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Comprehensive Annotated Checklist of Recent Land and Marine Mammals of Texas, 2024, with Comments on Their Taxonomic and Conservation Status



David J. Schmidly, Robert D. Bradley, Franklin D. Yancey, II, and Lisa C. Bradley

Front cover: Illustrations of Texas mammals. Top row: Black-tailed Jackrabbit; Gray Squirrel; Coyote. Middle row: Spotted Bat; Virginia Opossum; Pronghorn. Bottom row: Feral Hog; Mexican Long-nosed Armadillo; Bottlenose Dolphin. Dolphin illustration by Katelyn M. Albrecht; all other illustrations by Chester O. Martin.

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Layout and Design:	Lisa Bradley
Cover Design:	Artwork by Katelyn M. Albrecht and Chester O. Martin
Production Editor:	Lisa Bradley

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Museum of Texas Tech University Lubbock, TX 79409-3191 USA (806)742-2442

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DAVID J. SCHMIDLY, ROBERT D. BRADLEY, FRANKLIN D. YANCEY, II, AND LISA C. BRADLEY

ABSTRACT

The checklist presented herein is the seventh in a series produced for Texas mammals. A total of 206 species has been included, including 148 native terrestrial species, 28 domestic, feral, and introduced species, and 30 marine mammals that have stranded on Texas beaches or been observed in the state's offshore waters. This is the first checklist publication to include information for all three of these groups of mammals. The checklist presents information about the distribution (with recent changes in geographic ranges noted), classification (both higher taxonomic categories and subspecies), nomenclature (common and scientific names), scientific authority for names of both monotypic and polytypic species, type localities of species/subspecies described from specimens collected in Texas, and the conservation status of each Texas mammal, including those that are considered to have critical conservation issues as identified by the Texas Parks and Wildlife Department, United States Fish and Wildlife Service, and International Union for Conservation of Nature. Special mention is made of those species and subspecies that are now extirpated in Texas as well as those that have expanded their geographic range in the 20th and 21st centuries. Several important taxonomic and nomenclatorial changes affecting Texas mammals are noted, including the armadillo (Dasypus mexicanus), two lasiurine bats (Aerostes cinereus and Lasiurus frantzii), two spotted skunks (Spilogale interrupta and S. leucoparia), one cottontail rabbit (Sylvilagus robustus), three species of deer mice (Peromyscus labecula, P. sonoriensis, and P. *laceianus*), two species of pocket gophers (*Geomys brazensis* and *Thomomys baileyi*), and one chipmunk (Neotamias canipes). One new species, the Lesser Long-nosed Bat (Leptonycteris yerbabuenae), has been recorded from far western Texas, and two species previously reported from the state, the Little Brown Myotis (Myotis lucifugus) and the Common Dolphin (Delphinus delphis), are shown to never have occurred in Texas. This checklist is the most comprehensive yet assembled for Texas mammals. It also is the first checklist to make use of non-traditional sources of distribution data such as iNaturalist and camera trap records that recently have begun to appear in the literature. These additions, coupled with the virtual explosion in taxonomic literature over the last three decades, have resulted in a quadrupling in the length of this publication since the previous checklist.

Key words: camera trap records, conservation status, iNaturalist records, mammal checklist, mammalian distribution, monotypic species, polytypic species, scientific authorities, subspecies, taxonomic status, Texas mammals, type localities

INTRODUCTION AND METHODS

Checklists have a long tradition in taxonomy as a means of summarizing and communicating basic

taxonomic and species information (biogeographic, ecological, and natural history). As such, they provide

an invaluable tool for both biodiversity and conservation researchers and the interested public. Because taxonomic designations are ephemeral and are contingent upon the best data available at a particular time, scientific names are subject to change as new research is published. For that reason, it is appropriate to update checklists on a regular basis.

The checklist published herein constitutes the 7th annotated checklist of Texas mammals that date back almost a century. Six previous annotated checklists of Texas' terrestrial mammals have appeared, beginning with Strecker (1926) followed by Taylor and Davis (1947), Jones et al. (1988a), Jones and Jones (1992), Manning and Jones (1998), and Manning et al. (2008). Although not specifically titled a checklist, the contents of Taylor and Davis' 1947 *Mammals of Texas* was more like a checklist than a guidebook, and for that reason we have included it in the former category. Each of these versions updated the previous one with respect to important taxonomic, nomenclatorial, and distributional changes affecting species and subspecies of Texas mammals known to exist in the state at that time.

The revised checklist presents information about the distribution, classification, and nomenclature (both common and scientific names) of free-living, domesticated, feral, and introduced species of land mammals occurring in Texas. Also included, for the first time in this series, are the marine mammals that have stranded on Texas beaches or have been observed in the offshore waters of the western Gulf of Mexico (GOM) near the Texas coast. Two checklists of marine mammals from the Texas coast previously have been issued (Schmidly and Melcher 1974; Brant and Jones 2005), but both were published separately from the checklist of terrestrial mammals available at that time.

