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Artículo

NOTES ON THE TAXONOMY OF *Calomys laucha* (RODENTIA, CRICETIDAE), WITH THE DESIGNATION OF A NEOTYPE

Pablo Teta[1], Raúl E. González-Ittig[2], Enrique M. González[3], Ulyses F. J. Pardiñas[4], and Jorge Salazar-Bravo[5]

[1] División Mastozoología, Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina. [Correspondence: Pablo Teta <antheca@yahoo.com.ar>]
[2] Instituto de Diversidad y Ecología Animal (IDEA), CONICET-UNC and Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Córdoba, Córdoba, Argentina.
[3] Museo Nacional de Historia Natural, Montevideo, Uruguay.
[4] Instituto de Diversidad y Evolución Austral (IDEAus, CONICET), Puerto Madryn, Chubut, Argentina.
[5] Department of Biological Sciences, Texas Tech University, Lubbock, Texas 79409, USA.

ABSTRACT. *Calomys laucha* (Fischer, 1814) is a small phyllotine rodent (<20 g), broadly distributed from northern Paraguay and southeastern Bolivia to southern Brazil, Uruguay and central Argentina. We provide an update on the genetic composition of this species. Our results support previous findings and indicate that *C. laucha* is composed of two main clades, one encompassing populations of southern Brazil, Uruguay and the Argentinean Mesopotamia, and another including those from the remainder of the distribution in Argentina, Bolivia and Paraguay. The boundary between these groups appears to converge along the Paraná-Paraguay rivers, which we presume act as a geographic barrier. As in other species of mammals described by Félix de Azara, the type locality of *C. laucha* is uncertain. Previous authors restricted it to eastern Paraguay based partially on historical misinterpretations. This restriction is inappropriate because currently only *Calomys tener* is recorded there. To stabilize the taxonomy of *C. laucha* we designate a neotype for the species, fixing with this act its terra typica to a locality in northern Buenos Aires province, in central-eastern Argentina.

RESUMEN. Notas sobre la taxonomía de *Calomys laucha* (Rodentia, Cricetidae), con la designación de un neotipo. *Calomys laucha* (Fischer, 1814) es un pequeño roedor filotino (<20 g), ampliamente distribuido desde el norte de Paraguay y el sureste de Bolivia hasta el sur de Brasil, Uruguay y el centro de Argentina. En esta contribución, ofrecemos una actualización sobre la composición genética de esta especie. Nuestros resultados apoyan hallazgos previos que indican que la especie está compuesta por dos clados principales, uno que abarca las poblaciones del sur de Brasil, Uruguay y la Mesopotamia argentina y otro que incluye las del resto de Argentina, Bolivia y Paraguay. Los límites entre ambos grupos parecen estar relacionados con los ríos Paraná-Paraguay, que actuarían como barrera geográfica. Al igual que en otras especies de mamíferos descritas por Félix de Azara, la localidad tipo de *C. laucha* es incierta. Autores previos la restringieron al este de Paraguay, basándose parcialmente en interpretaciones históricas erróneas. Esta restricción es inapropiada, porque según nuestro conocimiento actual, solo *C. tener* estaría presente allí. Para estabilizar la taxonomía de *C. laucha* hemos

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designado un neotipo para este taxón, fijando con este acto su terra typica a una localidad en el norte de la provincia de Buenos Aires, centro-este de Argentina.

Key words: *Calomys tener*. Félix de Azara. Phyllotini. Sigmodontinae.

Palabras clave: *Calomys tener*. Félix de Azara. Sigmodontinae. Phyllotini.

INTRODUCTION

Calomys laucha (Fischer, 1814) is a small phyllotine rodent (<20 g), widely distributed from northern Paraguay and southeastern Bolivia to southern Brazil, Uruguay and central Argentina (Salazar-Bravo 2015). The species name was coined by Fischer (1814: 71) as *Mus Laucha* et *Lauchita*, based on the "rat septième ou rat laucha" described by the Spanish naturalist Félix de Azara in 1801. The original description was also taken by Olfers (1818: 209), who used it as a reference for his *M*[*us*]. *laucha*. Like other several forms described by Azara, the absence of a type specimen and the uncertainty about the exact location of the collection site have been decisive in the subsequent complex taxonomic history of this species (Tate 1932).

