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Global Trends and Biases in New Mammal Species Discoveries

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Abstract

Contrary to common perception, the number of living mammal species and the relationship of those species with one another are incompletely understood. Taxonomic revisions within mammals are frequent and are often motivated by the discovery of new species. In fact, an analysis of patterns of discovery suggests that complete alpha-taxonomic characterization of living mammals remains a far-off goal. Examination of chronological, geographical, and taxonomic trends in new species discoveries reveals interesting trends, telling biases, and priorities for further study. An average of 223 new valid species have been described per decade since the birth of modern taxonomic nomenclature in 1758, and this rate is increasing. Over 300 new mammal species are expected to be described this decade and some estimates suggest that 7,000+ living species of mammals will eventually be recognized. An analysis of 341 recently described species indicates that the great majority of them are restricted to threatened areas of high endemism—reiterating the biotic richness of these regions, but also indicating that most new species and the regions in which they occur require urgent conservation attention. That the global mammal fauna remains so incompletely characterized reflects the woeful state of knowledge of global biodiversity.

Key words: biodiversity, conservation, mammals, new species discoveries, taxonomy

Introduction

The science of taxonomy provides the essential means for documenting the magnitude and distribution of biological diversity (Wilson 1992), and ultimately for prioritizing global and regional conservation initiatives aimed at preserving that diversity (Wilson 1992; Myers et al. 2000; Brooks et al. 2005). Indeed, in discerning the identity and evolutionary relationships of organisms, taxonomy ultimately provides the practical underpinnings for all of biology (Wilson 1992, 2004, 2005). Despite its fundamental nature, scientific interest and investment in taxonomy appear to be waning (Wheeler 2004; Wilson 2004, 2005; Schmidly 2005), even as evidence continues to mount that a large proportion of all living organisms remain uncharacterized by biologists (Wilson 2004, 2005). However, startling taxonomic ignorance afflicts not only megadiverse animal groups such as insects, nematodes, and marine invertebrates. Even in "flagship" groups like mammals, assumed by many biologists to be well understood taxonomically, a complete understanding of the diversity of living species remains a far-off goal. This is in part because new mammals, even large and relatively conspicuous species, continue to be discovered and described by field biologists and taxonomists at a rapid rate. Our goal was to quantify just how many species are being newly described, and to compare this with historical rates. Furthermore, as has been demonstrated in other taxonomic groups or in subsets of mammals (Patterson 2000, 2001; Collen et al. 2004), we predict that new species discoveries will be biased both in terms of which species are described and from what regions.

MATERIALS AND METHODS

The analysis of mammal species description rates per decade was performed with a database created from the third edition of *Mammal Species of the World* (Wilson and Reeder 2005). This database contains information on 5,339 extant (or presumably extant) mammals recognized as valid species (as of 1 January 2004, when *Mammal Species of the World* went to press), as well as the names of 6,351 recognized subspecies and an additional 15,881 species-level synonyms. To these data, we added the records of an additional 82 species that were described between 2004 and 1 July 2006. Figure 1 illustrates two things: 1) the number of species described per decade; and 2) the rise in the total number of species recognized over time (along with a linear regression analysis of this rise). It should be noted that the first and the last decade illustrated on this figure are incomplete. The formal scientifically recognized description of mammal species began with Linnaeus's *Systema Naturae* in 1758, thus, the first decade column represents a shortened period and the last decade column, representing the 2000s, is still ongoing. It also should be noted that Figure 1 represents those species described in each decade that are currently accepted as valid (on average, for each species described, there are three other names that currently are considered synonyms or subspecies (Wilson and Reeder 2005)). As the field progresses, and more new mammals are described, some reorganization should be expected, and some "new" species will undoubtedly be synonymized with older, previously known species (Alroy 2002). Although often not perceived in this way, the description of a new species is a hypothesis that, like all other scientific hypotheses, should be subject to further studies and thus to rejection or confirmation (Baker et al. 2004). It is not our intention to address any taxonomic controversies anew in this paper. We have relied on taxonomic assessments defended in Wilson and Reeder (2005), regardless of subsequent developments, and have not evaluated the validity of subsequently introduced names. For example, the newly-described carnivore *Viverra tainguensis* Sokolov, Rozhnov and Pham Trong 1997 was synonymized with *V. zibetha* by Walston and Veron (2001) and Wozencraft (2005) and is excluded from our table. *Balaenoptera omurai* Wada, Oishi, and Omada 2003 was included in the synonymy of *B. edeni* by Mead and Brownell (2005), and thus is not included in our table, despite subsequent arguments (Sasaki et al. 2006). Our table includes some new names since identified as synonyms of earlier names (such as *Pteropus banakrisi*, argued to be a junior synonym of *P. alecto* (Helgen 2004)), because of their inclusion in Wilson and Reeder (2005). We also include names that postdate Wilson and Reeder (2005) but are probably synonymous with earlier names (such as *Cebus queirozi*, a junior synonym of *C. flavia* (de Oliveira and Langguth 2006)). We leave it to future reviewers to cement these and other nomenclatural updates.

The analysis of potential biases in newly described taxa was performed with data from 341 newly described extant mammal species, each of which was formally described between July 1992 and June 2006. The July 1992 starting point was chosen because it represents the cut off of the second edition of *Mammal Species of the World* (Wilson and Reeder 1993), which was nearly universally accepted during the past decade as the standard checklist for mammal species. The 341 new species include those species reviewed by the authors of the most recent, third edition of *Mammal Species of the World* (Wilson and Reeder 2005) and accepted by these authorities as being valid new species (259 new extant species described and accepted as valid by other experts in the field between 1992 and

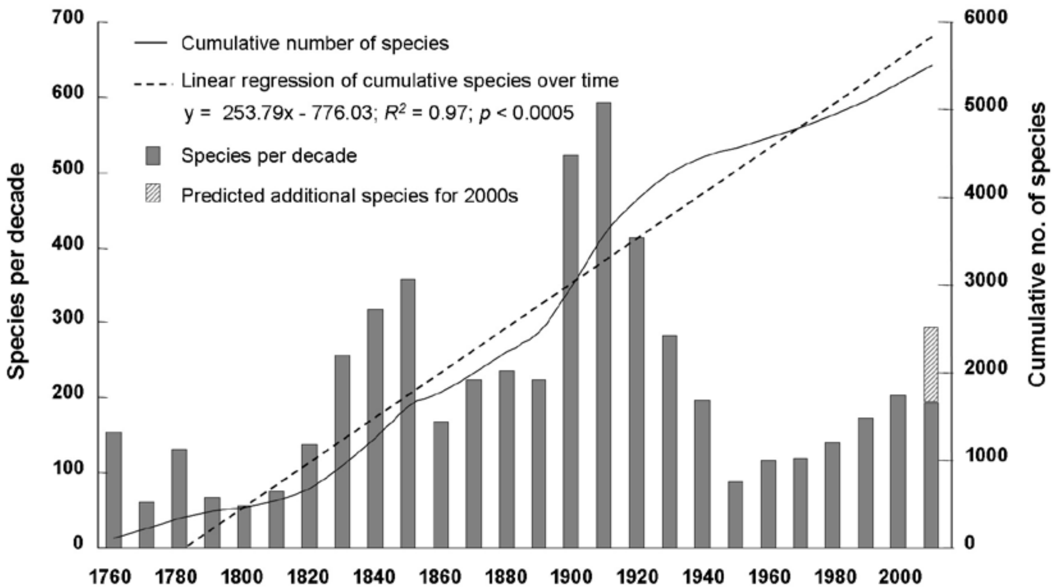

Figure 1. Cumulative and decadal descriptions of taxonomically valid extant mammal species.

2004) as well as the 82 newly described species referenced above. Global coordinates of the type locality (site of collection of the type specimen(s)) for each species were obtained from their original descriptions or calculated from other sources, such as documentation of the location of known field sites. Species were categorized as being continental, insular, or marine and data are provided in Table 1. The type locality for each species was plotted onto a base map indicating currently recognized regions of high threat and irreplaceability (Brooks et al. 2005). Variable levels of shading indicate the number of global biodiversity conservation templates that prioritize the region. The six templates include Biodiversity Hotspots, Crisis Ecoregions, Endemic Bird Areas, Centers of Plant Diversity, Megadiversity Countries, and Global 200 Ecoregions (Brooks et al. 2005).

Potential taxonomic biases were calculated by comparing the observed number of new species in a particular taxonomic group with the number of new species that would be expected (given the total number of new species and the relative size of that group compared to other taxonomic groups). For example, one new species was described in the Order Carnivora. Given that carnivores account for 5.5% of all mammal species (281 extant carnivores [not including the new species] out of a total of 5,080 extant mammals), one would expect that 5.5% of the 341 new species, or 19 species, would be carnivores (see Table 2). Across all mammal orders, the fit between observed frequencies of new species and expected frequencies was tested with a Chi-square goodness of fit test. To meet the requirements of Chi-square analysis, all eutherian orders with less than 20 species were lumped together, the ungulates (Perissodactyla and Artiodactyla) were lumped together, and the monotremes and the seven marsupial orders were lumped together.

Table 1.—Information for the 341 new species used in the analysis. Locality, Latitude, and Longitude represent where the type specimen for each new species was collected. Higher classification and order of species follows Wilson and Reeder (2005).