Changes and corrections to the published literature, as substantiated since the publication of the previous checklists and other compilations, have been incorporated in relevant species accounts. In the last several decades, new technological advances, involving non-traditional techniques and sources, have been implemented and utilized to document species occurrences. Historically, checklists primarily relied on capture and specimen records published in the scientific literature by scientific naturalists to update distribution maps of species. Today, new methods for recording wildlife species have expanded considerably (e.g., camera traps, acoustic recordings, environmental DNA), and a broader network of naturalists are involved in these activities. In addition to the publications of the curators of natural history collections, data are now available from community science efforts as well as professional personnel of local, state, and federal agencies. Collectively, this expanded information base has enhanced our understanding of the geographic ranges of mammals in the state. However, because there are no physical scientific voucher specimens to 100% establish such records, we have chosen to list them as "nonvouchered photographic records" or "nonvouchered acoustic records" to be consistent with the guidelines and policies of the publication series of the Museum of Texas Tech University.

One of the most useful advances has involved the development and expansion of iNaturalist, an online community science social network and observation database that allows individuals to record wildlife observations online and share those observations publicly (iNaturalist 2018). In this updated checklist, we have included research-grade iNaturalist photographic records for species in which there is no doubt about their identification (independently verified by one of the authors) and that are from counties on the margin of or outside the documented range of the species. One of us (FDY) downloaded data regarding the dates, locations, and photographs of these taxa from the iNaturalist website (https://www.inaturalist.org/). Records based solely on images of mammal sign (tracks, scat, dens, gnawings, etc.) rather than on images of the animal itself were not included, whether rated as research grade or not. In addition, iNaturalist records of marine mammals were not considered. Good examples of iNaturalist images being used to confirm presence and update the distributions of Texas mammals include the work of Light et al. (2022) for American Black Bear and Jefferson et al. (2022) for skunk species in the state.

Originally published literature accounts of county records, with references, that represent significant extralimital occurrences are included for rarer and less well-known species. A species' geographical range can be enlarged either through dispersal and establishment of new populations (termed range expansion) or an extralimital record might simply represent the discovery of undocumented populations (termed range extension) that had not been detected previously (see Frey 2009 for a discussion). The checklist includes examples of both circumstances.

Students of mammalian taxonomy have made significant advances in recent years, especially with the advent and refinement of genetic and genomic techniques (Schmidly and Bradley 2016), and a discussion and explanation of taxonomic complexities and controversies for taxa of uncertain systematic status has been highlighted in relevant species accounts. This work has produced many significant changes in the taxonomy of Texas mammals, especially the recognition of cryptic species formerly considered subspecies.

A few other guidelines have been followed in preparing and organizing the contents of the species accounts in the checklist. Except in a few instances, we have followed the American Society of Mammalogists (ASM) Mammal Diversity Database 2024 (https:// www.mammaldiversity.org/) in the application of scientific and common names and scientific name authority for terrestrial mammals. For marine mammals, we have followed the Society of Marine Mammalogists (SMM) 2024 List of Marine Mammal Species and Subspecies (https://marinemammalscience.org/science-andpublications/list-marine-mammal-species-subspecies/). Notable examples where we departed from the ASM database include: the continued recognition of the Davis Mountains Cottontail (Sylvilagus robustus) as a distinct species and not a subspecies of S. holzneri; the recognition of three genera of tree bats (Lasiurus, Dasypterus, and Aeorestes) instead of the single genus Lasiurus; and the taxonomic assignment of gophers of the genus Thomomys in Texas into a distinct species, T. baileyi, instead of T. bottae. The reasons for these departures from the ASM database are explained in the accounts for each of these taxa. For marine mammals, we continue to recognize the Order Cetacea for whales and dolphins instead of the Order Artiodactyla as recommended by the SMM and ASM. An explanation for this decision is provided in the introduction to the marine mammal section of the checklist.

A new feature in this checklist is the listing of subspecies with their type localities and scientific name

authorities. The subspecies of polytypic species found in the state, as determined by Schmidly and Bradley (2016), Schmidly et al. (2022), or other appropriate published sources, are indicated with the scientific authority for each of the subspecific names. Further, the type locality, if the species or subspecies was described from Texas specimens, is listed as documented in Schmidly et al. (2023). Type localities have special historical significance in taxonomy because they root the taxon to a specific geographic locality, which is particularly important for applying names in the subspecific category (Mayr 1969). Subspecies are listed alphabetically within species. Monotypic species—that is, species without recognized subspecies—are noted as such.

