Evolution and function of olfactory communication in songbirds

Initiative: Evolutionsbiologie (beendet)

Ausschreibung: Postdoktorandenförderung

Bewilligung: 21.03.2012

Laufzeit: 3 Jahre

In the last decade olfaction in birds became of interest to the scientific community. However, olfaction in birds was still regarded as being restricted to very few taxa, as for example petrels or pigeons. Based on their brain anatomy, songbirds were assumed to be largely anosmic. Recent studies found first evidence that even songbirds can use olfaction and have also the genetic capacities for using the sense of smell. In a recent study we were able to show for the first time that zebra finches (Taeniopygia guttata) can smell and use olfaction for recognising their own nests. Based on these findings I plan to test four hypotheses. I will test in behavioural experiments when the own nest odour is learned during early life as I assume that is learned after hatching. I further predict that olfactory cues are critically involved in kin recognition, and parents distinguish between own and foreign chicks based on smell. At last I will test whether these olfactory skills are restricted to the highly social living zebra finches or whether other less social living estrildid finches have less sophisticated olfactory skills for intra-specific communication.

Projektbeteiligte

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