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news





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For joining the Friends of the Cat Group please contact Christine Breitenmoser at ch.breitenmoser@kora.ch

Original contributions and short notes about wild cats are welcome

Send contributions and observations to ch.breitenmoser@kora.ch.

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Editors: Christine & Urs Breitenmoser
Co-chairs IUCN/SSC
Cat Specialist Group
KORA, Thunstrasse 31, 3074 Muri,
Switzerland
Tel ++41(31) 951 90 20
Fax ++41(31) 951 90 40
<urs.breitenmoser@ivv.unibe.ch>
<ch.breitenmoser@kora.ch>

Contributing Editor: Peter Jackson
7 Lake Close, London SW19 7EG
United Kingdom
Tel/Fax: ++44 (20) 89 47 01 59
<peterfr.jackson@virgin.net>

Associate Editors: Keith Richmond
Brian Bertram
Sultana Bashir
Javier Pereira

Cover Photo: Female jaguar with two cubs
in the Gran Chaco, Bolivia
Photo: Daniel Alarcón, Bolivia

GRIET A. E. CUYCKENS^{1,2}, PABLO G. PEROVIC³ AND JULIO ROJO^{4,5}

Geoffroy's cat in Salta Province, a potentially interesting area for subspecies

The biggest part of Geoffroy's cat's *Oncifelis geoffroyi* distribution is located in Argentina. In the northwestern part, three subspecies exist on a broad scale. Nevertheless, due to few records, their limits and possible superposition are not clear on a finer scale. On top of that, taxonomic confusion exists to assign subspecies. In this study we realized a small camera trap survey as part of a broader project. Surprisingly we obtained two records of Geoffroy's cat with a coat pattern different from the pattern known from earlier records, assigned to the subspecies *O. geoffroyi salinarum*. Because it is not possible to assign our photos to subspecies, we conclude that taxonomic, genetic and more morphologic studies are needed to confirm subspecies present in this interesting area and to update species and subspecies distribution maps.

Geoffroy's cat distribution covers almost entirely Argentina (excluding Misiones provinces) and southern Chile, Uruguay, Paraguay and southern Bolivia and Brazil (Ximenez 1975). Its skin pattern and morphology allow identification of four subspecies with different distributions: *O. g. geoffroyi* occurs from central to southern Argentina and Chile, *O. g. euxantha* from central Bolivia to northwestern Argentina and, possibly, the westernmost part of Paraguay, *O. g. salinarum* in the north and northwest of Argentina, and *O. g. paraguayae* from northern Paraguay and southeastern Brazil, through Uruguay to the northeast of Argentina. However, there has been a great taxonomic confusion: Thomas (1903) describ-

ed *salinarum* as a different species, Yepes (1936, 1941) doubted between separating or including it in *Felis geoffroyi*, while Pocock (1940) included it in *Oncifelis geoffroyi* and also described a fifth subspecies: *O. g. leucobapta* in Patagonia, not supported by Ximenez (1975). Based on information from several authors (Cabrera 1958, 1961, Godoy 1963, Ximenez 1973), Ximenez (1975) presented a distribution map of the subspecies (Fig. 1), stating that "there is not sufficient information to determine with confidence the marginal areas for the different subspecies, and the gaps show uncertainty rather than absence". Based on genetic analysis, Johnson et al. (1999) could not support the hypotheses of

four different subspecies and indicated that *O. geoffroyi* appears to have had no recent significant barriers to gene flow and little geographical subdivision. However, there are clear morphological differences between female skulls (Rojo 2007, Rojo & Garcia-Perea 2005a, 2005b) supporting the subspecies division by Cabrera (1961) and Ximenez (1975).

Study area and methods

The study took place in the private land "Ama Kella" (20,174 ha), which consists of 65% Yungas montane forests, 33% Chaco Serrano, and 2% transformed areas. Yungas are characterized by subtropical montane forests along the eastern slopes of the Andes, and Chaco Serrano consists of small patches of forest communities combined with shrubs and grasslands. (Fundación ProYungas 2007). We placed five camera traps (Reconyx) in the northwestern part of Ama Kella, separated by approximately 1.5 km, active for 90 days, and baited with cans of tuna fish. We superimposed our study area with the map of subspecies distribution (Ximenez 1975) and a map of ecoregions (Brown & Pacheco 2006; Fig. 1).

