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INTRODUCTION

◊ The Kodkod or Güiña cat, *Leopardus guigna* is one of the world's smallest cats, considered Vulnerable, with a declining population trend (IUCN) and "Rare and data deficient" (Chile). Main threats are Habitat loss and retribution killing

◊ Study area: Andean Araucanía district-northern limit of the temperate rainforest in southern Chile (39°15'S, 71°48'W). The landscape is characterized by highland protected areas connected to continuous forest and a surrounding agricultural matrix (Fig. 1)

◊ We aim to estimate occupancy and explore models with landscape-habitat variables in peripheral zones of the main protected areas in the region

METHODS

We set 27 camera traps (Trailmaster Inc.) in continuous forest (CF) (n=18 sites) and fragments (F) (<20ha; n=9) spaced >2km for 2080 trapping days. We estimate Occupancy (psi) and detection (p) probability of Kodkod from 10 sampling occasions (10-day) using PRESENCE™ 2.2 (USGS-PWRC). Landscape and habitat variables - distance to main rivers, road density; altitude; human settlement density, relative prey abundance (only F) and % of favourable land use according to previous studies (i.e. old growth and new growth forest/shrub and marshes) surrounding the camera (within 1km radius) - were used as covariates for logistic regression. Akaike Information Criterion (AIC) values were used to rank candidate models. Models with significant predictive variables were assessed for goodness of fit [ChiSquare parametric bootstrap]. We also report geographic location of roadkilled kodkod cats with respect to occupied sites (Fig1).

RESULTS

Table 2. Estimated occupancy (psi) and detection (p) for top ranked models; All sites, continuous forest (CF) and small fragments (F).

Model	psi	AC	weight	K	psi (95% CI)	p	
All sites	psi~1	1.08	0.138	0	0.31	0.000 (0.000)	0.138
	psi~land_use	1.08	0.138	0	0.31	0.000 (0.000)	0.138
	psi~land_use + alt	1.16	0.091	0	0.31	0.014 (0.000)	0.138
	psi~alt	1.09	0.091	0	0.31	0.000 (0.000)	0.137
CF	psi~1	0.98	0.114	0	0.31	0.014 (0.000)	0.091
	psi~land_use	0.98	0.114	0	0.31	0.014 (0.000)	0.091
	psi~land_use + alt	0.91	0.114	0	0.31	0.000 (0.000)	0.091
	psi~alt	1.16	0.114	0	0.31	0.000 (0.000)	0.091
	psi~land_use + alt + prey	1.17	0.091	0	0.31	0.000 (0.000)	0.138
	psi~alt + prey	1.16	0.091	0	0.31	0.000 (0.000)	0.091
	psi~land_use + alt + prey	1.16	0.091	0	0.31	0.000 (0.000)	0.091
	psi~land_use + alt + prey + prey	1.16	0.091	0	0.31	0.014 (0.000)	0.091
F	psi~1	0.98	0.114	0	0.31	0.000 (0.000)	0.114
	psi~land_use	0.98	0.114	0	0.31	0.000 (0.000)	0.114
	psi~land_use + alt	0.98	0.114	0	0.31	0.014 (0.000)	0.114
	psi~alt	1.16	0.114	0	0.31	0.014 (0.000)	0.114

psi= proportion of occupied sites/probability of site occupancy; p= probability of detecting the species if present; Delta AIC= ranked models according the highest AIC weight (AIC weight); K= number of model; Nsites= total sites/total sites; (2) refers to constant model

