



Projekte

1. Comparison of social calls between sympatric bat species of the genus *Carollia* and their function as species-specific recognition mechanism

Sozialrufe sympatrischer Fledermausarten der Gattung *Carollia* und ihre Funktion als artspezifischer Erkennungsmechanismus

Executives: PD Dr. Sabine Schmidt (953 8746), Tania Bosia (MSc Biologie, 953 8418)

The bat genus *Carollia*, belonging to the family Phyllostomidae, is largely widespread in Central and South America and the species *Carollia perspicillata*, *C. sowelli* and *C. castanea* are known to occur sympatrically in some parts of these regions. These species are very similar in morphology and feeding habits. Moreover, they possess a polygynous social organization, with males defending roosting sites and attracting females in their harem. It is suggested that vocalizations may play a fundamental role as premating isolation barrier in sympatrically living, cryptic species. This study aims at the comparison of the context-specific social call repertoires in the three *Carollia* species to evaluate their role as mechanism for maintaining species diversity. Especially, we hypothesize that vocalization from the courtship context differ more among species than those from e.g. agonistic interactions, and that bats are able to discriminate between sister species based on their vocalizations.

Status: since October 2015

Keywords: bats, acoustic communication, social behaviour, sexual selection

2. Food choice and direct competition in two Neotropical bat species, *Carollia perspicillata* and *Carollia castanea*

Futterwahl und direkte Konkurrenz zweier neotropischer Fledermausarten, *Carollia perspicillata* und *Carollia castanea*

Executives: [PD Dr. Sabine Schmidt](#) (953-8746), Ulrike Taron, BSc.

The Phyllostomidae are the largest, and a highly diverse, bat family in the Neotropics due to an adaptive radiation to different diets ranging from insects to small vertebrates, blood, fruit, pollen, nectar and blossoms. Two common, frugivorous bat species, *C. perspicillata* and *C. castanea*, occur sympatrically and feed both on Piperaceae in their natural habitat, which implies that they compete for the same food resources. The present project addresses the microhabitat use of *C. perspicillata* and *C. castanea* in order to investigate the mechanisms to avoid direct competition. We study food choice behaviour of both species focusing on the effects of food quantity and the accessibility of food resources. In addition we investigate the behaviour of both species in a direct competition situation.

Status: since April 2012

Keywords: Bats, etho-ecology, competition, foraging behaviour

3. Acoustic communication during ritualised courtship in the Indian False Vampire Bat, *Megaderma lyra* **Bioakustik der Kommunikation**

Executives: [PD Dr. Sabine Schmidt \(953-8746\)](#)

The song flight is a conspicuous flight manoeuvre accompanied by a complex song, which is directed by male *M. lyra* towards females. Song flights are composed of three parts characterised by distinct flight patterns and song strophes. This behaviour is highly ritualised and may play a role in courtship behaviour and a long-term binding of females. The present project focuses on the behaviour of the female during song flight and its effects on the male song. In particular, we study to which extent the reaction of the female affects the emotional state of the male as reflected in the acoustic prosody of the song.

Status: since April 2011

Support: DFG

Keywords: Bats, social interactions, acoustic communication

4. Evaluation of social calls in the Indian False Vampire bat, *Megaderma lyra* **Bewertung von Sozialrufen durch den Indischen Falschen Vampir, *Megaderma lyra***

Executives: [PD Dr. Sabine Schmidt \(953-8746\)](#), Dipl.-Biol. Hanna Kastein

Bats are nocturnal mammals which rely on acoustic information for their social organisation. Thus they are interesting models for comparative studies on the evolution of vocal communication. *M. lyra* has a rich repertoire of social calls which are used in specific behavioural contexts. In addition, social calls carry individual signatures and provide affect cues. The present project focuses on the categorisation of social calls by *M. lyra* in spontaneous, and habituation-dishabituation, playback experiments which allow to

study reactions in the absence of visual displays. We analyse the evaluation of social calls on different levels, e.g. for different call types, or different affective contents within a call type. Furthermore, the approach is used to disclose a recognition of novelty, group identity and individuality by this species.

Status: since August 2004

Funding: DFG

Cooperation partners: Prof. Dr. K. Sripathi, School of Biological Sciences, Madurai Kamaraj University, Madurai, India
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Keywords: Bats, acoustic communication, call recognition, call evaluation

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