Hershkovitz (1962) revised *C. laucha*, including as synonyms several nominal forms that today are recognized as valid species (e.g., *C. hummenlincki*, *C. musculinus*, *C. tener*) and restricted its type locality to Asunción, eastern Paraguay. Massoia et al. (1968) redefined the concept of *C. laucha*, referring its terra typica to the vicinities of Buenos Aires, Argentina, and removing from under its synonymy the currently accepted *C. musculinus* (Thomas, 1913). Other nominal taxa, such as *C. tener* (Winge, 1887) and *C. hummelincki* (Husson, 1960) have not been studied and compared to the detail that Massoia et al. (1968) employed in comparing *C. laucha* and *C. musculinus*. However, phylogenetic analyses of mitochondrial genes, coupled with chromosomal counts, spermatic morphology and skull morphometrics have been useful in assigning specific status to these species (e.g., Olds 1988; Pérez-Zapata et al. 1997; Bonvicino & Almeida 2000; Salazar-Bravo et al. 2001). Most of subsequent authors maintained Paraguay as the type locality of *C. laucha* (e.g., Musser & Carleton 2005; Salazar-Bravo 2015), following the restriction made by Hershkovitz (1962).

In a recent contribution, González-Ittig et al. (2014), based on the analyses of cytochrome b (*Cyt*-b) sequences, recognized two main clades in the current distribution of *C. laucha*, one encompassing populations in southern Brazil and Uruguay and another including those from the remainder of the distribution in Argentina, Bolivia and Paraguay. However, these authors did not include specimens from the Argentinean Mesopotamia, leaving some doubts about the limits between both clades. Finally, González-Ittig et al. (2014) recorded only *C. tener* in eastern Paraguay, challenging the traditional view of this area as occupied by *C. laucha*.

With the above described scenario, the present work has two objectives: 1) to provide, based on cytochrome b (*Cyt*-b) sequences, an update on the genetic composition of eastern and western clades of *C. laucha*, increasing the sampling made by González-Ittig et al. (2014); 2) to stabilize the taxonomy of this widespread sigmodontine, by designating a neotype and assigning a new type locality for the species.

MATERIALS AND METHODS

We expanded and complemented the *Cyt*-b gene matrix of González-Ittig et al. (2014) by incorporating sequences of individuals from new localities in Uruguay and Argentina: Uruguay: Rincón del Colorado (Canelones), Punta Gorda (Colonia), Estancia Loma del Queguay (Paysandú), Estancia Los Paraísos (Artigas) and Valle Platón (Rivera). Argentina: Estación San José (Buenos Aires), Árraga (Santiago del Estero) and Nogoyá (Entre Ríos). Thus, the present study includes 12 localities from Argentina, 6 from Paraguay, 1 from Bolivia, 6 from Uruguay and 1 from Brazil (**Table 1** and **Fig. 1**).

Table 1

Field identification code or collection numbers of the specimens from which tissues were obtained. Location of the sampling sites is showed in **Fig. 1** (in parenthesis, the provinces or departments), geographic coordinates, GenBank accession numbers and Museums or Collections where the voucher specimens are deposited.

