# OCCASIONAL PAPERS THE MUSEUM TEXAS TECH UNIVERSITY

NUMBER 146

7 FEBRUARY 1992

# REVISED CHECKLIST OF NORTH AMERICAN MAMMALS NORTH OF MEXICO, 1991

J. KNOX JONES, JR., ROBERT S. HOFFMANN, DALE W. RICE, CLYDE JONES, ROBERT J. BAKER, AND MARK D. ENGSTROM

For almost two decades, we have periodically updated a checklist of scientific and vernacular names of species of North American mammals (Jones et al., 1973, 1975, 1979, 1982, 1986). Such checklists provide a ready reference for many scientific endeavors, both in the field and in the laboratory, and are particularly useful to students. Since publication some five years ago of the most recent revision of the list, demand for copies has severely depleted the original supply. Moreover, many significant taxonomic and nomenclatorial changes have appeared in the primary mamalogical literature since that time. In this version of the checklist, we have attempted to include all species of Recent mammals, a few of which now may be extinct, occurring in North America (and its adjacent waters) to the north of Mexico and recognized in the published literature through the end of 1991. Our list represents a consensus among the six authors but does not necessarily imply complete agreement among them on all controversial points. Some proposed changes that have not been adopted are discussed in the text preceding the checklist. A few vernacular names have been changed to reflect current usage or adjusted to account for species in genera that also contain non-North American members.

As most readers are aware, a number of species of mammals not native to North America have been introduced there over the years. Twenty-five such taxa are included in the checklist (identified by an asterisk) because they now occur in the wild state in numbers sufficient to justify listing them (additions primarily from Findley, 1987; Schmidt and Gilbert, 1978; Stevenson, 1976). Other exotic species possibly will be included in subsequent lists.

## DEPARTURES FROM JONES ET AL. (1986) AND OTHER NOTES

Those instances in which scientific names differ from the usage in Jones *et al.* (1986) are documented below. Some other pertinent comments are included that may help to explain the current list of recognized taxa. There have been no changes in the past five years in North American species of the orders Xenarthra, Lagomorpha, Cetacea, or Sirenia. However, most authorities now regard the European hare as distinct from *L. capensis* (see Angermann, 1983), a course followed here.

## Marsupials

It long has been recognized that the old order "Marsupialia" actually represented several orders or higher groupings when both fossil and Recent taxa were considered. There was some disagreement among experts, however, as to what groups should be recognized and what names should be applied to them, and we previously have chosen the conservative course of continuing to use Marsupialia at the ordinal level until an acceptable new classification for the group was developed. This now has been done by Marshall *et al.* (1990), and we follow them in use of the ordinal name Didelphimorphia for opossums. The term Marsupialia was regarded by Marshall *et al.* as the name for a supercohort.

## Insectivores

Among insectivores, the only changes since the 1986 list involve species of the genus *Sorex*. We generally have followed George (1988) and van Zyll de Jong (1991) in listing recognized species of that group. However, the specific taxa *bairdii* and *sonomae* have been added as diagnosed by Carraway (1990). We have not dropped *fontinalis* (to subspecific status under *S. cinereus*) following van Zyll de Jong and Kirkland (1989), because George's (1988) data indicate it is a sister taxon both to *cinereus* and to *haydeni*. And finally, we note in passing that van Zyll de Jong (1991) continues to use the specific name *pribilofensis* for the Pribilof Island shrew, whereas we retain the name *hydrodromus* for the same taxon.

#### Bats

Arita and Humphrey (1988) have shown that North American bats previously referred to as *Leptonycteris sanborni* actually are conspecific

## JONES ET AL.-CHECKLIST OF NORTH AMERICAN MAMMALS

with the earlier-named *L. curasoae* from the Netherlands Antilles and adjacent South America. They employed the trinomen *Leptonycteris* curasoae yerbabuenae for these long-nosed bats from mainland North America.

Baker et al. (1988), based on electrophoretic analysis, recognized the red bats of eastern and western North America as specifically distinct the monotypic Lasiurus borealis in the east and L. blossevillii, which occurs from Trans-Pecos Texas westward (and also southward throughout much of Latin America). Similarly, they found eastern (L. ega) and western (L. xanthinus) populations of yellow bats, which also differ chromosomally, to be specifically distinct on the basis of electrophoretic data.

Freeman (1981), in her landmark study of molossid morphometrics, elevated *Nyctinomops* (then recognized as a subgenus) as the exclusive generic name for all American bats formerly placed in *Tadarida* except *T. brasiliensis*. Many chiroptologists were slow to follow Freeman's lead, mostly because of uncertainty as to just what constituted a subgenus, as opposed to a genus, in the Molossidae. However, recent use of *Nyctinomops* in several publications, including Mammalian Species accounts of three of the four species in the genus (Jones and Arroyo-Cabrales, 1990; Kumirai and Jones, 1990; Milner *et al.*, 1990), prompts us to use the name here (but see Corbett and Hill, 1991).

Also at the generic level, Menu (1987), for reasons that are not entirely clear to us, proposed that *Leuconoe* Boie, 1830, replace *Myotis* Kaup, 1829, for that well-known bat group (he retained the latter as a subgenus of the former). Menu also recognized *Pizonyx*, *Perimyotis* (for *Pipistrellus subflavus*), *Corynorhinus*, and *Dasypterus* as distinct genera. We call attention to Menu's work, but have not adopted his suggested changes here. Similarly, we have not followed Legendre (1984) in use of the generic name *Rhizomops* in place of *Tadarida*.

Finally, Hoffmeister (1986) regarded *Myotis occultus* as a distinct species, a view at odds with that of other recent authors, who have recognized it as a subspecies of *M. lucifugus*. We follow the latter course.

## Rodents

Sciuridae.—Returning to the situation that prevailed in our 1982 list, we again recognize at the specific level the chipmunks Tamias ochrogenys, T. senex, and T. siskiyou following especially Kain (1985), Sutton (1987), and Gannon and Lawlor (1989). Recognition of these taxa is based primarily on bacular morphology and differences in vocalizations. All three species were submerged under T. townsendii in the 1986 list. Also in *Tamias*, we have not followed Patterson and Heaney (1987), who were "inclined to view *ruficaudus* and *simulans* as specifically distinct" (rather than subspecies of the same species) on the basis of admittedly distinctive bacula. Their nearest samples were 60 kilometers apart, however, and they noted that the two taxa probably are in "contact in the intervening Clearwater Mountains" of Idaho. It seems best to await final judgement on this matter until specimens are available from critical areas between the presently known ranges of *ruficaudus* and *simulans*.

We continue to use the generic name *Tamias* for all chipmunks because no one has published data convincing us that it is incorrect to do so. Controversy remains, however, and in all the papers cited above, for example, the name *Eutamias* was used at the generic level as it has been in many others. "Chipmunk affinities are unclear at supraspecific levels" according to Patterson and Heaney (1987). They went on to point out "that the entire assemblage is in need of revision; currently any arrangement of subgenera is contradicted by at least some characters."

Geomyidae.—Genetic studies of pocket gophers of the genus Geomys continue to reveal the presence of additional species in this highly divergent group. Baker et al. (1989) elevated G. knoxjonesi to specific status (see also Bradley et al., 1991), as did Block and Zimmerman (1991) for G. texensis, a species isolated on the northeastern part of the Edwards Plateau of central Texas. Although we followed Hafner and Geluso (1983) in submerging G. arenarius under G. bursarius in our last list, we now believe this action was premature (see especially Qumsiyeh et al., 1988) and readmit arenarius here. Finally, we acknowledge the continuing question as to whether lutescens and its races are properly placed in the species bursarius, but we make no change at this time.

