Journal of Mammalogy, 83(3):834–842, 2002

A NEW SPECIES OF *THOMASOMYS* (MURIDAE: SIGMODONTINAE) FROM THE ANDES OF SOUTHEASTERN PERU

LUCÍA LUNA* AND VÍCTOR PACHECO

Division of Mammals, The Field Museum, 1400 S. Lake Shore Drive, Chicago, IL 60605-2496 and Department of Biological Sciences, University of Illinois at Chicago, 845 West Taylor Street, Chicago, IL 60607-7060 (LL)
Departamento de Mastozoología, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Aptdo. 14-0434, Lima, Peru (VP)

We describe a new species of *Thomasomys* from the Vilcabamba Cordillera, Cuzco, Peru. This thomasomyine is a medium-sized, small-eared, and long-tailed rodent similar in external and cranial features to *Thomasomys silvestris*, a species from the western Andean slopes of Ecuador. The new species presents a unique combination of characters that includes the absence of genal vibrissae, absence of a ''gap'' between the hypothenar and thenar pads, short incisive foramina, and a primitive pattern of carotid circulation. The proposed new species is known only from the type locality, suggesting that its restricted distribution could be attributed to the existence of a relict fauna in the area.

Key words: new species, Peru, rodent, Sigmodontinae, *Thomasomys*, Vilcabamba

---

In 1997, Conservation International sponsored an expedition with participants including biologists from the National Museum of Natural History, the Smithsonian Institution, and Museo de Historia Natural of the Universidad Nacional Mayor de San Marcos, Peru. The team surveyed mammals at 2 localities in the Vilcabamba Cordillera in Junín and Cuzco departments, Peru at 2,050 and 3,350 m elevation. This region had been previously inventoried only by Terborgh and Weske, who surveyed the Apurímac Valley collecting birds and bats along an elevational gradient of mainly montane forest (Koopman 1978), and by Edmund Heller in 1915 in Macchu Picchu, a nearby locality in the department of Cuzco (Thomas 1920). Among the 16 species of murids found in Vilcabamba (Emmons et al. 2001), 1 species of *Thomasomys* was captured at 3,350 m in elfin forest, the habitat termed ''monte chico'' by Terborgh (1971). This species is more similar to the Ecuadorean species *T. silvestris* and *T. caudivarius* (recognized here as a full species by V. Pacheco) than to other species from the same area. Detailed comparisons of skin, cranial, and molar characters revealed it to be different from other species currently known, and it is described in the following.

* *Correspondent: lluna@fmnh.org*

MATERIALS AND METHODS

Specimens examined and acronyms of institutions are listed in Appendix I. The measurements used here are as defined and illustrated by Voss (1991) and Musser et al. (1998). Terminology of external anatomy follows Brown (1971), cranial and dental anatomy follows Hershkovitz (1962, 1994), Carleton (1980), Carleton and Musser (1989), Voss (1991, 1993), and Steppan (1995). Patterns of carotid arterial supply follow Voss (1988). Our nomenclature for color terms follows Ridgway (1912). Age categories used here are as described and illustrated by Voss (1991). Measurements are in millimeters (Appendix II). All external measurements except vibrissae length were taken in the

field on fresh specimens and recorded on skin labels.

RESULTS

Thomasomys onkiro, new species

Holotype.—Adult female, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos (MUSM 13064), collected by Louise H. Emmons on 14 June 1997 (original field number LHE 1354). The holotype is a well-made skin with skull, hyoid, and dentaries in good condition.

Paratypes include 4 specimens (skins with skulls, dentaries, and hyoids) collected from the same traplines (MUSM 13063, 13065, USNM 582123, 582124).

Type locality.—PERU: Department of Cuzco, Province of La Convención, Vilcabamba Cordillera, eastern slope of the Andes, between the Ene and Urubamba rivers, 325 km northwest of city of Cuzco, 11°39′36″S; 73°40′02″W, at 3,350 m elevation in elfin forest patches of *Polylepis*, *Weinmannia*, and *Chusquea*. Same type locality as that of *Cuscomys ashaninka* (see Emmons 1999:figure 1).

Etymology.—From the indigenous Ashaninka word ''onkiro,'' meaning mouse. The collection locality lies within the traditional territory of the Ashaninka people.

