



Responses of American Crocodiles (*Crocodylus Acutus*) to Conspecific, Crocodilian, and Hominid Juvenile Distress Calls

By Grace Miller



Introduction

- Crocodilians are the most vocal reptiles, with complex territorial, breeding, and distress calls
 - Distressed baby crocodiles call to siblings and mother



Nile Crocodile carries babies in mouth in response to distress call

Photo by National Geographic

Introduction

- Past studies show crocodiles reacting to vocalizations of other species
 - Nile Crocodiles responding to hominids
 - Nile Crocodiles understanding Spectacled Caiman calls
- American Crocodiles' vocalizations widely understudied



Baby American Crocodile

Photo by Dhiraj Ramireddy

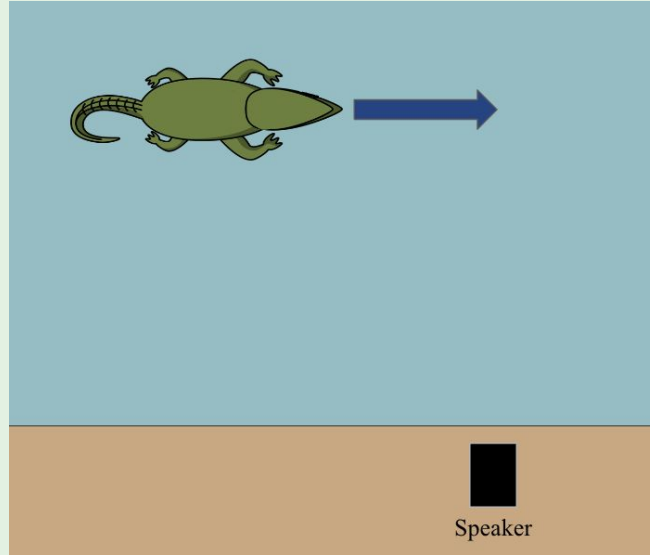


Baby Spectacled Caiman

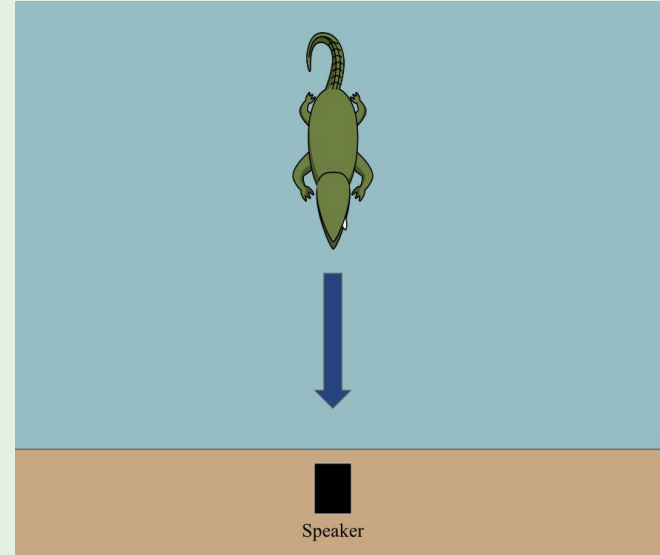
Photo by Fabio Maffei

Introduction

Parallel Movement (Predatory)



Perpendicular Movement (Protective)



Research Question:

What are the responses of American Crocodiles to the distress calls of juvenile American Crocodiles, juvenile Spectacled Caimans, and human infants?

Predicted Responses:

Distress Call	Predicted Response
American Crocodile	Mostly protective responses, some predatory responses.
Spectacled Caiman	Predatory responses.
Human Infant	Predatory responses.
White Noise (Control)	No response.

