MAMMALIAN SPECIES No. 730, pp. 1–5, 3 figs.

Ctenomys talarum.

By Enrique R. Justo, Luciano J. M. De Santis, and Marta S. Kin

Published 18 December 2003 by the American Society of Mammalogists

Ctenomys talarum Thomas, 1898

Talas Tuco-tuco

Ctenomys talarum Thomas, 1898:285. Type locality "Los Talas," Ensenada, La Plata, Argentina.

CONTEXT AND CONTENT. Order Rodentia, family Ctenomyidae, subfamily Ctenomyinae (Reig 1958, Woods 1993). Three subspecies are recognized.

C. t. occidentalis Justo, 1992:35. Type locality "Luan Toro," La Pampa, Argentina.
C. t. recessus Thomas, 1912:241. Type locality "Bahía Blanca," Buenos Aires, Argentina.
C. t. talarum Thomas, 1898:285, see above.

DIAGNOSIS. *Ctenomys talarum* (Fig. 1) is smaller than *C. azarae, C. australis,* and *C. mendocinus*. Mean length of head and body is 167.5 ± 10.4 (*SD*) mm. Tail is shorter than *C. azarae* and *C. mendocinus*, ca. 39% of length of head and body. Nasals are short and broad compared to *C. azarae*. Baculum of *C. talarum* is smaller (length, 5.25 mm) and flattened compared to bacula of *C. minutus* and *C. torquatus* (Reig et al. 1965).

GENERAL CHARACTERS. *Ctenomys talarum* has a cylindrical body that is heaviest anteriorly, especially around the shoulders. Neck is reduced, and thickest portion of body tapers to tail. Hair is short and fine. Pelage is dark hazel-grayish-red, with prominent inguinal and axillary white patches. A conspicuous white patch is present at lower edge of ear. Eyes are small and ears reduced. Tail is short and densely covered with brown hairs.

Front and hind feet have curved long claws used for digging and expelling soil out of tunnels. Hind feet have a series of white, bristle-like hairs. Cheek teeth are kidney shaped in cross section.

Means and ranges of external measurements from individuals (in mm, $n = 25$, mixed sexes) collected in Magdalena, Buenos Aires province, 60 kilometers from the type locality are (Reig et al. 1965): total length, 233.4 ± 12.2 (212.0-254.0); length of tail, 66.7 ± 4.3 (56.0–75.0); length of hind foot, 29.1 ± (24.0–35.5). Mean (±*SD*) of cranial measurements (in mm) for 40 individuals (mixed sexes) from La Pampa are: greatest length of skull, 37.4 (1.93); length of nasals, 11.9 (0.78); length of upper molar row, 7.4; basilar length, 31.4 (1.66); frontal length, 10.4 (0.53); frontal breadth, 7.1 (0.5); mastoid breadth, 18.9 (1.95); zygomatic breadth, 22.2 (1.48); breadth of braincase, 14.6 (0.4—Justo 1992). Bimastoid width is less than bizygomatic width. Interpremaxillary foramen is conspicuous (Fig. 2).

DISTRIBUTION. Although extinct at the type locality (Reig et al.1965), *Ctenomys talarum* ranges (Fig. 3) along the coast of Buenos Aires, La Pampa, and Santa Fe provinces (Redford and Eisenberg 1992; Justo 1992). Santa Clara del Mar limits the range of *C. t. talarum*. From Necochea southward, *C. t. recessus* extends to Bahía Blanca. *C. t. occidentalis* occurs only in central areas of La Pampa.

FOSSIL RECORD. *Ctenomys talarum* is unknown in the fossil record. However, Holocene material from many archaeological sites in Buenos Aires province, which are found within the range of this species, have been assigned to *Ctenomys* (Balesta et al. 1997; Loponte and De Santis 1995; Loponte et al. 1994–1995; Paleo and Perez Meroni 1995, 1999).

FORM AND FUNCTION. Baculum is small, narrow, and not very expanded at the extremes. Mean and *SD* (in mm) of total length, proximal and distal breadth of baculum, respectively, for 12 individuals are: 6.4 (0.4); 1.32 (0.21); 0.9 (0.11). Spermatozoa of *C. talarum* are simple, symmetrically-shaped cells (Jones 1975).