Classification	Species*, **	Author and Description Date	Citation	Locality+	Latitude++	Longitude++
Order Monotremata						
Family Tachyglossidae	*Zaglossus attenboroughi*	Flannery and Groves 1998	Mammalia 62:387	I	-2.53	140.63
Order Didelphimorphia						
Family Didelphidae	*Gracilinanus ignitus*	Díaz, Flores, and Barquez 2002	J. Mammal. 83:825	C	-23.63	-64.47
	*Hyladelphys kalinowskii***, ^^	(Hershkovitz 1992)	Fieldiana Zool., n.s., 70:37	C	-13.50	-70.92
	Marmosops creightoni	Voss, Tarifa, and Yensen 2004	Am. Mus. Novit. 3466:11	C	-16.12	-68.08
	Monodelphis reigi	Lew and Pérez-Hernández 2004	Mem. Fund. La Salle Cienc. Nat. 159-160:9	C	5.97	-61.42
	Monodelphis ronaldi	Solari 2004	Mamm. Biol. 69:146	C	-11.93	-71.28
	Philander deltae	Lew, Perez-Hernandez, and Ventura 2006	J. Mammal. 87:224	C	10.00	-62.82
	Philander mondolfii	Lew, Perez-Hernandez, and Ventura 2006	J. Mammal. 87:229	C	8.00	-61.50
Order Paucituberculata						
Family Caenolestidae	*Caenolestes condorensis*	Albuja and Patterson 1996	J. Mammal. 77:42	C	-2.27	-78.73
Order Dasyuromorphia						
Family Dasyuridae	*Myoictis leucura*	Woolley 2005	Rec. Aust. Mus. 57:334	I	-6.28	142.75
	Pseudantechinus roryi	Cooper, Aplin and Adams 2000	Rec. W. Aust. Mus. 20:125	C	-21.61	118.00
	Antechinus agilis	Dickman, Parnaby, Crowther and King 1998	Aust. J. Zool. 46:5	C	-22.19	148.84
	Antechinus subtropicus	Van Dyck and Crowther 2000	Mem. Qld. Mus. 45:613	C	-28.22	152.42
	Sminthopsis bindi	Van Dyck, Woinarski and Press 1994	Mem. Qld. Mus. 37:312	C	-14.50	132.75
	Sminthopsis boullangerensis	Crowther, Dickman and Lynam 1999	Aust. J. Zool. 47:220	I	-30.30	115.03

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality+	Latitude++	Longitude++
Order Peramelemorphia						
Family Peramelidae	*Microperoryctes aplini*	Helgen and Flannery 2004	J. Zool. 264:117	I	-1.38	133.97
Order Diprotodontia						
Family Phalangeridae	*Phalanger alexandrae*	Flannery and Boeadi 1995	Aust. Mammal. 18:42	I	-0.08	129.42
	Phalanger matabiru	Flannery and Boeadi 1995	Aust. Mammal. 18:40	I	0.83	127.30
	Spilocuscus wilsoni	Helgen and Flannery 2004	J. Mammal. 85:826	I	-0.87	135.00
	Trichosurus cunninghami	Lindemayer, Dubach and Viggers 2002	Aust. J. Zool. 50:17	C	-37.33	145.53
Family Macropodidae	*Dendrolagus mbaiso*	Flannery, Boeadi and Szalay 1995	Mammalia 59:66	I	-4.08	137.10
	Petrogale coenensis	Eldredge and Close 1992	Aust. J. Zool. 40:621	C	-13.78	143.07
	Petrogale mareeba	Eldredge and Close 1992	Aust. J. Zool. 40:619	C	-17.10	144.38
	Petrogale sharmani	Eldredge and Close 1992	Aust. J. Zool. 40:618	C	-18.87	145.73
	Thylogale calabyi	Flannery 1992	Aust. Mammal. 15:18	I	-8.41	147.38
Order Afrosoricida						
Family Tenrecidae	*Microgale fotsifotsy*	Jenkins, Raxworthy and Nussbaum 1997	Bull. Am. Mus. Nat. Hist. 63:2	I	-12.48	49.17
	Microgale gymnorhyncha	Jenkins, Goodman and Raxworthy 1996	Fieldiana Zool. n.s. 85:211	I	-22.19	46.97
	Microgale jenkinsae	Goodman and Soarimalala 2004	Proc. Biol. Soc. Wash. 117:253	I	-22.77	43.52
	Microgale monticola	Goodman and Jenkins 1998	Fieldiana Zool. n.s. 90:149	I	-14.73	49.43
	Microgale nasoloi	Jenkins and Goodman 1999	Bull. Nat. Hist. Mus. Lond. (Zool.) 65:156	I	-22.46	44.84
	Microgale soricoides	Jenkins 1993	Am. Mus. Novit. 3067:2	I	-18.85	48.45
Family Chrysochloridae	*Amblysomus robustus*	Bronner 2000	Mammalia 64:42	C	-25.30	30.13

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality [+]	Latitude [++]	Longitude [++]
Order Cingulata						
Family Dasypodidae	*Dasypus yepesi*	Vizcaíno 1995	Mastozool. Trop. 2:7	C	-23.07	-64.92
Order Pilosa						
Family Bradypodidae	*Bradypus pygmaeus*	Anderson and Handley 2001	Proc. Biol. Soc. Wash. 114:17	I	9.10	-81.55
Order Primates						
Family Cheirogaleidae	*Cheirogaleus minusculus*	Groves 2000	Int. J. Primatol. 21:960	I	-20.52	47.32
	Cheirogaleus ravus	Groves 2000	Int. J. Primatol. 21:960	I	-18.16	49.38
	Microcebus berthae	Rasoloarison, Goodman and Ganzhorn 2000	Int. J. Primatol. 21:1001	I	-22.07	44.65
	Microcebus jollyae	Louis et al. 2006	Int. J. Primatol. 27:382	I	-21.38	47.87
	Microcebus mittermeieri	Louis et al. 2006	Int. J. Primatol. 27:381	I	-14.80	49.47
	Microcebus ravelobensis	Zimmermann, Ehresmann, Zietemann, Radespiel, Randrianambinina, and Rakotoarison 1997	Primate Eye 63:26	I	-16.58	46.87
	Microcebus sambiranensis	Rasoloarison, Goodman and Ganzhorn 2000	Int. J. Primatol. 21:982	I	-14.03	48.27
	Microcebus simmoni	Louis et al. 2006	Int. J. Primatol. 27:383	I	-17.93	49.20
	Microcebus tavaratra	Rasoloarison, Goodman and Ganzhorn 2000	Int. J. Primatol. 21:977	I	-13.08	49.10
	Mirza zaza	Kappeler and Roos 2005	Primate Report 71:18	I	-13.67	48.25
Family Lepilemuridae	*Lepilemur aeclis*	Andriaholinirina et al. 2006	BMC Evolutionary Biology 6(17) epub, page not available	I	-16.05	45.91
	Lepilemur randrianasoli	Andriaholinirina et al. 2006	BMC Evolutionary Biology 6(17) epub, page not available	I	-19.47	44.29

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Lepilemur sahamalazensis	Andriaholinirina et al. 2006	BMC Evolutionary Biology 6(17) epub, page not available	I	-14.37	47.75
Family Indridae	*Avahi cleesei*	Thalmann and Geissmann 2005	Am. J. Primatol. 67:373	I	-18.98	44.75
	Avahi unicolor	Thalmann and Geissmann 2000	Int. J. Primatol. 21:934	I	-13.58	47.95
Family Lorisidae	*Pseudopotto martini***, ^	Schwartz 1996	Anthropol. Pap. Amer. Mus. Nat. Hist. 78:8	C	unknown	unknown
Family Galagidae	*Galago rondoensis*	Honess 1997	In Kingdon, Kingdon Field Guide to African Mammals, p. 106	C	-10.12	39.38
Family Tarsiidae	*Tarsius lariang*	Merker and Groves 2006	Int. J. Primatol. 27:465	I	-1.63	120.03
Family Cebidae	*Callithrix acariensis*	M. van Roosmalen, T. van Roosmalen, Mittermeier and Rylands 2000	Neotropical Primates 8:7	C	-5.12	-60.02
	Callithrix humilis	M. van Roosmalen, T. van Roosmalen, Mittermeier and de Fonseca 1998	Goeldiana Zoologia 22:8	C	-5.52	-60.42
	Callithrix manicorensis	M. van Roosmalen, T. van Roosmalen, Mittermeier and Rylands 2000	Neotropical Primates 8:3	C	-5.84	-61.31
	Callithrix marcai	Alperin 1993	Bol. Mus. Para. Emilio Goeldi, ser. Zool. 9:325	C	-7.00	-60.95
	Callithrix mauesi	Mittermeier, M. Schwarz and Ayres 1992	Goeldiana Zoologia 14:6	C	-3.38	-57.77
	Callithrix nigriceps	Ferrari and Lopes 1992	Goeldiana Zoologia 12:4	C	-7.52	-62.87
	Callithrix saterei	Silva and Noronha 1998	Goeldiana Zoologia 21:6	C	-4.00	-59.09
	Cebus kaapori	Queiroz 1992	Goeldiana Zoologia 15:4	C	-0.50	-47.50
	Cebus queirozi	Mendes Pontes and Malta 2006	Zootaxa 1200:2	C	-8.40	-35.07

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
Family Pitheciidae	*Callicebus bernhardi*	M. van Roosmalen, T. van Roosmalen and Mittermeier 2002	Neotropical Primates 10 (Suppl.):24	C	-5.52	-60.42
	Callicebus coimbrai	Kobayashi and Langguth 1999	Rev. Bras. Zool. 16:534	C	-10.53	-36.68
	Callicebus stephennashi	M. van Roosmalen, T. van Roosmalen and Mittermeier 2002	Neotropical Primates 10 (Suppl.):15	C	-3.75	-59.00
Family Cercopithecidae	*Lophocebus kipunji*	Ehardt, Butynski, Jones, and Davenport 2005	In Jones et al., Science 308:1161	C	-9.15	33.83
	Macaca munzala	Sinha, Datta, Madhusudan, and Mishra 2005	Int. J. Primatol 26:980	C	27.70	91.72
	Macaca siberu	Fuentes and Olson 1995	Asian Primates 4:1	I	-1.35	98.92
	Miopithecus ogouensis	Kingdon 1997	Kingdon Field Guide to African Mammals, p. 55	C	1.50	10.00
	Pygathrix cinerea	Nadler 1997	Zool. Garten NF 67:165	C	13.98	108.00
	Trachypithecus ebenus	Brandon-Jones 1995	Raffles Bulletin of Zoology 43:15	C	22.50	103.83
Order Rodentia						
Suborder Sciuromorpha						
Family Gliridae	*Dryomys niethammeri*	Holden 1996	Bonn. Zool. Beitr. 46:116	C	30.38	67.72
Suborder Castorimorpha						
Family Heteromyidae	*Heteromys nubicolens*	Anderson and Timm 2006	Am. Mus. Novit. 3509:7	C	10.30	-84.80
	Heteromys oasicus	Anderson 2003	Am. Mus. Novit. 3396:9	C	11.83	-69.95
	Heteromys teleus	Anderson and Jarrín-V. 2002	Am. Mus. Novit. 3382:6	C	-1.83	-80.73
Suborder Myomorpha						
Family Spalacidae	*Spalax carmeli*	Nevo, Ivanitskaya, and Beiles 2001	Adaptive Radiation of Blind Subterranean Mole Rats, p. 23	C	32.80	34.98

