transformation in Guinea-Bissau, West Africa

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Project summary

The natural landscape in Guinea-Bissau, West Africa, is characterised by a mosaic of forest fragments, mangroves, savannah, human settlements and agriculture. The south of Guinea-Bissau represents the country's most biologically diverse region, the westernmost limit of the geographical range of Critically Endangered West African chimpanzees (*Pan troglodytes verus*), and a key refuge for a significant population of Endangered Temminck's red colobus (*Piliocolobus temminckii*).

In collaboration with IBAP, the national institute in charge of protected areas, our project took place in a human-dominated protected area, namely Cantanhez National Park (NP). We aimed to 1) assess the effects of anthropogenic activities and land alteration on the distribution of primates, 2) find ways to enhance human-nonhuman primate coexistence in a shared landscape, and 3) help increasing local conservation management capacity.

Covering 1067 km^2, Cantanhez NP includes the country's remaining coastal sub-humid forests, as well as mangroves, savannah grassland and woodland. Approximately 30,000 people inhabit the park. The main causes of deforestation is the high demand of land for shifting agriculture and the increase in cash crop cashew plantations.

To model primate distributions, we deployed terrestrial and arboreal camera traps systematically across a 180 km^2 area (N camera trap sites = $65_{terrestrial}$, $40_{arboreal}$). We set up cameras in forest, savannah, mangrove and agricultural habitats, and used environmental and anthropogenic covariates as potential factors affecting primate occupancy and detection probabilities. To set up arboreal cameras, one to two research assistants climbed using a doubled rope technique (DRT, Plate 1) or free climbed using the help of lianas and branches.

Plate 1
Research assistants Braima Vieira and Iaia Tawél Camará setting up arboreal camera traps

We also employed camera traps to explore chimpanzee perception of risk, monitoring one chimpanzee community living in a highly fragmented area for 12 months. We used participatory mapping and semi-structured interviews with local people to examine people's use of land and interactions with primates.

Preliminary results from the camera trap sampling period in the dry season (November 2016 – February 2017) showed that Campbell's monkeys were the most detected primate overall (N of independent events = $598_{terrestrial}$, $267_{arboreal}$, followed by chimpanzees ($N = 221_{terrestrial}$). In contrast, red colobus and king colobus' detection frequencies were low ($N = 14_{arboreal}$ and $19_{arboreal}$, respectively).

Occupancy models showed that during the dry season, chimpanzees were significanlty more likely to occur near villages, therefore close to people. Baboons were considerably more likely to occupy sites in forest-dominated landscapes and closer to mangroves. Green monkeys and king colobus were also more likely to occupy sites closer to the mangroves. Occupancy of red colobus was affected by local vegetation structure (i.e. positively associated with tree density, species diversity and canopy cover).

The high occupancy of chimpanzees closer to villages was likely due to availability of orange and papaya fruit, which are typically grown in/around villages. Local people reported that during the survey period, chimpanzees were often seen in orchards feeding on oranges, as well as entering villages to take papaya fruit.
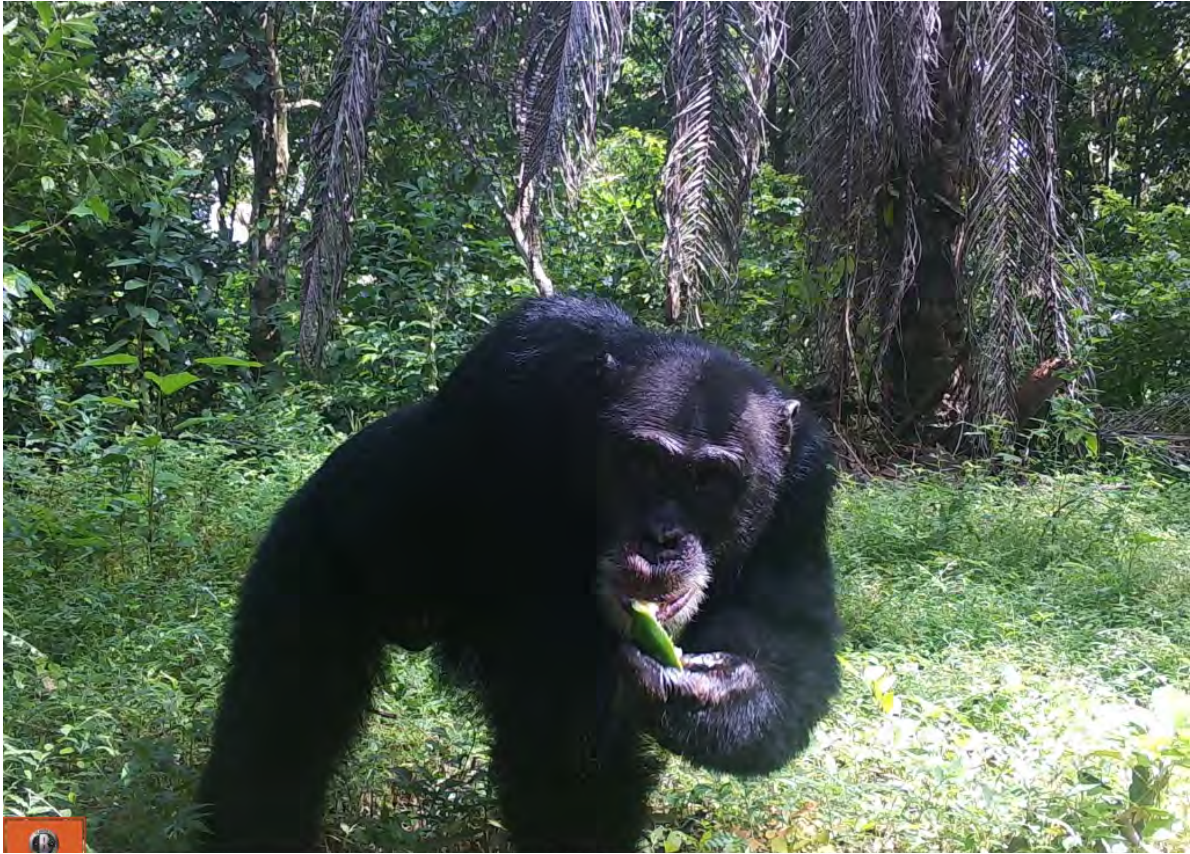
Plate 2
Chimpanzee feeding on orange in Caiquene village

