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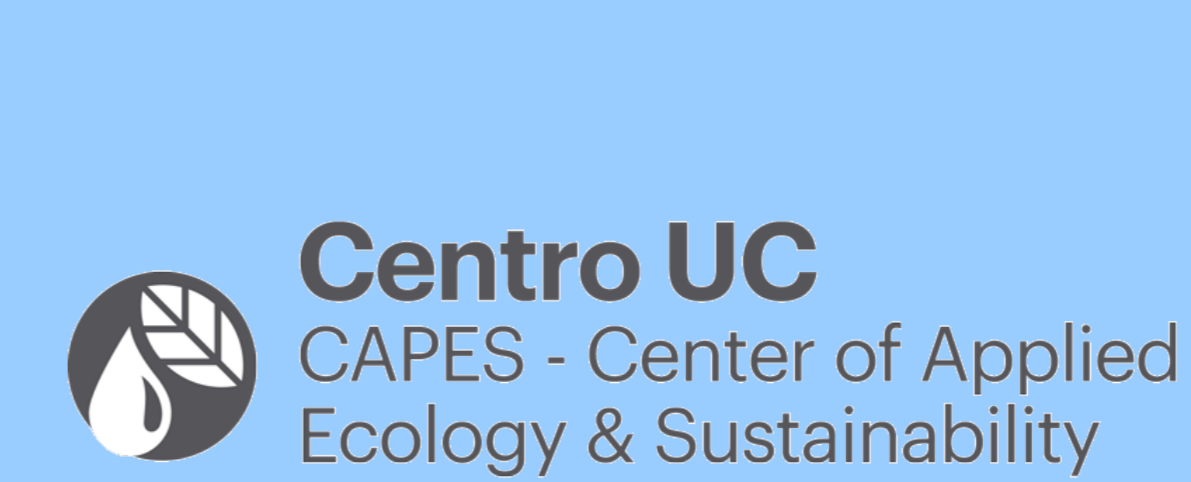
Analyzing carnivore community along a human intervention gradient at the southern temperate forest of Exploradores Bay

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CONTEXT & OBJECTIVE

The incipient incorporation of human settlements in isolated spaces, has generated modifications in the relationships between the native fauna incorporating new species in the ecosystem and driving changes in local abundance of introduced species, which is negatively related to native biodiversity. This study aims to describe and understand how human intervention affects the carnivore assemblage at Bahía Exploradores comparing it with a pristine temperate forest area represented by Estacion Patagonia UC. Because of human presence, habitat use and its structure are expected to be modified causing changes of species occupancy and its activity patterns.

METHODS

To study these phenomena camera traps (n=30) were placed during 2019- 2021 in different areas of Exploradores Bay that represent an intervened area and a non- intervened areas (Fig1). This data set was used to assess the co-occurrence effect of domestic species and how this influence the local carnivore assemblages from temperate forests of South America and its activity patterns. Carnivore species active at the same periods may interact as predator or as competitors. Carnivores frequently interacts through food, mates, shelter and territory competition, and when exotic carnivores such as *Cl familiaris* and *F catus* invades this isolated areas, changes in activity patterns are expected. We analyse presence, geographical and time data with *Overlap package (Rstudio)* that allow describe and quantify overlap in carnivore activity.

RESULTS

First approaches to the ecological data obtained from the phototrapping period suggest that the non intervened area, represented by Patagonia Research Station (EPII UC) supports a less diverse carnivore community but composed mostly by native species, except by the presence of the invasive American mink. At the intervened area composition of the carnivore community turns more diverse and this variation comes from the presence of domestic species associated to human stablishment such as domestic dog and cats, and habitat modification. Fig 2. As we observed, the most frequent species in both areas is the native *L. guigna*, reaching almost 73% of the carnivores records at the Patagonia Research Station. Its important to mention that at the intervened area, the record of this small cat decrease to 27%, coupled with the increase of Exotic carnivores such as cats and dogs.

