

Short Note

Caroline Leuchtenberger*, Flávia Pereira Tirelli, Fabio Dias Mazim, Felipe Bortolotto Peters, Émila Silveira de Oliveira, Letícia Cariolatto and Diego Queirolo

New records of *Cuniculus paca* (Rodentia: Cuniculidae) in a temperate grassland dominated landscape of Pampas region of Brazil and Uruguay

DOI 10.1515/mammalia-2015-0129

Received July 29, 2015; accepted June 1, 2016

Abstract: *Cuniculus paca* is considered locally threatened in some parts of its range mainly because of hunting pressure and habitat loss. The species is widely distributed in South and Central America. Agouti's distribution in Brazil is broad, although there is no information on its occurrence in the Northeast region and in the western part of Rio Grande do Sul state. The species presents a marginal distribution in northeastern Uruguay. Here, we describe 16 new records of the species in the Pampa region, including the western part of Rio Grande do Sul state, Brazil and Uruguay, expanding the *C. paca* known distribution.

Keywords: agouti; geographical distribution; *paca*; rodent.

Cuniculus paca (Linnaeus, 1766) is a mid-sized rodent (6–12 kg), primarily frugivorous, but that also consumes leaves,

fiber and insects (Beck-King et al. 1999, Dubost and Henry 2006). The species is a seed disperser, playing an important role in the dynamics of Neotropical forest (Wright et al. 2000, Dubost and Henry 2006). It is predominantly nocturnal (Michalski and Norris 2011), inhabiting forested habitats near water bodies, where it builds dens, using logs or abandoned burrows as shelter (Beck-King et al. 1999, Aquino et al. 2009).

Although the species is globally classified as least concern (Queirolo et al. 2008), it is considered threatened in some regions of its range due to hunting pressure and habitat loss (Gudynas 1989, Beck-King et al. 1999, Wright et al. 2000, Queirolo et al. 2008). The species is widely distributed in Central and South America, occurring from south Mexico to eastern Paraguay and northern Argentina, with a marginal distribution in northeastern Uruguay (Perez 1992, Queirolo et al. 2008, Patton 2015). In Brazil, the species occurs in almost all the states, although no information was recorded in the northeast region and western part of Rio Grande do Sul state (Perez 1992, Queirolo et al. 2008, Estrela and Freitas 2013).

Ecological studies and inventories of fauna have been carried out in Rio Grande do Sul and Uruguay since 2002, resulting in 16 new locations of *Cuniculus paca* occurrence in the region (Figure 1), compared to the species' global distribution currently available (Queirolo et al. 2008). The new locations are in the Pampa region of the Rio Grande do Sul state and northern Uruguay. The records comprised one individual hunted, one visual observation, one captured individual, three road kills, seven tracks and 168 camera trap independent records (≥ 1 h between consecutive photos) (Table 1). All the records were observed within 2 to 320 m of water bodies.

The first record was taken in 2002 and consisted of a track observed at a raised field during a fauna survey to evaluate the environmental impact of a dam at the Butuí River near Encruzilhada do Sul municipality, northwest of Rio Grande do Sul state. The second record was

*Corresponding author: Caroline Leuchtenberger, Instituto Federal Farroupilha – Campus Panambi, Rua Erechim, 860, CEP 98280-000, Panambi, RS, Brasil, e-mail: caroline.leuchtenberger@iffarroupilha.edu.br

Flávia Pereira Tirelli: Laboratório de Biologia Genômica e Molecular, Pontifícia Universidade Católica do Rio Grande do Sul, Sala 134, prédio 12C, Av. Ipiranga, 6681, Partenon, CEP 90619-900, Porto Alegre, RS, Brasil

Fabio Dias Mazim: Ka'aguy Consultoria Ambiental Ltda, Rua Padra Anchieta, 1277, apto 201, Centro, CEP 96015-420, Pelotas, RS, Brasil

Felipe Bortolotto Peters: Departamento de Biologia, Museu de Ciências Naturais, Universidade Luterana do Brasil Avenida Farroupilha, 8001, CEP 92425-900, Canoas, RS, Brasil

Émila Silveira de Oliveira and Letícia Cariolatto: Instituto Federal Farroupilha – Campus Alegrete, RS-377 Km 27, Passo Novo, CEP 97555-000, Alegrete, RS, Brasil

Diego Queirolo: Centro Universitario de Rivera, Universidad de la República, Ituzingó 667, CP 40.000, Rivera, Uruguay