Voucher Number	Sample location	Latitude	Longitude	Accession Number	Source	Haplotype
	Argentina					
12942	(1) Pergamino (Buenos Aires)	33°53'S	60°34'W	KF917357	INEVH	22
1874	(2) Chillar (Buenos Aires)	37°17'S	59°58'W	KF917358	INEVH	20
1882	(2) Chillar (Buenos Aires)	37°17'S	59°58'W	KF917359	INEVH	21
1297	(3) Orense (Buenos Aires)	38°41'S	59°45'W	KF917360	INEVH	18
1320	(3) Orense (Buenos Aires)	38°41'S	59°45'W	KF917361	INEVH	19
CNP 5053	(4) Estación San José (Buenos Aires)	38°11'S	59°00'W	KX685933	CNP	20
CE21	(5) Capilla de los Remedios (Córdoba)	31°30'S	63°54'W	KF917362	MZ-UNC	15
CE29	(5) Capilla de los Remedios (Córdoba)	31°30'S	63°54'W	KF917363	MZ-UNC	14
CE32	(5) Capilla de los Remedios (Córdoba)	31°30'S	63°54'W	KF917364	MZ-UNC	17
SL2	(6) Donovan (San Luis)	33°20'S	66°14'W	KF917365	DAE	16
SL26	(6) Donovan (San Luis)	33°20'S	66°14'W	KF917366	DAE	13
NK15988	(7) Máximo Paz (Santa Fe)	33°29'S	60°56'W	AF385593	MSB	4
19328	(8) Uranga (Santa Fe)	33°16'S	60°42'W	KF917368	INEVH	11
21978	(9) Maciel (Santa Fe)	32°26'S	60°54'W	KF917367	INEVH	12
B18	(10) Berna (Santa Fe)	29°16'S	59°52'W	KF917369	MZ-UNC	8
37981	(11) Árraga (Santiago del Estero)	28°01'S	64°15'W	KX685932	INEVH	23
38779	(12) Nogoyá (Entre Ríos)	32°24'S	59°44'W	KX853855	INEVH	3
	Paraguay					
TK122109	(13) Río Verde, Estancia Salazar (Presidente Hayes)	23°04'S	59°15'W	KF917374	TTU	10
NK72376	(14) Filadelfia (Boquerón)	22°21'S	60°04'W	AY033190	MSB	6
TK122274	(15) Fortín Teniente Montania (Boquerón)	22°04'S	59°58'W	KF917375	TTU	6
TK66497	(16) Parque Nacional Teniente Enciso, 4 km NW of administration (Boquerón)	21°10'S	61°40'W	KF917372	TTU	6
TK65638	(17) Destacamento Gabino Mendoza (Alto Paraguay)	20°03'S	61°51'W	KF917371	TTU	6
TK67304	(18) Estancia Kamba Aka (Alto Paraguay)	19°50'S	58°45'W	KF917373	TTU	9

(Table 1 cont.)

Voucher Number	Sample location	Latitude	Longitude	Accession Number	Source	Haplotype
	Bolivia					
NK25158	(19) Estancia Bolivar (Tarija)	21°38'S	62°34'W	AY033189	MSB	7
NK25156	(19) Estancia Bolivar (Tarija)	21°38'S	62°34'W	AF385594	MSB	5
	Uruguay					
MNHN5311	(20) Rincón del Colorado (Canelones)	34°41'S	56°20'W	KX685935	MNHN	2
PV52	(21) Puntas de Valdez (San José)	34°35'S	56°42'W	KF917378	INEVH	1
PV54	(21) Puntas de Valdez (San José)	34°35'S	56°42'W	KF917379	INEVH	1
MNHN7962	(22) Punta Gorda (Colonia)	33°55'S	58°24'W	KX685936	MNHN	1
MNHN7963	(23) Estancia Loma del Queguay (Paysandú)	32°11'S	57°30'W	KX685937	MNHN	1
MNHN7156	(24) Estancia Los Paraísos (Artigas)	30°28'S	57°28'W	KX685934	MNHN	1
MNHN6314	(25) Valle Platón (Rivera)	30°57'S,	55°43'W	KX685938	MNHN	1
	Brazil					
LF952	(26) Taim Ecological Station (Rio Grande do Sul)	32°29'S	52°34'W	AY964052	MCMN	1

CNP: Colección de Mamíferos del Centro Nacional Patagónico, Chubut, Argentina.
MNHN: Museo Nacional de Historia Natural de Montevideo, Uruguay.
INEVH: Instituto Nacional de Enfermedades Virales Humanas, Pergamino, Buenos Aires, Argentina.
MZ-UNC: Museo de Zoología, Universidad Nacional de Córdoba, Córdoba, Argentina
DAE: Departamento de Ecofisiología Animal, Universidad Nacional de San Luis, San Luis, Argentina
MSB: Museum of Southwestern Biology, University of New Mexico, Albuquerque, New Mexico, USA
TTU: Museum of Texas Tech University, Lubbock, Texas, USA
MCMN: Mammal Collection of the Museu Nacional, Rio de Janeiro, Brazil.

