Think twice! Age-specific foraging strategies to avoid conspecific kleptoparasitism in ravens

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Introduction

Non-breeder groups of common ravens are composed of 3 different age classes (juveniles, < 1 year old; subadults, 1-4 years old; adults, >4 years old) and gather to forage at anthropogenic food sources. During social foraging, ravens are known to practice kleptoparasitism, whereby *scroungers* benefit from *producers*.

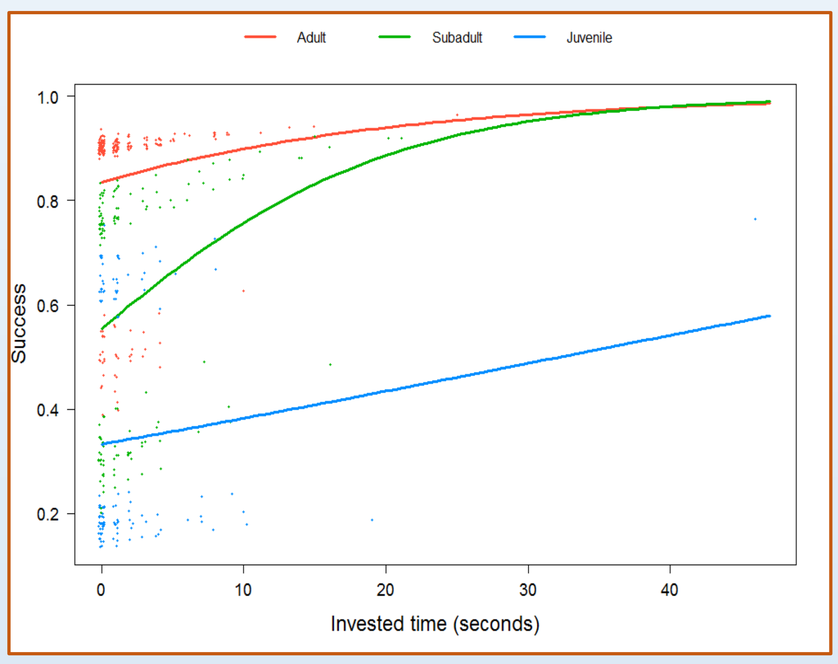
Apart from studies on caching-pilfering and scrounging tactics in ravens, little is known about direct stealing events from the producer´s perspective. Since subadults have the largest variation in food acquisition success, we investigated their behaviour in the feeding context to assess which factors explain their success rate.