Heteromyidae.—The one addition in this family involves the Perognathus flavus-P. merriami question. Considered as separate species for many years, these were united into a single species complex by Wilson (1973). Lee and Engstrom (1991), based on allozymic differences, have demonstrated that two species, which they found in sympatry at several places in southeastern New Mexico, should be recognized.

Hoffmeister (1986) did not regard *Chaetodipus* as distinct at the generic level, but arranged the pocket mice in three subgenera of *Perognathus*. Furthermore, he treated *P. apache* as a species distinct from *P. flavescens*. We have followed neither course here.

*Muridae*.—At the familial level, we have abandoned Cricetidae as the name for New World rats and mice, and for voles, in favor of the all-encompassing name Muridae. In so doing, we follow the lead of Carleton

4

and Musser (1984), who employed the subfamilial epithet Sigmodontinae for the New World rats and mice and the name Arvicolinae for the Holarctic voles and their allies. Cricetinae was reserved strictly for Old World genera. We continue to recognize *Mus musculus* as the appropriate specific name for the introduced house mouse (*domesticus* is a subspecies—see especially Bonhomme, 1986).

We tenatively follow Humphrey and Setzer (1989) in regarding Oryzomys argentatus as indistinct at the specific level from O. palustris (but see Goodyear, 1991). Secondly, we again recognize Peromyscus nasutus as specifically distinct from P. difficilis (which is confined to Mexico) on the basis of arguments cogently summarized by Carleton (1989), but see Janacek (1990). Additionally, we again recognize Microtus breweri, the beach vole of Muskeget Island, Massachusetts, as a species different from M. pennsylvanicus following Moyer et al. (1988). And lastly among murids, we recognize the same number of taxa in Dicrostonyx as in the last list but with one name change. Following Rausch and Rausch (1972), we used the specific name stevensoni of Nelson, 1929, for the collared lemmings from Umnak and Unalaska islands. However, D. unalascensis Merriam, 1902, has priority as the name for this species.

Almost parenthetically, we also take notice of the fact that Sullivan *et al.* (1986), although proposing no taxonomic changes, called attention to the close relationship between *Onychomys leucogaster* and *O. arenicola*, casting some doubt on the specific validity of the latter.

## Carnivores

In listing species of native terrestrial carnivores, we generally followed Wozencraft (1989). He included Lynx canadensis as distinct from L. lynx of the Old World, however, whereas we regard them as conspecific. Furthermore, Wozencraft did not include Spilogale gracilis as a species different from S. putorius, although we believe the available data on reproductive isolation are sufficient to warrant separation, and we follow Dragoo et al. (1990) in uniting as a single species the arid-land foxes, Vulpes velox and V. macrotis. Finally, we follow Decker (1991) in recognizing the coati of North America as a species distinct from that in South America (Nasua narica as opposed to N. nasua).

As for the felids, the quandry about generic names expressed in the 1986 list carries forward. Essentially, at this juncture, we are faced with selecting one of four alternatives: 1) retain all species in the genus *Felis*; 2) recognize two genera, *Felis* and the relatively distinctive *Lynx*; 3) recognize *Panthera* in addition to *Felis* and *Lynx*; or 4) recognize six genera, *Felis* (*catus*), *Herpailurus* (*yagouaroundi*), *Leopardus* (*par-*

dalis, weidii), Lynx (lynx, rufus), Panthera (onca), and Puma (concolor). The problem is that no one yet has produced a convincing phylogenetic analysis on which to base decisions as to recognition of genera. We have taken the middle ground for now, retaining Felis, Lynx, and Panthera, but acknowledge the continuing debate. Corbett and Hill (1991) also recognized Panthera along with Felis and Lynx, but not the other three genera.

In previous lists, pinnipeds (seals, sea lions, walrus) were separated into two groups: otariids and the one odobenid were entered following the ursids, whereas phocids were listed after mustelids. This arrangement followed the then prevailing view that pinnipeds were diphyletic, and that the two groups noted above were derived separately from ursid and mustelid ancestors, respectively (see Tedford, 1976). More recent morphological and biochemical evidence, however, indicates that odobenids are more closely allied to phocids than to otariids, and that pinnipeds are, indeed, monophyletic. Therefore, we have listed the three families of pinnipeds together following Arnason and Widegren (1986) and Wyss (1987, 1988, 1989). We have arbitrarily inserted the assemblage of aquatic carnivores following the Ursidae.

## Artiodactyls

In 1968, Woodburne concluded that the collared peccary represented a genus different from the white-lipped peccary, and used the name *Dicotyles* for the former. This arrangement was followed for a time (see Jones *et al.*, 1973, 1975, 1979), but we reverted to *Tayassu* in the 1982 list following Wetzel (1977). Recently, Wright (1989) has advanced additional evidence that *Tayassu* and *Dicotyles* do represent distinct genera. Husson (1978), however, presented a cogent argument that the name *Dicotyles* actually applies to the white-lipped peccary of tropical America and *Tayassu* (by tautonymy) to the collared peccary. We follow Husson in use of *Tayassu*. We also follow him in use of the familial name Dicotylidae rather than Tayassuidae, because the former clearly has priority.

In addition, it should be pointed out that there is some controversy as to whether the introduced fallow deer and axis deer should be placed in the genus *Cervus*, a practice we continue here, or rather in the separate genera *Dama* and *Axis*, respectively (see especially Groves and Grubb, 1987). And finally, although we disapprove for nostalgic reasons, there seems to be no good argument for continued recognition of the genus *Bison* (Groves, 1981; Miyamoto *et al.*, 1989), and we thus employ *Bos bison* for the American bison. In counterargument, it is noteworthy that the bison of the Old and New worlds, although admitedly near *Bos* phylogenetically, do represent a monophyletic clade.

# CHECKLIST

As in previous lists, orders, families, and genera are placed in conventional phylogenetic sequence, generally following Hall (1981), but species are arranged alphabetically in each genus. Although this may prove disquieting to some professional mammalogists, it will facilitate use of the checklist by those unfamiliar with intrageneric taxonomy, and some assemblages really are not well enough understood to create a meaningful hierarchy at the specific level in any event.

# **ORDER DIDELPHIMORPHIA**—Opossums

FAMILY DIDELPHIDAE—Opossums

Didelphis virginiana . . . . . Virginia Opossum

# **ORDER INSECTIVORA**—Insectivores

# FAMILY SORICIDAE—Shrews

| Sorex arcticus     | • |  | • | • | Arctic Shrew                 |
|--------------------|---|--|---|---|------------------------------|
| Sorex arizonae     |   |  |   |   | Arizona Shrew                |
| Sorex bairdii      |   |  |   |   | Baird's Shrew                |
| Sorex bendirii     |   |  |   |   | Pacific Water or Marsh Shrew |
| Sorex cinereus     |   |  |   |   | Cinereus or Masked Shrew     |
| Sorex dispar       |   |  |   |   | Long-tailed or Rock Shrew    |
| Sorex fontinalis . |   |  |   |   | Maryland Shrew               |
| Sorex fumeus       |   |  |   |   | Smokey Shrew                 |
| Sorex gaspensis    |   |  |   |   | Gaspé Shrew                  |
| Sorex haydeni      |   |  |   |   | Hayden's Shrew               |
| Sorex hoyi         |   |  |   |   | Pygmy Shrew                  |
| Sorex hydrodromus  |   |  |   |   | Pribilof Island Shrew        |
| Sorex jacksoni     |   |  |   |   | St. Lawrence Island Shrew    |
| Sorex longirostris |   |  |   |   | Southeastern Shrew           |
| Sorex lyelli       |   |  |   |   | Mt. Lyell Shrew              |
| Sorex merriami     |   |  |   |   | Merriam's Shrew              |
| Sorex monticolus . |   |  |   |   | Dusky or Montane Shrew       |
| Sorex nanus        |   |  |   |   | Dwarf Shrew                  |
| Sorex ornatus      |   |  |   |   | Ornate Shrew                 |
| Sorex pacificus    |   |  |   |   | Pacific Shrew                |
| Sorex palustris    |   |  |   |   | Water Shrew                  |
| Sorex preblei      |   |  |   |   | Preble's Shrew               |