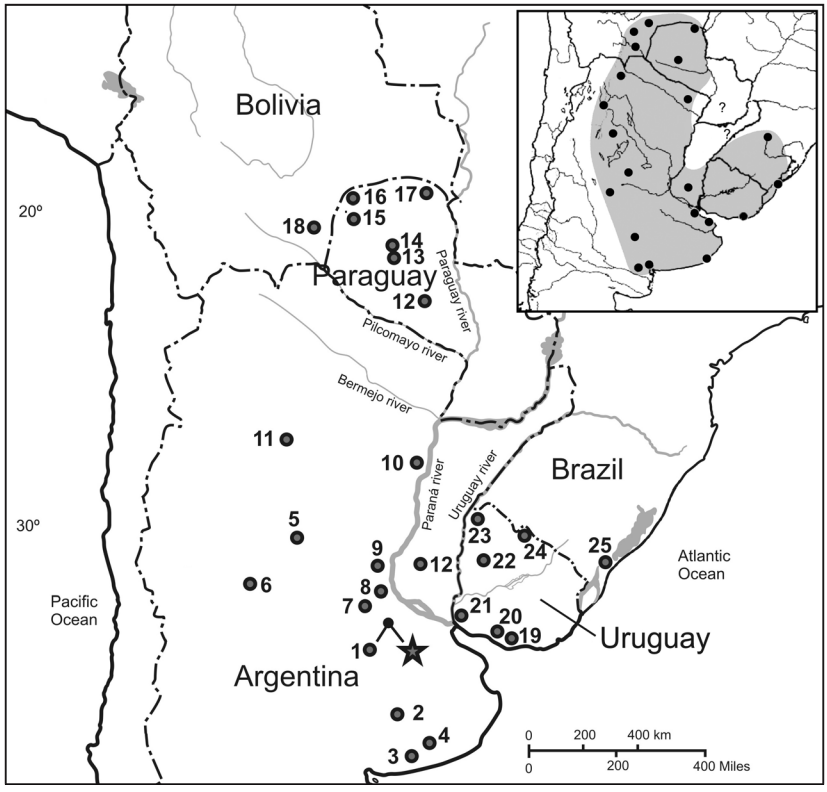

Fig. 1. Map of geographical locations of individuals listed in **Table 1**. Circles represent localities sampled in the present study; the star corresponds to the type locality of the neotype designated herein for *Calomys laucha*. The inset depicts the distributional range of *C. laucha* based on marginal localities (modified from Salazar-Bravo, 2015).

DNA extractions were performed according to the standard CTAB protocol. The complete *Cyt*-b was amplified with the primer combination Mus14095/Mus15398 according to the conditions described in González-Ittig et al. (2010). All sequencing reactions were performed by Macrogen USA Inc. (http://www.macrogenusa.com). Nucleotide alignments were produced using MAFFT v7 (Katoh & Standley 2013). We used different iterative refinement methods to detect changes in the Cyt-b alignment; the slow options L-INS-i and G-INS-I, with gap opening penalty: 1.53, gap extension penalty: 0.1, were tested. Regardless of the method used, the alignment was always the same, since no gap was detected.

The number of haplotypes was obtained with the program DnaSP v5 (Rozas et al. 2003). We used Network v5.0.0.1 (Bandelt et al. 1999), with the maximum parsimony post-processing analysis, to draw a median-joining network and to analyze the relationships among the haplotypes detected. To compare with other studies, we used the Kimura 2 parameters (K2P) algorithm to estimate the levels of genetic distances and sequence divergence within and between clades.