Diagnosis.—A species of the subfamily Sigmodontinae (sensu Reig 1980). A medium-sized *Thomasomys* with soft, long, and dense fur; tail longer than head and body, monocolored with tip white; pinnae small; sides and toes of manus silvery white and foot with metatarsals brown. Six mammae. Dorsal pelage Buffy Brown, fur on ventral side paler Buffy Yellow without pectoral lines. Genal vibrissae absent and mystacial vibrissae extending a little beyond posterior edge of the pinnae (in dry specimens). Six plantar pads, fleshy and conspicuous. Proximal margin of hypothenar pad levels with distal margin of thenar pad. Rostrum narrower than interorbital breadth, anterior half of nasals slightly spatulated and projected onto sides of rostrum. Mesopterygoid fossa narrow with anterior margin smoothly rounded and without medial process. Carotid circulation of pattern 1 with squamosal alisphenoid groove and sphenofrontal foramen present. Alisphenoid strut present. Upper molar toothrow with weak labial cingula close to mesolophs of M1 and M2.

Measurements of holotype.—External measurements (mm): length of head and body, 107; tail length, 153; length of hind foot, 27; ear length, 20; length of dorsal fur, 12.48; length of longest mystacial vibrissae, 37.89; and length of longest superciliary vibrissae, 19.

Cranial measurements (mm).—Greatest length of skull, 29.37; condyloincisive length, 26.32; condylomolar length, 16.64; length of rostrum, 9.44; breadth of rostrum, 4.45; length of orbital fossa, 8.8; length of nasal, 10.8; breadth of nasal, 3.01; least interorbital breadth, 5.25; length of diastema, 8.3; length of bony palate, 4.96; breadth of bony palate, 6.42; postpalatal length, 9.95; length of incisive foramina, 5.41; breadth of incisive foramina, 1.79; length of maxillary toothrow, 4.56; breadth of palatal bridge, 3.37; breadth of 1st upper molar, 1.4; zygomatic breadth, 15.88; breadth of braincase, 14.03; breadth of zygomatic plate, 1.94; depth of incisor, 1.35; height of braincase, 9.18; and width of mesopterygoid fossa, 2.09. This specimen belongs to toothwear class 2.

Description.—*Thomasomys onkiro* is a medium-sized mouse with soft and long dorsal fur (average length = 12.72 mm). Dorsal pelage Buffy Brown, dark neutral gray at base with Buffy Brown tips; guard hairs uniformly dark; sides with same basal coloration but hair tips Buff. Ventral pelage tipped with Buffy Yellow; thoracic region without pectoral lines. Chin and philtrum with silvery white hairs. Mystacial, superciliary, and carpal vibrissae present. Ratio of longest mystacial vibrissa to length of head-body averages 0.36. Pinnae small, proximally covered with long hairs of similar color to the head, outer and inner edges

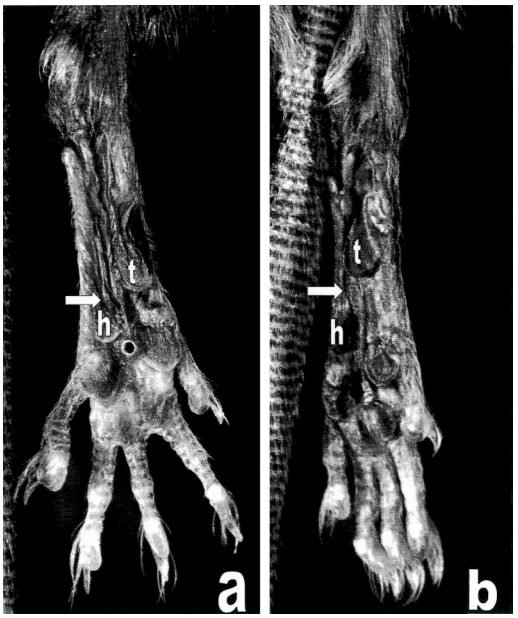

FIG. 1.—Detail of plantar pads of left foot of a) *Thomasomys onkiro* (MUSM 13064) and b) *Thomasomys silvestris* (USNM 513592); h, hypothenar pad; t, thenar pad. Arrow indicates absence of gap between hypothenar and thenar pads in *T. onkiro* and gap in *T. silvestris*.

with short, dark brown hairs. Outer sides of the manus, wrist, and fingers notably white.

Hind feet long and narrow with metatarsals of digits 2–4 distal to metatarsal of digit 5. Claw of digit 5 reaches 2nd phalanx but shorter than base of claw of digit 4. Claw of digit 1 extends slightly behind interphalangeal joint of digit 2 (Fig. 1a). Dorsal surface of pes covered with dark brown hair to the base of digits; from this point hairs gradually silvery white. Ungual tufts extend beyond claws of all 5 digits (Fig. 1a). Outer margins of hind foot clothed with transparent hairs. Heel covered with brown hair with golden tips that reach outer margin of pes. Plantar pads fleshy and conspicuous. Surface of the soles not scaly.