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality+	Latitude++	Longitude++
	Spalax galili	Nevo, Ivanitskaya, and Beiles 2001	Adaptive Radiation of Blind Subterranean Mole Rats, p. 23	C	33.00	35.50
	Spalax golani	Nevo, Ivanitskaya, and Beiles 2001	Adaptive Radiation of Blind Subterranean Mole Rats, p. 23	C	33.13	35.82
	Spalax judaei	Nevo, Ivanitskaya, and Beiles 2001	Adaptive Radiation of Blind Subterranean Mole Rats, p. 23	C	31.38	34.87
	Spalax munzuri^^	(Coskun 2004)	Zoology in the Middle East 33:157	C	39.73	39.28
Family Nesomyidae	*Eliurus antsingy*	Carleton, Goodman, and Rakotondravony 2001	Proc. Biol. Soc. Wash. 114:974	I	-19.13	44.82
	Eliurus ellermani	Carleton 1994	Am. Mus. Novit. 3087:39	I	-15.50	49.93
	Eliurus grandidieri	Carleton and Goodman 1998	Fieldiana Zool. n.s. 90:165	I	-14.74	49.46
	Eliurus petteri	Carleton 1994	Am. Mus. Novit. 3087:37	I	-18.92	48.57
	Macrotarsomys petteri	Goodman and Soarimalala 2005	Proc. Biol. Soc. Wash. 118:453	I	-22.27	43.47
	*Monticolomys koopmani*****	Carleton and Goodman 1996	Fieldiana Zool. n.s. 85:235	I	-19.30	47.43
	*Voalavo antsahabensis**	Goodman, Rakotondravony, Randriamanantsoa, and Rakotomalala-Razanahoera 2005	Proc. Biol. Soc. Wash. 118:866	I	-18.42	47.94
	*Voalavo gymnocaudus**	Carleton and Goodman 1998	Fieldiana Zool. n.s. 85:182	I	-14.75	49.43
Family Cricetidae	*Microtus anatolicus*	Kryštufek and Kefelioğlu 2002	Bonn. Zool. Beitr. 50:8	C	37.87	32.48
	Microtus dogramacii	Kefelioğlu and Kryštufek 1999	J. Nat. Hist. 33:301	C	41.67	35.6

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Microtus qazvinensis	Golenishchev 2003	Russian J. Theriol. 1:118	C	35.65	49.97
	Habromys delicatulus	Carleton, Sánchez, and Urbano Vidales 2002	Proc. Biol. Soc. Wash. 115:491	C	19.93	-99.50
	Peromyscus schmidlyi	Bradley, Carroll, Haynie, Martínez, Hamilton, and Kilpatrick 2004	J. Mammal. 85:1190	C	24.25	-104.70
	Reithrodontomys bakeri	Bradley, Mendez-Harclerode, Hamilton, and Ceballos 2004	Occ. Pap. Mus. Texas Tech. Univ. 231:i, 7	C	17.65	-99.84
	Aepeomys reigi	Ochoa G., Aguilera, Pacheco, and Soriano 2001	Mamm. Biol. 66:230	C	9.67	-69.62
	Akodon aliquantulus	Díaz, Barquez, Braun, and Mares 1999	J. Mammal. 80:788	C	-26.70	-65.37
	Akodon mystax	Hershkovitz 1998	Bonn. Zool. Beitr. 47:220	C	-20.43	-41.78
	Akodon oenos	Braun, Mares, and Ojeda 2000	Z. Säugetierk. 65:218	C	-32.80	-68.67
	Akodon paranaensis	Christoff, Fagundes, Sbalqueiro, Mattevi, and Yonenaga-Yassuda 2000	J. Mammal. 81:844	C	-25.52	-49.05
	Akodon philipmyersi	Pardinas, D'Elia, Cirignoll, and Suarez 2005	J. Mammal. 86:465	C	-27.53	-55.87
	Akodon reigi	González, Langguth, and Oliveira 1998	Comun. Zool. Hist. Nat. Mus. Montevideo 12:2	C	-34.00	-54.67
	*Amphinectomys savamis***	Malygin 1994	In Malygin et al., Zool. Zhur. 73:203	C	-4.92	-73.75
	Andalgalomys roigi	Mares and Braun 1996	J. Mammal. 77:929	C	-36.21	-66.66

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality+	Latitude++	Longitude++
	*Brucepattersonius albinasus**	Hershkovitz 1998	Bonn. Zool. Beitr. 47:235	C	-20.43	-41.78
	*Brucepattersonius griserufescens**	Hershkovitz 1998	Bonn. Zool. Beitr. 47:233	C	-20.43	-41.78
	*Brucepattersonius guarani**	Mares and Braun 2000	Occ. Pap. Sam Noble Oklahoma Mus. Nat. Hist. 9:9	C	-27.00	-54.00
	*Brucepattersonius igniventris**	Hershkovitz 1998	Bonn. Zool. Beitr. 47:232	C	-24.58	-48.58
	*Brucepattersonius misionensis**	Mares and Braun 2000	Occ. Pap. Sam Noble Oklahoma Mus. Nat. Hist. 9:7	C	-27.00	-54.00
	*Brucepattersonius paradisus**	Mares and Braun 2000	Occ. Pap. Sam Noble Oklahoma Mus. Nat. Hist. 9:3	C	-27.00	-54.00
	*Brucepattersonius soricinus**	Hershkovitz 1998	Bonn. Zool. Beitr. 47:232	C	-24.25	-47.75
	Calomys tocantinsi	Bonvicino, Lima, and Almeida 2003	Rev. Bras. Zool. 20:301	C	-11.78	-49.75
	Chibchanomys orcesi	Jenkins and Barnett 1997	Bull. Nat. Hist. Mus. Lond. 63:124	C	-2.83	-79.50
	Juliomys rimofrons	Oliveira and Bonvicino 2002	Acta Theriol. 47:310	C	-22.35	-44.73
	Juscelinomys guaporensis	Emmons 1999	Am. Mus. Novit. 3280:4	C	-13.55	-61.01
	Juscelinomys huanchacae	Emmons 1999	Am. Mus. Novit. 3280:2	C	-14.52	-60.74
	Loxodontomys pikumche	Spotorno, Cofre, Manriquez, Vilina, Marquet, and Walker 1998	Rev. Chilena Hist. Nat. 71:362	C	-34.17	-69.97
	*Microakodontomys transitorius***	Hershkovitz 1993	Fieldiana Zool. n.s. 75:2	C	-15.78	-47.92
	Neacomys dubosti	Voss, Lunde, and Simmons 2001	Bull. Am. Mus. Nat. Hist. 263:78	C	5.03	-53.00
	Neacomys minutus	Patton, da Silva, and Malcolm 2000	Bull. Am. Mus. Nat. Hist. 244:105	C	-6.58	-68.90
	Neacomys musseri	Patton, da Silva, and Malcolm 2000	Bull. Am. Mus. Nat. Hist. 244:98	C	-12.25	-70.90
	Neacomys paracou	Voss, Lunde, and Simmons 2001	Bull. Am. Mus. Nat. Hist. 263:81	C	5.03	-53.00

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Neusticomys ferreirai	Percequillo, Carmignotto, and de J. Silva 2005	J. Mammal. 86:874	C	-10.23	-58.48
	*Noronhomys vespuccii***	Carleton and Olson 1999	Am. Mus. Novit. 3256:10	C	-3.83	-32.40
	Oligoryzomys brendae	Massoia 1998	2nd Congreso Argentino de Zoonosis y 1st Congreso Argentino y Latinamericano de Enfermedades Emergentes, Buenos Aires, p. 243	C	-26.78	-65.40
	Oligoryzomys moojeni	Weksler and Bonvicino 2005	Arquivos de Museu Nacional (Rio de Janeiro) 63:116	C	-14.07	-47.75
	Oligoryzomys rupestris	Weksler and Bonvicino 2005	Arquivos de Museu Nacional (Rio de Janeiro) 63:119	C	-14.07	-47.52
	Oligoryzomys stramineus	Bonvicino and Weksler 1998	Z. Säugetierk. 63:98	C	-13.57	-47.18
	Oryzomys acritus	Emmons and Patton 2005	Am. Mus. Novit. 3478:14	C	-14.71	-61.03
	Oryzomys andersoni	Brooks and Baker 2004	In Brooks et al., Occ. Pap. Mus. Texas Tech Univ. 241:3	C	-17.60	-59.51
	Oryzomys curasoae	McFarlane and Debrot 2001	Caribbean J. Sci. 37:182	I	12.17	-69.00
	Oryzomys emmonsae	Musser, Carleton, Brothers, and Gardner 1998	Bull. Am. Mus. Nat. Hist. 236:233	C	-3.65	-52.37
	Oryzomys maracajuensis	Langguth and Bonvicino 2002	Arquivos de Museu Nacional (Rio de Janeiro) 60:292	C	-21.63	-55.15
	Oryzomys marinhus	Bonvicino 2003	Mamm. Biol. 68:84	C	-14.67	-45.83
	Oryzomys scotti	Langguth and Bonvicino 2002	Arquivos de Museu Nacional (Rio de Janeiro) 60:290	C	-15.90	-48.80

