

## Short Communication

### New records of the Endangered Andean mountain cat in northern Argentina

Pablo Perovic, Susan Walker and Andrés Novaro

**Abstract** Few published records exist for the Endangered Andean mountain cat *Oreailurus jacobita*, a rare and little known felid restricted to high altitudes of the Andes of South America. We present 20 new records for the species, and analyse its altitudinal overlap with the sympatric pampas cat *Oncifelis colocolo*, a widespread habitat generalist, in north-west Argentina. Our data confirm the recent presence of the Andean mountain cat at several locations in Jujuy, Salta, and Catamarca provinces. Nevertheless, densities appear to be much lower than those of the pampas cat. This Lower Risk, near threatened species represented 68% of the records

for small cats at high altitudes and its altitudinal range overlapped with the lower 1,000 m of the range of the Andean mountain cat. Protected areas for the Andean mountain cat in Argentina should be above 3,500 m and have a high proportion of habitat above 4,000 m, where the abundance of potential competitors is lower.

**Keywords** Altoandino, Andean mountain cat, Argentina, *Oncifelis colocolo*, *Oreailurus jacobita*, pampas cat, puna.

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The Andean mountain cat *Oreailurus jacobita* is one of the world's least known carnivores and perhaps the rarest of the South American felids. Its range is known from the localities of only 18 museum specimens and <25 published sightings (Yensen & Seymour, 2000), and is restricted to puna and altoandino ecosystems in the Andes of Peru, Bolivia, Chile and Argentina, which in northern Argentina lie at altitudes of 3,000–5,000 m. Its closest relatives are the ocelots *Leopardus pardalis* and margays *L. weidii*, which inhabit tropical and subtropical forests of the Neotropics (Johnson *et al.*, 1998).

*O. jacobita* is categorized as Endangered on the IUCN Red List (IUCN, 2002) on the basis of criteria C2a (i.e. population size estimated to be <2,500 mature individuals, with a declining trend, and no subpopulation containing >250 mature individuals); its ecology is almost completely unknown. The Andean mountain cat has been observed stalking mountain viscachas *Lagidium* spp. (Ziesler, 1992; Sanderson, 1999), rabbit-sized, rock-dwelling rodents of the family Chinchillidae, and may be

a specialized predator of this genus (Nowell & Jackson, 1996; Lucherini *et al.*, 1999).

The Andean mountain cat shares its high altitude habitat with another small cat species, the pampas cat *Oncifelis colocolo*, which is a habitat generalist widespread throughout much of South America (Redford & Eisenberg, 1992) categorized as Lower Risk: near threatened on the IUCN Red List (IUCN, 2002). Little is known of the ecology of the pampas cat, but in the puna and altoandino, mountain viscachas are a major component of its diet (S. Walker & A. Novaro, unpubl. data), and thus the two species of cat are potential competitors. Although not closely related, the external appearance of the species are similar, and they are often confused (Yensen & Seymour, 2000; Garcia-Perea, 2002), which complicates documentation of the distribution of the Andean mountain cat.

In order to evaluate the factors influencing the status and distribution of the Andean mountain cat and to develop a conservation plan, it is necessary to know where its populations occur and to distinguish them from the more widely distributed and less threatened pampas cat. The purpose of this paper is to present new records of the Andean mountain cat and the sympatric pampas cat at high elevations in Argentina, and to determine the geographical overlap of the two species. This information will aid the development of guidelines for conservation actions that specifically target the Andean mountain cat.

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The only published recent records of Andean mountain cats in north-west Argentina are a sighting and a skull from Tucumán province, a skin from Salta, and three sightings by PP in Jujuy (Scrocchi & Halloy, 1986; Perovic, 1998; Jayat *et al.*, 1999; Lucherini *et al.*, 1999). The four records from Salta and Jujuy are included with our 20 recent records (see below) in the Appendix because we provide unpublished ancillary information and have used the sightings in our analysis of altitudinal range.