Tail is long (58–61% of total length and 134–153% of length of head and body), with scales in annular disposition and conspicuous. Hairs at base of tail cover 2–2.5 scales. White distal tip of tail is variable in length, from 0% (only white hair in the tip) to 16%, without apparent correlation to age or sex.

Rostrum long and slender. Nasals narrow, anterior half slightly spatulated and projected onto sides of rostrum. Posterior margin of nasals level with or slightly anterior to lacrimals. Zygomatic notch shallow, its anterior margin posterior to nasolacrimal capsule. Interorbital region moderately broad, short, and hourglass-shaped, with smooth edges. Zygomatic arches anteriorly convergent. Skull profile convex with highest part in parietals; nasofrontal surface planar. Upper incisors orthodont (Hershkovitz 1962). Nasals projected slightly anterior to premaxillaries. Anterior margins of premaxillaries protruding like lobes. Zygomatic plate narrow with anterior margin straight, vertical, and posterior to nasolacrimal capsule (Fig. 2). Jugal bone conspicuous. Squamosal alisphenoid groove, sphenofrontal foramen, and alisphenoid strut present (carotid circulation pattern 1). Tegmen tympani overlaps posterior suspensory process of squamosal. Flat posterior end of the thin hamular process lies on periotic. Subsquamosal fenestra and postglenoid foramen subequal in size (Fig. 2). Mastoid fenestra variable in shape and size. Supraoccipital–parietal suture reduced. Incisive foramina parallel-sided, but broader at premaxillary–maxillary suture, posterior margin of foramina separated from anterior margin of M1 by an average of 0.5 mm (Fig. 2). Ratio of breadth of incisive foramina and its length averages 0.34. Upper molar toothrows parallel.

Palate broad and slightly concave, the posterior margin extending to M3 hypocone–hypoflexus. Mesopterygoid fossa with anterior margin smoothly rounded and sides parallel. Posterolateral palatal pits inconspicuous (Fig. 2). Roof of mesopterygoid fossa complete, inconspicuous vacuities in lateral walls of fossa (occasional slits between presphenoid and basisphenoid suture). Parapterygoid fossae flat slightly below level of palatine. Fontanelles usually

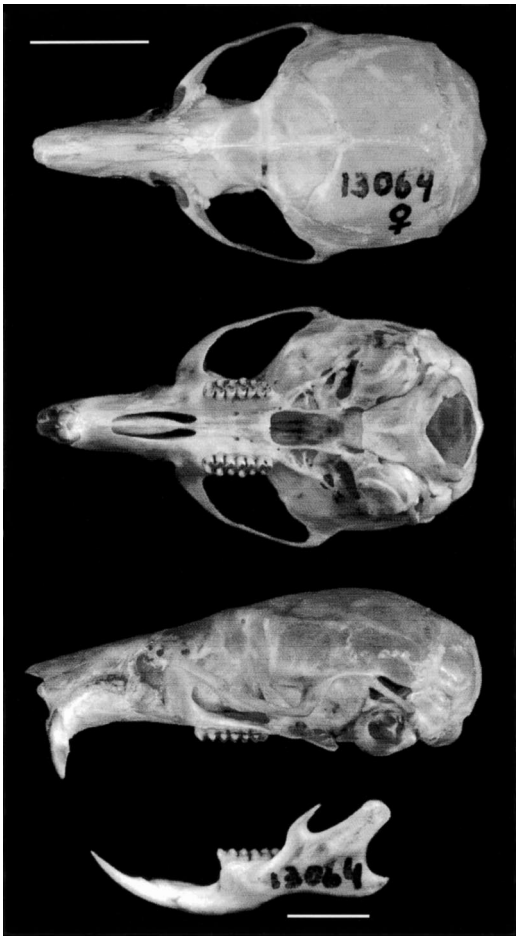

FIG. 2.—Dorsal (top), ventral (middle), and lateral (bottom) views of cranium and mandible (below cranium) of *Thomasomys onkiro*, new species, MUSM 13064. Scale for dorsal, ventral, and lateral views is 8.5 mm (top), for mandible 6.5 mm (bottom).

absent. Stapedial process of bulla inconspicuous, lacking contact with alisphenoid.

Stapedial foramen and carotid canal subequal in size. Internal carotid canal bounded by petrosal and ectotympanic portions of auditory bulla. Posterior opening of alisphenoid canal small and oval-shaped. Bullae small relative to skull size. Eustachian tubes are distinct and extend to pterygoid lobes.