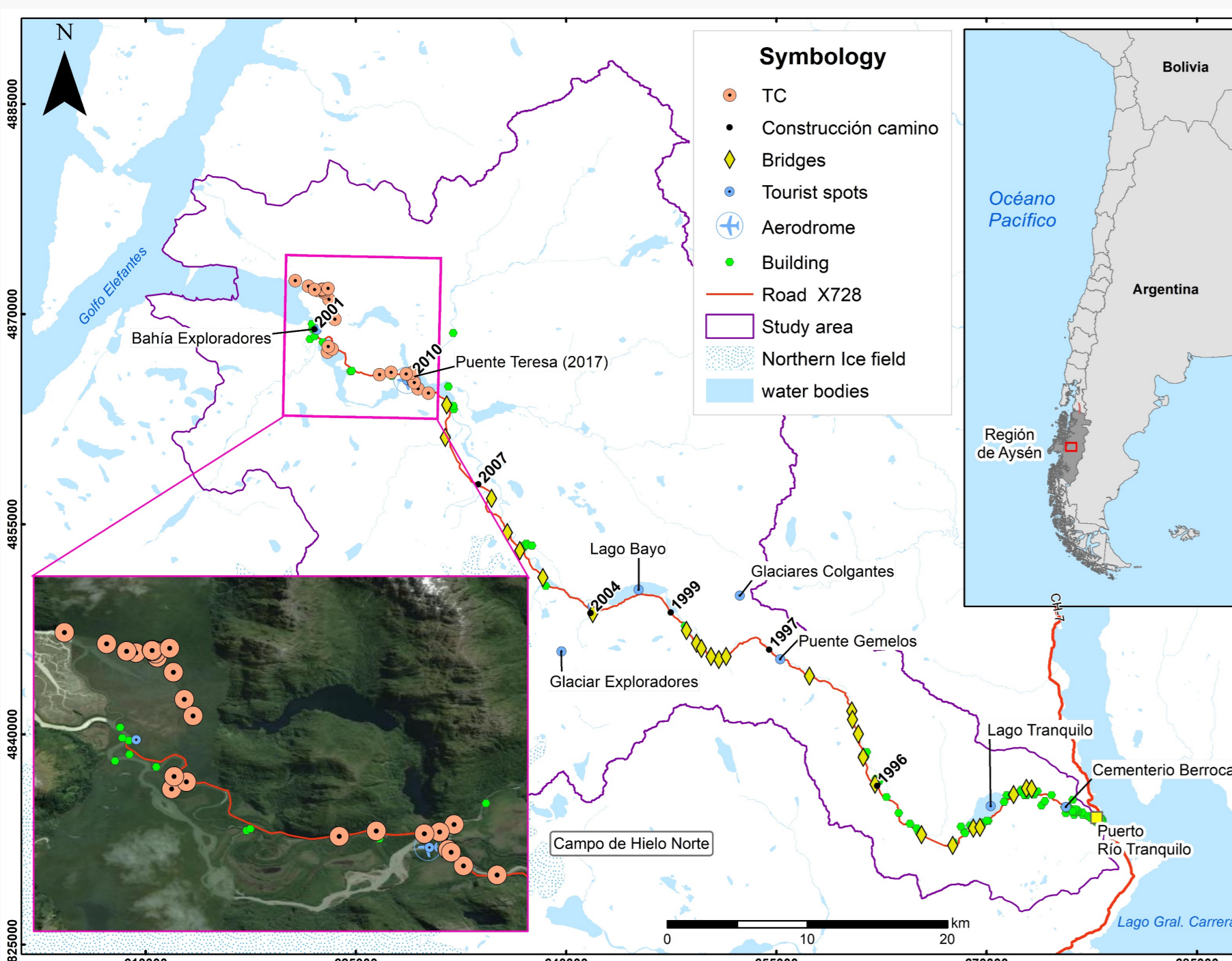


Figure 1. Research Area and survey sites.



O. Carnivora	Specie	Captures			
		Non Intervened area (OHM EPIIUC)		Intervened area	
		n	%	n	%
Fam. Felidae	<i>Puma concolor</i>	7	0,13	0	0,000
	<i>Leopardus guigna</i>	40	0,73	12	0,267
	<i>Felis catus</i>	0	0,00	12	0,267
Fam. Mustelidae	<i>Lontra provocax</i>	1	0,02	0	0,000
	<i>Galictis cuja</i>	3	0,05	1	0,022
	<i>Neovison vison</i>	4	0,07	2	0,044
Fam. Canidae	<i>Lycalopex griseus</i>	0	0,00	2	0,044
	<i>Lycalopex culpaeus</i>	0	0,00	7	0,156
	<i>Canis familiaris</i>	0	0,00	9	0,200