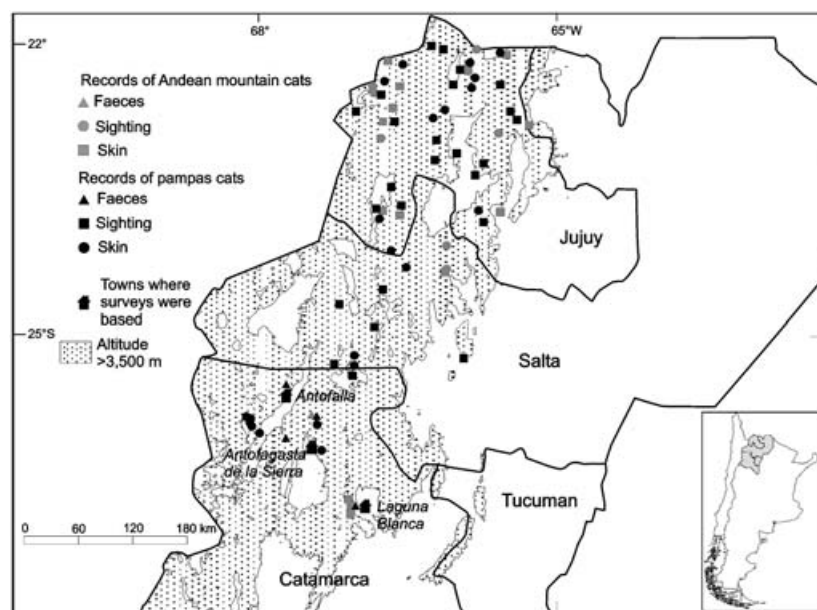
The new records we report here are from the provinces of Jujuy, Salta, and Catamarca (Fig. 1). Data from Jujuy and Salta were collected opportunistically, based on sightings by PP and other biologists, and skins in the possession of villagers that were examined or donated. These records were accumulated during 1990–2001. Records from Catamarca are based on results of a field survey for the Andean mountain cat in the vicinities of the towns of Laguna Blanca, Antofagasta de la Sierra and Antofalla during June–July 2001. We informally interviewed local residents, and surveyed areas where they had seen small cats.

Faeces collected in Catamarca were identified by amplifying the 16S rRNA mitochondrial gene (Johnson & O'Brien, 1997) from the samples with a QIAGEN Stool Kit (Valencia, California, USA), and comparing the resulting sequences to those of reference samples. This analysis was done by Wildlife Genetics International (Nelson, BC, Canada). Sightings, skins, and skulls were identified according to criteria established by García-Perea (2002). Sightings were only considered if they were by observers sufficiently familiar with both the Andean mountain and pampas cats. Collected skins and skulls were deposited at the Museo de Ciencias

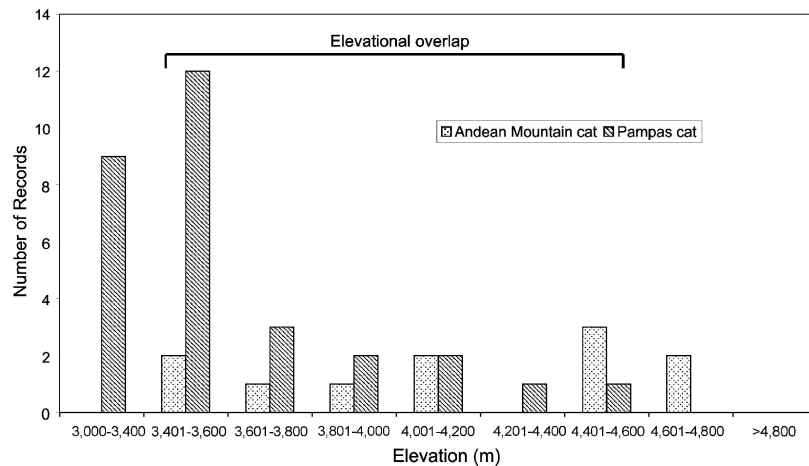
Naturales in Salta, Argentina, and photographs of skins that were not collected are in our possession.

We documented 20 occurrences of Andean mountain cats in north-west Argentina, 10 of which were sightings, giving a total of 24 records for determination of altitudinal range (Appendix; Fig. 1). Of the faeces examined by genetic analysis ( $n = 25$ ) only two were of Andean mountain cats. These were on a rocky cliff at Ojo de Beltrán near Antofagasta de la Sierra, Catamarca. The records of Andean mountain cats based on sightings and faeces were at elevations of 3,500–4,800 m (mean  $4,236 \pm SE 140$  m; Appendix; Fig. 2). We have not included in our analysis skins or skulls for which we could not determine date of hunting or the exact hunting location.