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality⁺	Latitude⁺⁺	Longitude⁺⁺
	Oryzomys seuanezi	Weksler, Geise, and Cerqueira 1999	Zool. J. Linn. Soc. 125:454	C	-22.42	-42.03
	Oryzomys tatei	Musser, Carleton, Brothers, and Gardner 1998	Bull. Am. Mus. Nat. Hist. 236:100	C	-1.42	-78.20
	Oxymycterus amazonicus	Hershkovitz 1994	Fieldiana Zool. n.s. 79:23	C	-3.67	-55.50
	Oxymycterus caparoae	Hershkovitz 1998	Bonn. Zool. Beitr. 47:244	C	-20.43	-41.78
	Oxymycterus josei	Hoffmann, Lessa, and Smith 2002	J. Mammal. 83:411	C	-34.22	-57.82
	*Pearsonomys annectens***	Patterson 1992	Zool. J. Linn. Soc. 106:136	C	-39.43	-73.17
	Punomys kofordi	Pacheco and Patton 1995	Z. Säugetierk. 60:86	C	-14.28	-69.78
	Rhagomys longilingua	Luna and Patterson 2003	Fieldiana Zool. n.s. 101:3	C	-13.10	-71.57
	Rhipidomys cariri	Tribe 2005	Arquivos de Museu Nacional (Rio de Janeiro) 63:137	C	-7.23	-39.38
	Rhipidomys gardneri	Patton, da Silva, and Malcolm 2000	Bull. Am. Mus. Nat. Hist. 244:165	C	-12.55	-69.05
	*Salinomys delicatus***	Braun and Mares 1995	J. Mammal. 76:514	C	-32.00	-67.00
	*Tapecomys primus***	Anderson and Yates 2000	J. Mammal. 81:21	C	-21.43	-63.92
	Thomasomys apeco	Leo L. and Gardner 1993	Proc. Biol. Soc. Wash. 106:417	C	-7.75	-77.25
	Thomasomys macrotis	Gardner and Romo R. 1993	Proc. Biol. Soc. Wash. 106:762	C	-7.75	-77.25
	Thomasomys onkiro	Luna and Pacheco 2002	J. Mammal. 83:835	C	-11.66	-73.67
	Thomasomys ucucha	Voss 2003	Am. Mus. Novit. 3421:10	C	-0.37	-78.13
	Wiedomys cerradensis	Gonçalves, Almeida, and Bonvicino 2005	Mamm. Biol. 70:51	C	-14.63	-45.85

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
Family Muridae	*Lophuromys angolensis*	W. Verheyen, Dierckx, and Hulselmans 2000	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 70:255	C	-5.05	18.92
	Lophuromys dieterleni	W. Verheyen, Hulselmans, Colyn, and Hutterer 1997	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 67:173	C	6.20	10.53
	Lophuromys dudui	W. Verheyen, Hulselmans, Dierckx, and E. Verheyen 2002	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 72:147	C	0.60	25.22
	Lophuromys huttereri	W. Verheyen, Colyn, and Hulselmans 1996	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 66:255	C	0.20	24.78
	Lophuromys roseveari	W. Verheyen, Hulselmans, Colyn, and Hutterer 1997	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 67:167	C	4.17	9.17
	Lophuromys verhageni	W. Verheyen, Hulselmans, Dierckx, and E. Verheyen 2002	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 72:153	C	-3.25	36.73
	Dipodillus rupicola	Granjon, Aniskin, Volobouev, and Sicard 2002	J. Zool. Lond. 256:183	C	14.47	-4.09
	Taterillus tranieri	Dobigny, Granjon, Aniskin, Ba, and Volobouev 2003	Mamm. Biol. 68:301	C	15.02	-7.67
	Apomys camiguinensis	Heaney and Tabaranza 2006	Fieldiana Zool. n.s. 106:18	I	9.17	124.72
	Apomys gracilirostris	Ruedas 1995	Proc. Biol. Soc. Wash. 108:305	I	13.28	121.99
	Archboldomys musseri	Rickart, Heaney, Tabaranza, Jr., and Balete 1998	Fieldiana Zool. n.s. 89:17	I	17.70	122.03
	Batomys russatus	Musser, Heaney, and Tabaranza, Jr. 1998	Am. Mus. Novit. 3237:34	I	13.47	122.02

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality+	Latitude++	Longitude++
	Bullimus gamay	Rickart, Heaney, and Tabaranza, Jr. 2002	J. Mammal. 83:427	I	9.18	124.72
	Chrotomys sibuyanensis	Rickart, Heaney, Goodman, and Jansa 2005	J. Mammal 86:420	I	12.35	122.65
	Crateromys heaneyi	Gonzales and Kennedy 1996	J. Mammal. 76:26	I	11.02	122.23
	Crunomys suncoides	Rickart, Heaney, Tabaranza, Jr., and Balete 1998	Fieldiana Zool. n.s. 89:8	I	8.15	124.85
	Dasymys cabrali	W. Verheyen, Hulselmans, Dierckx, Colyn, Leirs, and E. Verheyen 2003	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 73:39	C	-17.93	20.42
	Dasymys robertsii	Mullin, Pillay, Taylor 2004	Mammalia 68:219	C	-25.82	28.08
	Dasymys rwandae	W. Verheyen, Hulselmans, Dierckx, Colyn, Leirs, and E. Verheyen 2003	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 73:45	C	-1.43	29.60
	Dasymys shortridgei	Mullin, Pillay, and Taylor 2004	Mammalia 68:219	C	-19.57	18.12
	Dasymys sua	W. Verheyen, Hulselmans, Dierckx, Colyn, Leirs, and E. Verheyen 2003	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 73:41	C	-6.87	37.68
	Desmomys yaldeni	Lavrenchenko 2003	Bonn. Zool. Beitr. 50:320	C	7.07	35.50
	Hadromys schmidlyi	Leon-Paniagua and Sanchez 2005	Proc. Biol. Soc. Wash. 118:608	C	18.72	-99.77
	Hydromys ziegleri	Helgen 2005	Zootaxa 913:1	I	-3.65	143.05
	Hylomyscus acrimontensis	Carleton and Stanley 2005	Proc. Biol. Soc. Wash. 118:629	C	-5.10	38.60
	Limnomys bryophilus	Rickart, Heaney, and Tabaranza 2003	J. Mammal. 84:1445	I	8.15	124.85

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Mastomys awashensis	Lavrenchenko Likhnova, and Baskevich 1998	In Lavrenhenko et al., Z. Säugetierk. 63:44	C	8.38	39.15
	Melomys bannisteri	Kitchener and Maryanto 1993	Rec. W. Aust. Mus. 16:428	I	-5.45	133.03
	Melomys cooperae	Kitchener 1995	In Kitchener and Maryanto, Rec. W. Aust. Mus. 17:43	I	-7.87	131.42
	Melomys howi	Kitchener 1996	In Kitchener and Suyanto, Rec. W. Aust. Mus. 18:113	I	-8.15	130.88
	Melomys matambuai	Flannery, Colgan, and Trimble 1994	Proc. Linn. Soc. N.S.W. 114:39	I	-2.13	147.08
	Melomys paveli	Helgen 2003	J. Zool. Lond. 261:168	I	-3.25	129.50
	Mus cypriacus	Cucchi, Orth, Auffray, Renaud, Fabre, Catalan, Hadjisterkotis, Bonhomme and Vigne 2006	Zootaxa 1241:13	I	34.77	32.92
	Mus fragilicauda	Auffray, Orth, Catalan, Gonzalez, Desmarais, and Bonhomme 2003	Zoologica Scripta 32:121	C	14.54	101.96
	Paramelomys gressitti	Menzies 1996	Aust. J. Zool. 44:407	I	-7.35	146.67
	*Pithecheirops otion***	Emmons 1993	Proc. Biol. Soc. Wash. 106:753	I	4.97	117.80
	Praomys degraaffi	Van der Straeten and Kerbis Peterhans 1999	S. Afr. J. Zool. 34:81	C	-3.43	29.77
	Praomys petteri	Van der Straeten, Lecompte, and Denys 2003	Bonn. Zool. Beitr. 50:333	C	3.90	17.93
	Pseudohydromys germani^^	(Helgen 2005)	Mamm. Biol. 70:62	I	-9.88	149.38
	*Saxatilomys paulinae***	Musser et al. 2005	Am. Mus. Novit. 3497:1	C	17.55	104.83
	*Sommeromys macrorhinos***	Musser and Durden 2002	Am. Mus. Novit. 3368:7	I	-2.22	120.07

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality+	Latitude++	Longitude++
	*Tonkinomys daovantieni***	Musser, Lunde, and Son 2006	Am. Mus. Novit. 3517:7	C	21.68	106.34
	Uromys boeadii	Groves and Flannery 1994	Rec. Aust. Mus. 46:157	I	-0.09	135.00
	Uromys emmae	Groves and Flannery 1994	Rec. Aust. Mus. 46:159	I	-1.27	136.43
Suborder Hystricomorpha Family Diatomyidae^^^	*Laonastes aenigmamus***	Jenkins, Kilpatrick, Robinson, and Timmins 2005	Systematics and Biodiversity 2:419	C	17.56	104.82
Family Bathyergidae	*Cryptomys anselli*	Burda, Zima, Scharff, Macholán, and Kawalika 1999	Z. Säugetierk. 64:37	C	-15.17	28.75
	Cryptomys kafuensis	Burda, Zima, Scharff, Macholán, and Kawalika 1999	Z. Säugetierk. 64:39	C	-15.50	25.50
Family Erethizontidae	*Sphiggurus ichillus*	Voss and da Silva 2001	Am. Mus. Novit. 3351:17	C	-1.80	-76.80
	Sphiggurus roosmalenorum	Voss and da Silva 2001	Am. Mus. Novit. 3351:24	C	-5.56	-61.12
Family Caviidae	*Cavia intermedia*	Cherem, Olimpio, and Ximenez 1999	Biotemas 12:100	I	-27.85	-43.33
	Galea monasteriensis	Solmsdorff, Kock, Hohoff, and Sachser 2004	Senk. Biol. 84:150	C	-17.38	-66.15
	Kerodon acrobata	Moojen, Locks, and Langguth 1997	Bol. Mus. Nac. Rio Janeiro Zool. 377:1	C	-13.83	-46.83
Family Ctenomyidae	*Ctenomys coyhaiquensis*	Kelt and Gallardo 1994	J. Mammal. 75:344	C	-46.55	-71.77
	Ctenomys lami	Freitas 2001	Stud. Neotrop. Fauna Envir. 36:2	C	-30.85	-51.17
	Ctenomys osvaldoreigi	Contreras 1995	Notulas Faunisticas 84:1	C	-31.40	-64.80
	Ctenomys pilarensis	Contreras 1993	Resúmenes VI Congreso Iberoamericano de Conservación y Zoología de Vertebrados, p. 44	C	-26.87	-58.30