A second new feature to the checklist concerns the documentation of the official conservation status of species and subspecies, as currently assessed by the United States Fish and Wildlife Service (USFWS), Texas Parks and Wildlife Department (TPWD), and International Union for Conservation of Nature (IUCN). The USFWS is required by law to assess periodically the status of America's endangered species and to report its finding to Congress. The most recent report, compiled in 2017-2020, was published in 2022 and can be accessed at https://www.fws.gov/sites/default/ files/documents/recovery-report-to-congress-fiscalyears-2017-2020.pdf. In Texas, species may be protected under the authority of state law and/or under the Federal Endangered Species Act. The Texas Parks and Wildlife Department has regulatory authority to provide a list of endangered and threatened species, which was last updated on 30 March 2020 (https://tpwd.texas.gov/ huntwild/wild/wildlife diversity/nongame/listed-species/media/fedState-ListedSpeciesComplete-3302020. pdf). The IUCN publishes the Red List of Threatened Species (Red List), which is the most comprehensive inventory of the global conservation status of biological species. The 2024 IUCN Red List is available at https://www.iucnredlist.org/.

The conservation status of each taxon in the checklist is discussed at the end of each account. A listing of "least concern" by the IUCN and "no listing" by the USFWS and TPWD are the rankings assigned to those species thought to have the fewest conservation issues. Those with the most conservation problems are

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listed as "vulnerable," "near threatened," "threatened," or "endangered" by the IUCN and "endangered" or "threatened" by the USFWS and TPWD. Further, the Texas Conservation Action Plan, developed in 2013 (https://tpwd.texas.gov/huntwild/wild/wildlife diversity/nongame/tcap/), provided for the designation of "species of greatest conservation need" (SGCN) in the state. Texas mammals with this ranking, which carries no formal legal protection, are those thought to be rare and declining and with a limited geographic range, thus requiring more scientific data to develop a clear understanding of their conservation status. Also, there are some species thought to have conservation issues serious enough that they are "under review" by the USFWS and TPWD for possible listing. Finally, a few Texas mammals have been described and recognized so recently they have not been evaluated for their conservation status, and these are listed as "no status."

The checklist is arranged into three sections— Section 1 for native terrestrial wild mammals; Section 2 for domesticated, feral, and introduced wild mammals; and Section 3 for marine mammals. Within each section, we followed the phylogenetic sequence of orders through families, as presented by Schmidly and Bradley (2016), but generic and specific names are entered alphabetically. The three types of information within each species account (distribution and habitat descriptions, taxonomic comments with listing of subspecies and type localities, and conservation assessment designations) are presented in separate paragraphs of the accounts, except for those species where the information base is limited and can be presented in a single paragraph.

CHECKLIST

Section 1: Native Terrestrial Mammals

This section of the checklist includes 149 entries of native terrestrial mammals that have been reported in the scientific literature to live within the modern political boundaries of Texas during the 20th and 21st centuries. However, regarding the account for one taxon, the Little Brown Myotis (Myotis lucifugus), the only published record of this species from the state (Schmidly et al. 1977) later proved to be a misidentified specimen of *M. austroriparius*. Although this lapsus was documented in an unpublished report issued to government agencies (Schmidly et al. 1979), it was never officially corrected in the published scientific literature until now. Thus, the native Texas mammal fauna encompasses 8 orders, 25 families, 78 genera, and 148 species as recognized by modern taxonomic nomenclature, with the largest number coming from the orders Rodentia (68 species), Chiroptera (34), and Carnivora (27).

Since the publication of the last checklist of terrestrial Texas mammals (Manning et al. 2008), in addition to the primary published literature about Texas mammals, several recent book publications have facilitated the updating of this checklist. Ammerman et al. (2012) revised *Bats of Texas*, with more

detailed distribution maps of Texas species; Schmidly and Bradley (2016) published a comprehensive work, *The Mammals of Texas*, that includes the distribution of Texas subspecies; Schmidly et al. (2022), in *Texas Natural History in the 21st Century*, updated the changes that have occurred in the taxonomy, nomenclature, and distributions of Texas mammals since the publication of Vernon Bailey's 1905 opus, *Biological Survey of Texas*; and Yancey et al. (2023) revised *The Mammals of Trans-Pecos Texas* with updated distribution maps and natural history compilations for that region of the state. The information presented in each of these publications is based on the primary literature available at the time of their publication, and for that reason we have used them as primary sources of information in the checklist.

Additionally, the three recent works by DJS and colleagues (Schmidly and Bradley 2016; Schmidly et al. 2022; Schmidly et al. 2023) uncovered several mistakes in nomenclature that has helped to reshape our interpretation of the taxonomic status of several taxa. This has allowed the authors to correct a number of accumulated errors and provided the emphasis for this revision of the checklist of mammals in Texas.