Methods: Study Sites



Methods: Equipment and Procedure

Sample size = 32 crocodiles



Speaker



Binoculars

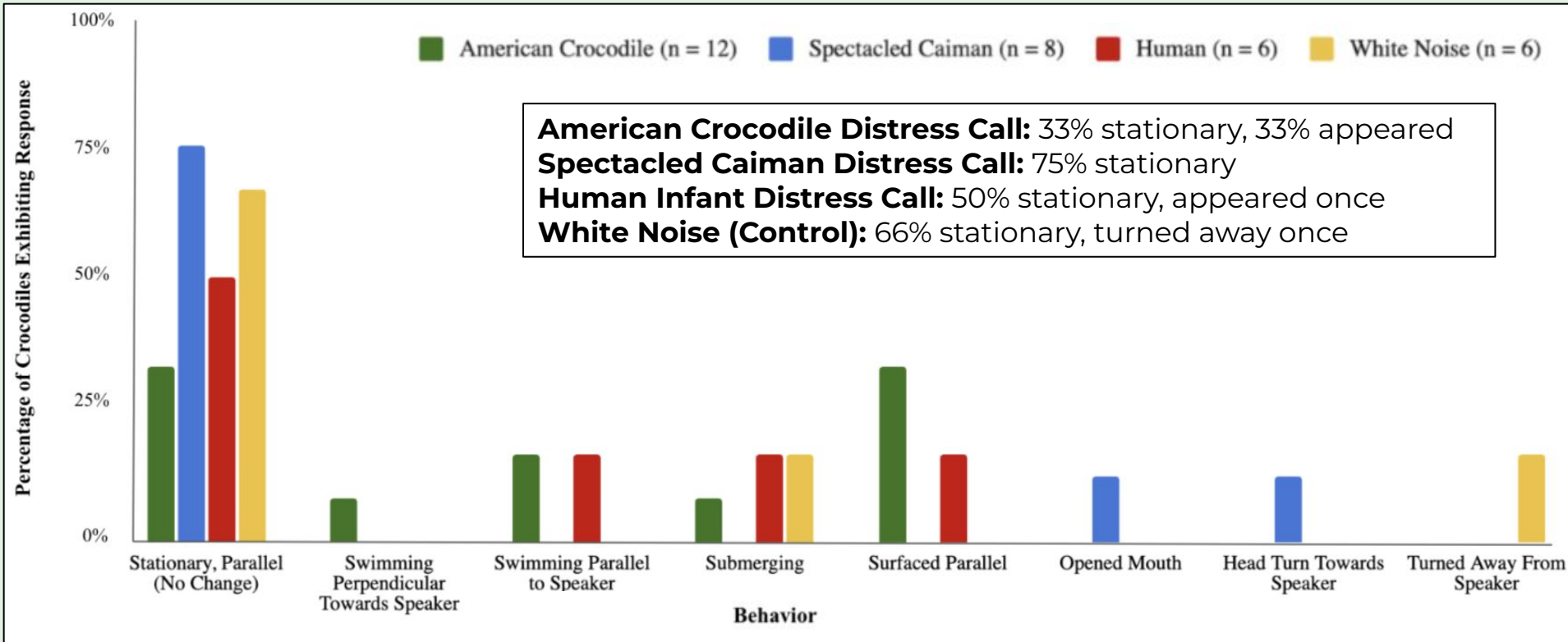


*Phone with
voice recorder*

