Conflict of Perception:
Predicting actual and perceived crop-damage by primates in Sulawesi, Indonesia

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The Problem:
The Culprit

- Buton Macaque (*Macaca ochreata brunnescens*)
- Sulawesi macaque
- Unique radiation
- 7 species/subspecies
- Endemic
- Islands of Buton and Muna
Research Location

- 4 villages
- Subsistence farmers’ (n = 169) and farms (n = 73)
- Around Lambusango (28,510 Ha) and Kakenauwe reserves (810 Ha)
Study Site

[Map of the study site with labeled locations: Kakenauwe Nature Reserve, Kawelli, Wakangka, La Bundo Bundo, Wakalambe, Lambusengo Wildlife and Hunting Reserve.]
Research Methods

1. Interviews
   - Rapid Rural Appraisal
   - Semi-structured questionnaires

2. Farm visits.
   - Measure size, crop type, distance to forest etc
   - Randomly placed transects - plant type and severity of primate damage scored
“Actual” macaque Damage
(Based on Vegetation Transects)

- 0 – 70% damage per farm (mean 10.5%) \( (N = 73) \)
- Sweet potato, corn and banana most frequently AND severely damaged crops;
- Chilli and green vegetables not damaged
- Distance to forest, position in farm, main crop grown, absence of road, number of surrounding farms predict damage (60% variance explained)
Distance to Forest

- Farms < 100m = more damage (mean 15%),
- Farms > 500m = least (mean 3%)
- Edge effect – more severe < 10m of fence
- No effect of farm size
What Farmers Say

- 45% farmers perceived problems
- 0 – 90% damage reported, mean 9% (N = 169) (mean of 10% actually damaged)
- 97% reporting problems were Muslim, only 3% Hindu ($\chi^2 = 42.15$, $p << 0.001$, $N = 154$)
- Most Hindu farmers = transmigrants ($\chi^2 = 100.00$, $p << 0.001$, $N = 154$)
- Most transmigrants grow wet rice ($\chi^2 = 78.88$, $p << 0.001$, $N = 154$) not raided in this area
What Farmers Say

- Farmers’ perceptions of damage related to distance from village ($F = 4.086, p = 0.021$)
- Distance to village, which village, frequency of raiding, whether or not monkey was considered a pest predict damage (56% variance explained)
Farmer’s perceptions – Hindu farmers

“Monkeys are scared because we keep dogs, so monkeys don’t come to padi field … Dogs guard until they’re dead, and chase monkeys until they’re dead. Local people look after their farm every day but we don’t need to guard because the monkey knows we have dogs. A long time ago monkeys used to be big problem, so we got very cruel and killed them so now they know not to come here.”
Farmer’s perceptions – Muslim farmers

“Monkeys are very like humans, but monkeys damage crops. But in my heart I like monkeys, hard for me – like and dislike… if you don’t want monkeys to damage crops, don’t make a garden!”

“I like monkeys when not in the farm – clever and funny”

“I realise the monkey is hungry, so just have to guard all day, everyday, don’t want to kill”
What Monkeys Do and What Farmers Say

- Farmers’ estimates of % damage and % damage of available plants positively correlated (0.569, p=0.01, n=69)
- But . . . . . the relationship is not straightforward. . .
- Low levels of damage (under 20%) are over-estimated by farmers.

- Whilst high levels (over 40%) are more accurately perceived or even under-estimated.

- Frequent raiding with high damage may → accurate assessments of the problem.

- Frequent raiding with low damage may → exaggerated assessments and negative perceptions.
Accuracy

- Perceptions linked to relative accuracy of damage assessment
- Farmers who liked, loved under-estimated,
- Farmers who hated or disliked over-estimated
- Like and dislike – accurate
- Useful – accurate
- Greedy, thieves, enemy – over estimate
- Actual monkey damage related to distance to forest
- Farmers’ perceptions of damage related to distance from village
- Perceptions related to human activities (e.g. access to farm), damage itself a function of monkey behaviour (access to forest refuges)
Conclusion

- Monkeys are a significant crop pest in Buton.
- Primary raiding threshold 10m
- Not just about the monkeys
- Mismatch between perceptions and “reality”
- Perceptions towards monkeys are complex and not only related to the actual amount of damage but also factors such as religion etc.
- High levels of tolerance
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