

Does Camera Trap Footage Reveal Changes in Feline Activity in the Presence of Humans in Darien National Park?

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I. Introduction

- Large felids play a vital role in their respective environments, and without them their surrounding ecosystems would surely collapse.
- Darien National Park harbors incredible biodiversity and within that, crucial keystone feline species.¹
- Forest cover in this region has declined to almost to half its original size due to recent anthropogenic impacts.¹
- Characterized as a megadiversity hotspot, camera trap technology has been utilized in Darien National Park for the purpose of population quantification research.¹
- These quantification offer invaluable knowledge, but do not offer a direct explanation of the responses of these populations to anthropogenic influence.
- Big cat species in Darien are suffering at the hands of geographic range contractions, habitat loss, and degradation.²
- In order to explore potential felid conservation efforts, we must first better understand human impact.

II. Objectives

- Identify the effects of human influence threatened feline species' habitats.
- Draw conclusions from data analysis that aid in the process of establishing differences among pumas (*Panthera onca*), ocelots (*Leopardus pardalis*), and pumas (*Puma concolor*) (Figure 1).

III. Methods

- Camera trap footage provided by the WildCam Darien Lab was analyzed to compare activity levels between humans and feline species.
- Footage data was tailored to include only lowland deciduous and evergreen forests and contain only footage of humans, jaguars, pumas, and ocelots.
- Data analysis was conducted individually for each species to reveal potential differences in human influence.
- Activity overlap was assessed using the kernel density functions in the "overlap" package in R.³

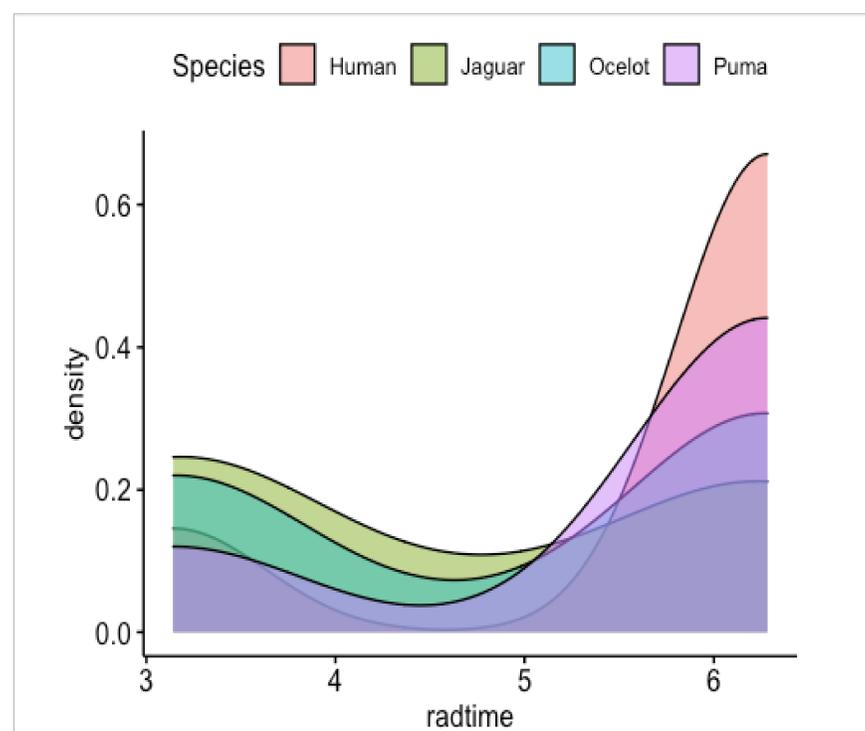


Figure 2. Density graph comparing human activity to jaguar, ocelot, and puma activity over the same time period in Darien National Park.

IV. Results

- Ocelot and puma density seemed to follow the same general trend as human density (Figure 2).
- Jaguar activity appeared to increase in the presence of lower human density and slightly decreased in the presence of higher human density (Figure 2).
- Overlap estimate was calculated to be 0.69.
- 95% CI ranged from 0.61 to 0.78.

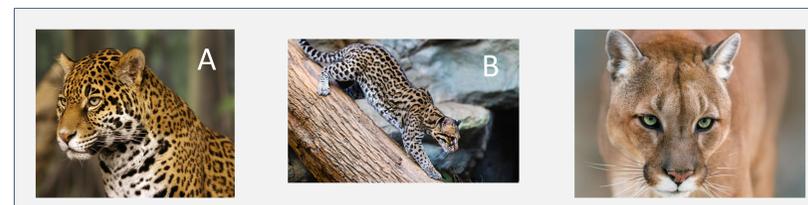


Figure 1. *Panthera onca*(A), *Leopardus pardalis*(B), and *Puma concolor*(C).

V. Conclusions

- While there appears to be some difference in activity between felines and humans, there is considerable overlap.
- Additional research will be required to establish definitive differences between feline species' relationships to human density.
- Future directions could focus on feline species not studied in this research to further expose the influence of anthropogenic activity on keystone species.

References

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