ORDER DIDELPHIMORPHIA—OPOSSUMS Family Didelphidae (Opossums)

Didelphis virginiana Kerr, 1792 (Virginia Opossum).—Occurs statewide; once thought to be absent from most of the Trans-Pecos (Schmidly 1977), but recent records indicate it now occurs in El Paso, Jeff Davis, Brewster, Reeves, and Terrell counties (Yancey et al. 2023). A 2017 record from Reeves County is the most recent record of the Virginia Opossum from the Trans-Pecos and the first since 1992 (Hollander and Hogan 1992), thus filling a relatively large gap in the documented distribution of this species in this region (Yancey and Lockwood 2017). Range extensions have occurred primarily along streams and rivers, where woody vegetation permitted this species to penetrate the otherwise treeless grasslands and deserts of western Texas (Schmidly et al. 2022).

Historically, there were three subspecies in Texas: *D. v. californica* Bennett, 1833 in the Trans-Pecos and Rio Grande Valley; *D. v. pigra* Bangs, 1898 in the southeast; and *D. v. virginiana* Kerr, 1792 in northern and central Texas. However, taxonomists now recognize all Virginia Opossums in eastern Texas as *D. v. virginiana*, and *D. v. pigra* is no longer a valid name for Texas opossums (Schmidly 1983). The type locality of *D. v. californica* is Brownsville, Cameron County (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing; this species appears to be increasing in numbers across the United States, including Texas (Schmidly et al. 2022).

ORDER CINGULATA—ARMADILLOS Family Dasypodidae (Armadillos)

Dasypus mexicanus Peters 1864 (Mexican Longnosed Armadillo).—Occurs throughout most of the state except for western Texas in El Paso, Hudspeth, and Culberson counties and the Big Bend region of Presidio and Brewster counties (Schmidly and Bradley 2016; Yancey et al. 2023). There are recent records from the Davis Mountains in Jeff Davis County (Kennedy and Jones 2006). Their range in the west appears to be established about as far west as the 50 cm limit of annual precipitation (Taulman and Robbins 2014).

Using a combination of genetic data and morphological traits, a recent study (Barthe et al. 2024) has demonstrated that the wide-ranging Nine-banded Armadillo (*D. novemcinctus*) is actually four genetically distinct species. Under this new arrangement, armadillos from Mexico and the US, formerly classified as *D. novemcinctus mexicanus*, are now regarded as *Dasypus mexicanus* Peters, the Mexican Long-nosed Armadillo; whereas, *D. novemcinctus* is reserved for populations in South America. John Strecker (1926) had listed a subspecies (*D. n. texanum*) from Texas specimens (described by Bailey 1905), but this name combination was subsequently synonymized with *D. n. mexicanus* (Goldman 1920).

Conservation status is least concern with no federal or state listing. The Armadillo steadily expanded its range in Texas since the beginning of the 20th century by using riparian corridors parallel to rivers as dispersal conduits (Schmidly et al. 2022). There is some concern their numbers may be declining statewide due to recent drought periods, subsequent reduction of soil invertebrates, and the dramatic upsurge in feral hogs that prey on newborn armadillos (Schmidly et al. 2022).

ORDER LAGOMORPHA—PIKAS, HARES, AND RABBITS Family Leporidae (Hares and Rabbits)

Lepus californicus Gray, 1837 (Black-tailed Jackrabbit).—Occurs statewide and generally is found in large numbers in suitable habitat, except in areas where intensive overgrazing has reduced the carrying capacity of the land. Abundance varies with different seasons and localities but seems to follow a wavelike pattern. After increasing for a few years until they are extremely numerous, they disappear rather suddenly, are unusually scarce for a few years, and then gradually increase again (Schmidly 1977).

Hall (1981) and Schmidly and Bradley (2016) recognized three subspecies in Texas: *L. c. melanotis* Mearns, 1890 in the north, *L. c. merriami* Mearns, 1896 in the south and southeast, and *L. c. texianus*

Waterhouse, 1848 on the western Edwards Plateau and in the Trans-Pecos. Two of the three subspecies, merriami (type locality Fort Clark, Kinney County) and *texianus* (type locality from an unknown locality in western Texas) were described from Texas specimens (Schmidly et al. 2023). Jones and Jones (1992) previously had listed a fourth subspecies in the state, L. c. eremicus from the El Paso area in far western Texas, based on an analysis of specimens from that county by Hoffmeister (1986). To clarify the situation, Hoffmeister (1986) restricted the type locality of L. c. texianus, which had been given by Nelson (1909) as "probably from western Texas," to 10 miles south of Alpine, Brewster County. The taxonomic uncertainty of this situation caused Jones and Jones (1992) and Manning et al. (2008) to suggest that this species was badly in need of taxonomic review, and we would agree with that assessment.

Conservation status is least concern with no federal or state listing. According to Schmidly et al. (2022), populations in the southeastern part of the state appear to have declined because of habitat fragmentation, the loss of native grasslands, and changes in the quality of the coastal prairie. However, there are recent iNaturalist reports that serve as nonvouchered photographic records for this species from Katy (August 2019), Cypress (December 2019), and Hockley (June 2017 and 2021) in Harris County; from El Campo (June 2019) in Wharton County; from Wallis (April 2024), Sealy (September 2020), Eagle Lake (May 2021), New Ulm (May 2022), and Bellville (May 2023) in Austin County; and from near the Attwater Prairie Chicken Wildlife Refuge (July 2021), between Sealy and Columbus (June 2011), and near Columbus (March 2024) in Colorado County, indicating the species is still prevelant in the upper coastal prairies.

