

Seed dispersal by diurnal monkeys in the Salonga National Park, RDCongo

Supervision:

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Place and duration:

Lui Kotale research station, DRC / 6 months field research.

Keywords:

Feeding ecology, Congo basin, plant-primate interactions, seed rain, interspecific competition, monkeys (red colobus, black mangabey, red tail monkey)

Abstract:

In forest ecology, interactions between animal and plant species create the dynamics of ecosystems. Numerous angiosperm species have coevolved with frugivorous animals and adapted their fruit production in order to disperse their seeds (Dew & Boubli 2005; Eriksson 2008). From 45% to 90% of tree species in tropical forests have adaptations for dispersal by vertebrates (Garber & Lambert 1998). Multiple species of primates disperse seeds and differentially contribute to the seed rain (i.e. seed deposition by a tree) in tropical forests.

This apparently mutual coexistence has been seriously disturbed by severe poaching of key-seed dispersers such as elephants, primates, duikers, and large herbivores (Fa *et al.* 2002), and created a new ecological phenomenon, the empty forest syndrome: structurally intact forests without large and medium animals (Redford 1992; Terborgh *et al.* 2008).

In Lui Kotale, the Max-Planck Research Site at Salonga National Park, DRC, several primate species inhabit the lowland evergreen rainforest: bonobos (*Pan paniscus*), red colobus (*Piliocolobus tholloni*), Angola pied colobus (*Colobus angolensis*), golden bellied mangabey (*Cercocebus chrysogaster/galeritus*), black mangabey (*Lophocebus aterrimus*), Allen's swamp monkey (*Allenopithecus nigroviridis*), Wolf's Guenon (*Cercopithecus mona wolfi*), and red-tailed Guenon (*Cercopithecus cephus ascanius*). While the study site itself is largely protected from poaching, its surroundings have faced

severe impact by professional poachers supplying the bush meat trade. Particularly monkeys have been the victims of the recent past.

The goal of this research is twofold: 1st we wish to determine the existing relationships between monkey and plant species. Do monkeys act as seed predators, herbivores or mutualists by dispersing seeds within the given phytosociety? What is the degree of ecological overlap, competition and exclusive interaction between species? Are there keystone partners of given plants? 2nd we wish to evaluate the impact of their extirpation for the given plants and consequently for the ecosystem.

In order to address these questions, three predominantly frugivorous species of the site, red colobus, black mangabey and red tailed monkeys are chosen. Daily follows of non-habituated groups will reveal group sizes and compositions, home range sizes, travel patterns and paths, feeding patterns, major feeding trees and seed dispersion. The plant food parts ingested will be recorded and botanical samples of feeding trees collected and analysed. Faecal samples will be collected, washed and their seeds and plant parts determined and quantified. Inter-specific competition between the monkey species will be determined by *ad libitum* observations and feeding group scans (Altmann, 1974). A model of dispersal will be calculated using the GPS track log tool.

References:

- Hohmann, G., Robbins, M. & Boesch, C. (2006). *Feeding Ecology in Apes and Other Primates*. Cambridge Univ. Press, Cambridge.
- Poulsen, J.R., Clark, C.J. & Smith, T.B. (2001). Seed dispersal by a diurnal primate community in the Dja Reserve, Cameroon. *Journal of Tropical Ecology*, 17, 787-808.

Techniques:

Group follows; *Ad lib* observations and scans; faecal collection and analyses; collection of plant samples for herborising and botanical identification; density/diversity inventory; distance software; GPS track log tool.

Competences required:

Perfect physical health; ability to live in physically difficult, socially isolated environments; experience in biological field observation (focal follows, group scans, etc.); extreme self-motivation.