Molars bunodont. Interpenetration of labial and lingual folds is only to toothrow axis, then paraflexus and metaflexus are directed around paracone and metacone. Anteromedian flexus is deep and becomes isolated with increased wear. Anterolingual and anterolabial conules are almost subequal. Posteroflexus is slightly deep and visible until toothwear class 3 (Voss 1991). Anteroloph and mesoloph reach labial side and form a cingulum. Mesoloph of M1 is often intercepted medially by a paralophule (Hershkovitz 1994) from paracone, and mesoloph of M2 is connected in its distal end by the same structure. M2 square in shape. M3 oval-shaped with a distinct hypoflexus (Fig. 3a, left photo).

In lower toothrow, anteromedian flexid of m1 is shallow and anteroconid variable in shape, anterolabial and anterolingual conulids almost subequal. Cingulum projects from anterolabial conulid to protoconid and encloses a small protolophid. Mesolophulid (Hershkovitz 1994) distinct and almost parallel to anterolophid, both reaching the lingual side. Ectolophids present in m1 of 3 individuals, but only ectostylids seen in m2. Mesolophid of m1 and m2 are connected distally or subdistally to entoconid by entolophulid (Fig. 3b, left photo).

Coronoid process is subequal to condyloid process. Angular process is anterior to condyloid process. Capsular process of lower incisor absent. Superior and inferior masseteric ridges are posterior to anterior margin of m1. Lower incisors are slender, anterior face light yellow (Fig. 2).

Basihyal of hyoid arched with a wide surface and slightly concave. Tyrohyal shorter than basihyal and arched exteriorly. Ventral margin of basihyal irregular and projected in its middle as an edge (observation made only in 2 specimens).

Comparisons.—Thomasomys onkiro can be readily distinguished from *T. caudivarius*, which is slightly larger (average of total length 264.6 versus 257; Appendix II), has longer, denser, fur of lighter tawny coloration, and longer Tawny Olive dorsal tips. Ventral coloration of *T. caudivarius* has same pattern as the buffy-tipped sides and

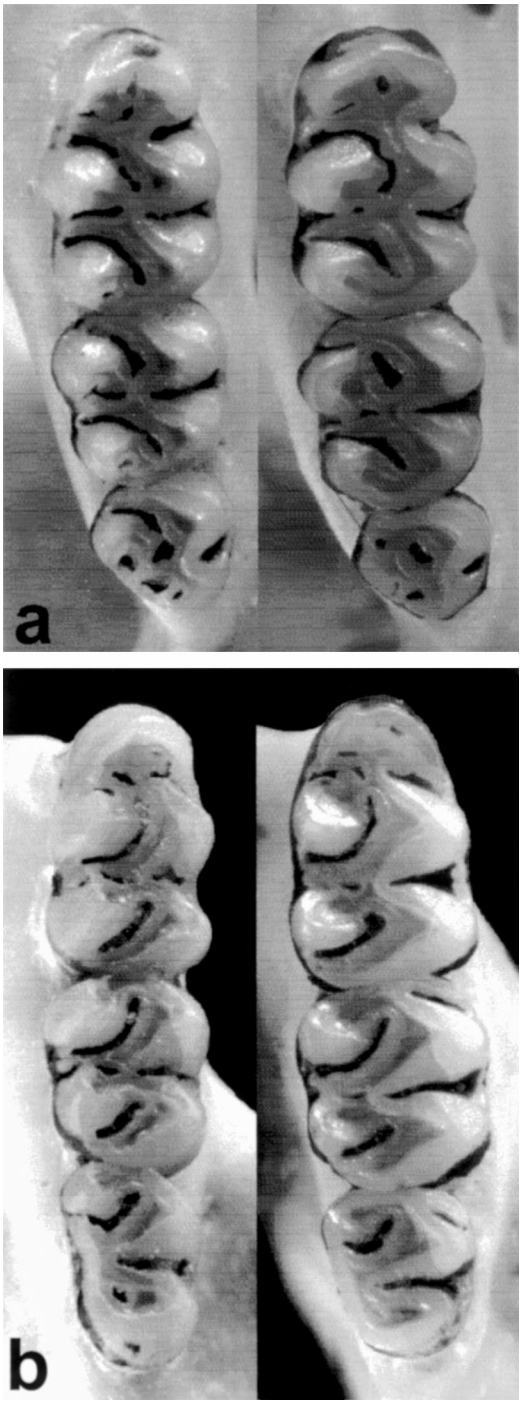

FIG. 3.—a) Occlusal view of upper right molars: *Thomasomys onkiro* (left, MUSM 13064), *Thomasomys silvestris* (right, USNM 513592). b) Occlusal view of lower right molars: *T. onkiro* (left, MUSM 13064), *T. silvestris* (right, USNM 513592).

cheeks but with longer tips, which are Chamois or Buffy Cream in some specimens. The throat is lighter. Hind foot is longer (29.7 versus 27 mm). Cranial features include mesopterygoid fossa narrower and with medial process usually present (6 out of 10 specimens in the type series, and 6 out of 7 in series from other), larger orbital fossa (9.6 versus 8.8), narrower interorbital breadth (4.8 versus 5.1), and longer molar toothrow (4.9 versus 4.6).