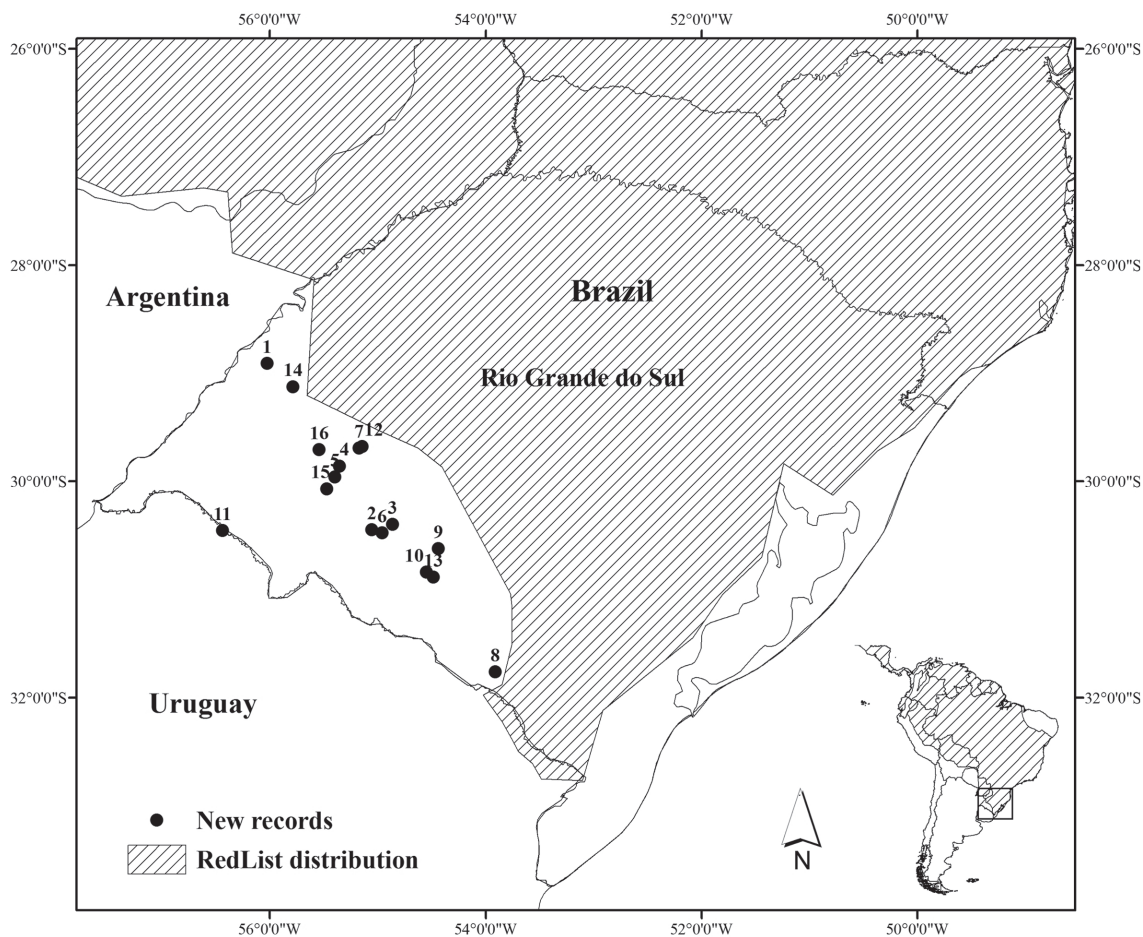


Figure 1: Map with the RedList distribution of *Cuniculus paca* and the new records for the Pampa region of Brazil and Uruguay.

a road-killed individual, found on the RS-158 highway in 2004. Four photographic records were obtained from camera traps installed near water bodies in the municipalities of Alegrete, Rosário do Sul and São Francisco de Assis in 2007. In the same year, an adult was sighted at the riparian vegetation of the Lajeado Grande stream. One adult was recorded by camera traps installed on a grassland field about 150 m from the Jaguarão stream in 2009. Photographic records were obtained at the Ijuí River and the Taquarembó stream in 2010. A hunted individual was recorded in São Francisco de Assis in 2012. Another road-killed individual was collected in 2012 at the Ruta 30 near Artigas city, Uruguay. A third road-killed individual was recorded in 2013 on the RS-529 highway, northwest of Rio Grande do Sul state.

On June 27, 2014, an adult was opportunistically captured near the municipality of Alegrete. The individual was caught in a Tomahawk trap used for capturing Felids, possibly because some corn (for feeding the chicken used as live bait) was left on the trap. From 2013 to 2015, 124 photographic records of *Cuniculus paca* were obtained by

camera traps installed in trails along riparian vegetation of the Caverá stream, also in Alegrete. The region is a mosaic of crops, natural grasslands and riparian vegetation. Twenty camera traps were installed 600 m from each other, working 24 h/day with photo or video records (lasting 20 s) in high definition and a 5-s interval between records. From August 2014 to January 2015, 36 photographic records of the species were obtained during an inventory of wild mammals along the Lajeado Grande stream in Alegrete. Two cameras were installed monthly along four transects of 1 km, upright by the stream and programmed to operate 24 h/day with a 15-s interval between records. All photographic records occurred in the riparian forest, near the stream. During the survey six tracks of *C. paca* were also recorded, all observed near the stream.