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Ctenomys scagliai	Contreras 1999	Ciencia Siglo XXI 3:10	C	-26.67	-65.85
Family Octodontidae	*Octodon pacificus*	Hutterer 1994	Z. Säugetierk. 59:28	I	-38.37	-73.92
	*Pipanacoctomys aureus***	Mares, Braun, Barquez, and Diaz 2000	Occ. Pap. Mus. Texas Tech. Univ. 203:3	C	-27.83	-66.26
	*Salinoctomys loschalchal-erosorum***	Mares, Braun, Barquez, and Diaz 2000	Occ. Pap. Mus. Texas Tech. Univ. 203:6	C	-30.05	-65.52
Family Abrocomidae	*Abrocoma uspallata*	Braun and Mares 2002	J. Mammal. 83:9	C	-32.66	-69.35
	*Cuscomys ashaninka**	Emmons 1999	Am. Mus. Novit. 3279:2	C	-11.66	-73.67
Family Echimyidae	*Echimys vieirai*	Iack-Ximenes, De Vivo, and Percequillo 2005	Papeis Avulsos de Zoologia (São Paolo) 45:52	C	-4.42	-56.22
	Isothrix sinnamariensis	Vie et al. 1996	Mammalia 60:395	C	4.95	-53.03
	Phyllomys lundi	Leite 2003	Publ. Zool., Univ. Cal. Press 132:19	C	-22.23	-44.20
	Phyllomys mantiqueirensis	Leite 2003	Publ. Zool., Univ. Cal. Press 132:25	C	-22.60	-45.30
	Phyllomys pattoni	Emmons, Leite, Kock, and Costa 2002	Am. Mus. Novit. 3380:30	C	-17.73	-39.26
	Mesomys occultus	Patton, da Silva, and Malcolm 2000	Bull. Am. Mus. Nat. Hist. 244:194	C	-3.28	-66.23
	Proechimys echinothrix	da Silva 1998	Proc. Biol. Soc. Wash. 111:441	C	-3.28	-66.23
	Proechimys gardneri	da Silva 1998	Proc. Biol. Soc. Wash. 111:460	C	-6.58	-68.90
	Proechimys kulinae	da Silva 1998	Proc. Biol. Soc. Wash. 111:451	C	-6.75	-70.85
	Proechimys pattoni	da Silva 1998	Proc. Biol. Soc. Wash. 111:454	C	-8.67	-72.78
	Trinomys eliasi	Pessôa and Reis 1993	Z. Säugetierk. 58:183	C	-22.52	-47.28

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality [+]	Latitude [++]	Longitude [++]
	Trinomys mirapitanga	Lara, Patton, and Hingst-Zaher 2002	Mamm. Biol. 67:236	C	-16.37	-39.18
	Trinomys moojeni	Pessôa, Oliveira, and Reis 1992	Z. Säugetierk. 57:40	C	-19.04	-43.43
	Trinomys yonenagae	Rocha 1995	Mammalia 59:541	C	-10.80	-42.83
Order Lagomorpha						
Family Ochotonidae	*Ochotona hoffmanni*	Formosov et al. 1996	Byul. Mosk. Ob-va Ispytatelei Prirody. Otd. Biol. 101:29	C	47.33	108.67
	Ochotona nigritia	Gong et al. 2000	Zool. Research 21:204	C	25.97	98.70
Family Leporidae	*Nesolagus timminsi*	Averianov [=Aver'yanov], Abramov and Tikhonov 2000	Cont. Zool. Inst., St. Petersburg 3:3	C	18.37	105.22
	Sylvilagus obscurus	Chapman et al. 1992	Proc. Biol. Soc. Wash. 105:858	C	39.00	-79.37
	Sylvilagus varynaensis	Durant and Guevara 2001	Revista de Biologia Tropical 49:370	C	8.77	-69.93
Order Erinaceomorpha						
Family Erinaceidae	*Hylomys megalotis*	Jenkins and M. F. Robinson 2002	Bull. Nat. Hist. Mus. Lond. (Zool.) 68:2	C	17.55	104.83
Order Soricomorpha						
Family Soricidae	*Crocidura hilliana*	Jenkins and Smith 1995	Bull. Nat. Hist. Mus. Lond. (Zool.) 61:103	C	17.10	101.88
	Crocidura hutanis	Ruedi and Vogel 1995	Experientia 51:175, Fig. 1	I	3.52	97.77
	Crocidura kegoensis	Lunde, Musser, and Ziegler 2004	Mamm. Study 29:30	C	18.07	105.97
	Crocidura musseri	Ruedi and Vogel 1995	Experientia 51:175, Fig. 1	I	-1.27	120.25
	Crocidura ramona	Ivanitskaya, Shenbrot, and Nevo 1996	Z. Säugetierk. 61:97	C	30.75	34.93
	Sylvisorex konganensis	Ray and Hutterer 1996	Ecotropica 1:93	C	2.78	16.42

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality [+]	Latitude [++]	Longitude [++]
	Sylvisorex pluvialis	Hutterer and Schlitter 1996	Contributions in Mammalogy: A Memorial Volume Honoring Dr. J. Knox Jones, Jr., p. 61	C	5.27	9.13
	Congosorex phillipsorum	Stanley, Rogers and Hutterer 2005	J. Zool. Lond. 265:271	C	-7.75	36.46
	Congosorex verheyeni	Hutterer, Barriere and Colyn 2002	Bull. Inst. Roy. Sci. Nat. Belgique, Biol. 72 (Suppl.):10	C	0.40	14.73
	Myosorex kihaulei	Stanley and Hutterer 2000	Bonn. Zool. Beitr. 49:20	C	-8.35	35.94
	Cryptotis brachyonyx	Woodman 2003	Proc. Biol. Soc. Wash. 116:855	C	4.78	-74.45
	Cryptotis colombiana	Woodman and Timm 1993	Fieldiana Zool. n.s. 74:24	C	5.80	-75.00
	Cryptotis peruviensis	Vivar, Pacheco and Valqui 1997	Am. Mus. Novit. 3202:7	C	-5.70	-79.13
	Cryptotis tamensis	Woodman 2002	Proc. Biol. Soc. Wash. 115:254	C	7.45	-72.43
	Chodsigoa caovansunga	Lunde, Musser and Son 2003	Mamm. Study 28:37	C	22.76	104.83
	Notiosorex cockrumi	Baker, O'Neill, and McAliley 2003	Occ. Pap. Mus. Texas Tech. Univ. 222:2	C	31.59	-109.52
	Notiosorex villai	Carraway and Timm 2000	Proc. Biol. Soc. Wash. 113:307	C	23.57	-99.38
	Sorex arunchi	Lapini and Testone 1998	Gortania 20:246	C	45.80	13.10
	Sorex yukonicus	Dokuchaev 1997	J. Mammal. 78:814	C	64.73	-156.83
Order Chiroptera						
Family Pteropodidae	*Epomophorus anselli*	Bergmans and van Strien 2004	Acta Chiropterologica 6:258	C	-13.00	33.17
	Melonycteris fardoulisi	Flannery 1993	Rec. Aust. Mus. 45:68	I	-10.60	161.75
	Nyctimene keasti	Kitchener 1993	In Kitchener et al., Rec. W. Aust. Mus. 16:408	I	-5.63	132.73

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Paranyctimene tenax	Bergmans 2001	Beaufortia 51:146	I	-7.60	146.62
	Pteralopex flanneryi	Helgen 2005	Systematics and Biodiversity 3:437	I	-6.83	155.73
	Pteralopex taki	Parnaby 2002	Aust. Mammal. 23:146	I	-8.52	157.87
	Pteropus banakrisi	Richards and Hall 2002	Australian Zool. 32:60	I	-10.18	142.27
	Rousettus linduensis	Maryanto and Yani 2003	Mamm. Study 28:113	I	-1.01	120.10
Family Rhinolophidae						
	Rhinolophus chiewkweeae	Yoshiyuki and Lim 2005	Bulletin of the National Science Museum of Tokyo Series A (Zoology) 31:30	C	2.33	102.95
	Rhinolophus convexus	Csorba 1997	J. Mammal. 78:343	I	4.47	101.37
	Rhinolophus maendeleo	Kock, Csorba, and Howell 2000	Senk. Biol. 80:234	C	-5.08	39.03
	Rhinolophus sakejiensis	Cotterill 2002	J. Zool. 256:166	C	-11.28	24.35
	Rhinolophus ziama	Fahr, Vierhaus, Hutterer, and Kock 2002	Myotis 40:109	C	8.38	-9.30
Family Hipposideridae	*Hipposideros edwardshilli*	Flannery and Colgan 1993	Rec. Aust. Mus. 45:45	I	-3.33	141.16
	Hipposideros hypophyllus	Kock and Bhat 1994	Senk. Biol. 73:26	C	13.15	78.12
	Hipposideros khaokhouayensis	Guillen-Servent and Francis 2006	Acta Chiropterologica 8:44	C	18.38	103.07
	Hipposideros madurae	Kitchener and Maryanto 1993	Rec. W. Aust. Mus. 16:132	I	-7.20	113.25
	Hipposideros orbiculus	Francis, Kock, and Habersetzer 1999	Senk. Biol. 79:259	I	-1.03	101.72
	Hipposideros rotalis	Francis, Kock, and Habersetzer 1999	Senk. Biol. 79:266	C	18.25	104.57
	Hipposideros scutinares	Robinson, Jenkins, Francis, and Fulford 2003	Acta Chiropterologica 5:33	C	17.97	104.82