Incisor procumbency is not the determinant factor during excavation, because the masseter superficialis, masseter lateralis profundus, masseter medialis, temporalis, pterygoideus internus, pterygoideus externus, digastricus, acromiotrapezius, cleidomastoideus, and sternomastoideus assist forelimbs in construction and compaction of tunnels (De Santis et al. 1998). Dental formula is 1/1, c 0/0, pm 1/1, m 3/3, total 20. Microstructure of incisor enamel indicates that incisors may assist in excavation and transportation and movement of obstacles in tunnels (Justo et al. 1995).

Seasonal molt in *C. talarum* occurs during summer and autumn. Molt has 5 phases, showing some intersexual differences in the location and beginning of the anagenetic and telogenetic signs. Females molt earlier than males (Justo et al. 1992).

Hyperglycemia and cataracts occur in captive Talas tuco-tucos (Weir et al. 1969). In 1 captive colony, 40%, of the animals showed eye lens changes. Blood sugar level (mean ± *SD*) for animals with normal lenses was 101 ± 34 mg/100 ml, compared with 150 ± 30 mg/100 ml for animals with vacuoles, and 174 ± 58 mg/100 ml for animals with more advanced cataractous changes. These differences were significant. Fewer lens changes in the parent colony occurred (12 of 65). Blood sugar level of mothers was positively correlated with mean sugar levels of their respective litters (Weir et al. 1969).

Ctenomys talarum clearly distinguish individual odors that are important in spatial distribution. Each sex discriminates individual odors from its own or the opposite sex in urine or wood shavings. For feces, individual recognition was significant at the intersexual level (Fanjul et al. 2000).

Kidneys have a thick medulla, with a medulla-cortical ratio of 2.30. This allows the animals to live without drinking free water (Lauria de Cidre 1974).

ONTOGENY AND REPRODUCTION. Male *C. talarum* have a long reproductive competence, although most reproduction occurs between winter and spring. Some males are active during summer and mid-autumn. All males are reproductive in July, and then slightly fewer from August to November. The breeding season for females is more restricted. The highest percentage of pregnancies occurs in August (Malizia and Busch 1991). Estimated lactation period was 45 days (Weir 1974).

FIG. 1. *Ctenomys talarum*. Photograph by César García Esponda.

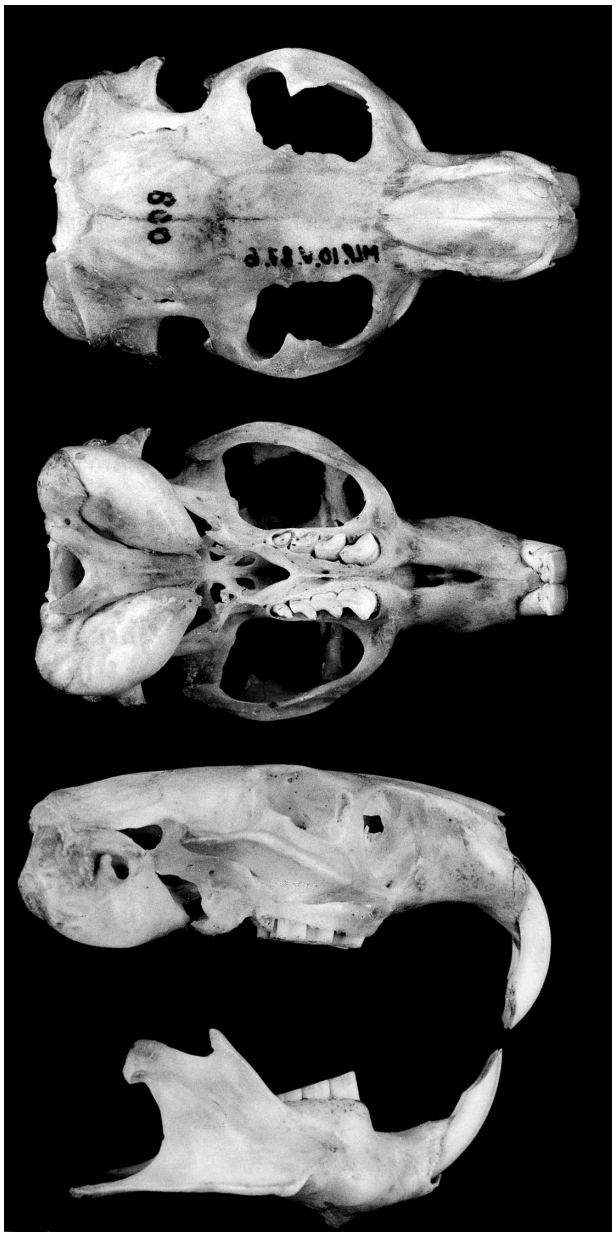

FIG. 2. Dorsal, ventral, and lateral view of cranium and lateral view of mandible of *Ctenomys talarum* (Museo de La Plata, MLP 10-V-87-6). Greatest length of skull is 43.84 mm. Photograph by C. García Esponda.

