Vervet Vocal Flexibility In A Landscape Of (Little) Fear At Gorongosa National Park

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Background

The **predator-specific alarm calls of vervet monkeys** (*Chlorocebus pygerythrus*) [1], often described as the leopard, eagle and snake alarm, which **evoke specific adaptive responses** among conspecifics [2], are the **classic example of functional reference** in the animal communication literature [3]. However, there is evidence that **alarm call usage and perception may be somewhat flexible** in this species. A recent study of vervet responses to predator alarm calls found that the most common response among conspecifics was to look towards the sound source, and that contextually-appropriate evasion behaviour was no more likely to occur than contextually-inappropriate behaviour [4]. In addition, a systematic quantitative analysis of vervet alarm calls found that, whilst calls elicited by the main predator types could be distinguished from one another, calls given in contexts of intergroup or intragroup aggression and predation were not clearly discernible [5]. Taken together, these findings suggest that, among vervets, **certain alarm calls may be produced in response to multiple stimuli, thus requiring receivers to integrate the broader social and ecological context in order to select appropriate responses.**

Aims

To investigate the **flexibility of alarm call usage** and the **role of context in appropriate response selection** following the perception of probabilistic alarm calls among **vervet monkeys in Gorongosa National Park, Mozambique – a uniquely war-impacted environment currently undergoing major shifts in ecology as a result of carnivore reintroductions, creating a landscape of (little but increasing) fear.**

Methods

Preliminary data collection during July and August 2019 at Gorongosa National Park

All occurrence recording of alarm calling bouts and their context for adults of 3 vervet troops during daily follows:

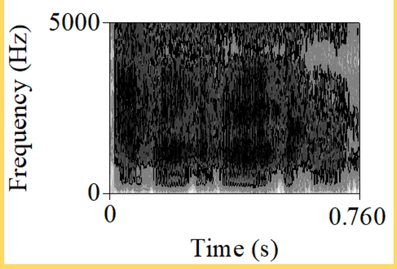
- Chitengo troop – 58 fully habituated individuals
- Lago troop – 20 semi-habituated individuals
- Latido troop – 7 unhabituated individuals

Preliminary findings

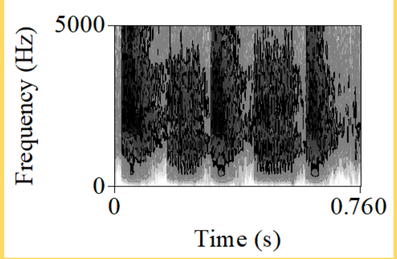
- Across multiple contexts, adult **males** produced acoustically similar **barks** and adult **females** produced acoustically similar **chirps**

Male barks

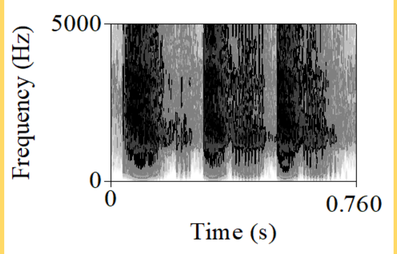
Intergroup aggression



Early stages of habituation

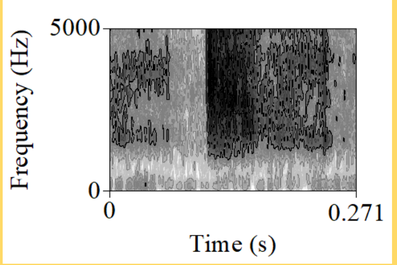


Genet sighting



Female chirps

Intergroup aggression



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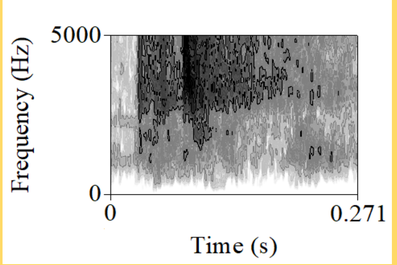
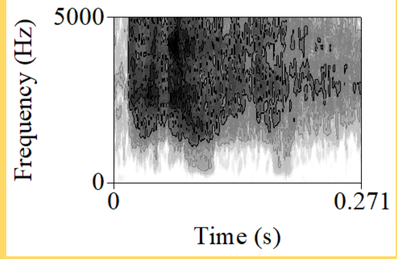
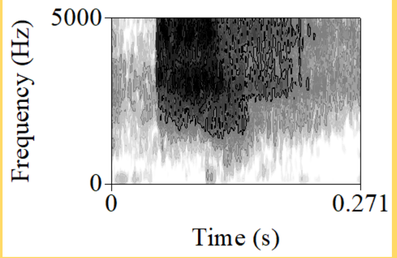


Genet sighting



Wild dog encounter



- The most common context of alarm call production was intergroup aggression (0.8 calling bouts/day)
- No predation attempts were observed during the study period

Next steps

- Continue habituation and data collection
- Analyse the structures of all acoustically similar calls to evaluate stimulus specificity
- Conduct playback experiments to investigate what information receivers use to select appropriate responses to ambiguous calls

References

[1] Struhsaker (1967). In *Social Communication among Primates*, University of Chicago Press: 281–324. [2] Seyfarth, Cheney, Marler (1980). *Animal Behaviour* **28**: 1070–1094. [3] Macedonia, Evans (1993). *Ethology* **93**: 177–197. [4] Ducheminsky, Henzi, Barrett (2014). *Behavioral ecology* **25**: 1474–1484. [5] Price, Wadewitz, Cheney, Seyfarth, Hammerschmidt, Fischer (2015). *Scientific reports* **5**:13220.