Results and discussion

We photographed 2 different individuals of Geoffroy's cat (29/07/2010 and 3/10/2010) in the same camera (Fig.1; 64.79435°W/24.99198°S). Both cats (Fig. 2) had the following characteristics: ochreous brown background, small spots fairly separated from each other, some of them forming rosettes especially on the back flanks, and marked lines in the neck. It also displayed clear white pelage around the mouth and the eyes. Based on this coat pattern, these individuals could possibly belong to *O. g. paraguayae*, although genetic and morphological studies are needed to confirm this.

Nevertheless, four previous records near our new record (< 15 km) were assigned to *O. g. salinarum*; two sightings (1 and 2 in Fig. 1), one road-kill (Perovic 2002, 3 in Fig. 1) and one skull from Las Vitoras (4 in Fig. 1, Collection "Fundación Miguel Lillo" Nr. 1493). The latter was identified by morphometric studies (Rojo 2007, Rojo & Garcia-Perea, 2005a, 2005b). According to the subspecies map of Ximenez (1975), the new records are located within the distribution range of *O. g. salinarum* (Fig. 1), but their coat pattern does not coincide with the description. According to the ecoregions map our new records are located in the Chaco Serrano, while the previous records fell into Yungas.

Fig. 1. Map adapted from Ximenez (1975) with approximate distribution of subspecies of *O. geoffroyi*, location of study site Ama Kella and ecoregions. The insets shows the study site with ecoregions and the site of the camera trap and earlier records of Geoffroy's cat in the region.

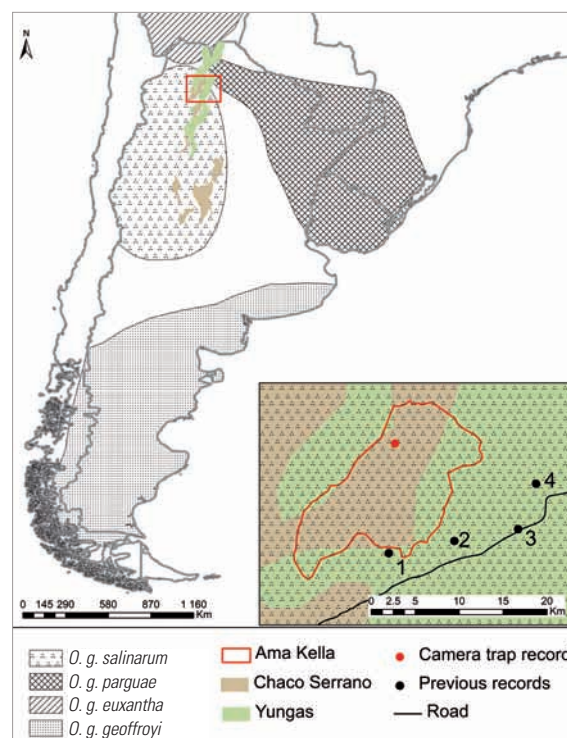




Fig 2. Geoffroy's cat on Ama Kella on 29 July 2010 (left photo) and 3 October 2010 (right photo).

Identifying subspecies from skins is very difficult if not impossible, even more by photos, because the descriptions in the bibliography of Geoffroy's cat subspecies are not clear; they do not include skin pictures and have not been reviewed during the past 30 years. The ecotone Yungas – Chaco Serrano could be an interesting area to study subspecies differentiation. There is no evidence of geographical barriers to gene flow for cats between the two ecoregions.

However, to determine subspecies, further morphological or genetic investigations are needed to adjust the limits of the subspecies distributions. Our findings suggest that more accurate and more updated distribution maps for *D. geoffroyi* and subspecies are needed.

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¹ Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina

² Cátedra de Ecología de Comunidades, Facultad de Ciencias Agrarias, Universidad Nacional de Jujuy, San Salvador de Jujuy, Argentina *<grietcuyckens@yahoo.com>

³ Administración de Parques Nacionales – Delegación Noroeste Argentino, Salta, Argentina

⁴ Grupo de Genética en Conservación y Biodiversidad (GECOB), Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN), Buenos Aires, Argentina

⁵ Asociación para la Conservación y el Estudio de la Naturaleza (ACEN)