| Sorex sonomae        |   |  |   |   | Fog Shrew                   |
|----------------------|---|--|---|---|-----------------------------|
| Sorextenellus        |   |  |   |   | Inyo Shrew                  |
| Sorex trowbridgii .  |   |  |   |   | Trowbridge's Shrew          |
| Sorextundrensis .    | • |  |   |   | Tundra Shrew                |
| Sorex ugyunak        |   |  |   |   | Barren Ground Shrew         |
| Sorex vagrans        |   |  |   |   | Vagrant Shrew               |
| Blarina brevicauda   |   |  |   |   | Northern Short-tailed Shrew |
| Blarina carolinensis |   |  |   |   | Southern Short-tailed Shrew |
| Blarina hylophaga    |   |  |   |   | Elliot's Short-tailed Shrew |
| Cryptotis parva      | • |  | • | • | Least Shrew                 |
| Notiosorex crawford  | i |  |   |   | Desert Shrew                |

FAMILY TALPIDAE—Moles

| Neurotrichus gibbsii |  |  |  | Shrew-mole        |
|----------------------|--|--|--|-------------------|
| Scapanus latimanus   |  |  |  | Broad-footed Mole |
| Scapanus orarius     |  |  |  | Coast Mole        |
| Scapanus townsendii  |  |  |  | Townsend's Mole   |
| Parascalops breweri  |  |  |  | Hairy-tailed Mole |
| Scalopus aquaticus . |  |  |  | Eastern Mole      |
| Condylura cristata . |  |  |  | Star-nosed Mole   |

# **ORDER CHIROPTERA**—Bats

| FAMILY N | MORMOOPIDAE- | V | lormoo | pid | Bats |
|----------|--------------|---|--------|-----|------|
|----------|--------------|---|--------|-----|------|

Mormoops megalophylla . . . Ghost-faced Bat

FAMILY PHYLLOSTOMIDAE—Phyllostomid Bats

| Macrotus californicus . |  |   | California Leaf-nosed Bat |
|-------------------------|--|---|---------------------------|
| Choeronycteris mexicana |  |   | Mexican Long-tongued Bat  |
| Leptonycteris curasoae  |  | • | Southern Long-nosed Bat   |
| Leptonycteris nivalis   |  |   | Mexican Long-nosed Bat    |
| Diphylla ecaudata       |  |   | Hairy-legged Vampire      |

FAMILY VESPERTILIONIDAE-Vespertilionid Bats

| Myotis auriculus      |  |  |  | Southwestern Myotis         |
|-----------------------|--|--|--|-----------------------------|
| Myotis austroriparius |  |  |  | Southeastern Myotis         |
| Myotis californicus . |  |  |  | California Myotis           |
| Myotis ciliolabrum .  |  |  |  | Western Small-footed Myotis |
| Myotis evotis         |  |  |  | Long-eared Myotis           |
| Myotis grisescens .   |  |  |  | Gray Myotis                 |
| Myotis keenii         |  |  |  | Keen's Myotis               |
| Myotis leibii         |  |  |  | Eastern Small-footed Myotis |

| Myotis lucifugus Little Brown Myotis           |    |
|--|----|
| Myotis septentrionalis Northern Myotis         |    |
| Myotis sodalis Indiana or Social Myotis        |    |
| Myotis thysanodes Fringed Myotis               |    |
| Myotis velifer Cave Myotis                     |    |
| Myotis volans Long-legged Myotis               |    |
| Myotis yumanensis Yuma Myotis                  |    |
| Lasiurus blossevillii Western Red Bat          |    |
| Lasiurus borealis Eastern Red Bat              |    |
| Lasiurus cinereus Hoary Bat                    |    |
| Lasiurus ega                                   |    |
| Lasiurus intermedius Northern Yellow Bat       |    |
| Lasiurus seminolus Seminole Bat                |    |
| Lasiurus xanthinus Western Yellow Bat          |    |
| Lasionycteris noctivagans Silver-haired Bat    |    |
| Pipistrellus hesperus Western Pipistrelle      |    |
| Pipistrellus subflavus Eastern Pipistrelle     |    |
| Eptesicus fuscus Big Brown Bat                 |    |
| Nycticeius humeralis Evening Bat               |    |
| Euderma maculatum Spotted Bat                  |    |
| Plecotus rafinesquii Rafinesque's Big-eared Ba | ıt |
| Plecotus townsendii Townsend's Big-eared Bat   | 1  |
| Idionycteris phyllotis Allen's Big-eared Bat   |    |
| Antrozous pallidus Pallid Bat                  |    |
|  |    |

# FAMILY MOLOSSIDAE—Molossid Bats

| Tadarida brasiliensis    | Brazilian Free-tailed Bat  |
|--------------------------|----------------------------|
| Nyctinomops femorosaccus | Pocketed Free-tailed Bat   |
| Nyctinomops macrotis     | <b>Big Free-tailed Bat</b> |
| Eumops glaucinus         | Wagner's Mastiff Bat       |
| Eumops perotis           | Western Mastiff Bat        |
| Eumops underwoodi        | Underwood's Mastiff Bat    |

# **ORDER PRIMATES**—Primates

| FAMILY CERCOPITHECID | AE | 3- | -( | DI | ď | W | 01 | rld | Monkeys              |
|----------------------|----|----|----|----|---|---|----|-----|----------------------|
| Macaca mulatta*      |    |    |    |    | • |   |    |     | <b>Rhesus Monkey</b> |

# **ORDER XENARTHRA**—Xenarthrans

FAMILY DASYPODIDAE—Armadillos

Dasypus novemcinctus .... Nine-banded Armadillo

# ORDER LAGOMORPHA—Lagomorphs

FAMILY OCHOTONIDAE—Pikas

| Ochotona collaris |  |  |  | Collared Pika |
|-------------------|--|--|--|---------------|
| Ochotona princeps |  |  |  | American Pika |

FAMILY LEPORIDAE—Hares and Rabbits

| Brachylagus idahoensis    |   |   |  | Pygmy Rabbit            |
|---------------------------|---|---|--|-------------------------|
| Sylvilagus aquaticus      |   |   |  | Swamp Rabbit            |
| Sylvilagus audubonii      |   |   |  | Desert Cottontail       |
| Sylvilagus bachmani       |   |   |  | Brush Rabbit            |
| Sylvilagus floridanus     |   |   |  | Eastern Cottontail      |
| Sylvilagus nuttallii      |   |   |  | Mountain Cottontail     |
| Sylvilagus palustris      |   |   |  | Marsh Rabbit            |
| Sylvilagus transitionalis | • |   |  | New England Cottontail  |
| Oryctolagus cuniculus*    |   |   |  | European Rabbit         |
| Lepus alleni              |   |   |  | Antelope Jackrabbit     |
| Lepus americanus          |   |   |  | Snowshoe Hare           |
| Lepus arcticus            |   |   |  | Arctic Hare             |
| Lepus californicus        |   |   |  | Black-tailed Jackrabbit |
| Lepus callotis            |   | • |  | White-sided Jackrabbit  |
| Lepus europaeus*          |   |   |  | European Hare           |
| Lepus othus               |   |   |  | Alaska Hare             |
| Lepus townsendii          |   |   |  | White-tailed Jackrabbit |