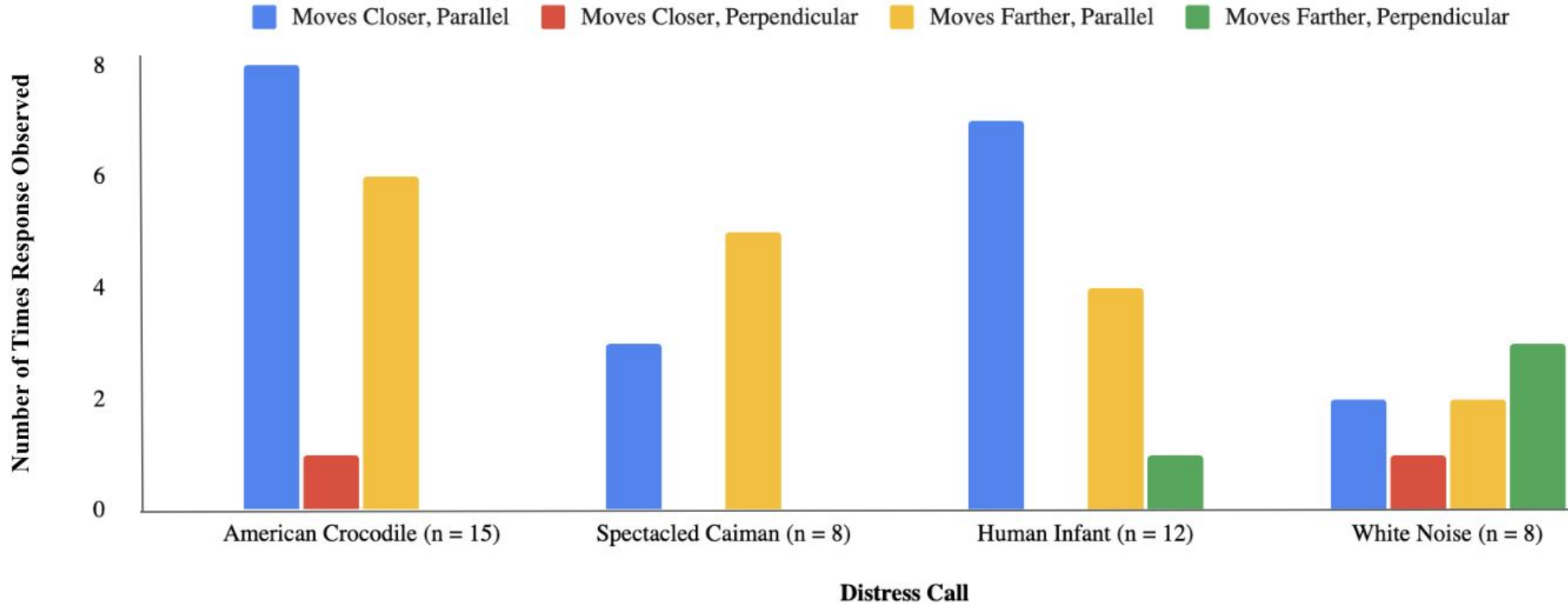


Observation procedure

Immediate Responses to Distress Calls and Control



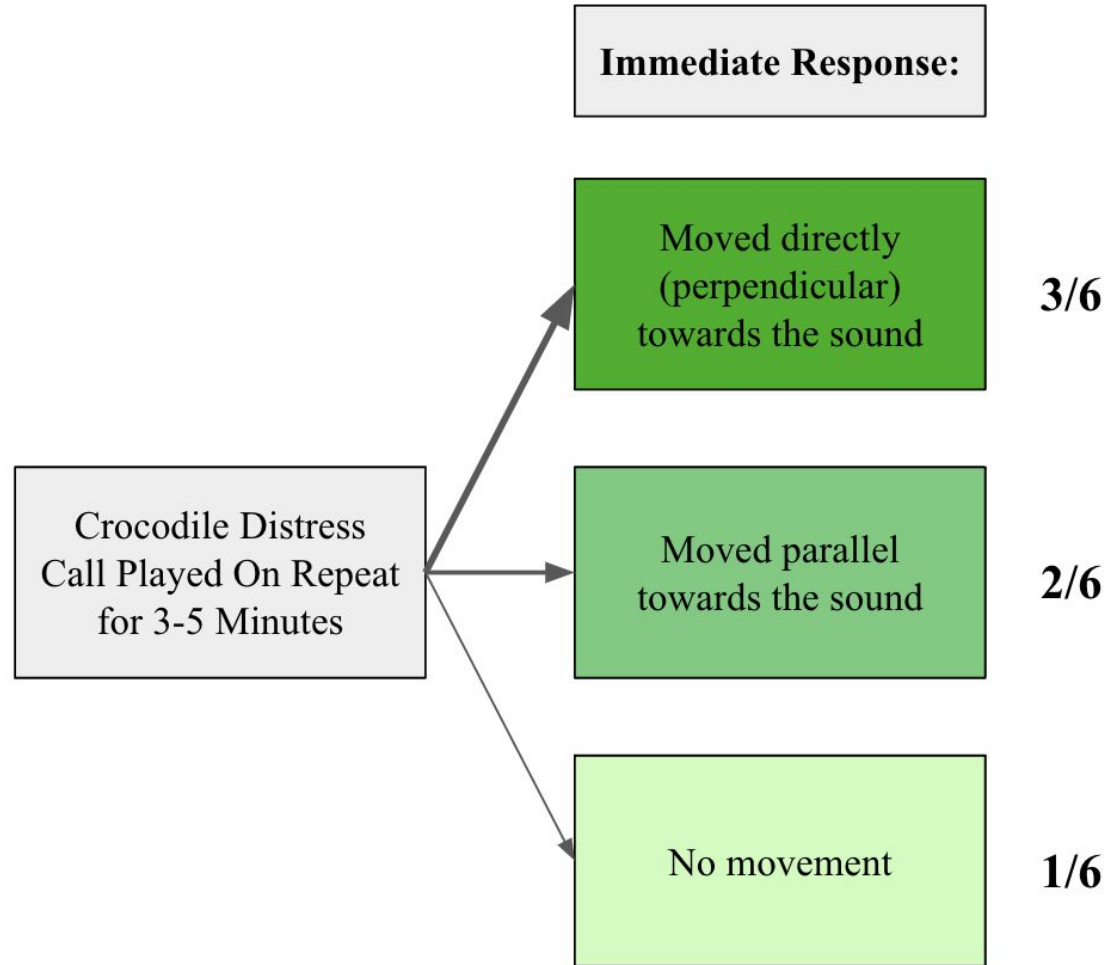
Movement Responses Over Ten-Minute Period