Sylvilagus aquaticus Bachman, 1837 (Swamp Rabbit).—Occurs in the eastern third of the state, from the Red River counties adjacent to the Oklahoma border west to Brown and Bandera counties, then south to Refugio County along the coast, where it is most common in poorly drained river bottoms and coastal marshes.

Two subspecies historically have been recognized in Texas: S. a. littoralis Nelson, 1909 in the tidal marshes and coastal prairies of southeastern Texas, and *S. a. aquaticus* (Bachman, 1837) over the rest of the species' range in eastern and central Texas. However, the color differences that supposedly distinguished *littoralis* from *aquaticus* are now shown to result from a ferruginous stain the rabbits picked up from their terrain (Schmidly 1983). On this basis, *littoralis* was placed in synonymy of *aquaticus*, making the latter a monotypic species. The type locality of *S. aquaticus* is the Medina River, 18 miles north of San Antonio, Bexar County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing, but the Swamp Rabbit is regarded as a species of greatest conservation need by TPWD. Optimum habitat in much of its range has been shrinking with the drainage of wetlands and clearing of hardwood forests (Schmidly et al. 2022). In the Hill Country, it is threatened by habitat fragmentation.

Sylvilagus audubonii (Baird, 1858) (Desert Cottontail).-Common in the upland habitats in the western one-half of the state, extending as far east as Wichita County on the Red River, then southward to Llano County in the Hill Country and to Duval and Starr counties in South Texas. This species is adapted to a variety of habitats, ranging from grassland to creosote bush and cactus deserts. The subspecies are S. a. minor (Mearns, 1896) in the southern Trans-Pecos eastward to Val Verde County, S. a. neomexicanus Nelson, 1907 in the northern Trans-Pecos and Panhandle, and S. a. parvulus (J. A. Allen, 1904) from Llano County southward in south-central Texas to the Rio Grande (Schmidly et al. 2022). Sylvilagus a. minor is the only subspecies described from Texas specimens (type locality, El Paso, El Paso County) (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Sylvilagus floridanus (J. A. Allen, 1890) (Eastern Cottontail).—Occurs statewide except for El Paso County and most of Hudspeth county (Schmidly and Bradley 2016; Yancey et al. 2023). Common in brushlands, pastures, edges of cultivated fields and welldrained streamsides, and along roadsides grown up in dense vegetation and adjacent to areas heavily grazed or farmed. The subspecies are *S. f. alacer* (Bangs, 1896) in eastern Texas, *S. f. chapmani* (J. A. Allen, 1899) in the central, southern, and western parts of the state, and *S. f. llanensis* Blair, 1938 in the Llano Estacado and Panhandle regions (Schmidly et al. 2022). Two of the subspecies, *S. f. chapmani* (type locality, Corpus Christi, Nueces County) and *S. f. llanensis* (type locality, Quitaque, Briscoe County) were described from Texas specimens (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Sylvilagus robustus (Bailey, 1905) (Davis Mountains Cottontail).—Known from the mountains of the central Trans-Pecos. Recent surveys confirm its presence in the Davis, Guadalupe, and Chisos mountains, and a new location on Elephant Mountain Wildlife Management Area in Brewster County has extended its distribution in Texas (Lee et al. 2010a; Yancey et al. 2023). Also, there may be a population in good condition in the Sierra del Carmen, Mexico, just across from the Big Bend, although that population has not yet been genetically confirmed. Typically found in brushy and forested areas above 1,800 m, which prevents a widespread occurrence (Yancey et al. 2023).

The taxonomic status of this rabbit has been bantered back and forth over the past 75 years, from being described as a distinct species (Nelson 1909) to relegation as a subspecies of S. floridanus, S. f. robustus (Hall and Kelson, 1951). Morphological (Ruedas 1998) and molecular genetic data (Vestal 2005; Lee et al. 2010a; Nalls et al. 2012) seemed to confirm its status as a separate species, but a recent study by Diersing and Wilson (2021) using multivariate analysis of cranial measurements suggested it has affinities with another species of rabbit from the southwestern United States and northern Mexico, S. holzneri; thus, these authors arranged robustus as a subspecies of holzneri, a recommendation that was adopted by the ASM Mammal Database and used in recent literature accounts (see Schmidly et al. 2023; Yancey et al. 2023). Unfortunately, Diersing and Wilson (2021) did not have any genetic data to confirm their taxonomic interpretation. Recently, one of us (RDB), in collaboration with his students and Emily A. Wright, have undertaken an extensive molecular genetic study of southwestern cottontails, including S. robustus, S. holzneri, and S. floridanus, as well as S. pinetis and S. cognatus, related taxa that occur in northern Arizona and New Mexico and central New Mexico, respectively. The resulting phylogenetic tree from analysis of both nuclear (zonadhesin gene) and mitochondrial genes clearly shows *robustus* to be aligned with *floridanus* and not with *holzneri* as suggested by Diersing and Wilson (2021). Furthermore, the degree of genetic difference between *floridanus* and *robustus* (Zan: 0.51%, Cytb: 2.16%) is similar to that seen between *holzneri* and *pinetis* (Zan: 0.396%; Cytb: 1.53%). All analyses using molecular data markers clearly support the interpretation that *robustus* should be regarded as a distinct species, and this is the taxonomic interpretation we are following in this catalog. The type locality of *S. robustus* is from near Sawtooth Mountain, 15 miles west of Fort Davis, in the Davis Mountains, Jeff Davis County (Schmidly et al. 2023).