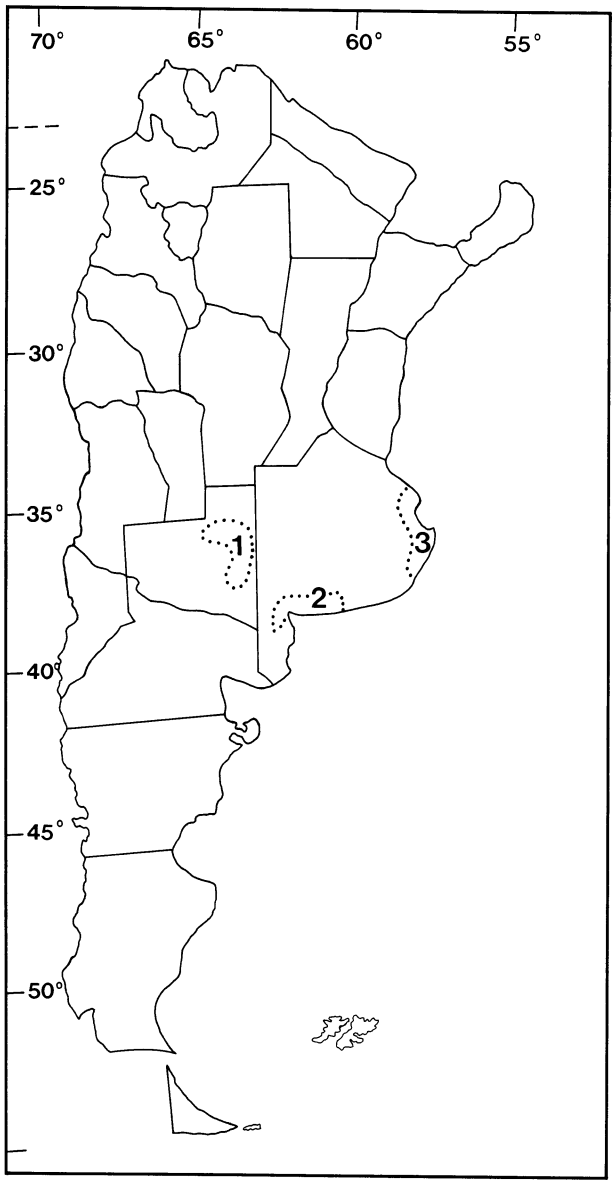

FIG. 3. Distribution of *Ctenomys talarum* in Argentina, modified from Justo (1992): 1, *C. t. occidentalis;* 2, *C. t. recessus;* 3, *C. t. talarum*.

Average litter size, from embryos and placental scars, was 4.09 ± 0.18 (*SD*) (n = 75). Right uterine horns tend to sustain more implantations than left cornu. Post-implantation losses are 2%. Based on the number of pregnant *C. talarum* during the breeding season, average number of litters year^{-1} female^{-1} is >1. Except in June, sex ratios depart from 1:1, with an excess of females on the order of 1:1.63 (Malizia and Busch 1991; Malizia et al. 1995).

Average weight (mean ± *SD*) at sexual maturity for females was 137.52 ± 14.57 g (n = 27) and for males was 176.62 ± 26.87 g (n = 24) (Malizia and Busch 1991). Once females reach maturity, they maintain a constant weight, despite an increase in eye lens weight. Thus, body mass is not a good indicator of age (Pearson et al. 1968).

ECOLOGY. *Ctenomys talarum* lives in sympatry with a larger species, *C. australis*, in the eastern portion of its range (Contreras and Reig 1965) and with another large species, *C. azarae*, in its western range (Justo 1992). The contact zone between these species occurs in soils varying from sandy to loamy (Justo 1992). *C. talarum* prefers the loamy soils where the vegetation tends to be more dense with grasses, perennials, and woody shrubs (Comparatore et al. 1992; Justo 1992).