Thomasomys onkiro requires more detailed comparisons with *T. silvestris*. External coloration of *T. onkiro* is darker and more uniform than that of *T. silvestris* because the colored tips in dorsal fur of the former are shorter. *T. onkiro* has darker and shorter mystacial vibrissae (ratio of longest mystacial vibrissae to length of head and body 0.36 versus 0.44), subequal to posterior margin of pinnae, whereas in *T. silvestris* mystacials extend distinctly posterior to pinnae. Proximal margin of hypothenar pad level with distal margin of thenar pad, whereas in *T. silvestris* thenar and hypothenar pads are separated by a distinct gap (Figs. 1a and 1b).

Nasals of *T. onkiro* protrude anteriorly beyond premaxillaries, and anterior margins of the premaxillaries are lobed, whereas in *T. silvestris* nasal procumbency is less distinct and margins of premaxillaries are straight. Incisive foramina of *T. onkiro* is narrower, ratio of breadth to length of incisive foramina smaller (0.34 versus 0.4), and do not reach the anterior margin of M1, whereas in *T. silvestris* foramina usually reach anterior margin of M1 (Figs. 2 and 4).

Mesopterygoid fossa of *T. onkiro* is narrower (2.1 versus 2.5), anterior margin is smoothly rounded and almost square in shape, without medial process. Here lateral margins are parallel, whereas in most of the specimens of *T. silvestris* the fossa is lyre-shaped, more concave anteriorly, and bilobed because of presence of medial small process (Figs. 2 and 4). In addition, roof of mesopterygoid fossa in *T. onkiro* has con-

FIG. 4.—Dorsal (top), ventral (middle), and lateral (bottom) views of cranium, and mandible (below cranium) of *Thomasomys silvestris*, Anthony, 1924, from Ecuador, Pichincha, Zapadores, Rio Saloya, approximately 1,920 m (USNM 513592). Scale for dorsal, ventral, and lateral views is 8.0 mm (top), for mandible 6.5 mm (bottom).

spicuous slits in lateral walls of fossa on either side of presphenoid–basisphenoid suture, whereas in *T. silvestris* this is completely closed.

Compared with *T. silvestris*, *T. onkiro* has distinct M1–M2 paralophules. Labial cingulum at end of anteroloph and mesoloph is more conspicuous, and M1–M2 posteroflexi are deeper and distinct (Fig. 3a).

Thomasomys onkiro exhibits a cingulum in m1 that projects from anterolabial conulid to protoconid. In *T. silvestris* this cingulum is short and does not reach protoconid. Mesolophulid of *T. onkiro* reaches anterolophid and remains parallel-fused with it. This appears like 2 structures that reach lingual side, but in *T. silvestris* the corresponding structure reaches middle of anterolophid from metaconid but only the anterolophid reaches lingual side (Fig. 3b).

Thomasomys onkiro presents ectolophids in m1 of 3 individuals, but only ectostylids are seen in m2, whereas ectolophids are absent in m1 and m2 of *T. silvestris* (Fig. 3b).

DISCUSSION

Sixteen species of murid rodent are known from Vilcabamba Cordillera, Cuzco, Peru (Emmons et al. 2001), a large number considering that nearby localities in Manu National Park that have been inventoried for many more years have yielded only 20 species in montane habitats (Pacheco et al. 1993). Interestingly, the number of species of the genus *Thomasomys* is comparable at these 2 sites (6 species from Vilcabamba Cordillera, 5 species from Manu National Park). However, no species present at Manu or other nearby sites seem as similar to *T. onkiro* as do *T. silvestris* and *T. caudivarius*, distributed in Ecuador and northern Peru, respectively. The restricted distribution of *T. onkiro* might be attributed to fewer explorations in eastern central Peru or to the existence of a relict population of a once-widespread taxon. Given the exhaustive inventories made at similar habitats in Manu National Park, Cuzco (Pacheco et al. 1993); Yanachaga-Chemillén National Park, Pasco (Pacheco et al. 1994; E. Vivar, pers. comm.); Rio Abiseo National Park, San Martín (Leo and Romo 1992); and nearby localities in Bolivia, the hypothesis of a relict species seems the most acceptable.