Conservation status is listed as vulnerable by the IUCN. It does not appear on the USFWS list, but TPWD considers it a species of greatest conservation need. This rabbit appears to have declined over much of its range and regular monitoring is needed where it occurs in the isolated mountain ranges of the Trans-Pecos and northern Mexico (Schmidly et al. 2022).

ORDER EULIPOTYPHLA—SHREWS AND MOLES Family Soricidae (Shrews)

Blarina carolinensis (Bachman, 1837) (Southern Short-tailed Shrew).—Known from the eastern one-fourth of Texas westward to Denton, Bastrop, and Victoria counties (Schmidly and Bradley 2016). Its distribution appears to be patchy, with numerous disjunct records. It is common in the mixed hardwoodpine forests of Big Thicket National Preserve (Schmidly 1983).

The subspecies are *B. c. carolinensis* (Bachman, 1837) in the north (south at least to Nacogdoches County) and *B. c. minima* Lowery, 1943 in the southeastern part of the state (Schmidly et al. 2022). Neither subspecies was described from Texas specimens. Conservation status is least concern with no federal or state listing. The subspecies *B. c. minima* is rare in Bastrop County, and that disjunct population bears watching in the future (Schmidly and Bradley 2016).

Blarina hylophaga Elliot, 1899 (Elliot's Shorttailed Shrew).—Recorded in Texas only from Mon-

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tague County in northern Texas and from disjunct populations in southeastern Texas (Aransas National Wildlife Refuge, Aransas County, and the Lost Pines region in Bastrop County). The only place it has been taken in large numbers is Aransas National Wildlife Refuge, where it commonly has been found in oak mottes (Schmidly and Brown 1979).

Previously, individuals from Montague and Bastrop counties were considered to represent the subspecies *B. h. hylophaga* Elliot, 1899, whereas those from Aransas County were assigned to *B. h. plumbea* Davis, 1941. However, Reilly et al. (2005) presented data indicating that specimens from both Aransas and Bastrop counties should be referred to as *B. h. plumbea*, with the material from Montague County remaining *B. h. hylophaga*. The type locality of *B. h. plumbea* is from near Marino Hill, Aransas National Wildlife Refuge, Aransas County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; considered a species of greatest conservation need by TPWD. Given its limited distribution and population status, this subspecies should be regularly monitored in the future (Schmidly et al. 2022).

Cryptotis parvus (Say, 1823) (Least Shrew).--Occurs in the eastern, southern, and northwestern parts of Texas; not known from the Trans-Pecos (Yancey et al. 2023). Recent records indicate that C. parvus has expanded its range into the western and northwestern Panhandle (to Dallam County) and the central regions of the state (Owen and Hamilton 1986; Wright et al. 2016; Barnes and Hoffman 2023). This expansion has proceeded westward into New Mexico where several specimens have been collected at various sites along the eastern border of the state (Barnes and Hoffman 2023). The subspecies in Texas are C. p. berlandieri (Baird, 1858) on the Rio Grande Plains and C. p. parva (Say, 1823) throughout the remainder of the distribution in Texas (Schmidly et al. 2022). Neither of the subspecies was described from Texas specimens. Conservation status is least concern with no federal or state listing.

Notiosorex crawfordi (Coues, 1877) (Desert Shrew).—Recorded from the western two-thirds of Texas, east at least to Archer and Wichita counties in the north, and southward to Refugio County on the

Gulf Coast (Schmidly and Bradley 2016). Wright et al. (2016) recently reported specimens from Dallam County in the Texas Panhandle. These records extend the confirmed range of N. *crawfordi* in Texas to include the extreme northwestern part of the state.

This species is monotypic (Carraway and Timm 2000; Schmidly et al. 2023). It was described from a single specimen collected at Old Fort Bliss, about 2 miles above El Paso, El Paso County (Schmidly et al. 2023). Conservation status is least concern with no federal listing; considered a species of greatest conservation need by TPWD. Documented in large numbers in Big Bend National Park and Big Bend Ranch State Park (Punzo 2003), as well as the Chaparral Wildlife Management Area of South Texas (Schmidly and Bradley 2016).