Nomenclature used to describe the anatomy of the skull follows Carleton & Musser (1989) and Steppan (1995), and that of the molars follows Reig (1977). The measurements provided were taken with a digital caliper and recorded to the nearest 0.01 mm following Hershkovitz (1962) and Musser et al. (1998).

RESULTS

Thirty-three specimens of *C. laucha* were clustered into 23 haplotypes, which formed two haplogroups (**Fig. 2**). Haplogroup A included 20 haplotypes corresponding to 24 specimens from Argentina, Bolivia and Paraguay, and haplogroup B included 3 haplotypes corresponding to nine individuals from one locality in the Argentinean Mesopotamia (#12 in **Fig. 1**), and from all sampled localities of Brazil and

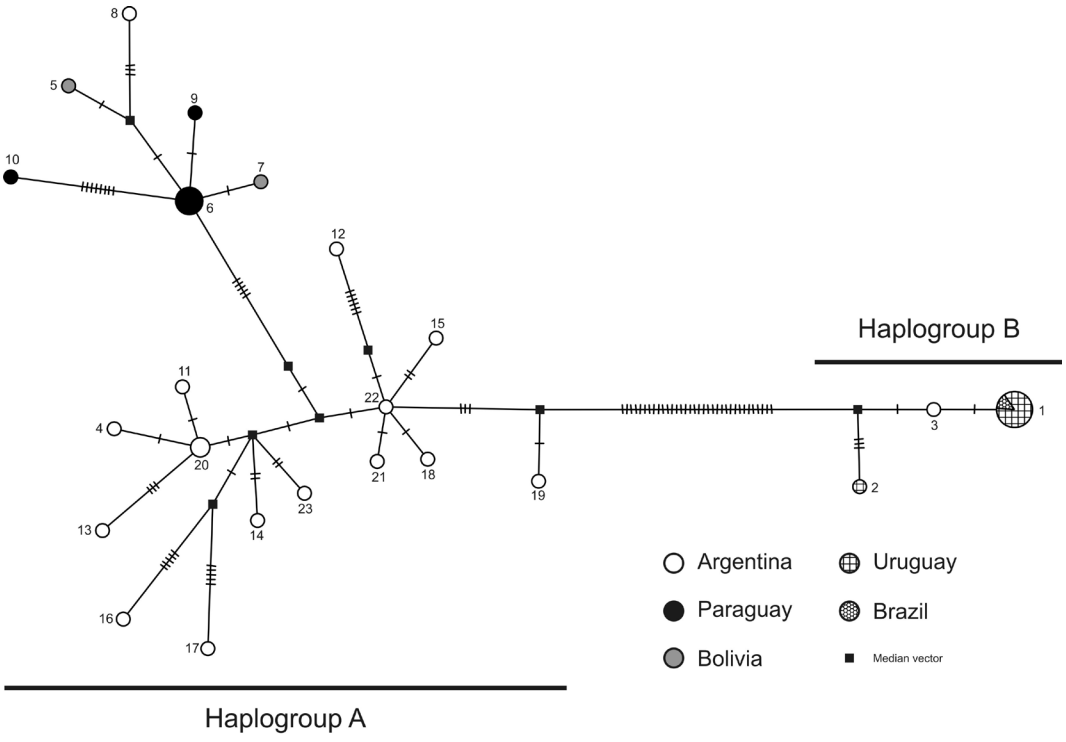

Fig. 2. Minimum spanning network showing the relationships and relative abundance of the *Cyt*-b haplotypes of *C. laucha*. The geographic origin of each haplotype is indicated with a different color or drawing pattern. Each bar through the solid line represents one nucleotide difference between haplotypes.

Uruguay. A total of 36 substitutions separated the haplogroups (**Fig. 2**); the mean inter-subclade K2P genetic differentiation was 5.47% (4.74% - 6.53%). None of the haplotypes of subclade A were shared among individuals from different countries; the mean intra-sub-clade A differentiation was 1.11% (0.13% - 2.71%).