Figure 2. Carnivore species record at each area

As the *KodKod* were the most frequent species, we used it as an indicator of change (Fig 2). The felids dominate the carnivore community in number of records as well in species. We observe the cougar have two peaks of activity at noon and midnight and, in the case of *Lguigna* there is no such marked pattern, recorded equally daily as nocturnal (Fig 3). It has a different activity pattern than the observed at the intervened area, where domestic carnivores occupies the same territory. (Fig 4)

Figure 3. Native carnivores at OHM Patagonia and its activity patterns

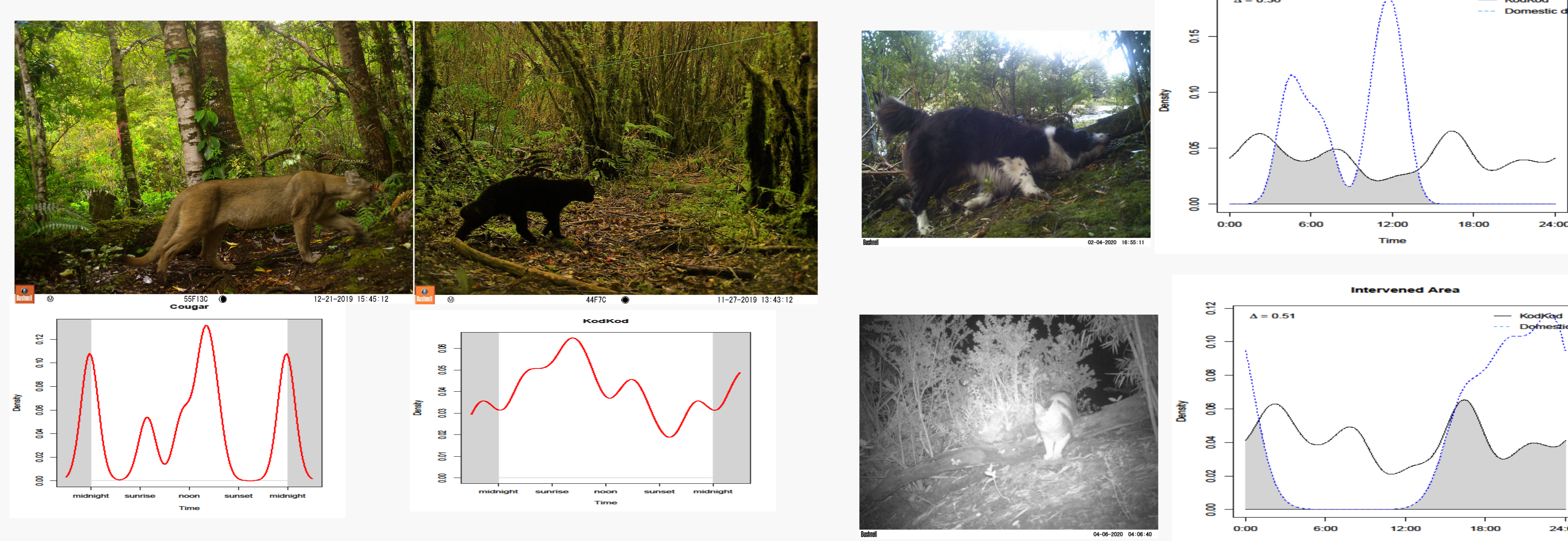


Figure 4. We quantify the activity between *KodKod* and the other two domestic carnivores and estimated result shows a higher degree of overlap between domestic cat and lower level with domestic dog. ($\Delta kcat = 0.51 / \Delta kdog = 0.36$) This results are probably linked to the nature of both felids species to be more active at night.

It appears that the *KodKod* living at intervened areas we surveyed, preferred to be less active during day compared to non intervened areas. The presence of domestic dogs may be restringing the small native cat movements until the afternoon, when dogs practically disappears.

FINAL COMMENTS - Preliminary results suggest that poor management practices such as free roaming domestic species resulted in dogs and cats are acting as an invasive species at intervened sites and neighbouring natural habitats, affecting native animal populations either directly or through indirect effects by disrupting local interaction webs and disease transmission to native wildlife. More data of camera traps, trophic information, deforestation and human activities are being considered in the analysis to obtain a more comprehensive diagnosis of how a global change process (e.g. land use, rural customs, tourism, invasive species) has affected the native carnivore assemblage at Bahía Exploradores

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