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Hipposideros sorenseni	Kitchener and Maryanto 1993	Rec. W. Aust. Mus. 16:142	I	-7.68	108.67
Family Emballonuridae	*Emballonura serii*	Flannery 1994	Mammalia 58:606	I	-2.92	151.38
	Saccopteryx antioquensis	Muñoz and Cuartas 2001	Actualidades Biologicas 23:53	C	5.67	-75.08
Family Phyllostomidae	*Anoura fistulata*	Muchhala, Mena V., Albuja V. 2005	J. Mammal. 86:458	C	-3.64	-78.39
	Anoura luismanueli	Molinari 1994	Trop. Zool. 7:76	C	8.30	-71.80
	Lonchophylla chocoana	Dávalos 2004	Am. Mus. Novit. 3426:4	C	0.90	-78.55
	Lonchophylla orcesi	Albuja and Gardner 2005	Proc. Biol. Soc. Wash. 118:443	C	0.53	-78.63
	*Xeronycteris vieirai***	Gregorin and Ditchfield 2005	J. Mammal. 86:405	C	-7.08	-36.35
	Lonchorhina inusitata	Handley and Ochoa 1997	Mem. Soc. Cien. Nat. La Salle 57:73	C	2.50	-65.22
	Lophostoma aequatorialis	Baker, Fonseca, Parish, Phillips, and Hoffmann 2004	Occ. Pap. Mus. Texas Tech. Univ. 232:1	C	1.28	-78.83
	Lophostoma yasuni	Fonseca and Pinto 2004	Occ. Pap. Mus. Texas Tech. Univ. 242:1	C	-0.50	-75.92
	Micronycteris brosseti	Simmons and Voss 1998	Bull. Am. Mus. Nat. Hist. 273:62	C	5.03	-53.00
	Micronycteris matses	Simmons, Voss, and Fleck 2002	Am. Mus. Novit. 3358:5	C	-5.29	-73.16
	Micronycteris sanborni	Simmons 1996	Am. Mus. Novit. 3158:6	C	-7.23	-39.41
	Carollia benkeithi	Solari and Baker 2006	Occ. Pap. Mus. Texas Tech. Univ. 254:5	C	-9.31	-75.98
	Carollia colombiana	Cuartas, Muñoz, and González 2001	Actualidades Biologicas 23:65	C	6.42	-75.25
	Carollia manu	Pacheco, Solari, and Velazco 2004	Occ. Pap. Mus. Texas Tech. Univ. 236:3	C	-1.20	-71.58

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Carollia monohernandezi	Muñoz-Arango, Cuartas-Calle and González 2004	Actualidades Biologicas 26:81	C	1.62	-75.67
	Carollia sowelli	Baker, Solari, and Hoffmann 2002	Occ. Pap. Mus. Texas Tech. Univ. 217:4	C	14.70	-87.12
	Sturnira mistratensis	Vega and Cadena 2000	Rev. Acad. Colomb. Cienc. 24:286	C	5.38	-76.07
	Sturnira sorianoi	Sanchez-Hernandez, Romero-Almaraz, and Schnell 2005	J. Mammal. 86:867	C	8.62	-71.17
	Artibeus incomitatus	Kalko and Handley 1994	Z. Säugetierk. 59:260	I	9.10	-81.55
	Platyrrhinus albericoi	Velazco 2005	Fieldiana Zool. n.s. 105:21	C	-13.00	-71.55
	Platyrrhinus ismaeli	Velazco 2005	Fieldiana Zool. n.s. 105:27	C	-6.83	-78.02
	Platyrrhinus masu	Velazco 2005	Fieldiana Zool. n.s. 105:32	C	-13.13	-71.25
	Platyrrhinus matapalensis	Velazco 2005	Fieldiana Zool. n.s. 105:37	C	-3.68	-80.20
Family Thyropteridae	*Thyroptera devivoi*	Gregorin, Goncalves, Lim, and Engstrom 2006	J. Mammal. 87:239	C	-8.67	-44.95
	Thyroptera lavali	Pine 1993	Mammalia 57:213	C	-4.35	-71.97
Family Natalidae	*Natalus lanatus*	Tejedor 2005	J. Mammal. 86:1110	C	21.09	-105.11
Family Molossidae	*Chaerephon jobimena*	Goodman and Cardiff 2004	Acta Chiropterologica 6:230	I	-12.93	49.06
	Chaerephon tomensis	Juste and Ibañez 1993	J. Mammal. 74:901	I	0.20	6.65
	Otomops johnstonei	Kitchener, How, and Maryanto 1992	Rec. W. Aust. Mus. 15:730	I	-8.25	124.72
Family Vespertilionidae	*Arielulus aureocollaris*	Kock and Storch 1996	Senk. Biol. 76:2	C	20.13	99.17

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Arielulus torquatus	Csorba and Lee 1999	J. Zool. Lond. 248:364	I	24.40	121.30
	Lasiurus atratus	Handley 1996	Proc. Biol. Soc. Wash. 109:5	C	3.12	-56.45
	Lasiurus ebenus	Fazzolari-Corrêa 1994	Mammalia 58:119	C	-25.08	-47.98
	Rhogeessa hussoni	Genoways and Baker 1996	Contributions in Mammalogy: A Memorial Volume Honoring Dr. J. Knox Jones, Jr., p. 85	C	2.03	-56.11
	Scotophilus marovaza	Goodman, Ratrimomanarivo, and Randrian-andrianina 2006	Acta Chiropterologica 8:23	I	-14.93	47.27
	Scotophilus tandrefana	Goodman, Jenkins, and Ratrimomanarivo 2005	Zoosystema 27:875	I	-19.14	44.81
	Nyctophilus nebulosus	Parnaby 2002	Aust. Mammal. 23:116	I	-22.18	166.50
	Pipistrellus hanaki	Hulva and Benda 2004	In Benda et al., Acta Chiropterologica 6:207	C	32.73	21.68
	Plecotus alpinus	Kiefer and Veith 2002	Myotis 39 [dated 2001; issued April, 2002]:8	C	44.77	6.95
	Plecotus balensis	Kruskop and Lavrenchenko 2000	Myotis 38:6	C	6.75	39.73
	Plecotus sardus	Mucedda, Kiefer, Pidinchedda, and Veith 2002	Acta Chiropterologica 4:123	I	40.26	9.49
	Plecotus strelkovi	Spitzenberger 2006	Zoologica Scripta 35:207	C	42.42	77.33
	Glauconycteris curryae	Eger and Schlitter 2001	Acta Chiropterologica 3:2	C	3.08	10.42
	Histiotus humboldti	Handley 1996	Proc. Biol. Soc. Wash. 109:2	C	10.53	-66.90

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality +	Latitude ++	Longitude ++
	Myotis alcathoe	von Helversen and Heller 2001	In von Helversen et al., Naturwissen-schaften 88:217	I	39.08	21.82
	Myotis annamiticus	Kruskop and Tsytsulina 2001	Mammalia 65:65	C	18.48	105.72
	Myotis csorbai	Topál 1997	Acta Zool. Acad. Scient. Hungaricae 43:377	C	28.00	84.00
	Myotis dieteri	Happold 2005	Acta Chiropterologica 7:11	C	-4.25	13.00
	Myotis gomantongensis	Francis and Hill 1998	Mammalia 62:248	I	5.52	118.07
	Myotis yanbarensis	Maeda and Matsumura 1998	Zool. Sci. 15:301	I	26.75	128.28
	Miniopterus gleni	Peterson, Eger, and Mitchell 1995	Faune de Madagascar, Chiroptères 84:128	I	-23.67	43.75
	Harpiola isodon	Kuo, Fang, Csorba, and Lee 2006	Acta Chiropterologica 8:13	I	23.53	121.25
	Murina harrisoni	Csorba and Bates 2005	Acta Chiropterologica 7:2	C	11.49	104.21
	Murina ryukyuana	Maeda and Matsumura 1998	Zool. Sci. 15:303	I	26.75	128.28
	Kerivoula kachinensis	Bates, Struebig, Rossiter, Kingston, Sai Sein Lin Oo, and Khin Mya Mya 2004	Acta Chiropterologica 6:220	C	24.57	97.13
Order Carnivora						
Family Viverridae	*Genetta bourloni*	Gaubert 2003	Mammalia 67:95	C	8.55	-9.47
Order Artiodactyla						
Family Suidae	*Sus oliveri*	Groves 1997	Zool. J. Linn. Soc. 170:186	I	12.47	120.97
Family Cervidae	*Mazama bororo*	Duarte 1996	Guia de identificação de cervídeos Brasileiros, p. 7	C	-21.90	-47.10

Table 1 (cont.).