The International Code of Zoological Nomenclature (ICZN 1999; see Article 75.3.1) justifies the designation of a neotype under "... the express purpose of clarifying the taxonomic status or the *type locality* [italics are ours] of a nominal taxon." Based on the premises discussed above, we designate a neotype for *Calomys laucha* as follows:

Calomys laucha (Fischer, 1814)

Neotype.— MACN-Ma 18795 (original collector's number 7317), adult scrotal male collected by James N. Mills on November 30th, 1988; preserved as skin and skull in good condition (**Fig. 3**).

Measurements of the neotype in mm (external measurements were taken from the label).— Total length = 140; tail length = 55; hindfoot length (with claw) = 17; ear length = 14; greatest length of skull = 22.21; condylo-incisive length = 20.53; greatest zygomatic breadth = 11.76; least interorbital breadth = 3.40; length of nasals along midline = 9.05; breadth of braincase = 9.45; breadth of the zygomatic plate = 2.37; length of incisive foramina = 5.10; maximum breadth across the incisive foramina = 1.65; length of palatal bridge = 3.55; bullar length less tube = 3.35; alveolar length of the maxillary toothrow = 3.04; alveolar length of the mandibular toothrow = 2.84.

Type locality.— Estación Experimental Agropecuaria Pergamino (33°55'S, 60°35'W; 65 m a.s.l.), Partido de Pergamino, Provincia de Buenos Aires, Argentina.

Distribution.— Natural grasslands, cultivate fields and forest fringes, up to an elevation of 1000 m, from northern Paraguay and southeastern Bolivia to southern Brazil, Uruguay and central Argentina (Salazar-Bravo 2015; see inset on **Fig. 1**).

Emended diagnosis (modified from Salazar-Bravo 2015).— A member of the tribe Phyllotini, subfam-

ily Sigmodontinae, characterized by the following combination of characters: size small (12-20 g; total length ~125 mm), overall dorsal coloration olive gray, with brown and golden hairs intermingled, darker at the midline and clearly separated from the white of the venter; ears with a white patch of hairs behind; tail bicolored, ~43% of the combined length of the head and body; skull small (GLS ~22 mm), with straight lateral profile, rostrum short and narrow; interorbital region wide, with posterior divergent supraorbital edges; braincase large and rounded; zygomatic plate broad, with free upper border enclosing a poorly developed zygomatic notch; palate long, wide and flat; upper incisors smooth, hyperopisthodont and faced with light orange enamel; molars small (upper molar series <3.3 mm), brachydont, trilophodont and crested; main lingual and labial cusps in alternate pairs; M1 subrectangular in outline; procingulum well developed deeply divided by an anteromedian flexus and with a single anteromedian style typically present; M3 approximately equal to 50% of the M2 and rounded; stomach unilocular-hemiglandular; glans penis complex, with a tridigitate bacular cartilage; gall bladder present; 2n = 64; FN = 68-72.

Fig. 3. From top to bottom: right lateral, ventral and dorsal views of the skull and labial view of the mandible of the neotype of *Calomys laucha* (MACN 18795; Argentina, Buenos Aires, Estación Experimental Agropecuaria Pergamino). Scale = 5 mm.

Remarks.— The morphological distinction between *C. laucha* and the widely sympatric *C. musculinus* was explored by Massoia et al. (1968). Synonymy, description, distribution, geographical and karyotypic variation and natural history were synthesized by Salazar-Bravo (2015); stomach morphology was described by Carleton (1973); morphology of male accessory glands was documented by Voss & Linzey (1981). Ecology, diet, reproduction and habitat selection well characterized, especially for the pampean region of Buenos Aires and Córdoba provinces populations (see review in Polop & Busch 2010). The species *C. laucha* from Argentina and Uruguay has a 2N = 64, FN = 68-72 (Bonvicino et al. 2010). The karyotype with a 2N = 56; FN = 59, reported by Brum-Zorrilla (1962) for one specimen attributed to this species should dismissed as no voucher is available to confirm the identification (EG, pers. obs.).