Talas tuco-tucos preferentially consume *Bromus unioloides*. Animals maintained in captivity and fed ad libitum with this grass ate 23.08 g ± 4.40 (*SD*; *n* = 6) of fiber per meal (Martino et al. 1999).

Density of a population from Magdalena was 207 individuals/ha (Pearson et al. 1968). At Mar de Cobo, density was 67 individuals/ha (Busch et al. 1987). The number of mounds may indicate density of animals; in an experimental plot, density was 700 mounds/ha (Pearson et al. 1968). In an open area of La Pampa, 887 mounds/ha for *C. talarum* were present (Justo 1992).

Only 1 individual occupies a burrow. Females and males distribute themselves uniformly over an area. Sex ratios did not differ from 1:1 in transients and dispersers, whereas residents have an excess of females (Malizia et al. 1995; Pearson et al. 1968). Depth of burrows ranges between 10 and 35 cm (Contreras 1973).

Mortality rates were 0.05/week, and survivorship was lower over winter than in summer. Probability of survival in winter (March–October) was 0.19 and probability in summer (October–March) was 0.38. In Mar de Cobo and north east Buenos Aires

province, few animals live through >2 reproductive seasons (Busch et al. 1989; Pearson et al 1968).

The reproductive cycle may be bimodal with an inactive period of 6–8 months (Contreras 1973). *C. talarum* from Magdalena and Mar de Cobo has 2 litters per year with breeding mostly during the second half of the year (Contreras and Reig 1965). Breeding season is short in Magdalena, with most births occurring September–December (Pearson et al. 1968). The breeding season in Mar de Cobo lasted 9 months and included winter, spring, and summer with most births occurring October–November. Mean prevalence of pregnancy was 0.66, with a mean of 3.9 ± 0.3 (*SD*) embryos/pregnant female (n = 67); spermatozoa were present in the epididymis of adult males year-round (Busch et al. 1989).

Mean distance to nearest neighbor did not change significantly during the year. However, in October and November when most females were pregnant or lactating, females tended to be spaced more widely, 18.94 m ± 4.70 (*SE*) and 16.60 m ± 4.60 (*SE*). Males tended to be nearest each other at the beginning of the reproductive season, 18.05 m ± 2.47 (*SE*—Busch et al. 1989). In March at Magdalena, distance between adult males was 7.61 m and that for adult females was 8.95 m (n = 113) (Pearson et al. 1968).

Mean (± *SD*) home-range size was 12.3 m^2 ± 3.3 for 5 males and 8.7 ± 0.8 m^2 for 15 females at Mar de Cobo (n = 113). Females were more restricted to their burrow systems than males; relatively more males (65%) than females (58%) were livetrapped only once (Busch et al. 1989). Average weekly dispersal by Talas tuco-tucos was 2.38% (range, 0–5.75%) at Necochea and 5.75% (range, 0–15.75%) at Mar de Cobo (Malizia et al. 1995).

Talas tuco-tucos were removed from a 3200 m^2 plot to observe dispersal and recovery of the population. One month later 20–25 individuals had reestablished in the area. None were old animals and males slightly outnumbered females. These immigrants were removed and 1 month later 5 males and 3 females occupied the study area (Pearson et al. 1968). Similar experiments at Mar de Cobo and Necochea reported a total of 59 and 51 individuals colonizing experimental plots, with a weekly average recovery of 5.75% and 2.31%, respectively (Malizia et al. 1995). Transients and dispersers from both populations included a higher number of immature individuals than previous residents.

Burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), barn owl (*Tyto alba*), and red-backed hawk (*Buteo polyosoma*) are predators of *C. talarum* (Bó et al. 2000; De Santis et al. 1983; Pearson et al. 1968; Vasallo et al. 1994). In *Tyto alba* pellets, *C. talarum* was 50% of diet and occurred in a greater proportion than *C. australis* in pellets of *A. flammeus* and *B. polyosoma* (Vasallo et al. 1994).

Eulinognathus americanus, *Gyropus parvus*, and *Phtheropoios forficulatus* are lice endemic to *Ctenomys;* all of them parasitize *C. talarum* (Castro and Cichino 1990; Cichino and Castro 1994, 1998; Contreras et al. 1992, 1999). Nematoda parasitize *C. talarum*: Trichostrongylidae in small intestine and Trichuridae in caecum. The intensity of parasitism differs in males and females, but prevalence does not differ between sexes (Rossin et al. 1999).