# ORER RODENTIA—Rodents

| FAMILY APLODONTIDAE—Mountain | Bea | iver                    |
|------------------------------|-----|-------------------------|
| Aploaontia rufa              | • • | Mountain Beaver         |
| FAMILY SCIURIDAE-Squirrels   |     |                         |
| Tamias alpinus               |     | Alpine Chipmunk         |
| Tamias amoenus               | . ' | Yellow-pine Chipmunk    |
| Tamias canipes               | . ( | Gray-footed Chipmunk    |
| Tamias cinereicollis         | . ( | Gray-collared Chipmunk  |
| Tamias dorsalis              | . ( | Cliff Chipmunk          |
| Tamias merriami              | . ] | Merriam's Chipmunk      |
| Tamias minimus               | . ] | Least Chipmunk          |
| Tamias obscurus              | . ( | California Chipmunk     |
| Tamias ochrogenys            | . ' | Yellow-cheeked Chipmunk |
| Tamias palmeri               | . 1 | Palmer's Chipmunk       |
| Tamias panamintinus          | . ] | Panamint Chipmunk       |
|                              |     |                         |

| Tamias quadrimaculatus        | Long-eared Chipmunk                       |
|-------------------------------|---|
| Tamias quadrivittatus         | Colorado Chipmunk                         |
| Tamias ruficaudus             | Red-tailed Chipmunk                       |
| Tamias rufus                  | Hopi Chipmunk                             |
| Tamias senex                  | Allen's Chipmunk                          |
| Tamias siskiyou               | Siskiyou Chipmunk                         |
| Tamias sonomae                | Sonoma Chipmunk                           |
| Tamias speciosus              | Lodgepole Chipmunk                        |
| Tamias striatus               | Eastern Chipmunk                          |
| Tamias townsendii             | Townsend's Chipmunk                       |
| Tamias umbrinus               | Uinta Chipmunk                            |
| Marmota broweri               | Alaska Marmot                             |
| Marmota caligata              | Hoary Marmot                              |
| Marmota flaviventris          | Yellow-bellied Marmot                     |
| Marmota monax                 | Woodchuck                                 |
| Marmota olympus               | Olympic Marmot                            |
| Marmota vancouverensis        | Vancouver Marmot                          |
| Ammospermophilus harrisii     | Harris' Antelope Squirrel                 |
| Ammospermophilus interpres .  | Texas Antelope Squirrel                   |
| Ammospermophilus leucurus .   | White-tailed Antelope Squirrel            |
| Ammospermophilus nelsoni      | Nelson's Antelope Squirrel                |
| Spermophilus armatus          | Uinta Ground Squirrel                     |
| Spermophilus beecheyi         | California Ground Squirrel                |
| Spermophilus beldingi         | Belding's Ground Squirrel                 |
| Spermophilus brunneus         | Idaho Ground Squirrel                     |
| Spermophilus columbianus      | Columbian Ground Squirrel                 |
| Spermophilus elegans          | Wyoming Ground Squirrel                   |
| Spermophilus franklinii       | Franklin's Ground Squirrel                |
| Spermophilus lateralis        | Golden-mantled Ground Squirrel            |
| Spermophilus mexicanus        | Mexican Ground Squirrel                   |
| Spermophilus mohavensis       | Mohave Ground Squirrel                    |
| Spermophilus parryii          | Arctic Ground Squirrel                    |
| Spermophilus richardsonii     | Richardson's Ground Squirrel              |
| Spermophilus saturatus        | Cascade Golden-mantled<br>Ground Squirrel |
| Spermophilus spilosoma        | Spotted Ground Squirrel                   |
| Spermophilus tereticaudus     | Round-tailed Ground Squirrel              |
| Spermophilus townsendii       | Townsend's Ground Squirrel                |
| Spermophilus tridecemlineatus | Thirteen-lined Ground Squirrel            |
| Spermophilus variegatus       | Rock Squirrel                             |
| Spermophilus washingtoni      | Washington Ground Squirrel                |

| Cynomys gunnisoni       |  |   | Gunnison's Prairie Dog   |
|-------------------------|--|---|--------------------------|
| Cynomys leucurus        |  |   | White-tailed Prairie Dog |
| Cynomys ludovicianus .  |  |   | Black-tailed Prairie Dog |
| Cynomys parvidens       |  |   | Utah Prairie Dog         |
| Sciurus aberti          |  |   | Abert's Squirrel         |
| Sciurus aureogaster*    |  |   | Mexican Gray Squirrel    |
| Sciurus arizonensis     |  |   | Arizona Gray Squirrel    |
| Sciurus carolinensis    |  |   | Eastern Gray Squirrel    |
| Sciurus griseus         |  |   | Western Gray Squirrel    |
| Sciurus nayaritensis    |  |   | Mexican Fox Squirrel     |
| Sciurus niger           |  | • | Eastern Fox Squirrel     |
| Tamiasciurus douglasii  |  |   | Douglas' Squirrel        |
| Tamiasciurus hudsonicus |  |   | Red Squirrel             |
| Glaucomys sabrinus      |  |   | Northern Flying Squirrel |
| Glaucomys volans        |  |   | Southern Flying Squirrel |

FAMILY GEOMYIDAE—Pocket Gophers

| Thomomys bottae       | Botta's Pocket Gopher      |
|-----------------------|----------------------------|
| Thomomys bulbivorus   | Camas Pocket Gopher        |
| Thomomys clusius      | Wyoming Pocket Gopher      |
| Thomomys idahoensis   | Idaho Pocket Gopher        |
| Thomomys mazama       | Western Pocket Gopher      |
| Thomomys monticola    | Mountain Pocket Gopher     |
| Thomomys talpoides    | Northern Pocket Gopher     |
| Thomomys townsendii   | Townsend's Pocket Gopher   |
| Thomomys umbrinus     | Southern Pocket Gopher     |
| Geomys arenarius      | Desert Pocket Gopher       |
| Geomys attwateri      | Attwater's Pocket Gopher   |
| Geomys breviceps      | Baird's Pocket Gopher      |
| Geomys bursarius      | Plains Pocket Gopher       |
| Geomys knoxjonesi     | Jones' Pocket Gopher       |
| Geomys personatus     | Texas Pocket Gopher        |
| Geomys pinetis        | Southeastern Pocket Gopher |
| Geomys texensis       | Llano Pocket Gopher        |
| Cratogeomys castanops | Yellow-faced Pocket Gopher |

FAMILY HETEROMYIDAE—Heteromyids

| Perognathus alticolus  |   | • |   |  | White-eared Pocket Mouse  |
|------------------------|---|---|---|--|---------------------------|
| Perognathus amplus .   | • | • |   |  | Arizona Pocket Mouse      |
| Perognathus fasciatus  | • |   |   |  | Olive-backed Pocket Mouse |
| Perognathus flavescens |   |   |   |  | Plains Pocket Mouse       |
| Perognathus flavus     | • | • | • |  | Silky Pocket Mouse        |