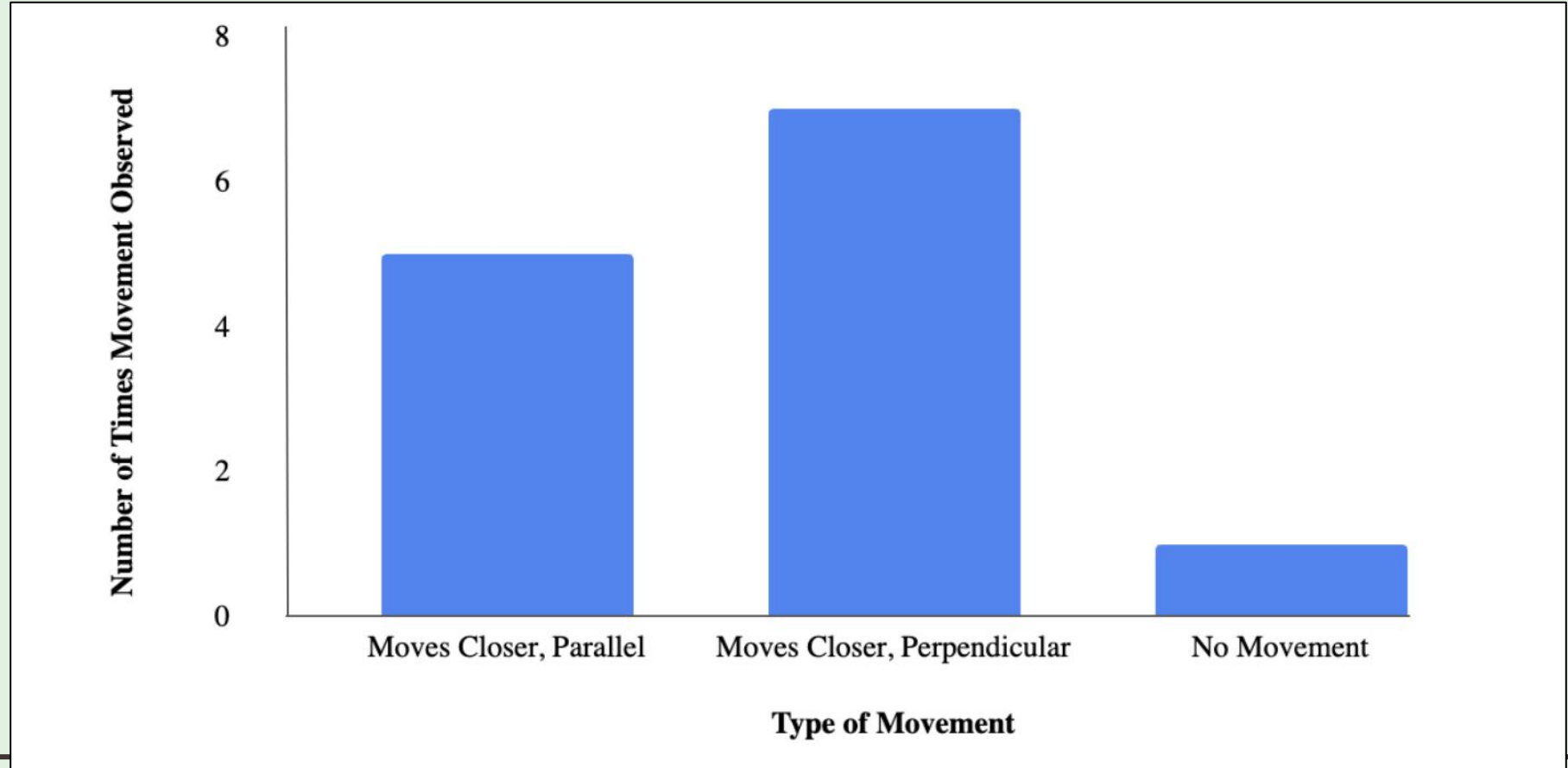
Observation: Crocodile Directly Approaching Speaker