In some agricultural areas in Buenos Aires province, the Talas tuco-tuco mounds denude soils (Contreras 1973). Fires in the shrub grasslands of Buenos Aires may not affect tuco-tucos (Contreras 1973).

BEHAVIOR. The courtship and parental behavior of *Ctenomys talarum* includes different vocalizations. Only 1 male copulated with all females (Zenuto et al. 1996).

Ctenomys talarum microhabitat is not optimal for and not preferred by *C. australis*. Conversely, after a removal trapping experiment, the less vegetated and friable soil area where *C. australis* lives was not occupied by *C. talarum* (Vasallo 1993). Distance traveled and maximum speed in seminatural and controlled experiments was 163.183 ± 39.184 m/sec and 131.250 ± 41.139 m/sec, respectively, for adults, with no sex differences (Luna et al. 1999).

GENETICS. *Ctenomys talarum* has a variable diploid number from 46 to 50 chromosomes (Reig et al. 1992) with a fundamental number of 73–86 (Kiblisky and Reig 1966; Massarini et al. 1991; Ortells et al. 1984; Reig and Kiblisky 1969; Reig et al. 1990; Vidal Rioja 1985). C-banding patterns differ between specimens studied from Magdalena, near the type locality, and localities 40–150 kilometers distant (Reig et al. 1992).

Ctenomys talarum and *C. pundti* belong to a group of symplesiomorphic species sharing similar spermatozoa, cranial morphology, parasite relationships, and molecular features with *C. opimus* (Contreras et al. 1992; Contreras and Justo 1997; Justo and Contreras 1999; Rossi et al. 1993). Banding patterns of *C. talarum* (2n = 44 and 2n = 48), *C. opimus* (2n = 46), and *C. pundti* (2n = 50) fail to establish phylogenetic relationship among the species; however, cytochrome b indicates they are related (Ipucha et al. 2000).

REMARKS. Based on cranial remains from barn owl pellets, Massoia (1990) suggested *C. talarum* could be a junior synonym of fossil *C. lujanensis* (Ameghino 1889). The etymology of the generic name *Ctenomys* refers to "mice with combs" and the specific name, *talarum,* to the type locality: Los Talas.

We thank 2 anonymous reviewers for comments in an earlier draft of the account. Eric Yensen and Teresa Tarifa provided extremely useful comments on the manuscript and G. Moreira and C. García Esponda helped with photographs and map. This is a contribution to Plan No. 257, Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata (UNLP), República Argentina.

LITERATURE CITED

Ameghino, F., 1889. Contribución al conocimiento de los mamíferos fósiles de la República Argentina. Actas de la Academia Nacional de Ciencias de Córdoba 6:1–1027.

Balesta, B., C. Paleo, M. Perez Meroni, and N. Zagorodny. 1997. Revisión y estado actual de las investigaciones arqueológicas en el Parque Costero Sur (partido de Magdalena, provincia de Buenos Aires). Pp. 147–160 in Arqueología Pampeana en la década de los 90 (M. Beron and G. Politis, eds.). Museo Municipal de Historia Natural de San Rafael, Mendoza, Argentina.

Bó, M. S., S. Rodriguez, S. Bachmann, R. J. Vargas, and C. A. Darrieu. 2000. Importancia de los mamíferos en la dieta invernal del aguilucho común *Buteo polyosoma* en Mar Chiquita (Provincia de Buenos Aires). Libro de resúmenes de las XV Jornadas Argentinas de Mastozoología [no volume number]:38.

Busch, C., A. Malizia, and O. Scaglia. 1987. Parámetros demográficos y reproductivos de una población de *Ctenomys talarum*. Actas de la XIII Reunión Argentina de Ecología [no volume number]:15.

Busch, C., A. Malizia, O. Scaglia, and O. A. Reig. 1989. Spatial distribution and attributes of a population of *Ctenomys talarum* (Rodentia: Octodontidae). Journal of Mammalogy 70: 204–208.

Castro, D., and A. C. Cichino. 1990. Contribución al conocimiento de *Eulinognathus americanus* Ewing, 1923 y *E. torquatus* Castro, 1982 (Phthiraptera, Anoplura, Polyplacidae). Revista Brasileira do Entomologia 34:531–537.