|   | Perognathus inornatus            | San Joaquin Pocket Mouse      |
|---|----------------------------------|-------------------------------|
|   | Perognathus longimembris         | Little Pocket Mouse           |
|   | Perognathus merriami             | Merriam's Pocket Mouse        |
|   | Perognathus parvus               | Great Basin Pocket Mouse      |
|   | Perognathus xanthonotus          | Yellow-eared Pocket Mouse     |
|   | Chaetodipus baileyi              | Bailey's Pocket Mouse         |
|   | Chaetodipus californicus         | California Pocket Mouse       |
|   | Chaetodipus fallax               | San Diego Pocket Mouse        |
|   | Chaetodipus formosus             | Long-tailed Pocket Mouse      |
|   | Chaetodipus hispidus             | Hispid Pocket Mouse           |
|   | Chaetodipus intermedius          | Rock Pocket Mouse             |
|   | Chaetodipus nelsoni              | Nelson's Pocket Mouse         |
|   | Chaetodipus penicillatus         | Desert Pocket Mouse           |
|   | Chaetodipus spinatus             | Spiny Pocket Mouse            |
|   | Microdipodops megacephalus .     | Dark Kangaroo Mouse           |
|   | Microdipodops pallidus           | Pale Kangaroo Mouse           |
|   | Dipodomys agilis                 | Agile Kangaroo Rat            |
|   | Dipodomys californicus           | California Kangaroo Rat       |
|   | Dipodomys compactus              | Gulf Coast Kangaroo Rat       |
|   | Dipodomys deserti                | Desert Kangaroo Rat           |
|   | Dipodomys elator                 | Texas Kangaroo Rat            |
|   | Dipodomys elephantinus           | <b>Big-eared Kangaroo Rat</b> |
|   | Dipodomys heermanni              | Heermann's Kangaroo Rat       |
|   | Dipodomys ingens                 | Giant Kangaroo Rat            |
|   | Dipodomys merriami               | Merriam's Kangaroo Rat        |
|   | Dipodomys microps                | Chisel-toothed Kangaroo Rat   |
|   | Dipodomys nitratoides            | Fresno Kangaroo Rat           |
|   | Dipodomys ordii                  | Ord's Kangaroo Rat            |
|   | Dipodomys panamintinus           | Panamint Kangaroo Rat         |
|   | Dipodomys spectabilis            | Banner-tailed Kangaroo Rat    |
|   | Dipodomys stephensi              | Stephen's Kangaroo Rat        |
|   | Dipodomys venustus               | Narrow-faced Kangaroo Rat     |
|   | Liomys irroratus                 | Mexican Spiny Pocket Mouse    |
| F | FAMILY CASTORIDAE—Beavers        |                               |
|   | Castor canadensis                | American Beaver               |
| F | FAMILY MURIDAE—Mice, Rats, and V | oles                          |
|   | Oryzomys couesi                  | Coues' Rice Rat               |

| Oryzomys couest            | • | Coues Rice Rat        |
|----------------------------|---|-----------------------|
| Oryzomys palustris         |   | Marsh Rice Rat        |
| Reithrodontomys fulvescens |   | Fulvous Harvest Mouse |
| Reithrodontomys humulis .  |   | Eastern Harvest Mouse |

| Reithrodontomys megalotis   | Western Harvest Mouse      |
|-----------------------------|----------------------------|
| Reithrodontomys montanus    | Plains Harvest Mouse       |
| Reithrodontomys raviventris | Salt-marsh Harvest Mouse   |
| Peromyscus attwateri        | Texas Mouse                |
| Peromyscus boylii           | Brush Mouse                |
| Peromyscus californicus     | California Mouse           |
| Peromyscus crinitus         | Canyon Mouse               |
| Peromyscus eremicus         | Cactus Mouse               |
| Peromyscus gratus           | Osgood's Mouse             |
| Peromyscus gossypinus       | Cotton Mouse               |
| Peromyscus leucopus         | White-footed Mouse         |
| Peromyscus maniculatus      | Deer Mouse                 |
| Peromyscus melanotis        | Black-eared Mouse          |
| Peromyscus oreas            | Columbian Mouse            |
| Peromyscus merriami         | Merriam's Mouse            |
| Peromyscus nasutus          | Northern Rock Mouse        |
| Peromyscus pectoralis       | White-ankled Mouse         |
| Peromyscus polionotus       | Oldfield Mouse             |
| Peromyscus sitkensis        | Sitka Mouse                |
| Peromyscus truei            | Piñon Mouse                |
| Podomys floridanus          | Florida Mouse              |
| Ochrotomys nuttalli         | Golden Mouse               |
| Baiomys taylori             | Northern Pygmy Mouse       |
| Onychomys arenicola         | Mearns' Grasshopper Mouse  |
| Onychomys leucogaster       | Northern Grasshopper Mouse |
| Onychomys torridus          | Southern Grasshopper Mouse |
| Sigmodon arizonae           | Arizona Cotton Rat         |
| Sigmodon fulviventer        | Tawny-bellied Cotton Rat   |
| Sigmodon hispidus           | Hispid Cotton Rat          |
| Sigmodon ochrognathus       | Yellow-nosed Cotton Rat    |
| Neotoma albigula            | White-throated Woodrat     |
| Neotoma cinerea             | Bushy-tailed Woodrat       |
| Neotoma devia               | Arizona Woodrat            |
| Neotoma floridana           | Eastern Woodrat            |
| Neotoma fuscipes            | Dusky-footed Woodrat       |
| Neotoma lepida              | Desert Woodrat             |
| Neotoma mexicana            | Mexican Woodrat            |
| Neotoma micropus            | Southern Plains Woodrat    |
| Neotoma stephensi           | Stephen's Woodrat          |
| Rattus norvegicus*          | Norway Rat                 |
| Rattus rattus*              | Black Rat                  |

|   | Mus musculus*                 | House Mouse                             |
|---|-------------------------------|---|
|   | Clethrionomys californicus    | Western Red-backed Vole                 |
|   | Clethrionomys gapperi         | Southern Red-backed Vole                |
|   | Clethrionomys rutilus         | Northern Red-backed Vole                |
|   | Phenacomys albipes            | White-footed Vole                       |
|   | Phenacomys intermedius        | Heather Vole                            |
|   | Phenacomys longicaudus        | Red Tree Vole                           |
|   | Microtus abbreviatus          | Insular Vole                            |
|   | Microtus breweri              | Beach Vole                              |
|   | Microtus californicus         | California Vole                         |
|   | Microtus canicaudus           | Gray-tailed Vole                        |
|   | Microtus chrotorrhinus        | Rock Vole                               |
|   | Microtus longicaudus          | Long-tailed Vole                        |
|   | Microtus mexicanus            | Mexican Vole                            |
|   | Microtus miurus               | Singing Vole                            |
|   | Microtus montanus             | Montane Vole                            |
|   | Microtus ochrogaster          | Prairie Vole                            |
|   | Microtus oeconomus            | Tundra Vole                             |
|   | Microtus oregoni              | Creeping Vole                           |
|   | Microtus pennsylvanicus       | Meadow Vole                             |
|   | Microtus pinetorum            | Woodland Vole                           |
|   | Microtus richardsoni          | Water Vole                              |
|   | Microtus townsendii           | Townsend's Vole                         |
|   | Microtus xanthognathus        | Yellow-cheeked or Taiga Vole            |
|   | Lemmiscus curtatus            | Sagebrush Vole                          |
|   | Neofiber alleni               | Round-tailed Muskrat                    |
|   | Ondatra zibethicus            | Common Muskrat                          |
|   | Lemmus sibiricus              | Brown Lemming                           |
|   | Synaptomys borealis           | Northern Bog Lemming                    |
|   | Synaptomys cooperi            | Southern Bog Lemming                    |
|   | Dicrostonyx exsul             | St. Lawrence Island Collared<br>Lemming |
|   | Dicrostonyx groenlandicus     | Peary Land Collared Lemming             |
|   | Dicrostonyx hudsonius         | Labrador Collared Lemming               |
|   | Dicrostonyx nelsoni           | Nelson's Collared Lemming               |
|   | Dicrostonyx richardsoni       | Richardson's Collared Lemming           |
|   | Dicrostonyx rubricatus        | Bering Collared Lemming                 |
|   | Dicrostonyx unalascensis      | Unalaska Collared Lemming               |
| F | FAMILY ZAPODIDAE—Jumping Mice |   |
|   | Zapus hudsonius               | Meadow Jumping Mouse                    |
|   | Zapus princeps                | Western Jumping Mouse                   |