Of our documented records 68% ( $n = 50$ ) were of pampas cats (Appendix). In Catamarca 92% of the local people interviewed ( $n = 13$ ) reported having seen a pampas cat, compared to only 31% who had seen an Andean mountain cat. The mean elevation at which pampas cats were recorded (range 3,000–4,500 m; mean  $3,567 \pm SE 67$ ) was significantly lower than that for Andean mountain cats (Student's  $t = -4.81$ ,  $df = 39$ ,  $P < 0.0001$ ). Nevertheless, the altitudinal ranges of the two species overlapped by at least 1,000 m, from 3,500 to 4,500 m (Fig. 2). Within this altitudinal range there were 21 records of pampas cats compared to seven of Andean mountain cats. We also documented spatial overlap at a finer scale at two sites in Catamarca: pampas cat faeces were found in Laguna Blanca Biosphere Reserve near where an Andean mountain cat was hunted, and faeces of pampas and Andean mountain cats were identified from the same rock outcrop in Ojo de Beltrán.



**Fig. 1** Location of records of Andean mountain and pampas cats in puna and altoandino ecosystems in the provinces of Jujuy, Salta, and Catamarca, north-west Argentina. The shaded area on the inset indicates the location of the main Figure in Argentina.



**Fig. 2** Frequency distribution of records of Andean mountain and pampas cats in puna and altoandino ecosystems in the provinces of Jujuy, Salta and northern Catamarca, Argentina, by elevation.

The sighting data confirmed the presence of Andean mountain cats at several locations in Jujuy and Salta within the last 6 years, and genetic analysis of faeces confirmed its presence in Catamarca in 2001 (Appendix). Thus, the Andean mountain cat still occurs in several areas in north-west Argentina, but at apparently lower densities than the sympatric pampas cat. This rarity could make the species prone to local extinctions due to stochastic processes (Rabinowitz *et al.*, 1986). The combination of spatial and trophic overlap may pose an additional constraint for the Andean mountain cat. This may be exacerbated by occurrence of pampas cats in higher numbers than the Andean mountain cat in the lower, most productive portion of the species habitat, as productivity decreases with elevation up to the limit of the vegetation near 5,000 m (Bonaventura *et al.*, 1995).

Both cats are frequently hunted, either to obtain skins for ceremonial purposes or because of their potential predation on domestic animals. In Catamarca 69% of people interviewed ( $n = 13$ ) stated that they had hunted small cats. Because of the low density at which they apparently occur, even occasional hunting of Andean mountain cats could cause local extinctions and thus increase fragmentation of remaining populations.

As there are no historical records to indicate previous distribution and population sizes of Andean mountain cats, we cannot determine if and to what extent the species has declined in north-west Argentina. In Cieneguillas and Santa Catalina, Jujuy, and the vicinity of Antofalla, Catamarca, villagers recognized only the pampas cat. Faeces ( $n = 12$ ) analysed from two sites and skins ( $n = 5$ ) examined at two other sites in the vicinity of Antofalla were all of pampas cats. This could potentially indicate local extinctions and a range restriction.

Although the data for Jujuy and Salta are more extensive than those for Catamarca, our surveys in Catamarca demonstrate that short-term surveys based both on

interviews with local hunters and genetic analysis of faeces can provide information on the distribution of the species in areas where long-term data are not available. This type of survey will provide an invaluable tool for determining the status of the species throughout its range.

Based on our data, we suggest the following research and conservation priorities for the Andean mountain cat: 1) extend surveys to other portions of its range in Argentina and other countries, 2) further test the combination of interviews with local hunters and genetic analysis of faeces as a potential survey tool, 3) investigate the potential competitive interaction between Andean mountain and pampas cats, 4) implement education and enforcement measures to reduce hunting and maintain connectivity between populations in protected areas, and 5) create new protected areas and enforce protection in existing protected areas where the species is present, such as Laguna Blanca Biosphere Reserve. Protected areas for the Andean mountain cat in Argentina should be above 3,500 m, and have a high proportion of habitat above 4,000 m, where the abundance of potential competitors is lower.

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## Biographical sketches

Pablo Perovic works on the ecology of felids in various ecosystems of Jujuy and Salta, Argentina. Susan Walker has worked on carnivores in several countries, and has also studied mountain viscachas. Andrés Novaro studies the ecology of carnivores and their prey in arid Argentina, with emphasis on the effects of hunting. Susan and Andrés are coordinating the multinational project of the Committee for the Conservation of the Andean Cat to determine the distribution of the Andean mountain cat throughout its range.

## Appendix

The appendices for this article are available online at <http://journals.cambridge.org>