

NOTA CIENTÍFICA

Range extension of the rare Peruvian fish-eating rat *Neusticomys peruviansis* (Rodentia: Cricetidae) in Peru

Rango de extensión de la rata acuática peruana *Neusticomys peruviansis* (Rodentia: Cricetidae) en Perú

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Abstract

Neusticomys peruviansis (Musser & Gardner 1974) is a semi aquatic rodent which belongs to the Ichthyomyini Tribe. It is an endemic species of Peru, previously known for three specimens: type specimen from Balta, another specimen from Rio Shesha, both from Ucayali department; and the third specimen from Pakitza (Madre de Dios department). We captured an additional specimen in Cusco Department. Its geographic distribution extends 84.15 km south of the previously known distribution range. This suggest that this species would have a broader distribution. More detailed studies are needed to know the ecology and distribution of these rodents.

Keywords: pitfall traps; endemic; secondary bamboo forest; Villa Carmen Biological Station; Kosñipata; Cusco.

Resumen

Neusticomys peruviansis (Musser & Gardner 1974) es una especie de roedor acuático perteneciente a la tribu Ichthyomyini, es una especie endémica de Perú. Fue previamente conocida por tres especímenes, el espécimen tipo proviene de Balta, otro espécimen del Rio Shesha, ambos ubicados en el departamento de Ucayali y un tercer espécimen de Pakitza (departamento de Madre de Dios). Nosotros capturamos un espécimen adicional en el departamento de Cusco, con esto se extiende su distribución geográfica a 82.15 km al sur de su rango de distribución. Se necesitan más estudios detallados para conocer la ecología y la distribución de este roedor.

Palabras clave: trampas de caída; endémico; bosque secundario de bambú; estación biológica Villa Carmen; Kosñipata; Cusco.

Citación:

Gonzales F.N., A. Arce Merma & H. Zeballos. 2017. Range extension of the rare Peruvian fish-eating rat *Neusticomys peruviansis* (Rodentia: Cricetidae) in Peru. *Revista peruana de biología* 24(4): 413 - 416 (diciembre 2017). doi: <http://dx.doi.org/10.15381/rpb.v24i4.14068>

Presentado: 18/05/2017
Aceptado: 29/10/2017
Publicado online: 20/12/2017

Información sobre los autores:

FNG and AAM collected the sample, identified and drafted the manuscript. HZP revised the manuscript.

The authors state that there is no conflict of interest of any kind.

Permisos de colecta/Collection permits:

This research was carried out with the collection permit N° 312-2015 SERFOR/DGGSPFFS.

Journal home page: <http://revistasinvestigacion.unmsm.edu.pe/index.php/rpb/index>

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Introduction

The Ichthyomyini Tribe includes five genera and 17 species, of which four genera and 13 species are known to occur in South America (Garner 2007). In Peru, three genera have been recorded *Chibchanomys*, *Ichthyomys* and *Neusticomys*, the latter with a single species *N. peruvienis*, considered a rare and endemic species (Pacheco et al. 2009, Medina et al. 2015). It was scarcely collected, so far, there were records from only three locations in the Peruvian Amazon lowlands. The type locality is Balta, Province of Purus, Department of Ucayali at 10°08'S, 17°13'W and 300 m of altitude (Musser & Gardner 1974). 22 years later, the species was recorded again in Pakitza at 11°56'S, 71°17'W and 340 m altitude in the Parque Nacional del Manu, Cusco (Pacheco and Vivar 1996). The most recent record in Rio Shesha at 8°11'49.8"S, 73°56'45.9"W and 190 m altitude, in Coronel Portillo Province of Ucayali Department (Medina et al. 2015). In addition, an undescribed form of the genus *Neusticomys* was reported in the Parque Nacional Tingo Maria, Huánuco Department (Biosfera Consultores 2015, <siar.minam.gob.pe/huanuco/download/file/fid/50562>).

In this study, we report a new record of *Neusticomys peruvienis* (Musser & Gardner 1974) from Villa Carmen Biological Station, Cusco Department, extending the distributional range of this species in the Southwest of Peru.

Collection site

The Biological Station Villa Carmen is located in Kosñipata District, Paucartambo Province, Cusco (12°53'13.7"S, 71°23'35.8"W) at an altitude of 525 m. This area is at the confluence of the Piñipiñi River with the Pilcopata River in the Manu Biosphere Reserve. In this area, different plant formations are able observed which belong to lowland forest and montane forest.

Collection and determination

Specimen was catch in a secondary bamboo forest patch (pascal) near the Pilcopata River. This report was part of a research on small mammals in the Biological Station Villa Carmen. We used pitfall and conventional traps (Sherman and Victor).

- Pitfall traps consist in two lines with ten 20-liter buckets with a longitudinal plastic barrier, 70 cm high and 80 m long and an 8 meter separation between traps.
- Two linear transect of 60 Víctor and 60 Sherman traps, with a 10 meter separation between traps. The traps remained in the same place during six days. Traps were baited with a mixture of oat, vanilla, canned fish and dry fruits.