Reports of new species from isolated cordilleras are not surprising because they may not have been extensively explored previously. Recently, a new species of Abrocomidae, *C. ashaninka*, was also reported from the Vilcabamba Cordillera (Emmons 1999).

Among murids, *T. onkiro* is the 1st new species reported from this region. As was the case with some species found in a recent survey of Rio Abiseo National Park (Gardner and Romo 1993), several other species from Vilcabamba appear to be new to science, but unfortunately at present most of them are represented only by single specimens.

Resumen

Describimos una especie nueva de *Thomasomys* de la Cordillera de Vilcabamba, Cuzco, Perú. Este thomasomino es un roedor de tamaño medio, orejas pequeñas y cola larga, similar en características externas y craneales a *Thomasomys silvestris*, una especie de las vertientes occidentales del Ecuador. Esta especie presenta una combinación única de carácteres que incluye la ausencia de las vibrisas genales, la ausencia de un espacio entre los cojinetes plantares hipotenar y tenar, foramenes de los incisivos cortos y un patrón de circulación carotídea primitiva. La especie es conocida solamente de la localidad tipo sugiriendo que esta restricción podría ser atribuída a la existencia de un relicto faunístico en el área de estudio.

Acknowledgments

This study was first supported by the Collection Study Grant of the American Museum of Natural History to L. Luna. We thank the following curators for allowing the use of specimens for comparisons and illustrations: R. S. Voss (AMNH), L. Albuja (EPN), B. D. Patterson (FMNH), R. M. Timm (KU), T. Yates (MSB), P. Myers (UMMZ) and M. D. Carleton (USNM). We thank M. D. Carleton specially for access to photographic equipment at USNM and to D. Schmidt (USNM) for his expert help during the photographic work. We thank Conservation International—Puerto Maldonado, Peru, for allowing L. Luna to use their graphic equipment to produce the illustrations, and B. D. Patterson for making available supplementary graphic facilities. We thank L. H. Emmons and M. Romo, who collected the specimens and encouraged us to describe them. These specimens were collected during a Rapid Assessment Program inventory at Vilcabamba Cordillera sponsored by Conservation International. This paper was completed while the senior author was supported by a National Science Foundation grant to B. D. Patterson and colleagues (Award 9870191). V. Pacheco's work was partially supported by an International Graduate Student Fellowship at the Center for Biodiversity and Conservation, AMNH. L. H. Emmons and B. D. Patterson read the manuscript of this description and offered helpful suggestions.

Literature Cited

Brown, J. C. 1971. The description of mammals. 1. The external characters of the head. Mammal Review 1:151–168.

Carleton, M. D. 1980. Phylogenetic relationships in neotomine-peromyscine rodents (Muroidea) and a reappraisal of the dichotomy within New World Cricetinae. Miscellaneous Publications of the Museum of Zoology, University of Michigan 157:1–146.

Carleton, M. D., and G. G. Musser. 1989. Systematic studies of oryzomyine rodents (Muridae, Sigmodontinae): a synopsis of *Microryzomys*. Bulletin of the American Museum of Natural History 191:1–83.

Emmons, L. H. 1999. A new genus and species of abrocomid rodent from Peru (Rodentia: Abrocomidae). American Museum Novitates 3279:1–14.

Emmons, L. H., L. Luna, and M. Romo. 2001. Mammals of the Northern Vilcabamba Mountain Range, Peru. Pp. 105–109 in Rapid Assessment Program (RAP) Working Papers 12, Biological and Social Assessments of the Cordillera de Vilcabamba, Peru (L. E. Alonso, A. Alonso, T. Schulenberg, and F. G. Dallmeier, eds.). Conservation International, Washington, D.C.

Gardner, A. L., and M. Romo. 1993. A new *Thomasomys* (Mammalia: Rodentia) from the Peruvian Andes. Proceedings of the Biological Society of Washington 106:762–774.

Hershkovitz, P. 1962. Evolution of Neotropical cricetine rodents (Muridae) with special reference to the phyllotine Group. Fieldiana: Zoology 46:1–524.

Hershkovitz, P. 1994. The description of a new species of South American hocicudo, or long-nose mouse genus *Oxymycterus* (Sigmodontinae, Muroidea), with a critical review of the generic content. Fieldiana: Zoology (New Series) 1460:1–43.

Koopman, K. F. 1978. Zoogeography of Peruvian bats with special emphasis on the role of the Andes. American Museum Novitates 2651:1–33.