Immediate Responses to Additional Testing with Conspecific Distress Calls



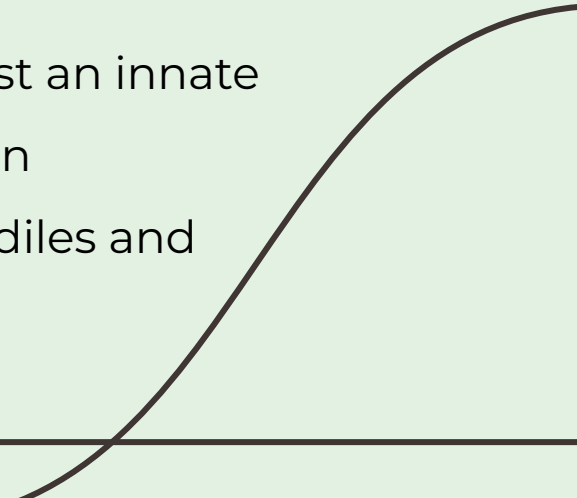
Movement Responses During Additional Testing with Conspecific Distress Calls



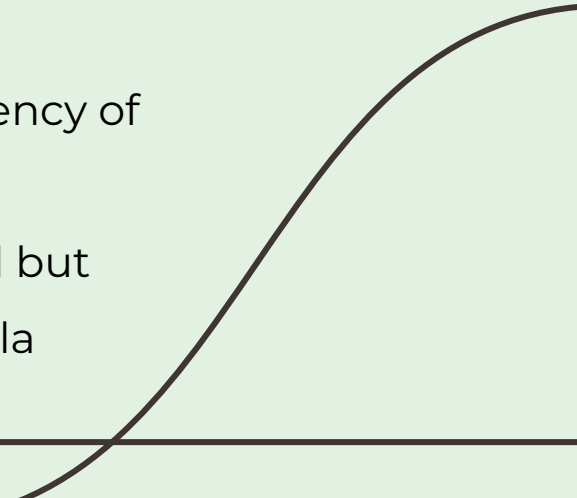
Overall Responses:

Distress Call	Response
American Crocodile	Both protective and predatory responses.
Spectacled Caiman	Displayed disinterest.
Human Infant	Displayed interest.
White Noise (Control)	No response.

Discussion

- **American Crocodiles exhibit both protective and predatory behavior towards juvenile conspecific distress calls**
 - “Surfacing Parallel” and “Moves Closer, Parallel” responses indicate intrigue or predation
 - Additional conspecific testing results suggest an innate protective response outside of nesting season
 - Further research with male v.s. female crocodiles and longer playback periods
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Discussion

- **Displayed disinterest in the juvenile Spectacled Caiman distress calls, but no consistent pattern**
 - This could be explained by lack of territorial overlap between caimans and crocodiles
 - **Displayed interest in the human infant distress calls, but no consistent pattern**
 - Pre-existing fear of humans could affect consistency of human infant responses
 - **Importance:** behavioral insight into an understudied but prominent species in Cuajiniquil and Nicoya Peninsula
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Conclusion:

American Crocodiles exhibit protective and predatory behavior in response to juvenile conspecific distress calls. This suggests that in addition to viewing juveniles as prey, an innate protective instinct exists.



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Crocodile footprint