This new record of *N. peruvienis* in Peru is based on one immature female collected in November 2016 in a pitfall trap (Figure 1). The specimen was identified in the field as a species belonging to the *Neusticomys* genus using the taxonomic key of Gardner (2008), based on the following characteristics, total length of 174 mm, tail length of 72.5 mm, short (9.98 mm) and visible ears, philtrum, weakly developed fringe of stiff hairs, elongated and narrow hind legs, with five foot pads on the front legs (Figure 1).

In the laboratory, we identified the species based on its external traits and cranial features, carotid circulation pattern type and molar morphology, which confirmed the identity of *Neusticomys peruvienis* (see Voss 1988) (Figure 2). Comparisons were made with an adult male specimen from the Rio Shesha, Department of Ucayali (MUSA 12675); and an immature female from Pakitza, Department of Madre de Dios (MUSM 9214). Biometric data was measured and its relative age class was determined based on Voss considerations (1988) (Table 1).



Figure 1. Lateral view of *Neusticomys peruvienis* MUSA 19658, collected in a secondary bamboo forest in Villa Carmen Biological Station (Cusco)

Table 1. External and cranial measurements following to Percequillo et al (2005), of species of *N. peruviansis* (MUSA 19658, f) collected in Villa Carmen Biological Station, Cusco.

External, craneal and dental measurements	Measure	Craneal and dental measurements	Measure
HBL (mm)	174.0	BPB (mm)	2.3
LT (mm)	72.5	LN (mm)	9.9
HF (mm)	22.95	BN (mm)	3.4
Ear (mm)	9.98	LIB (mm)	6.6
Wt (g)	18	2B (mm)	12.9
CIL (mm)	23.6	BB (mm)	12.4
LD (mm)	6.8	BZP (mm)	1.4
LM1 -3 (mm)	4.4	BM1 (mm)	1.8
LM1-2 (mm)	3.7	HI (mm)	4.3
LIF (mm)	4.9	DI (mm)	1.6
BIT (mm)	2.6	BOC (mm)	7.3
BIF (mm)	2.3		

The specimen was preserved in skin and liquid (alcohol at 96%) following the considerations of Lopez et al. (1996). It was submitted to the scientific collection of the Museo de Historia Natural de la Universidad Nacional de San Agustín de Arequipa (MUSA) with the code MUSA 19658.

Discussion

The Ichthyomyini in Peru are little known species and difficult to record, there are uncertain aspects about their phylogenetic relationships and current distribution. There are only three specimens of *N. peruviansis* collected to date (Medina et al. 2015),

which do not provide enough information about their natural history, distribution, taxonomy or conservation status. However, this species is classified by Peruvian legislation (MINAGRI 2014) as Vulnerable and by the International Union for the Conservation of Nature as Least Concern (Vivar & Zeballos 2016) because they presume that it occurs in an extensive and suitable habitat, which appears not to be threatened, and has a presumed large population. We consider that this species should be re categorized taking into account the few records and the current threats to their habitat such as watercourses modification, change of land use and deforestation.

There is a new distribution range for this species located 82.15 km from its southernmost distribution (Figure 3) and 296.76 km from the holotype of the species (Musser & Garner 1974). It is also its first record at 525 m elevation, increasing the known vertical distribution by 185 m. The discovery of *N. peruviansis* near Manu National Park, within a private protected area (Villa Carmen Biological Station) suggests that this area may be particularly significant for the maintenance and conservation of this species; it would also play an important role to maintain connection to its neighboring populations.

Acknowledgements

We are grateful to the Foundation Erol and to the Asociación para la Conservación de la Cuenca Amazónica ACCA, for allowing and financing this research in the Biological Station Villa Carmen, and to Percy Avendaño, David Guevara, Vanessa Luna for their advice and logistic help, and finally to our local field assistants Roberto and Oscar from Patria community.