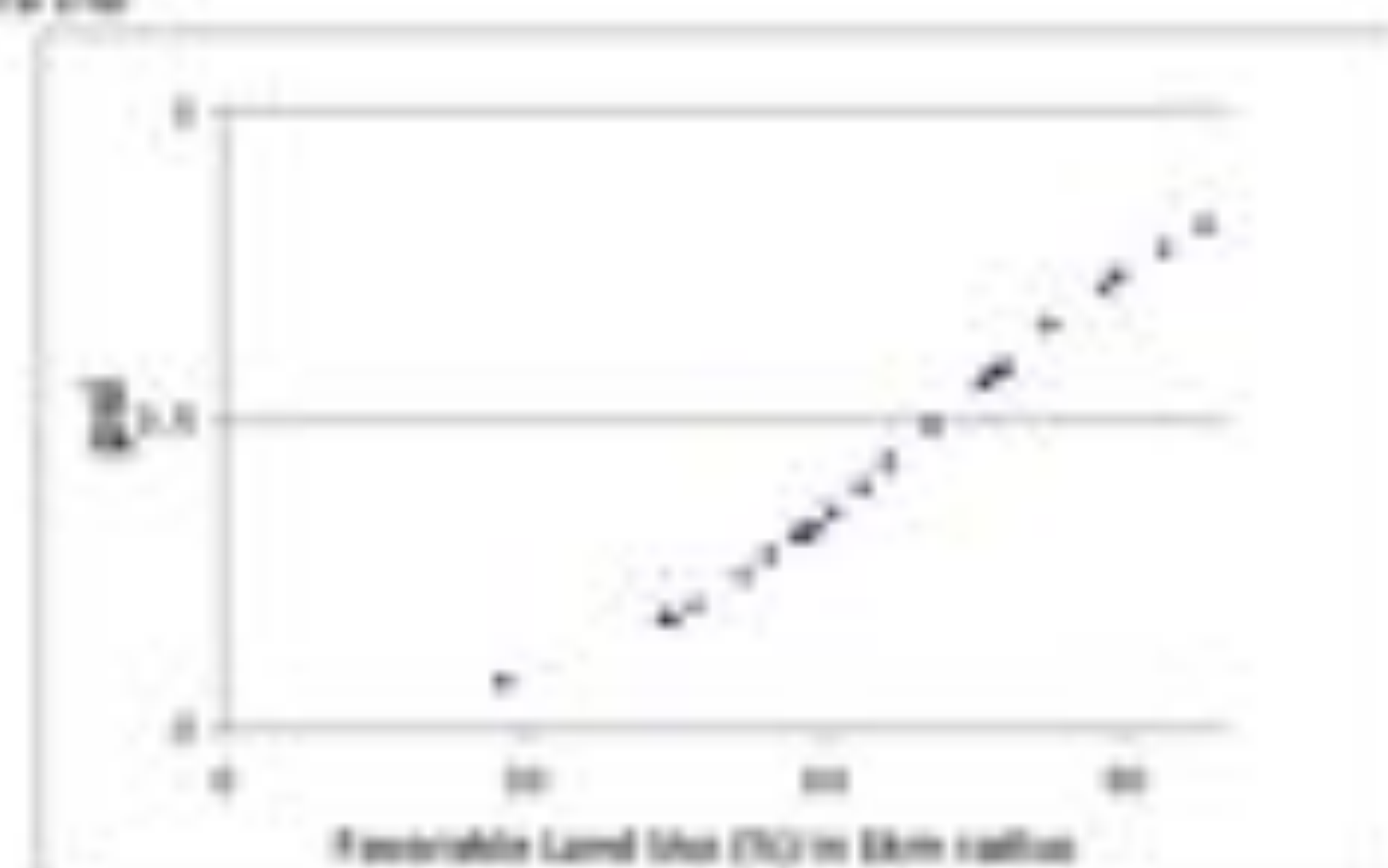
DISCUSSION

- Similar constant model estimates for occupancy in CF and F suggests the importance of fragments as potential stepping-stone landscape connectors between protected areas and/or continuous forests
- Forest cover (e.g. old/new growth and shrubland) should be considered of high conservation value, especially in agricultural landscapes
- Low values of Detection highlight the elusive and cryptic nature of this small feline
- Long-term Occupancy estimates could be an important tool for monitoring abundance trends of the species. Increasing the number of sites will benefit further assessment of predictor variables and robustness of models for conservation guidelines in the Araucanía



Fig. 1 Study area in the Araucanía region of southern Chile. Occupied sites, main highways, rivers, major land uses, and road kills are shown. Also, schools that participated in environmental education regarding the Kodkod or Güiña cat.

Figure 2. Probability of a site being occupied vs favourable land use % (i.e. old and new growth forest/shrub/marshes) in a 1km radius surrounding camera site



*Model of pooled sites using favourable land use for psi and constant p (psi~land_use, p[2]). This model proved to be reliable and statistically significant (p) at 95%: 0.0031-0.107) and with a reliable goodness of fit statistic (Probability of test statistic-observed = 0.5666)