Cichino A. C., and D. Castro. 1994. On *Gyropus parvus parvus* (Ewing, 1924) and *Phtheiropoios rionegrensis* sp. n. (Phthiraptera, Amblycera, Gyropidae), parasitic on *Ctenomys haigi* Thomas, 1919 (Mammalia. Rodentia, Ctenomyidae). Iheringia, Serie Zoologia, Porto Alegre 77:3–14.

Cichino A. C., and D. Castro. 1998. Identificación de las especies de Gyropidae (Phthiraptera, Amblycera) parásitas de Ctenomyidae (Rodentia) de la Provincia de Buenos Aires, Argentina, en base a la morfología coriónica externa de los huevos. Revista Brasileira do Entomologia 41:199–202.

Comparatore, V. M., M. Agnusdei, and C. Busch. 1992. Habitat relations in sympatric populations of *Ctenomys australis* and *Ctenomys talarum* (Rodentia, Octodontidae) in natural grassland. Zeitschrift für Säugetierkunde 57:47–55.

Contreras, J. R. 1973. El tuco-tuco y sus relaciones con los problemas del suelo en la Argentina. Idia 29:14–36.

Contreras, J. R., and O. A. Reig. 1965. Datos sobre la distribución del género *Ctenomys* (Rodentia) en la zona costera de la provincia de Buenos Aires comprendida entre Necochea y Bahía Blanca. Physis 69:169–186.

Contreras, J. R., and E. R. Justo. 1997. Outline of the evolution of the South American fossorial rodents of the genus *Ctenomys* (Rodentia: Ctenomyidae). Abstracts of Oral and

Poster papers of the Seventh International Theriological Congress [no volume number]: 55.

CONTRERAS, J. R., D. C. CASTRO, AND A. C. CICCHINO. 1992. Acerca de las relaciones de los parásitos Phthiraptera (Amblycera, Gyropidae) de los roedores excavadores del género *Ctenomys* (Rodentia, Ctenomyidae) con la evolución taxonómica de los huéspedes. Libro de resúmenes de las VI Jornadas de Ciencias Naturales del Litoral [no volume number]: 90–92.

CONTRERAS, J. R., D. C. CASTRO, AND A. C. CICCHINO. 1999. Relaciones de los Phthiraptera (Insecta, Amblycera, Gyropidae) con la evolución taxonómica de los roedores del género *Ctenomys* (Mammalia: Rodentia, Caviomorpha: Ctenomyidae). Ciencia Siglo XXI, 2:1–32.

DE SANTIS, L. J. M., C. I. MONTALVO, AND E. R. JUSTO. 1983. Mamíferos integrantes de la dieta de *Tyto alba* (Aves, Strigiformes, Tytonidae) en la provincia de La Pampa, Argentina. Historia Natural 3:187–188.

DE SANTIS, L. J. M., G. J. MOREIRA, AND E. R. JUSTO. 1998. Anatomía de la musculatura branquiomérica de algunas especies de *Ctenomys* Blainville, 1826 (Rodentia, Ctenomyidae): caracteres adaptativos. Boletín de la Sociedad de Biología de Concepción, Chile 69:89–107.

FANJUL, M. S., R. R. ZENUTO, AND C. BUSCH. 2000. Discriminación olfativa a nivel de individuo en el roedor subterráneo *Ctenomys talarum* (Rodentia: Octodontidae). Libro de resúmenes de las XV Jornadas Argentinas de Mastozoologia [no volume number]: 55.

IPUCHA, M. C., M. D. GIMÉNEZ, AND J. C. BIDAU. 2000. Bandeo cromosómico con endonucleasas de restricción en especies del género *Ctenomys* (Rodentia, Ctenomyidae). Libro de resúmenes de las XV Jornadas Argentinas de Mastozoología [no volume number]:71.

JONES, R. C. 1975. The ultrastructure of spermatozoa from some hystricomorph rodents. Pp. 251–258 in The functional anatomy of the spermatozoon (B. Afzelius, ed.). Pergamon Press, Oxford, Great Britain.

JUSTO, E. R. 1992. *Ctenomys talarum occidentalis*: una nueva subespecie de tuco-tuco (Rodentia) en La Pampa, Argentina. Neotrópica 38:35–40.

JUSTO, E. R., AND J. R. CONTRERAS. 1999. Chromosomes and zoogeography of fossorial rodents of the genus *Ctenomys* (Rodentia, Caviomorpha, Ctenomyidae) from the South American lowlands east of the Andes. Folia Zoologica 48 (Supplement 1):29–34.