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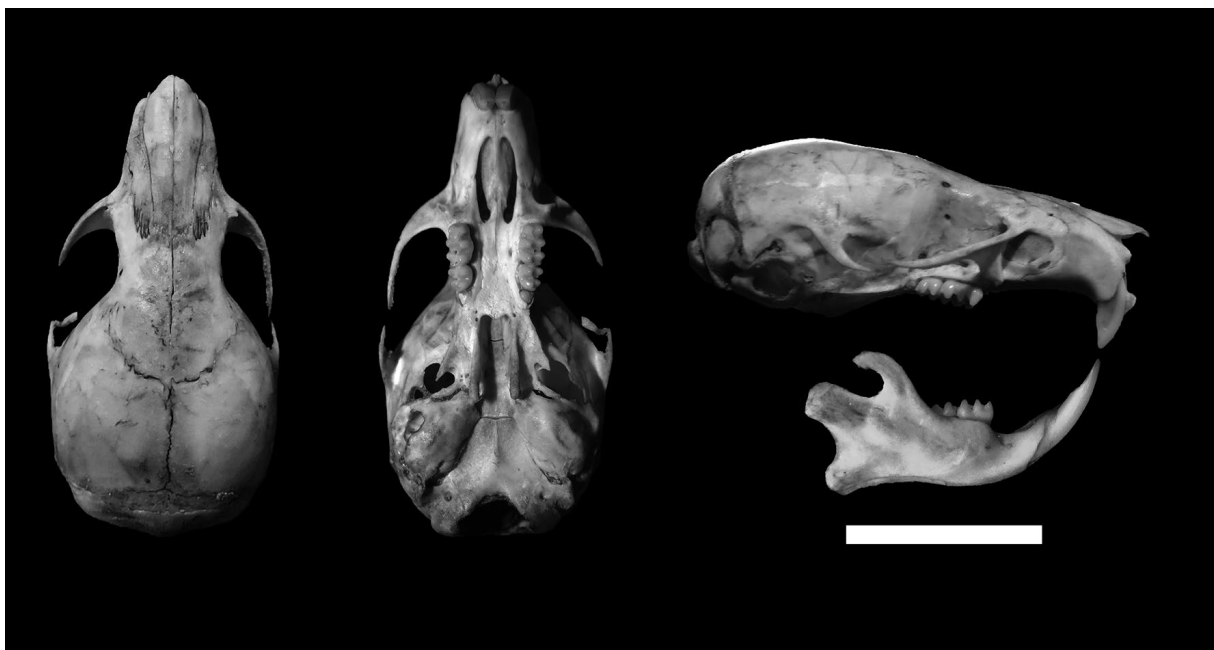


Figure 2. Dorsal and ventral view of the skull of *Neusticomys peruviansis* (scale 10 mm), MUSA 19658 collected in a secondary bamboo forest in Villa Carmen Biological Station.

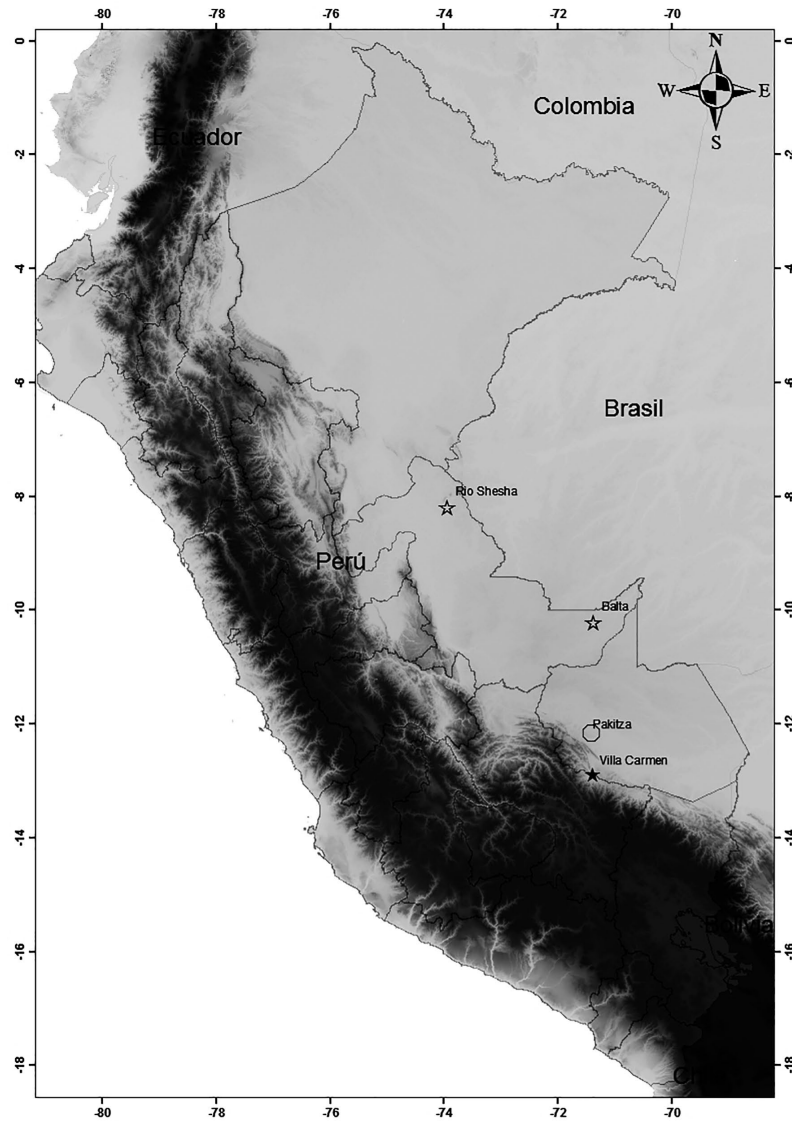


Figure 3. Known collecting localities of *Neusticomys peruvienis* until 2015 (white star belongs to Ucayali department, white octagon Madre de Dios department) and the new localities black star belongs to Cusco department.

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