| Zapus trinotatus  | Pacific Jumping Mouse<br>Woodland Jumping Mouse   |
|---|---|
| FAMILY ERETHIZONTIDAE—New World   | Porcupines  |
| Erethizon dorsatum  | Common Porcupine  |
| FAMILY MYOCASTORIDAE—Myocastori   | ds  |
| Myocastor coypus*   | Nutria  |
| ORDER CARNIVORA—Carnivores  |   |
| FAMILY CANIDAE—Canids   |   |
| Canis familiaris*<br>Canis latrans<br>Canis lupus<br>Canis rufus<br>Canis rufus<br>Canis rufus<br>Canis rufus<br>Canis rufus<br>Canis rufus<br>Canis rufus<br>Canis lupus<br>Canis lupus<br>Canis lupus<br>Canis latrans<br>Canis rufus<br>Canis ruf | Feral Dog<br>Coyote<br>Gray Wolf<br>Red Wolf<br>Arctic Fox<br>Kit or Swift Fox<br>Red Fox<br>Common Gray Fox<br>Island Gray Fox |
| Family Ursidae—Bears<br>Ursus americanus<br>Ursus arctos<br>Ursus maritimus   | Black Bear<br>Grizzly or Brown Bear<br>Polar Bear   |
| FAMILY OTARIIDAE—Eared Seals  |   |
| Callorhinus ursinus<br>Arctocephalus townsendi<br>Eumetopias jubatus<br>Zalophus californianus  | Northern Fur Seal<br>Guadalupe Fur Seal<br>Northern Sea Lion<br>California Sea Lion   |
| FAMILY ODOBENIDAE—Walrus  |   |
| Odobenus rosmarus   | Walrus  |
| FAMILY PHOCIDAE—Hair Seals  |   |
| Phoca largha  | Spotted Seal<br>Harbor Seal<br>Ringed Seal<br>Gray Seal   |

| Pagophilus groenlandicus<br>Histriophoca fasciata<br>Erignathus barbatus<br>Cystophora cristata<br>Monachus tropicalis<br>Mirounga angustirostris   | Harp Seal<br>Ribbon Seal<br>Bearded Seal<br>Hooded Seal<br>West Indian Monk Seal<br>Northern Elephant Seal  |
|---|---|
| FAMILY PROCYONIDAE—Procyonids   |   |
| Bassariscus astutus Procyon lotor   | Ringtail<br>Common Raccoon<br>White-nosed Coati   |
| FAMILY MUSTELIDAE—Mustelids   |   |
| Martes americanaMartes pennantiMustela ermineaMustela frenataMustela nigripesMustela nivalisMustela nivalisMustela nivalisMustela nivalisMustela nivalisMustela nivalisMustela nivalisSpilogale nivalisSpilogale gracilisSpilogale putoriusMephitis macrouraMephitis mephitisConepatus leuconotusLutra canadensisEnhydra lutris | American Marten<br>Fisher<br>Ermine<br>Long-tailed Weasel<br>Black-footed Ferret<br>Least Weasel<br>Mink<br>Wolverine<br>American Badger<br>Western Spotted Skunk<br>Eastern Spotted Skunk<br>Hooded Skunk<br>Striped Skunk<br>Eastern Hog-nosed Skunk<br>Common Hog-nosed Skunk<br>Northern River Otter<br>Sea Otter |
| FAMILY FELIDAE—Cats   |   |
| Felis catus*Felis concolorFelis pardalisFelis wiediiFelis wiediiFelis yagouaroundiLynx lynxLynx rufusPanthera onca  | Feral Cat<br>Mountain Lion<br>Ocelot<br>Margay<br>Jaguarundi<br>Lynx<br>Bobcat<br>Jaguar  |

# ORDER CETACEA—Whales

| FAMILY ESCHRICHTIIDAE-Gray Whale  |  |
|---|--|
| Eschrichtius robustus   | Gray Whale   |
| FAMILY BALAENOPTERIDAE—Rorquals   |  |
| Balaenoptera acutorostrata<br>Balaenoptera borealis<br>Balaenoptera edeni<br>Balaenoptera musculus<br>Balaenoptera physalus<br>Megaptera novaeangliae   | Minke Whale<br>Sei Whale<br>Bryde's Whale<br>Blue Whale<br>Fin Whale<br>Humpback Whale   |
| FAMILY BALAENIDAE—Right Whales  |  |
| Balaena glacialis   | Black Right Whale<br>Bowhead Whale   |
| FAMILY MONODONTIDAE-Monodontid  | ls   |
| Delphinapterus leucas<br>Monodon monoceros  | White Whale or Beluga<br>Narwhal   |
| FAMILY DELPHINIDAE—Delphinids   |  |
| Steno bredanensisTursiops truncatusStenella attenuataStenella clymeneStenella coeruleoalbaStenella frontalisStenella longirostrisDelphinus delphisLagenodelphis hoseiLagenorhynchus albirostrisLagenorhynchusLagenorhynchus | Rough-toothed Dolphin<br>Bottle-nosed Dolphin<br>Pantropical Spotted Dolphin<br>Clymene Dolphin<br>Striped Dolphin<br>Atlantic Spotted Dolphin<br>Spinner Dolphin<br>Saddle-backed Dolphin<br>Fraser's Dolphin<br>Atlantic White-sided Dolphin<br>White-beaked Dolphin |
| obliquidens   | Pacific White-sided Dolphin<br>Risso's Dolphin or Grampus<br>Pygmy Killer Whale<br>False Killer Whale<br>Short-finned Pilot Whale<br>Long-finned Pilot Whale<br>Killer Whale   |
| Lissodelphis borealis   | Northern Right-whale Dolphin   |

| FAMILY PHOCOENIDAE—Porpoises  |
|---|
| Phocoena phocoena Harbor Porpoise<br>Phocoenoides dalli Dall's Porpoise   |
| FAMILY ZIPHIIDAE—Beaked Whales  |
| Berardius bairdii North Pacific Bottle-nosed Whale<br>Ziphius cavirostris Goose-beaked Whale<br>Hyperoodon ampullatus North Atlantic Bottle-nosed<br>Whale  |
| Mesoplodon bidensNorth Atlantic Beaked WhaleMesoplodon carlhubbsiArch-beaked WhaleMesoplodon densirostrisDense-beaked WhaleMesoplodon europaeusGervais' Beaked WhaleMesoplodon ginkgodensGinkgo-toothed WhaleMesoplodon hectoriHector's Beaked WhaleMesoplodon mirusTrue's Beaked WhaleMesoplodon stejnegeriBering Sea Beaked Whale |
| FAMILY KOGIIDAE—Pygmy Sperm Whales  |
| Kogia breviceps Pygmy Sperm Whale<br>Kogia simus Dwarf Sperm Whale  |
| FAMILY PHYSETERIDAE-Sperm Whales  |
| Physeter macrocephalus Sperm Whale  |
| ORDER SIRENIA—Sea Cows  |
| FAMILY TRICHECHIDAE—Manatees  |
| Trichechus manatus Manatee  |
| ORDER PERISSODACTYLA—Odd-toed Ungulates   |
| FAMILY EQUIDAE—Equids   |
| <i>Equus asinus</i> * Feral Ass<br><i>Equus caballus</i> * Feral Horse  |
| ORDER ARTIODACTYLA—Even-toed Ungulates  |
| FAMILY SUIDAE—Pigs  |
| Sus scrofa* Feral Pig   |
| FAMILY DICOTYLIDAE—Peccaries  |
| Tayassu tajacu Collared Peccary   |