Dry season primate occupancy patterns will be compared to the rainy season. Additionally, using one chimpanzee community as case study, we will explore the relationship between wild and cultivated food availability with intensity of patch use by chimpanzees at sites characterised by different levels of risk, including forest rarely used by people, forest frequently used by people, cultivated areas and villages.

Throughout the fieldwork period (October 2016 – July 2018), a total of 16 guides and guards were trained and gained first-hand experience in camera trap deployment and maintenance, as well as in conducting a habitat survey using vegetation plots. As requested by IBAP, we are currently in the process of finalising the methodology for a wildlife monitoring program to be implemented within the next two years. The monitoring program will include systematic data collection carried out by the park guards using camera traps and vegetation plots. Therefore this project directly contributed to increasing conservation management capacity in Cantanhez NP. Data from this project will be used to develop conflict mitigation strategies, particularly during periods of high chimpanzee-human spatial overlap (e.g. orange season). Our occupancy data will be used to identify key primate areas, including forest corridors, to inform an updated land use plan which will be developed for Cantanhez NP within the next five years.
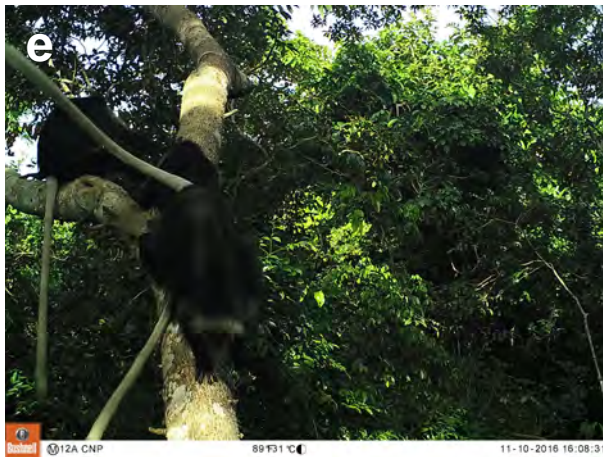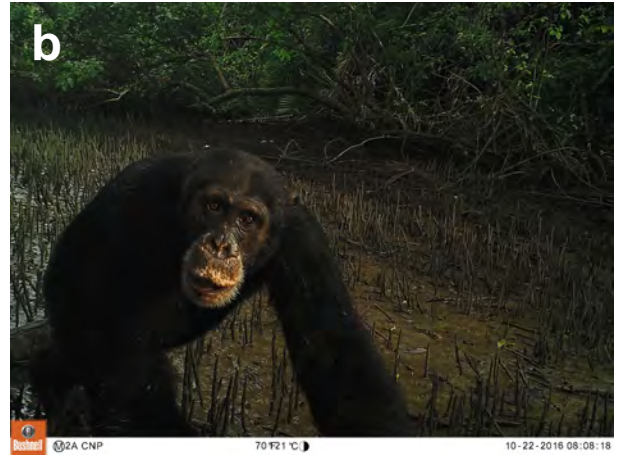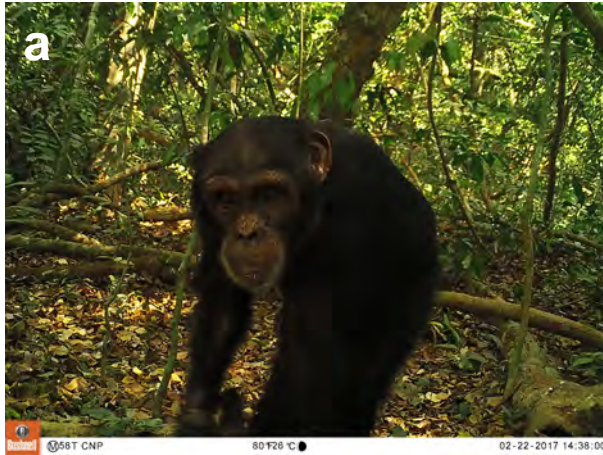
Plate 3
Selection of camera trap images from terrestrial (a – d) and arboreal (e – f) camera traps showing chimpanzee in forest (a), mangrove (b – c) and orchard (d), king colobus (e) and Temminck's red colobus (f) in forest.