Family Talpidae (Moles)

Scalopus aquaticus (Linnaeus, 1758) (Eastern Mole).-Occurs in eastern two-thirds of the state, including the eastern portions of south Texas; in the northern Panhandle it extends to the New Mexico line along the Canadian River drainage (Schmidly and Bradley 2016). Also, Lee et al. (2010b) added records from the Southern Rolling Plains in Callahan, Jones, and Taylor counties, and Goetze and Nelson (2009) added records from Comanche, Eastland, and Erath counties in the Cross Timbers region. There is an isolated record of a single specimen presumably taken in Presidio County, but that population is now thought to be extirpated (Schmidly et al. 2022). Interestingly, an active population of Eastern Moles has been documented to the southeast of Presidio County in the Sierra del Carmen of northern Coahuila, Mexico (referred to the subspecies S. a. montanus, see Yates and Schmidly 1977), and the recent capture of a second specimen from there shows this species still occurs in the northern Chihuahuan Desert (McKinney 2012), which implies that one day it might be discovered again in the Trans-Pecos.

Five subspecies recognized from Texas are: S. a. aereus (Bangs, 1896) in the extreme east and also the Panhandle and Rolling Plains regions; S. a. alleni Baker, 1951 in south-central Texas; S. a. cryptus Davis, 1942 in the east-central part of the state; *S. a. inflatus* Jackson, 1914 on the southern part of the Rio Grande Plains; and *S. a. texanus* (J. A. Allen, 1891), an enigmatic race known from a single specimen taken in Presidio County in 1887, which is now thought to be extirpated from Texas (Schmidly et al. 2022). The type localities of two of the other subspecies are from Texas, *S. a. alleni* (Rockport, Aransas County) and *S. a. cryptus* (College Station, Brazos County) (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; TPWD considers the subspecies *S. a. texanus* from Presidio County a taxon of greatest conservation need because it has not been recorded in more than a century (Schmidly et al. 2022).

ORDER CHIROPTERA—BATS Family Molossidae (Free-tailed Bats)

Eumops perotis (Schinz, 1821) (Western Bonneted Bat).—Currently known from localities in the Trans-Pecos along the Rio Grande in Brewster, Presidio, Terrell, and Val Verde counties (Yancey et al. 2023). A specimen reported from Midland County in November 2009 represented a range extension to the north of approximately 300 km, but it is unlikely that a population is established there because the cliff structures in which these bats could roost are lacking (Tipps et al. 2014).

Texas specimens are referred to the subspecies *E. p. californicus* (Merriam, 1890), according to the most recent taxonomic review of the species (Eger 1977). Wilson and Reeder (2005) placed that subspecies in synonymy, but for purposes of this checklist we have followed Ammerman et al. (2012), Schmidly and Bradley (2016), and Yancey et al. (2023) in continuing to consider *E. p. californicus* the appropriate taxonomic name for these bats in Texas, even though it was not described from Texas specimens.

Conservation status is least concern with no federal listing; regarded by TPWD as a species of greatest conservation need. Lack of information about its population, and apparent decline in other parts of its range (e.g., California), suggest a need for future monitoring in Texas. Nyctinomops femorosaccus (Merriam, 1889) (Pocketed Free-tailed Bat).—Recorded in the state only along the Rio Grande in the eastern Trans-Pecos where specimens have been documented in southern Presidio, Brewster, and Terrell counties (Schmidly and Bradley 2016; Yancey et al. 2023). Nyctinomops femorosaccus is monotypic; not described from Texas specimens. Conservation status is least concern with no federal listing; regarded by TPWD as a species of greatest conservation need. It is a year-round resident and is locally common at many sites in the Big Bend region (Higginbotham and Ammerman 2002; Schmidly et al. 2022).

Nyctinomops macrotis (Gray, 1939) (Big Freetailed Bat).—Known from scattered localities in the Trans-Pecos, Panhandle, and south-central parts of Texas (Schmidly and Bradley 2016; Krejsa et al. 2020). Three new county records (Colorado, Nueces, and Webb) have been confirmed for this bat (Demere et al. 2012), and a recent record from a wind energy facility in Starr County extends its range into the Lower Rio Grande Valley of southern Texas (Jones and Weaver 2018). Acoustic calls of four individuals from Randall County indicate these bats irregularly stray through the Texas Panhandle, although they likely are not a resident there (Riedle and Matlack 2013). These recorded calls serve as nonvouchered acoustic records for this species.

This species is monotypic, and it was not described from Texas specimens. Conservation status is least concern with no federal listing; regarded by TPWD as a species of greatest conservation need. Additional data, particularly about population size, are needed to establish a more meaningful and biologically defensible position as to its conservation status (Schmidly et al. 2022).