JUSTO, E. R., M. S. KIN, AND L. J. M. DE SANTIS. 1992. La muda del pelaje en *Ctenomys talarum* (Rodentia) de la provincia de La Pampa. Neotrópica 38:97–103.

JUSTO, E. R., L. E. BOZZOLO, AND L. J. M. DE SANTIS. 1995. Microstructure of the enamel of some Ctenomyid and Octodontid rodents (Rodentia, Caviomorpha). Mastozoología Neotropical 2:43–51.

KIBLISKY, P., AND O. A. REIG. 1966. Variation in chromosome number within the genus *Ctenomys* and description of the male karyotype of *Ctenomys talarum talarum* Thomas. Nature 212:436–438.

LAURIA DE CIDRE, L. 1974. Estudio histológico del riñón de *Ctenomys talarum* (Mammalia, Ctenomyidae). Physis 86:157–162.

LOPONTE, D., AND L. J. M. DE SANTIS. 1995. Variabilidad ambiental y problemas metodológicos: el caso del registro arqueofaunístico en el norte de la provincia de Buenos Aires. Actas de las II Jornadas Chivilcoyanas en Ciencias Sociales y Naturales [no volume number]:137– 143.

LOPONTE, D., L. J. M. DE SANTIS, AND A. ACOSTA. 1994–1995. El sitio arqueológico "Arroyo Corrientes." Palimpsesto 4:103–104.

LUNA, F., C. D. ANTINUCHI, AND C. BUSCH. 1999. Distancia recorrida y velocidad de desplazamineto de *Ctenomys talarum* en condiciones de cautiverio. Libro de resúmenes de las XIV Jornadas Argentinas de Mastozoología [no volume number]: 69.

MALIZIA, A. M., AND C. BUSCH. 1991. Reproductive parameters and growth in the fossorial rodent *Ctenomys talarum* (Rodentia). Mammalia 55:293–305.

MALIZIA, A., R. R. ZENUTO, AND C. BUSCH. 1995. Demographic and reproductive attributes of dispersers in two populations of the subterranean rodent *Ctenomys talarum* (tuco-tuco). Canadian Journal of Zoology 73:732–738.

MARTINO, N., R. R. ZENUTO, AND C. BUSCH. 1999. Respuestas nutricionales a corto plazo en *Ctenomys talarum*. Libro de resúmenes de las XIV Jornadas Argentinas de Mastozoología [no volume number]: 70.

MASSARINI, A., M. A. BARROS, M. O. ORTELLS, AND O. A. REIG. 1991. Evolutionary biology of fossorial Ctenomyinae rodents (Caviomorpha). 1. Chromosomal polymorphism and small karyotypic differentiation in central Argentinean populations of tuco-tucos. Genetica 83:131–144.

MASSOIA, E. 1990. Roedores depredados por *Tyto alba tuidara* en Mar del Tuyu, partido de Gral. Lavalle, provincia de Buenos Aires. Boletín Científico de la Asociación para la Protección de la Naturaleza 17:17–20.

ORTELLS, M. O., A. D. VITULLO, M. S. MERANI, AND O. A. REIG. 1984. Identidad cromosómica entre dos razas geográficas de tuco-tucos (*Ctenomys talarum*). Revista del Museo Argentino de Ciencias Naturales B. Rivadavia, Ciencias. Zoológicas 13: 479–484.

PALEO, M. C., AND M. PEREZ MERONI. 1999. Nuevos aportes a la arqueología del Partido de Punta Indio. Actas del XII Congreso Nacional de Arqueología Argentina 3:165–177.

PEARSON, O. P., ET AL. 1968. Estructura social, distribución espacial y composición por edades de una población de tucotucos (*Ctenomys talarum*). Investigaciones Zoológicas Chilenas 13:47–80.

PEREZ MERONI, M., AND M. C. PALEO. 1995. "Don Gerardo, un nuevo sitio arqueológico en el Partido de Punta Indio, en la Provincia de Buenos Aires. II. Jornadas Chivilcoyanas en Ciencias Sociales y Naturales [no volume number]:187– 190.

REDFORD, K. H., AND J. F. EISENBERG. 1992. Mammals of the Neotropics. The southern cone. University Chicago Press, Illinois.

