Puma concolor and People

Investigating the landscape of tolerance in Chile's Araucanía Lake District

Tucker Murphy[1], Jerry Laker[2], Nicolas Galvez[2], Cristian Bonacic[2] and David Macdonald[1]
1. Department of Zoology, University of Oxford, South Parks Road, Oxford, OX1 3PS, UK
2. Fauna Australiis, Facultad de Agronomía e Ingeniería Forestal, Pontificia Universidad Católica de Chile

Introduction

Several trends combine to create a global challenge for big cats in general and pumas in particular. Conservation efforts are intensifying, sometimes leading to increasing numbers of pumas. However, numbers of people and their environmental footprint are also increasing almost everywhere, so modern pumas almost always live in human dominated landscapes and may come into conflict with people if they prey on livestock or domestic animals.

Methods

- Interviewed stakeholders living in close contact with pumas suffering the highest costs of coexistence
- We measured tolerance using the following index:
  - How many sheep were stakeholders willing to lose per year without killing the predator responsible?

Questions

•Is tolerance linked to economics?
-In Kenya, Romanach et al. (2007) found commercial livestock owners with larger holdings had higher tolerance of depredation than community members

•Is tolerance linked to culture?
-In Brazil's Pantanal region Cavalcanti et al. (in press) found intent to kill was not tightly linked with economics

Acknowledgements
We are very grateful livestock owners for consenting to be interviewed. Richard Ladle, Howard Quigley and Seth Riley all contributed valuable comments on this study. We also thank Anais Boutin for kindly conceiving of the eye-catching poster design. Funding from the Darwin Initiative and Rhodes Trust made this work possible.

Results

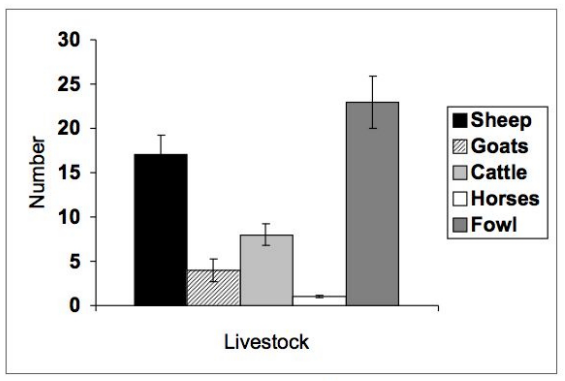

Fig. 1. Average livestock holdings reported

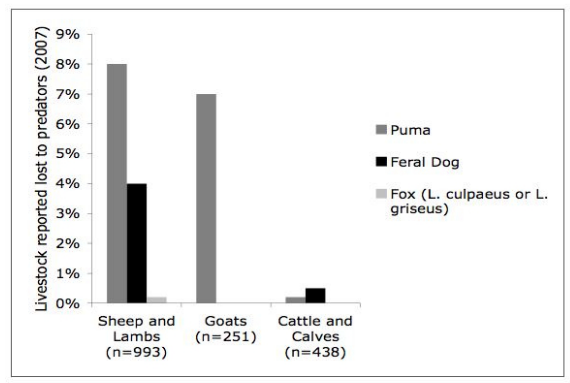

Fig. 2. Percent of livestock reported lost to different predators during 2007

- Almost 50% of stakeholders were willing to accept the loss of 1 sheep but < 4 to pumas per year
- Tolerant stakeholders willing to accept losses of 15% ± 2.5 of total sheep holdings per annum without seeking retribution

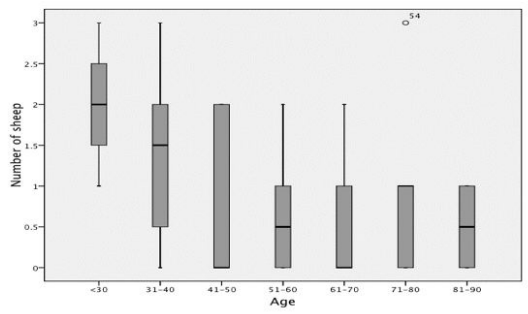

Fig. 3 Association between age and the number of sheep stakeholders are willing to lose without seeking retribution

Best model of Tolerance
- Age
- Enjoy existence of pumas
- Don't worry about problems caused by pumas
- Binary regression, F1, 58, c2 = 12.926, Nagelkerke R2 = 0.266 P= 0.009

Variables not explaining tolerance
- Previous puma depredation
- Total sheep holdings
- Value of sheep as % of total livestock holdings

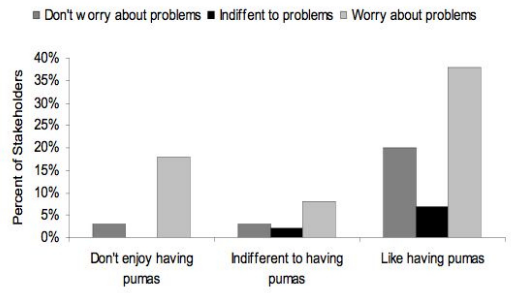

Fig. 4 Relationship between liking the presence of pumas and worrying about the problems they might cause

Conclusions

- As long as pumas and people inhabit the same areas, some level of depredation will likely occur.
- Conservation biologists must seek to engender beliefs that lead to greater tolerance.
- In our study; tolerance was not ruled strictly by economics
- Therefore compensation schemes for livestock losses may not be the best approach.
- Social marketing of a species may be a more useful tool.