Classification	Species*, **	Author and Description Date	Citation	Locality⁺	Latitude⁺⁺	Longitude⁺⁺
	Muntiacus puhoatensis	Trai 1997	In Chau, Vietnam Economic News 47:46	C	20.00	105.00
	Muntiacus putaoensis	Amato, Egan and Rabinowitz 1999	Anim. Conserv. 2:4	C	27.35	97.40
	Muntiacus truongsonensis	Giao, Tuoc, Dung, Wikramanayake, Amato, Arctander and MacKinnon 1997	In Ha, Vietnam Economic News 38:46	C	15.95	107.57
	Muntiacus vuquangensis	Tuoc, Dung, Dawson, Arctander and MacKinnon 1994	Sci. and Tech. news. Forest Inv. and Planning Inst. (Hanoi), p. 5	C	18.25	105.42
Family Bovidae	*Damaliscus superstes*	Cotterill 2003	Durban Mus. Novit. 28:20	C	-12.35	30.00
	*Pseudoryx nghetinhensis***	Dung, Giao, Chinh, Tuoc, Arctander, and MacKinnon 1993	Nature 363:443	C	18.25	105.42
	Kobus anselli	Cotterill 2005	J. Zool. Lond. 265:119	C	-8.85	26.08
Order Cetacea						
Family Delphinidae	*Orcaella heinsohni*	Beasley, Robertson, and Arnold 2005	Mar. Mam. Sci. 21:378	M	-19.17	146.83
Family Ziphiidae	*Mesoplodon perrini*	Dalebout et al. 2002	Mar. Mam. Sci. 18:577	M	33.16	-117.35

* denotes description in a new genus that contains more than one species
** denotes description in a new monotypic genus
⁺ locality refers to the nature of the type locality (site from which voucher specimen documenting the species was collected); C = continental, I = insular, M = marine.
⁺⁺ When exact coordinates were not given in the original description, approximate coordinates were assigned from other sources, such as the known location of nearby field sites.
^ *Pseudopotto martini* is a controversial taxon, based on only two specimens of uncertain provenance.
^^ Species originally described in a different genus, as follows: *Hyladelphys kalinowskii* was originally described as *Gracilinanus kalinowskii*, but according to Voss et al. (2001), *G. kalinowski* is distinct at the genus level, and they assigned it to the new monotypic genus *Hyladelphys*. *Spalax munzuri* was originally described as *Nannospalax munzuri*, but according to Musser and Carleton (2005), *Nannospalax* is a synonym of the genus *Spalax*. *Pseudohydromys germani* was originally described as *Mayermys germani*, but according to Musser and Carleton (2005), *Mayermys* is a synonym of the genus *Pseudohydromys*.
^^^ *Laonastes aenigmamus* originally described in a new family, Laonestidae (Jenkins et al. 2005), subsequently revised as a relict species of the otherwise extinct Diatomyidae (Dawson et al. 2006), which is believed to have diverged from the Ctenodactylidae approximately 44 Mya ago (Huchon et al. 2007).

Table 2.—Breakdown of numbers of previously named species (currently recognized as valid) and newly described species by Order of mammals. Expected numbers of new species were calculated by dividing the number of previously named species in an Order by the total number of previously named species in all mammals (5,080) and multiplying by the total number of new species described (341). The allocation of new species across all mammals was not what would be expected due to chance ($X^2 = 41.52$, df = 11, p < 0.0005); that is, there are biases in what types of mammals are being newly described.

Classification	Total number of extant species named before 1 July 1992	New Extant Species Observed	New Extant Species Expected
Class Mammalia	5080	341	
Order Monotremata	4	1	0
Order Didelphimorphia	85	7	6
Order Paucituberculata	5	1	0
Order Microbiotheria	1	0	0
Order Notoryctemorphia	2	0	0
Order Dasyuromorphia	65	6	4
Order Peramelemorphia	19	1	1
Order Diprotodontia	131	9	9
Order Afrosoricida	45	7	3
Order Macroscelidea	15	0	1
Order Tubulidentata	1	0	0
Order Hyracoidea	4	0	0
Order Proboscidea	3	0	0
Order Sirenia	4	0	0
Order Cingulata	20	1	1
Order Pilosa	9	1	1
Order Scandentia	20	0	1
Order Dermoptera	2	0	0
Order Primates	352	36	24
Order Rodentia	2113	155	142
Order Lagomorpha	86	5	6
Order Erinaceomorpha	23	1	2
Order Soricomorpha	398	20	27
Order Chiroptera	1055	78	71
Order Pholidota	8	0	1
Order Carnivora	281	1	19
Order Perissodactyla	16	0	1
Order Artiodactyla	230	9	15
Order Cetacea	83	2	6

RESULTS

Trends in New Species Discoveries.—Between mid-1992 (when the second edition of *Mammal Species of the World* (Wilson and Reeder 1993) was compiled) and mid-2006, 341 new living mammal species were described—a rate of 24+ new descriptions per year. In total, the number of living mammal species currently recognized is 5,421, an 18% increase in the number of species recognized just over a decade ago (Wilson and Reeder 1993, 2005). This increase represents not only the new species described in the last decade (alone an astounding six percent of the global mammal fauna), but also a considerable body of revisionary taxonomic research, which has critically re-elevated the status of many nominal species previously held in taxonomic synonymy (Wilson and Reeder 2005). All signs indicate that these trends toward new discovery, description, and redescription will continue, and that a comprehensive understanding of extant mammalian taxonomic diversity remains a remote goal (Patterson 2000, 2001; Wilson and Reeder 2005; Baker and Bradley 2006).

Some recently-described mammals are highly distinctive—28 newly-named species were described in new genera, 18 of which are still considered monotypic. A most striking example, the Laotian Rock Rat (*Laonastes aenigmamus*), originally was described not only in a new genus, but in a new family, Laonastidae (Jenkins et al. 2005); in fact, it is now known to be the only known living member of the otherwise extinct Diatomyidae, previously known most recently from Miocene fossils (Dawson et al. 2006). This "living fossil" currently is believed to be related to the Ctenodactylidae, having diverged from them approximately 44 Mya (Huchon et al. 2007). At the turn of the twentieth century, 147 of the 150 currently-recognized extant mammal families were known to science as living animals, and only two were added to the roster during the 1900s (the monotypic Craseonycteridae, the bumblebee or hog-nosed bat of Myanmar and Thailand, in 1974 and the Near Eastern rodent family Calomyscidae, in 1979 (containing the single genus *Calomyscus* Thomas 1905). The 2005 description of *Laonastes* is thus truly astonishing (from a mammalogist's perspective, it may truly be the discovery of the century). That both of the most recently discovered extant mammalian families are endemic to south-east Asian forests is a strong indication that other major zoological novelties await discovery in that region's increasingly threatened natural habitats.

Examining rates of taxonomic description of mammals (from the birth of modern taxonomic nomenclature in 1758 (Linnaeus 1758) to the present) demonstrates that, on average, 223 currently-recognized species have been described each decade, with peaks in the mid 1800s and early 1900s (Fig. 1). These early peaks are likely driven by major expeditions to previously unknown areas (such as the arrival of the "first fleet" and subsequent exploration in Australia, French and German explorations of the Neotropics, and Dutch and British explorations worldwide). Declines from the 1920s to 1950s may be the result of World Wars I and II. Since the 1960s, the number of species described per decade has continually increased (likely due to a variety of factors, including the phylogenetic species concept and the genetic species concept, increases in world-wide travel, etc.; see discussion). For the current decade (the 2000s), if the pace of description from recent years continues unabated, we expect at least 300 new species to be described. Notably, the "species-accumulation" curve for mammals gives no indication of reaching an asymptote, and there is a significant linear relationship between total cumulative number of species and time by decade ($r^2 = .974$, $p < 0.0005$; $y = 253.79x - 776.03$; Fig. 1).

Taxonomic and Geographic Biases.—Unsurprisingly, new species of mammals described since 1992 are globally but not randomly distributed. Patterns of recent description demonstrate both taxonomic and geographic biases (Fig. 2). Across the 29 orders of mammals, new mammal species are described in numbers greater than expected for some groups and less for others ($X^2 = 41.52$, $df = 11$, $p < 0.0005$), all else being equal (Table 2). Greater than expected numbers of new species were described amongst afrotherian insectivores, primates, bats, rodents, monotremes, and marsupials. Less than expected numbers of new species were described amongst eulipotyphlan insectivores, carnivores, ungulates (i.e., Perissodactyla and Artiodactyla), and cetaceans. Correcting for species diversity, the largest relative discrepancies (positive or negative) between observed and expected numbers