REIG, O. A. 1958. Notas para una actualización del conocimiento de la fauna de la formación Chapadmalal. I. Lista faunística preliminar. Acta Geológica Lilloana 2:241–253.

REIG, O. A., J. R. CONTRERAS, AND M. J. PIANTANIDA. 1965. Contribución a la elucidación de la sistemática de las entidades del género *Ctenomys* (Rodentia, Octodontidae). I. Relaciones de parentesco entre muestras de ocho poblaciones de tucotucos inferidas del estudio estadístico de variables del fenotipo y su correlación con las características del cariotipo. Contribuciones científicas de la Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Serie Zoología 2:300–352.

REIG, O. A., AND P. KIBLISKY. 1969. Chromosome multiformity in the genus *Ctenomys* (Rodentia, Octodontidae). A progress report. Chromosoma (Berlin), 28:211–244.

REIG, O. A., C. BUSCH, O. ORTELLS, AND J. R. CONTRERAS. 1990. An overview of evolution, systematics, population biology and speciation in *Ctenomys*. Pp. 71–96 in Biology of subterranean mammals at organismal and molecular levels (E. Nevo and O. A. Reig, eds.). Alan R. Liss Inc., New York.

REIG, O. A., A. I. MASSARINI, M. O. ORTELLS, M. A. BARROS, S. I. TIRANTI, AND F. J. DYZENCHAUZ. 1992. New karyotypes and C-banding patterns of the subterranean rodents of the genus *Ctenomys* (Caviomorpha) from Argentina. Mammalia 56:603–623.

ROSSI, M. S., O. A. REIG, AND J. ZORZOPPULOS. 1993. A major satellite DNA from the South American rodents of the genus *Ctenomys*. Quantitative and qualitative differences in species with different geographic distribution. Zeitschrift für Säugetierkunde 58:244–251.

ROSSIN, M. A., A. I. MALIZIA, AND N. SARDELLA. 1999. Estudio de la fauna endoparasitaria de *Ctenomys talarum* (Rodentia: Octodontidae) de la localidad de Necochea. Libro de resúmenes de las XIV Jornadas Argentinas de Mastozoología [no volume number]: 79.

THOMAS, O. 1898. Descriptions of two new Argentine rodents. Annals and Magazine of Natural History, Series 7, 1:283–286.

THOMAS, O. 1912. A new genus of opossum and a new tuco-tuco. Annals and Magazine of Natural History, Series 8, 9:239–241.

VASALLO, A. I. 1993. Habitat shift after experimental removal of the bigger species in sympatric *Ctenomys talarum* and *Ctenomys australis* (Rodentia: Octodontidae). Behaviour 127:247–263.

VASALLO, A. I., M. J. KITTLEIN, AND C. BUSCH. 1994. Owl predation on two sympatric species of tuco-tucos (Rodentia: Octodontidae). Journal of Mammalogy 75:725–732.

VIDAL RIOJA, L. 1985. Chromosome polymorphism in *Ctenomys talarum* (Rodentia). Caryologia 38:169–178.

WEIR, B. J. 1974. Reproductive characteristics of hystricomorph rodents. Symposia of the Zoological Society of London 34:265–301.

WEIR, B. [J.], P. H. WISE, J. M. HIME, AND E. FORREST. 1969. Hyperglycemia and cataract in the tuco-tuco. Journal of Endocrinology 43:7–8.

WOODS, C. A. 1993. Suborder Hystricognathi. Pp. 771–806 in Mammal species of the world: a taxonomic and geographic reference (D. E. Wilson and D. M. Reeder, eds.). Smithsonian Institution Press, Washington, D.C.

ZENUTO, R. R., A. I. VASALLO, AND C. BUSCH. 1996. Comportamieto social y reproductivo de *Ctenomys talarum* en cautiverio. Libro de resúmenes de las XI Jornadas Argentinas de Mastozoología [no volume number]:9–10.

Associate editors for this account were ELAINE ANDERSON and SERGE LARIVIÈRE. Editor was VIRGINIA HAYSSEN.

E. JUSTO AND M. S. KIN, FACULTAD DE CIENCIAS EXACTAS Y NATURALES, URUGUAY 151, L6300 SANTA ROSA, ARGENTINA. L. J. M. DE SANTIS, MUSEO DE LA PLATA, PASEO DEL BOSQUE S/N, 1900 LA PLATA, ARGENTINA.