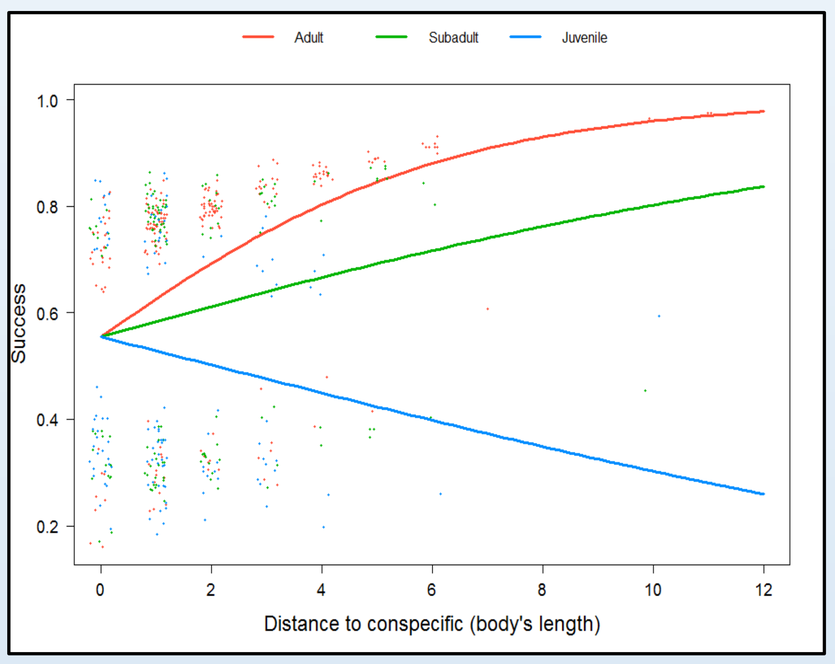
Methods

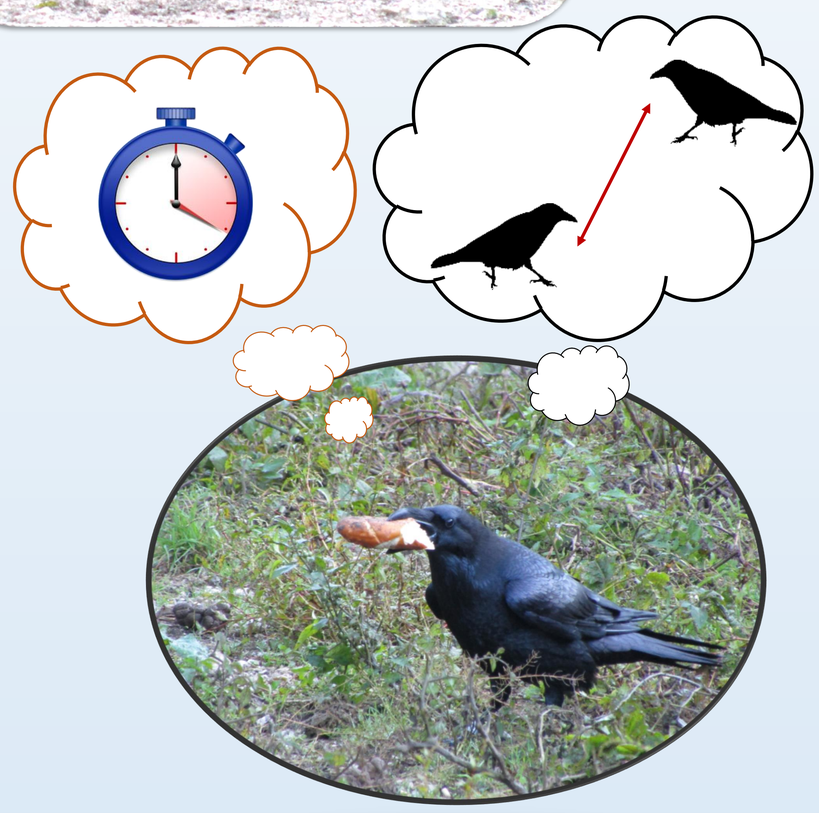
We videotaped 479 feeding attempts from 43 marked individuals. **Success** was defined as not being chased while carrying food away or not getting it stolen when eating in front of conspecifics.

Once a food item was grabbed, we took the following measurements:

- **Distance to nearest conspecific** (in raven's body length)
- **Duration of the decision**
- Number of surrounding conspecifics
- Number of agonistic interactions before







Fixed factor	Estimate	P value
Intercept	-0.057	NS
Adult (N=226) * Decision duration	↑	NS
* Distance to conspecific	↑	**0.005**
Subadult (N=130) * Decision duration	↑	**0.033**
* Distance to conspecific	↑	**0.037**
Juvenile (N=123) * Decision duration	↑	NS
* Distance to conspecific	↓	NS

GLMM$_{\text{binomial-logit}}$. **Success** as variable response. Individual & day as random factors. **N** refers to number of observations.
(*) means interaction effect between age class and measurement.

Results

Distance to the nearest conspecific significantly explained success in adults and subadults.

When investing more time in the decision, subadults increased their food acquisition success. The amount of agonistic interactions prior to grabbing a food item was positively correlated with larger distances to conspecifics in subadults only.

Discussion

Our findings show evidence for age-specific decision making during foraging. Juveniles seemingly have problems in controling their hunger impulse, whereas subadults benefit from taking time to decide. Specifically, they take into account the group size and the level of aggression to chose whether to stay or fly away with food.

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