DISCUSSION

The current concept of *C. laucha* includes two main clades, one encompassing sampled populations in southern Brazil, Uruguay and 1 locality in Argentina and another including those from the remainder of the distribution in Argentina, Bolivia and Paraguay. The karyotype of individuals assigned to both of these haplogroups is the same and includes a diploid count of 2N = 64 (Gardenal et al. 1977; Brum-Zorrilla et al. 1990; Mattevi et al. 2005; Badzinski et al. 2012). No metric or detailed qualitative or quantitative morphological studies encompassing populations from throughout the range of this species have been published to date. According to González-Ittig et al. (2014), if the two main clades represent distinct, cryptic species, the available names for them would be *C. bimaculatus* Waterhouse, 1837 (type locality "Maldonado," Maldonado, Uruguay [Waterhouse, 1837: 18]) and *C. laucha*. However, these authors overlooked the fact that *Mus* (?) *dubius* Fischer, 1829, with type locality restricted to "São Gabriel (30°19'S, 54°19'W, 118 m, Rio Grande do Sul, Brazil" (Pardiñas et al. 2007: 401) is also an available name for Uruguayan and Brazilian populations. If *dubius* proves to

be a synonym of *bimaculatus*, then this name should correspond by priority, at species or subspecies level, to those populations of Brazil and Uruguay. *Mus* (?) *dubius* Fischer, 1829 was based on the "blanco debaxo," described also by Azara (1802). Cabrera (1961: 477) used the name *dubius* as valid and included into its synonymy, at subespecific level, the nominal forms *bimaculatus* and *bonariensis* Osgood, 1933 (type locality "Torrecita, province of Buenos Aires, Argentina;" Osgood 1933: 14).

Regarding the type locality of *C. laucha*, when discussing his "rat septième ou rat laucha," Azara indicated that his servant Francisco had taken two animals from a "paille de maïs d'un Chacarra of Buenos-Ayres, et un autre dans les Pampas, par les vingt-cinq degrés de latitude" (freely translated as "from a maize straw at a farm in Buenos Aires, and another from the Pampas, by the twenty-five degrees of latitude"). Olfers (1818: 209) referred the origin of *laucha* as "Paraguay" and Hershkovitz (1962: 153), following Olfers (1818) and invoking his right as first reviser, restricted the type locality to "neighborhood of Asuncion [sic], Paraguay." Cabrera (1961: 479) instead, referred the type locality of this species to "…las quintas de Buenos Aires." Mistakenly, Hershkovitz (1962: 153) concluded that in the late XVIII century, Buenos Aires included the current areas of Uruguay and the Argentinean provinces of Misiones, Corrientes and Entre Rios, electing to restrict the type locality to the vicinity of Asunción, Paraguay, in reference to the "vingt-cinq ... degres de latitude" from Azara's statement. Part of the ideas of Hershkovitz (1962: 153) were based on the assumption that Azara had not worked in the area of the present province of Buenos Aires, an inference widely refuted by historic documents (e.g., Mones & Klappenbach 1997; Contreras Roqué 2010). Clearly, the specimens that Azara (1801) used in his description correspond to animals caught at two different localities, one in the vicinity of Buenos Aires ("paille de maïs d'un Chacarra of Buenos-Ayres,..") and another in Paraguay ("… dans les Pampas, par les vingt-cinq degrés de latitude"). The restriction made by Hershkovitz (1962) to Paraguay is not convenient; based on our current knowledge, only *C. tener* is confidently reported in the eastern portion of this country (see González-Ittig et al., 2014). Thus, conceivably, Azara's "rat septième ou rat laucha" could be a composite between these two, externally very similar, taxa. As the designation of a neotype implies a redefinition of the type locality, we chose this action to correct the restriction made by Hershkovitz (1962), restoring part of the original reference of Azara (1801) to northern Buenos Aires, central-eastern Argentina. The choice of a neotype from central Argentina has the additional benefit that populations of northern Buenos Aires province have been pivotal in defining the current concept of *C. laucha* (e.g., Massoia & Fornes 1965; Massoia et al. 1968). Other sigmodontines and didelphids described by Azara (1801, 1802) have similar taxonomic histories, where the need to avoid confusion has led to the designation of neotypes; among others, *Oligoryzomys nigripes* (Myers & Carleton 1981), *Oxymycterus rufus* (Oliveira & Gonçalves 2015), *Sooretamys angouya* (Musser et al. 1998), or *Thylamys pusilla* (Voss et al. 2009).