Leo, M., and M. Romo. 1992. Distribución altitudinal de los roedores sigmodontinos (Cricetidae) en el Parque Nacional Rio Abiseo, San Martín, Perú. vol. 21. Pp. 105–118 in Memorias del Museo de Historia Natural (K. R. Young and N. Valencia, eds.). Universidad Nacional Mayor de San Marcos, Lima, Peru.

Musser, G. G., M. D. Carleton, E. M. Brothers, and A. L. Gardner. 1998. Systematic studies of

oryzomyine rodents (Muridae, Sigmodontinae): diagnoses and distributions of species formerly assigned to *Oryzomys* ''*capito.*'' Bulletin of the American Museum of Natural History 236:1–376.

PACHECO, V., B. D. PATTERSON, J. L. PATTON, L. H. EMMONS, S. SOLARI, AND C. F. ASCORRA. 1993. List of mammals species known to occur in Manu Biosphere Reserve. Publicaciones del Museo de Historia Natural UNMSM (A) 44:1–12.

PACHECO, V., S. SOLARI, E. VIVAR, AND P. HOCKING. 1994. La riqueza biológica del Parque Nacional Yanachaga-Chemillén. Magistri et Doctores 7:3–6.

REIG, O. A. 1980. A new fossil of South American cricetid rodent allied to *Wiedomys*, with an assessment of the Sigmodontinae. Journal of Zoology (London) 181:227–241.

RIDGWAY, R. 1912. Color standards and color nomenclature. 1st ed. Privately published, Washington, D.C.

STEPPAN, S. J. 1995. Revision of the tribe Phyllotini (Rodentia: Sigmodontinae), with a phylogenetic hypothesis for the Sigmodontinae. Fieldiana: Zoology (New Series) 1464:1–112.

TERBORGH, J. 1971. Distribution of environmental gradients: theory and a preliminary interpretation of distributional patterns in the avifauna of the Cordillera Vilcabamba, Peru. Ecology 52:23–40.

THOMAS, O. 1920. Report of the Mammalia collected by Mr. Edmund Heller during the Peruvian Expedition of 1915 under the auspices of Yale University and the National Geographic Society. Proceedings of the United States National Museum 2333:217–249.

VOSS, R. S. 1988. Systematics and ecology of ichthyomyine rodents (Muroidea): patterns of morphological evolution in a small adaptive radiation. Bulletin of the American Museum of Natural History 188: 259–493.

VOSS, R. S. 1991. An introduction to the Neotropical muroid rodent genus *Zygodontomys*. Bulletin of the American Museum of Natural History 210:1–113.

VOSS, R. S. 1993. A revision of the Brazilian muroid rodent genus *Delomys* with remarks on ''Thomasomyine'' characters. American Museum Novitates 3074:1–44.

Submitted 14 April 2001. Accepted 17 January 2002.

Associate Editor was Brett R. Riddle.

APPENDIX I

Specimens examined.—Acronyms for institutions are as follows: American Museum of Natural History (AMNH); Escuela Politécnica Nacional (Ecuador, EPN); Field Museum of Natural History (FMNH); Museo de Historia Natural, Universidad Nacional Mayor de San Marcos (MUSM); University of Michigan Museum of Zoology (UMMZ); United States National Museum (USNM). Asterisks (*) indicate specimens measured (see Appendix II).

Thomasomys silvestris (46).—ECUADOR: Pichincha, Zapadores, Río Saloya, 1,920 m (USNM 513592); Pichincha, 11 km Aloag (KU 124032); Antisana, oriente (FMNH 43251); Gualea, Ilambo Valley (FMNH 94990, 94991, 94993–94995); Las Máquinas, Santo Domingo trail, W of Corazón (AMNH 66288, holotype); Old Santo Domingo trail (UMMZ 127116, 155754–155759); San José, Occidente (FMNH 53243–53247); Santa Rosa, road to Mindo (FMNH 93145, 93147–93152); Upuruni West (FMNH 53407, 53408); Volcán Pichincha, Oriente (FMNH 92000–92003); not localized (EPN 954428); Pichincha, Zapadores, Río Saloya, 1,920 m (USNM 513592); Pichincha, Las Máquinas, 2,100 m (AMNH 66283*, 66284*, 66285*, 66286*, 66287*, 66288*, 66289*, 66291*, 66293*; USNM 270152*).

Thomasomys onkiro (5).—PERU: Cuzco, La Convención, Vilcabamba Cordillera, 3,350 m (MUSM 13063*, 13064*, 13065*; USNM 582124*; 582123*).

Thomasomys caudivarius (15).—ECUADOR: Bolivar, Río Tatahuazo, 4 km E of Cruz de Liso (MSB 70712, 70714); El Oro, Taraguacocha, Cordillera de Chilla (AMNH 47639, 47643*, 47655, 47659*, 47660*, 47661*, 47662*, 47664*, 47665*, 47667*, 47668* holotype, 47669, FMNH 53978*).