Considering both ecological studies conducted in Alegrete (from 2013 to 2015), the camera trap total effort was 6694 camera traps/day. Photographic records were mostly nocturnal, between 19 h and 6 h, corroborating the activity pattern period known for the species (Michalski and Norris 2011). In seven records, two individuals were

Table 1: New records of *Cuniculus paca* for the Pampa region of Brazil and Uruguay, obtained since 2002 through ecological studies and fauna inventories.

Locality	Country	Type of record	No. of records	Year	Coordinates		Distance from water (m)	Map ID	Reference/Museum record
					Latitude	Longitude			
São Borja	Brazil	Track	1	2002	-28 54' 36	-56 01' 14	135	1	EIA-RIMA Barragem Butuí (2002)
Santana do Livramento	Brazil	Road kill	1	2004	-30 26' 58	-55 03' 12	237	2	
Rosário do Sul	Brazil	Camera trap	1	2007	-30 24' 00	-54 51' 42	178	3	
Alegrete	Brazil	Camera trap	1	2007	-29 51' 36	-55 21' 03	2	4	
Alegrete	Brazil	Visual observation	1	2007	-29 57' 41	-55 23' 46	2	5	
Rosário do Sul	Brazil	Camera trap	1	2007	-30 28' 42	-54 57' 26	320	6	
São Francisco de Assis	Brazil	Camera trap	1	2007	-29 41' 42	-55 10' 08	5	7	
Hulha Negra	Brazil	Camera trap	1	2009	-31 45' 52	-53 54' 36	150	8	
São Gabriel	Brazil	Camera trap	1	2010	-30 37' 25	-54 26' 08	100	9	
Lavras do Sul	Brazil	Camera trap	1	2010	-30 50' 32	-54 32' 46	50	10	
Artigas	Uruguay	Road kill	1	2012	-30 27' 25	-56 26' 14	108	11	MNHN 7430
São Francisco de Assis	Brazil	Hunting	1	2012	-29 40' 40	-55 08' 33	84	12	
Dom Pedrito	Brazil	Camera trap	1	2013	-30 53' 16	-54 29' 03	86	13	
Maçambará	Brazil	Road kill	1	2013	-29 07' 34	-55 46' 58	50	14	
Alegrete	Brazil	Capture	1	2014	-30 04' 11	-55 28' 08	130	15	
Alegrete	Brazil	Camera trap	124	2013–2015	-30 04' 11	-55 28' 08	130	15	
Alegrete	Brazil	Camera trap	36	2014–2015	-29 42' 28	-55 32' 24	30	16	
Alegrete	Brazil	Track	6	2014–2015	-29 42' 28	-55 32' 24	30	16	

All records are identified by a code (Map ID) and can be visualized in Figure 1. Museum record is from the National Museum of Natural History of Montevideo, Uruguay (MNHN).

registered together, in most cases identified as mother and young, reinforcing the solitary behavior of the species.

All new records of *Cuniculus paca* were located near water bodies in the Pampa region. This area comprises a region dominated by temperate grassland and trees concentrated in narrow riparian forests, representing the main landscape requirements for the species. Our results contradict previous ideas that large forest patches were needed for *C. paca* persistence in a region (Bonvicino et al. 2008). The occurrence of *C. paca* in the Pampa region may not represent an expansion of the species distribution to a new habitat, but be linked to a lack of information because of the low survey effort in this region, as mentioned by Achaval et al. (1993), who listed all five localities of *C. paca* known to Uruguay until 2002.

Regional biodiversity is threatened primarily by hunting (Peters et al. 2011) and agriculture activities (Roesch et al. 2009). A similar impact can be observed in the Coastal Plain of Rio Grande do Sul, where *Cuniculus paca* occurs mainly along rivers that rise from the Sul-Rio-Grandense Plateau and drain to the complex of the Patos/Mirim lagoons. In this region, crops, particularly rice, drastically reduced the riparian forest and marsh areas of the whole Coastal Plain.

Therefore, the Pampa region should be considered in future studies about *Cuniculus paca* distribution and taken into account in conservation actions proposed for the species.

Acknowledgments: We are indebted to Instituto Federal Farroupilha – *Campus Alegrete* for logistic support. L.C. held a FAPERGS scholarship (264/2014).

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