The course of action taken above has implications on many fronts, especially for the taxonomy of small-bodied *Calomys* present in the provinces of Corrientes and Entre Ríos, between the Paraná and the Uruguay rivers; this region, known as the Argentinean Mesopotamia, covers upwards of 167 000 km^2. In the present study we included one specimen from Entre Ríos Province, which clustered within the haplogroup B. If this is the only form present in Mesopotamia, then the Paraná River might potentially be acting as a geographic barrier separating individuals of these distinct clades. This is an important issue, since both the Paraná and Uruguay rivers appear to be barriers for other species' distributions; for example, *Scapteromys* (in which eastern and western clades are separated by the Uruguay River; see D'Elía & Pardiñas 2004) and *Reithrodon* (in which the clades referred to the species *typicus* and *auritus* are apparently separated by the Paraná River; see Pardiñas et al. 2015). Nevertheless, we sequenced only one individual from Entre Ríos, and many other populations of small-sized *Calomys* are known from this region (e.g., Hershkovitz 1962; Massa et al. 2014). In

fact, we cannot exclude the possibility that *C. tener* could also be present in the northern portion of the Mesopotamia, since *C. tener* and *C. laucha* clade B are nearly sympatric at similar latitudes in southern Brazil (Quintela et al. 2014). *Calomys tener* is present in eastern Paraguay and in the Argentinean province of Misiones (González-Ittig et al. 2014), and the southern limit of its distribution, as well as those of *C. laucha* in this region, are currently unclear. In fact, although we lack *Cyt*-b confirmation about the presence of *C. laucha* in eastern Paraguay and northeastern Argentina, the species has been mentioned several times for these territories (see Salazar-Bravo 2015). *C. laucha* was first mentioned for Misiones province by Massoia (1980, 1983), based on materials derived from owl pellets recovered in the locality of El Cruce, about 7 km NE Apósteles. Later, Massoia (1988) introduced the first reference to *C. tener* based on animals from Campo Ramón, a forested region near Oberá. In his synthesis on the rodents from Misiones, Massoia (1993) stated the presence of both species of *Calomys* in this province, referring the distribution of *C. laucha* to the southern unforested portion and restricting *C. tener* to central forested localities. The occurrence of *C. tener* in Misiones was summarily dismissed by Pardiñas & Teta (2006) and the sylvan populations of *Calomys* were referred to *C. laucha*. Clearly, *Calomys* is an important component of the small mammal assemblages in central and southern Misiones as well as in northeastern Corrientes (Teta & Pardiñas 2007) and its alpha-taxonomy in this large territory deserves further inspection. The same is true for the eastern half of Paraguay, an area of fragmented forests intermixed with agricultural lands and open grasslands, in which both species appear as sympatric (cf. Salazar-Bravo 2015).

In summary, additional data are still needed to better address the taxonomy of *C. laucha* and to delimit with accuracy its geographical distribution, especially in the areas in which *C. laucha* and *C. tener* could be sympatric (e.g., northeastern Argentina). Additional qualitative and quantitative morphological approaches are needed, as they could add substantial data, together with molecular markers, to the recognition of eastern and western clades as different entities (i.e., species or subspecies). In addition, the analysis of DNA sequences of more specimens from the Argentinean Mesopotamia is necessary to solve their taxonomic status, and consequently, to add a new piece in the biogeographical puzzle of the mammals of this part of the La Plata River Basin.

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