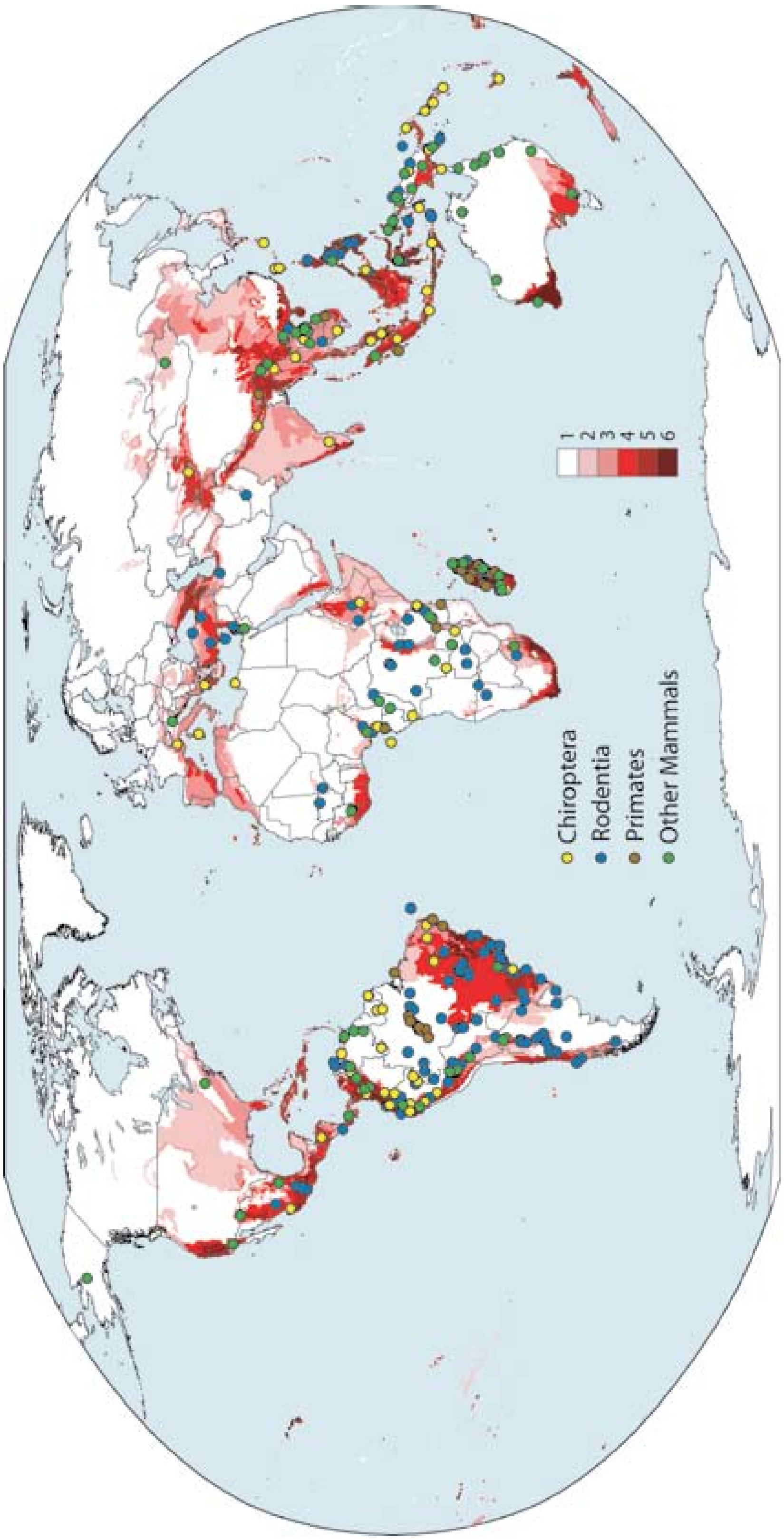

Figure 2. Global distribution of new mammals described since 1992. The distribution is overlaid on currently recognized regions of high threat and irreplaceability. Variable levels of shading indicate the number of global biodiversity conservation templates that prioritize the region (Brooks et al. 2005).

of new species were found in afrotherian insectivores (7 new species described, 4 expected), primates (36 new species described, 24 expected), carnivores (1 new species described, 19 expected), ungulates (9 new species described, 17 expected), and cetaceans (2 new species described, 6 expected). In part, these discrepancies are explained by issues of body size and conspicuousness: the probability of discovering new whales or antelopes today is intuitively less than the probability of encountering additional small species, such as bats and rodents—though surprises clearly remain a possibility. Within the species-rich Rodentia (2,268 species), descriptions of the 155 new species were strongly biased at the subordinal level ($X^2 = 36.68$, $df = 4$, $p < 0.0005$), with large relative discrepancies between observed and expected numbers of new species in the Sciuromorpha (1 new species described, 23 expected), Castorimorpha (3 new species described, 7 expected), and Hystricomorpha (32 new species described, 18 expected).

Geographic biases also are evident: 28% of newly-described species occur only on islands, 71% are continental, and 1% are marine (Fig. 2). Though the world's islands comprise only five percent of global land area, they host a rich complement of biodiversity (and especially threatened diversity) vastly disproportionate to their area, as these new discoveries continue to illuminate (Wilson and Reeder 2005; da Fonseca et al. 2006). Of new insular species, almost all (95%) are from the Old World, primarily from the species-rich archipelagos of south-east Asia and Melanesia (the Philippines, Malaysia, Indonesia, Papua New Guinea, Solomon Islands) and from Madagascar (an astounding 33 new species). An overwhelming majority (Fig. 2) of all new mammals are known only from regions of high threat and irreplaceability (Mittermeier et al. 2004; Brooks et al. 2005).

Geographic and taxonomic biases are often clearly intertwined. Madagascar, with its highly diverse animal assemblages and high degree of endemism (Yoder et al. 2005), provides a striking example of the disproportionate richness of island biodiversity, and continues to yield stunning discoveries (Goodman and Benstead 2004). Description of six new species of shrew-tenrecs (*Microgale*, endemic to Madagascar), is almost fully responsible for the higher than expected numbers of new afrotherian insectivores; likewise, the description of 15 new lemuriform primates (see Table 1) explains in significant part the higher-than-expected number of primate discoveries.

Of the new mammals from continental landmasses, 62% were described from the New World (151 species), primarily from South America (140 species). In South America, most were described from Brazil or from the Andes (corresponding roughly to the Tropical Andes Hotspot (Myers et al. 2000)). Of continental Old World species, 41 were from Africa (40 sub-Saharan), 6 from temperate Asia, 24 from the Asian tropics (including 18 from Vietnam, Laos, and Cambodia), 8 from Australia, and 12 from Europe and the Middle East.

DISCUSSION

The rapid rate of new species discoveries, which shows no indication of slowing down, suggests that there is a tremendous amount of work remaining to be done in the biotic inventory and alpha-level characterization of mammals. The data also allow for extrapolative predictions regarding discoveries in decades to come. One recent estimate has suggested that as many as 2,000 additional taxonomically valid species remain to be characterized in the global mammal fauna (Baker and Bradley 2006), depending on the species concepts employed. We concur that the "ultimate" number of recognizable mammal species is likely to approximate 7,500. If, as in recent decades, about 220-300 species are newly named per decade, and a similar proportion of critical "splits" accompanies these newly-named taxa, an increase of 2,000 recognized species might be expected by about 2050.

The biases apparent in new species discoveries are surely influenced by many factors, including geopolitical considerations. For example, discovery of the many new species described from Vietnam and Laos is linked to the opening of these regions to scientific exploration after years of being closed off to such inquiry (Groves and Schaller 2000). Conversely, other potentially diverse areas have not been explored for decades due to political reasons (e.g., Sudan, East Timor, Cuba), and are likely to yield important discoveries in the future. Geopolitical influences are clearly only part of the answer, in part because many new, sometimes 'cryptic', species have been "discovered" in older museum collections, as well as in the field—reiterating the importance of museums in the long-term preservation and maintenance of voucher collections. That many new species discovered in the last decade have been described by scientists in developing countries also highlights the increasing and ever-more-important globalization of systematic research.

Conservation priorities (and threats) can influence which species are described, and from where. New species discoveries continue to emphasize the conservation importance of particular regions of high endemism (e.g., Groves and Schaller 2000; Patterson 2001; Voss and da Silva 2001; Goodman and Benstead 2004; Mittermeier et al. 2004; Cotterill 2005; Helgen 2005; Yoder et al. 2005; Beehler 2006; da Fonseca et al. 2006). Many new species described from the tropics (and many in the process of being described (Wilson and Reeder 2005; Beehler 2006)) were discovered in 'rapid assessments' involving intensive sampling in relatively little-studied regions. Although difficult for many to believe, biotas of some relatively expansive areas of the globe, especially in the tropics, remain entirely or largely unexplored and unsurveyed. For example, a recent expedition to the Foja Mountains in western New Guinea (2 million acres of undisturbed tropical forest) represents the first major biotic exploration of this area (Beehler 2006). Paradoxically, some activities that potentially threaten species survival are facilitating the discovery of new species; for example, new logging roads and hydroelectric projects have provided easier scientific access into previously unstudied regions of Amazonia (e.g., Voss and da Silva 2001).

Previous research on primates and carnivores indicates that mammal species described in recent years tend to be relatively small-bodied, and have small geographic ranges (Collen et al. 2004). Although the great majority of recently-described mammals are indeed small (as are the great majority of all mammals), a surprising number of newly-characterized mammals are relatively large (including primates, ungulates, and even cetaceans; see Table 1). And while most newly-discovered species do indeed have quite small geographic ranges (at least as so far recorded), others are now known to be distributed across insular archipelagos or throughout relatively expansive montane regions (e.g., *Nyctimene keasti* Kitchener 1993; *Aepeomys reigi* Ochoa G., Aguilera, Pacheco, and Soriano 2001; Wilson and Reeder 2005). Clearly, the age of basic fieldwork is far from over.

Taxonomy provides one of the most important tools in rallying efforts against extinctions in the modern era. By delineating salient units of biodiversity, basic taxonomic research is critical to sound biogeographic assessment, and a critical tool in establishing geographic priorities for protection and study (Mace 2004; Wilson 2004). Fully one-quarter of all currently-recognized mammals are considered threatened with extinction in the near future (Cardillo et al. 2006). Most recently-described species of mammals are found in developing regions highly impacted by ongoing human population increases, habitat conversion, and other environmental pressures (Fig. 2), as, we predict, are the great majority of currently undescribed mammals.

The importance of sustained work in mammalian taxonomy and field biology is clear: there remains much to learn, even within this group of seemingly familiar animals, and conservation threats impart an urgent impetus toward further research. Although many 'end users' of taxonomic information are eternally frustrated with taxonomic flux (e.g., Isaac et al. 2004), continual updates to our understanding of biodiversity, including that of charismatic and well-studied groups such as mammals, signal the need for patience within the biological community as taxonomists continue to come to terms with the overwhelming richness of the global biota as a whole.

With our increasing understanding of evolutionary processes and the variety of scientific opinions about what really constitutes a distinct species, whether one uses the biological species concept, morphological species concept, phylogenetic species concept, or now the genetic species concept, has profound implications for what species we can expect to see described in the coming years and decades (for review of species cocepts see Cracraft (1997) and Baker and Bradley (2006)). While some consider the elevation of species numbers due to changes in the species concept "taxonomic inflation" that may or may not result in accurate species lists (Alroy 2002; Isaac et al. 2004), others (e.g., Baker and Bradley 2006) contend that these increases in species number are valid (especially when derived from statistically supported phylogenetic analyses, which are often corroborated by morphological and geographical data). In fact, a number of the species highlighted in Table 1 would be recognized as valid species regardless of the species concept employed.

The headquarters of taxonomic efforts are natural history museums, which need unrelenting support in their fundamental goals to maintain present collections, accumulate new ones, and support alpha-taxonomic and revisionary studies now and into the future (Baker 1994; Wheeler 2004; Wheeler et al. 2004; Wilson 2004, 2005; Schmidly 2005). Our ability to move forward in understanding biological diversity, so critical to the future of ecosystems, is contingent upon sustained funding for museum collections and field collecting, and support and encouragement for new generations of systematists—be they botanists, entomologists, or mammalogists.

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