FAMILY CERVIDAE—Cervids

| Cervis axis*           | Axis Deer                 |
|------------------------|---------------------------|
| Cervus dama*           | Fallow Deer               |
| Cervus elaphus         | Wapiti or Elk             |
| Cervus nippon*         | Sika Deer                 |
| Cervus unicolor*       | Sambar Deer               |
| Odocoileus hemionus    | Mule or Black-tailed Deer |
| Odocoileus virginianus | White-tailed Deer         |
| Alces alces            | Moose                     |
| Rangifer tarandus      | Caribou                   |

FAMILY ANTILOCAPRIDAE—Pronghorn

Antilocapra americana . . . . Pronghorn

FAMILY BOVIDAE-BOVIDS

| Bos bison                | American Bison              |
|--------------------------|-----------------------------|
| Boselaphus tragocamelus* | Nilgai                      |
| <i>Oryx gazella</i> *    | Gemsbok                     |
| Antilope cervicapra*     | Blackbuck                   |
| Hemitragus jemlahicus*   | Tahr                        |
| Capra aegagrus*          | Wild Goat                   |
| Capra hircus*            | Goat                        |
| <i>Capra ibex</i> *      | Ibex                        |
| Oreamnos americanus      | Mountain Goat               |
| Ovibos moschatus         | Muskox                      |
| Ovis canadensis          | Mountain (or Bighorn) Sheep |
| <i>Ovis dalli</i>        | Dall's (or Thinhorn) Sheep  |
| Ammotragus lervia*       | Barbary Sheep               |

#### LITERATURE CITED

ANGERMANN, R. 1983. The taxonomy of Old World Lepus. Acta Zool. Fennica, 174:17-21.
ARNASON, U., AND B. WIDEGREN. 1986. Pinniped phylogeny enlightened by molecular hybridizations using highly repetitive DNA. Mol. Biol. Evol., 3: 356-365.

ARITA, H. T., AND S. R. HUMPHREY. 1988. Revisión taxonómîca del los murciélagos magueyeros del género Leptonycteris (Chiroptera: Phyllostomidae). Acta Zool. Mexicana, n. s., 29: 1-60.

BAKER, R. J., J. C. PATTÓN, H. H. GENOWAYS, AND J. W. BICKHAM. 1988. Genic studies of Lasiurus (Chiroptera: Vespertilionidae). Occas. Papers Mus., Texas Tech Univ., 117: 1-15.

BAKER, R. J., S. K. DAVIS, R. D. BRADLEY, M. J. HAMILTON, AND R. A. VAN DEN BUSSCHE. 1989. Ribosomal-DNA, mitochondrial-DNA, chromosomal, and allozymic studies on a contact zone in the pocket gopher, *Geomys.* Evolution, 43: 63-75.

BLOCK, S. B., AND E. G. ZIMMERMAN. 1991. Allozymic variation and systematics of plains pocket gophers (*Geomys*) in south-central Texas. Southwestern Nat., 36: 29-36.

- BONHOMME, F. 1986. Evolutionary relationships in the genus Mus. Current Topics Microbiol. Immunol., Springer-Verlag Berlin, 127:19-34.
- BRADLEY, R. D., S. K. DAVIS, AND R. J. BAKER. 1991. Genetic control of prematingisolating behavior: Kaneshiro's hypothesis and asymmetrical sexual selection in pocket gophers. J. Heredity, 82: 192-196.
- CARLETON, M. D. 1989. Systematics and evolution. Pp. 7-141, in Advances in the study of Peromyscus (Rodentia) (G. L. Kirkland, Jr., and J. N. Layne, eds.), Texas Tech Univ. Press, Lubbock, (iv) + 367 pp.
- CARLETON, M. D., AND G. G. MUSSER. 1984. Muroid rodents. Pp. 289-379, in Orders and families of Recent mammals of the World (S. Anderson and J. K. Jones, Jr., eds.), John Wiley & Sons, New York, xii + 686 pp.
- CARRAWAY, L. N. 1990. A morphologic and morphometric analysis of the "Sorex vagrans species complex" in the Pacific Coast region. Spec. Publ. Mus., Texas Tech Univ., 32: 1-76.
- CORBETT, G. B., AND J. E. HILL. 1991. A world list of mammalian species. Oxford Univ. Press, New York, 3rd ed., viii + 243 pp.
- DECKER, D. M. 1991. Systematics of the coatis, genus Nasua (Mammalia: Procyonidae). Proc. Biol. Soc. Washington, 104: 370-386.
- DRAGOO, J. W., J. R. CHOATE, T. L. YATES, AND T. P. O'FARRELL. 1990. Evolutionary and taxonomic relationships among North American arid-land foxes. J. Mamm., 71: 318-332.
- FINDLEY, J. S. 1987. The natural history of New Mexican mammals. Univ. New Mexico Press, Albuquerque, xii+164 pp.
- FREEMAN, P. W. 1981. A multivariate study of the family Molossidae (Mammalia: Chiroptera): morphology, ecology, evolution. Fieldiana Zool., n.s., 7: vii+1-173.
- GANNON, W. L., AND T. E. LAWLOR. 1989. Variation of the chip vocalization of three species of Townsend chipmunks (genus *Eutamias*). J. Mamm., 70: 740-753.
- GEORGE, S. B. 1988. Systematics, historical biogeography, and evolution of the genus Sorex. J. Mamm., 69: 443-461.
- GOODYEAR, N. C. 1991. Taxonomic status of the silver rice rat, Oryzomys argentatus. J. Mamm., 72:723-730.
- GROVES, C. P. 1981. Systematic relationships in the Bovini (Artiodactyla, Bovidae). Z. Zool. Syst. Evol., 19: 264-278.
- GROVES, C. P., AND P. GRUBB. 1987. Relationships of living deer. Pp. 21-59, in Biology and management of the Cervidae (C. M. Wemmer, ed.), Smithsonian Inst. Press, Washington, D. C., xiii + 577 pp.
- HAFNER, D. J., AND K. N. GELUSO. 1983. Systematic relationships and historical zoogeography of the desert pocket gopher, *Geomys arenarius*. J. Mamm., 64: 405-413.
- HALL, E. R. 1981. The mammals of North America. John Wiley & Sons, New York, 2nd ed., 1: xv + 1-600 + 90 and 2: vi +601-1181 +90.
- HOFFMEISTER, D. F. 1986. Mammals of Arizona. Univ. Arizona Press, Tucson, xx + 602 pp.
- HUMPHREY, S. R., AND H. W. SETZER. 1989. Geographic variation and taxonomic revision of rice rats (*Oryzomys palustris* and *O. argentatus*) of the United States. J. Mamm. 70: 557-570.
- Husson, A. M. 1978. The mammals of Suriname. E. J. Brill, Leiden, xxxiv + 569 pp., 151 pls.
- JANECEK, L. L. 1990. Genic variation in the *Peromyscus truei* group (Rodentia: Cricetidae). J. Mamm., 71: 301-308.

JONES, J. K., JR., AND J. ARROYO-CABRALES. 1990. Nyctinomops aurispinosus. Mamm. Species, 350: 1-3.

- JONES, J. K., JR., D. C. CARTER, AND H. H. GENOWAYS. 1973. Checklist of North American mammals north of Mexico. Occas. Papers Mus., Texas Tech Univ., 12: 1-14.
  - ——. 1975. Revised checklist of North American mammals north of Mexico. Occas. Papers Mus., Texas Tech Univ., 28: 1-14.
  - 1979. Revised checklist of North American mammals north of Mexico, 1979.
     Occas. Papers Mus., Texas Tech Univ., 62: 1-17.
- JONES, J. K., JR., D. C. CARTER, H. H. GENOWAYS, R. S. HOFFMANN, AND D. W. RICE. 1982. Revised checklist of North American mammals north of Mexico, 1982. Occas. Papers Mus., Texas Tech Univ., 80: 1-22.