APPENDIX II

Measurements of *Thomasomys onkiro*, new species from Peru (Cuzco, Vilcabamba Cordillera, 3,350 m); *Thomasomys silvestris* from Ecuador (Pichincha, Las Máquinas, 2,100 m); and *Thomasomys caudivarius* from Ecuador (E1 Oro, Taraguacocha, Cordillera de Chilla). Linear measurements are in millimeters.

	Thomasomys onkiro, new species			*Thomasomys silvestris*			*Thomasomys caudivarius*		
	Mean	Range	*n*	Mean	Range	*n*	Mean	Range	*n*
Length of head and body	106.4	94–114	5	106.3	95–127	10	114.38	99–125	8
Tail length	151	144–159	5	147.4	139–157	10	151.5	141–163	8
Length of hind foot	27	26–28	5	28.7	28–30	10	29.75	28.5–31	8
Ear length	19.4	19–20	5						
Length of dorsal fur	12.72	12.45–13.31	5	10.82	10.2–11.44	10	12.80	10.18–14.22	8
Length of longest mystacial vibrissae	38.33	35.61–41.32	5	45.76	40.4–50.9	10	42.51	39.1–45.84	8
Length of longest superciliary vibrissae	22.02	19–24	5	23.33	20–26.36	10	22.98	18.4–26.52	8
Greatest length of skull	29.33	28.69–29.99	5	29.67	28.75–30.34	9	30.64	28.97–32.46	8
Condyloincisive length	26.55	25.45–27.33	5	26.7	25.41–27.52	10	27.88	25.72–29.7	9
Condylomolar length	16.8	16.38–17.1	5	17.23	16.66–17.51	10	17.96	17–18.89	10
Condyloincisive length–condylomolar length	9.75	9.07–10.43	5	9.47	8.75–10.01	10	9.94	8.72–10.81	9
Length of rostrum	9.79	9.44–10.81	5	9.46	8.56–10.02	9	9.60	9.12–10.2	10
Breadth of rostrum	4.58	4.45–4.68	5	4.83	4.53–5.09	10	4.99	4.6–5.46	10
Length of orbital fossa	8.85	8.52–9.09	5	9.23	8.62–9.88	10	9.65	9.25–10.38	10
Length of nasal	10.94	10.8–11.18	5	11.4	11.01–11.81	9	11.44	10.18–12.51	10
Breadth of nasal	3.15	3.01–3.31	5	3.34	3–3.63	9	3.39	3.19–3.58	10
Least interorbital breadth	5.13	4.97–5.25	5	5.03	4.81–5.25	10	4.72	4.32–4.92	10
Length of diastema	8.45	8–9.05	5	8.07	7.66–8.58	10	8.47	7.65–9.24	10
Length of bony palate	4.9	4.72–5.1	5	4.72	4.38–5.12	10	5.02	4.72–5.41	10
Breadth of bony palate	6.37	6.22–6.55	5	6.67	6.24–7.33	9	6.60	5.77–7.18	10
Length of incisive foramina	5.59	5.21–6	5	5.48	5.02–6	10	6.00	5.36–6.45	10
Breadth of incisive foramina	1.92	1.79–2.09	5	2.19	1.78–2.51	10	2.05	1.75–2.36	10
Length of maxillary toothrow	4.56	4.5–4.65	5	4.83	4.65–4.96	9	4.95	4.72–5.34	10
Breadth of palatal bridge	3.32	3.1–3.55	5	3.34	3.05–3.84	9	3.38	2.71–3.98	10
Breadth of 1st upper molar	1.44	1.4–1.5	5	1.59	1.45–1.68	10	1.54	1.36–1.71	10
Zygomatic breadth	15.68	14.89–16.17	5	15.76	14.79–16.28	8	16.16	15.1–17.29	10
Breadth of braincase	13.71	13.29–14.03	5	13.57	13.02–14.1	9	13.81	12.99–14.18	9
Breadth of zygomatic plate	2.09	1.94–2.26	5	2.06	1.9–2.18	10	2.41	2.17–2.74	10
Depth of incisor	1.37	1.32–1.46	5	1.37	1.26–1.48	10	1.50	1.31–1.63	10
Height of braincase	9.02	8.92–9.18	5	9.42	9.07–9.95	10	9.13	8.96–9.53	5
Width of mesopterygoid fossa	2.07	1.96–2.18	5	2.47	2.33–2.76	10	1.94	1.65–2.12	5