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With whom to associate? -

Seasonal grouping in the Northern Bald Ibis (Geronticus eremita)

Individuals group during foraging, because they may profit in many ways, e.g. in avoiding predators or by optimising their own foraging.

Introduction

Question

Methods

- Focal individuals: n=16, 9 a, 7 a; breeders of the free flying colony of the Konrad Lorenz Research Station
- **Data collection 2016:** GPS transmitters (GPS-UHF/-GSM) May until November 2016: breeding 04.05.-10.06.

dispersal 11.06.-08.10. reaggregation 09.10.-07.11.

• Data analyses:

Do Northern Bald Ibises associate with specific colony members during three different seasons?



- attraction & avoidance relationships (distance threshold of 1 metre)¹
- beta regression² with information theoretic approach³
- factors: season, sex, same sex associations, age, kinship, nearest nest neighbour





Individuals selectively chose with whom to associate during breeding and reaggregation, whereas during dispersal we found no preferred associations while foraging. Generally, same sex associations were observed more often than opposite-sex ones and females seemed to be more attracted to each other than males.

Relative importance season=1 ↓ *breeding* ↑ *dispersal* sex=1 ↓ *male* same sex associations=1 \cong same sex season:sex=1 ↓ breeding:male ↑ dispersal:male season:same sex=1 \treeding:same sex \trianglet dispersal:same sex nearest neighbour=0.42 ↓ *neighbour* kinship=0.38 ↑ *kin*

Conclusions



Seauo

Shanna

We found evidence for adaptive sub-grouping in **Northern Bald Ibises.**



¹Li, Z. et al. (2013) Attraction and avoidance detection from movements. Proc VLDB Endowment 7: 157-168 ²Cribari-Neto, F. & Zeileis, A. (2010) Beta regression in R. J Stat Softw 34:1-24 ³Burnham, K. & Anderson, D. (2002) Model selection and multi-model inference: A practical information-theoretic approach. New York: Springer **Breeding in spring:** it seems that females group, potentially to optimise their foraging.

Dispersal: colony members generally forage as a big group without evident sub-grouping.

Reaggregation: specific individual preferences, probably related to the formation of breeding pairs for the next reproductive season.

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