JONES, J. K., JR., D. C. CARTER, H. H. GENOWAYS, R. S. HOFFMAN, D. W. RICE, AND C. JONES. 1986. Revised checklist of North American mammals north of Mexico, 1986. Occas. Papers Mus., Texas Tech Univ., 107: 1-22.

- KAIN, D. E. 1985. The systematic status of *Eutamias ochrogenys* and *Eutamias senex* (Rodentia: Sciuridae). Unpublished M. A. thesis, Humboldt State University, Arcata, California, 67 pp.
- KUMIRAI, A., AND J. K. JONES, JR. 1990. Nyctinomops femorosaccus. Mamm. Species, 349: 1-5.
- LEE, T. J., JR., AND M. D. ENGSTROM. 1991. Genetic variation in the silky pocket mouse (*Perognathus flavus*) in Texas and New Mexico. J. Mamm., 72: 273-285.
- LEGENDRE, S. 1984. Étude odontologique des représentants actuels du groupe Tadarida (Chiroptera, Molossidae). Implications phylogéniques, systématiques et zoogeographiques. Rev. Suisse Zool., 91:399-442.
- MARSHALL, L. G., J. A. CASE, AND M. O. WOODBURNE. 1990. Phylogenetic relationships of the families of marsupials. Pp. 433-505, in Current mammalogy (H. H. Genoways, ed.), Plenum Press, New York, 2: xviii + 1-577.
- MENU, H. 1987. Morphotypes dentaires actuels et fossiles des chiroptères vespertilioninés. 2eme partie: implications systématiques et phylogéniques. Palaeovertebrata, 17:77-150, 5 pls.
- MILNER, J., C. JONES, AND J. K. JONES, JR. 1990. Nyctinomops macrotis. Mamm. Species, 351: 1-4.
- MIYAMOTO, M. M., S. M. TANHAUSER, AND P. J. LAIPIS. 1989. Systematic relationships in the artiodactyl tribe Bovini (family Bovidae), as determined from mitochondrial DNA sequences. Syst. Zool., 38: 342-349.
- MOYER, C. A., G. H. ADLER, AND R. N. TAMARIN. 1988. Systematics of New England Microtus, with emphasis on Microtus breweri. J. Mamm., 69: 782-794.
- PATTERSON, B. D., AND L. R. HEANEY. 1987. Preliminary analysis of geographic variation in red-tailed chipmunks (*Eutamias ruficaudus*). J. Mamm., 68: 782-791.
- QUMSIYEH, M. B., C. SANCHEZ H., S. K. DAVIS, J. C. PATTON, AND R. J. BAKER. 1988. Chromosomal evolution in *Geomys* as revealed by G- and C-band analysis. Southwestern Nat., 33: 1-13.
- RAUSCH, R. L., AND V. R. RAUSCH. 1972. Observations on chromosomes of *Dicrostonyx* torquatus stevensoni Nelson and chromosomal diversity in varying lemmings. Z. Säuget., 37: 372-384.
- SCHMIDT, J. L., AND D. L. GILBERT (eds.). 1978. Big game of North America .... Stackpole Books, Harrisburg, Pennsylvania, xv + 494 pp.
- STEVENSON, H. M. 1976. Vertebrates of Florida.... Univ. Presses Florida, Gainesville, xix + 607 pp.

- SULLIVAN, R. M., D. J. HAFNER, AND T. L. YATES. 1986. Genetics of a contact zone between three chromosomal forms of the grasshopper mouse (genus *Onychomys*): a reassessment. J. Mamm., 67: 640-659.
- SUTTON, D. A. 1987. Analysis of Pacific Coast Townsend chipmunks (Rodentia: Sciuridae). Southwestern Nat., 32: 371-376.
- TEDFORD, R. N. 1976. Relationships of pinnipeds to other carnivores (Mammalia). Syst. Zool., 25: 363-374.
- VAN ZYLL DE JONG, C. G. 1991. Speciation in the *Sorex cinereus* group. Spec. Publ. Mus. Southwestern Biol., Univ. New Mexico, 1: 65-73.
- VAN ZYLL DE JONG, C. G., and G. L. Kirkland, Jr. 1989. A morphometric analysis of the Sorex cinereus group in central and eastern North America. J. Mamm., 70: 110-122.
- WETZEL, R. M. 1977. The Chacoan peccary Catagonus wagneri (Rusconi). Bull. Carnegie Mus. Nat. Hist., 3: 1-36.
- WILSON, D. E. 1973. The systematic status of *Perognathus merriami* Allen. Proc. Biol. Soc. Washington, 86: 175-192.
- WOODBURNE, M. O. 1968. The cranial myology and osteology of *Dicotyles tajacu*, the collared peccary, and its bearing on classification. Mem. So. California Acad. Sci., 7: 1-48.
- WOZENCRAFT, W. C. 1989. Classification of the Recent Carnivora. Pp. 569-593, in Carnivore behavior, ecology and evolution (J. L. Gettleman, ed.), Cornell Univ. Press, Ithaca, New York, xiv + 620 pp.
- WRIGHT, D. B. 1989. Phylogenetic relationships of *Catagonus wagneri*: sister taxa from the Tertiary of North America. Pp. 281-308, *in* Advances in Neotropical mammalogy (K. H. Redford and J. F. Eisenberg, eds.), Sandhill Crane Press, Gainesville, Florida, ix + 614 pp.
- Wyss, A. R. 1987. The walrus auditory region and the monophyly of pinnipeds. Amer. Mus. Novit., 2871: 1-31.
- . 1988. Evidence from flipper structure for a single origin of pinnipeds. Nature, 334: 427-428.
  - —. 1989. Flippers and pinniped phylogenys: has the problem of convergence been overrated? Marine Mamm. Sci., 5: 343-360.

Addresses of authors: Department of Biological Sciences and The Museum, Texas Tech University, Lubbock, Texas 79409 (JKJ, CJ, RJB); Assistant Secretary, Smithsonian Institution, Washington, D. C. 20560 (RSH); NOAA-National Marine Mammal Laboratory, 7600 Sand Point Way, Bldg. 4, Seattle, Washington 98115 (DWR); and Department of Mammalogy, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada M5S 2C6 (MDE). Received 30 September 1991, accepted 28 October 1991.

## PUBLICATIONS OF THE MUSEUM TEXAS TECH UNIVERSITY

Three serials of The Museum of Texas Tech University are published by Texas Tech University Press. Short research studies are published as Occasional Papers, whereas longer contributions appear as Special Publications. Papers of practical application to collection management and museum operations are issued in the Museology series. All are numbered separately and published on an irregular basis. A complete list of titles is available from the Sales Office.

The preferred abbreviation for citing the Occasional Papers is Occas. Papers Mus., Texas Tech Univ.

Subscriptions (\$30/yr. domestic individuals; \$33/yr. domestic institutions or foreign individuals; \$36/yr. foreign institutions; typically 10 numbers issued per year) are available through Texas Tech University Press, Sales Office, Texas Tech University, Lubbock, Texas 79409-1037. Separate numbers of the Occasional Papers can be purchased (\$3.00 each with a minimum order of 5 copies in any combination) from Texas Tech University Press. Remittance in U.S. currency check, money order, or bank draft must be enclosed with request (add \$1.50 for every 5 / \$5.00 for overseas air; residents of the state of Texas must pay sales tax on the total purchase price). Copies of the "Revised checklist of North American mammals north of Mexico, 1991" (Jones et al., 1992, Occas. Papers Mus., Texas Tech Univ., 146:1-23) are available at \$2.00 each in orders of 10 or more.



Lubbock, Texas 79409-1037 USA