Tadarida brasiliensis (I. Geoffroy, 1824) (Brazilian Free-tailed Bat).—Statewide in warm months; most individuals of western and central populations migrate southward in winter, but populations in the extreme eastern part of the state remain there throughout the year. This is the most common bat in Texas, occurring statewide in caves, buildings, and bridges in urban areas (Schmidly and Bradley 2016). Its migratory life history strategy normally has most of the bats migrating south to Mexico, where breeding takes place in late October and November with the onset of colder temperatures in

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Texas. With the onset of warmer weather in March, the bats return to Texas where females give birth in large nursery colonies (Schmidly et al. 2022). However, with warming winter temperatures due to climate change, bats at many locations across the state, including the Trans-Pecos (Yancey 1997; Kasper and Yancey 2018; Stevens et al. 2021), now remain year-round.

Two subspecies are currently recognized in the state: T. b. cynocephala (Le Conte, 1831) in the eastern fourth of the state and T. b. mexicana (Saussure, 1860) elsewhere. The two subspecies differ in ethological characteristics and in cranial size, with T. b. cynocephala being larger than T. b. mexicana (Ammerman et al. 2012). The type locality of the latter subspecies is from Ney Cave, 20 miles north of Hondo, Medina County (Schmidly et al. 2023). The differences between the two races have caused some scientists to suggest they are reproductively isolated and possibly even separate species (Ammerman et al. 2012), although an assessment of genetic structuring among populations of the two taxa did not align with the distribution of the subspecies (Russell et al. 2005; Russell and McCracken 2006). Nonetheless, we continue to recognize the two subspecies based on their behavioral and morphological differences.

Conservation status is least concern with no federal or state listing. Evidence of increased mortality around wind turbines, along with the continued expansion of wind energy and the recently confirmed presence of the lethal disease white-nose syndrome (WNS), could present problems in the future (Schmidly et al. 2022).

Family Mormoopidae

(Leaf-chinned Bats)

Mormoops megalophylla (Peters, 1864) (Ghostfaced Bat).—Known from the southern Trans-Pecos, extreme southern edge of the Edwards Plateau, and South Texas Plains (Schmidly and Bradley 2016). In the Trans-Pecos, it occurs in areas adjacent to the Rio Grande in Brewster, Presidio, and Terrell counties. Ghost-faced Bats may be found in both lowland areas (flatlands) and upland areas (canyonlands), but they appear to be most common in desert scrub and riparian floodplain habitats with some water and little or no vegetation (Yancey 2016). The subspecies in Texas is *M. m. megalophylla* (Peters, 1864). Its type locality is Fort Clark, Kinney County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; considered by TPWD a species of greatest conservation need. The species is thought to be in a declining population trend, which could make it vulnerable to disturbance and disruption at cave sites where it roosts (Schmidly et al. 2022). This species could be susceptible to the continued spread of WNS in Texas because it is known to occupy and undergo torpor in subterranean habitats (caves, mines, bunkers, culverts, etc.).

Family Phyllostomidae (New World Leaf-nosed Bats)

Choeronycteris mexicana Tschudi, 1844 (Mexican Long-tongued Bat).—For 30 years, this species was known in Texas on the basis of a single individual photographed in Hidalgo County in 1970, leading to speculation that it was only of accidental occurrence in the state or a southern species gradually making its way into the state by moving northward along the Rio Grande corridor (Schmidly 1991; Schmidly and Bradley 2016). Since 2000, however, this species has been recorded in six counties (El Paso, Midland, Hays, Hidalgo, Cameron, and Nueces) across the southern half of Texas, suggesting that a tenuous, seasonal population occurs in the southernmost portions of the state (Schmidly and Bradley 2016). Demere et al. (2012) used the term "enigmatic" to describe its status in Texas.

This species is monotypic and was not described from Texas specimens. Conservation status is listed as near threatened by IUCN, but it is not on federal or state lists. This species is dependent on a highly fragile habitat (agave) and thought to be in significant decline due to increased human populations and habitat conversion (Schmidly et al. 2022). It is listed as threatened by the Mexican government (Ramirez-Pulido et al. 2014), and some bat biologists argue that it should be afforded the same status in Texas (Ammerman et al. 2012).

Diphylla ecaudata Spix, 1823 (Hairy-legged Vampire Bat).—Known only by a single extralimital specimen taken from Val Verde County in 1967 (Schmidly and Bradley 2016). That specimen was

obtained from an abandoned railroad tunnel on the Brotherton-Calk Ranch, 19 km (12 mi) west of Comstock (Schmidly 1977). This is the only record of a vampire bat from the US and represents an extension of the known range of about 700 km northwestward of Tamaulipas, Mexico, where this species is more frequently encountered (Greenhall et al. 1984). *Diphylla ecaudata* is monotypic; not described from Texas specimens. Conservation status is least concern with no federal or state listing because of the extralimital occurrence in the US and Texas.

Leptonycteris nivalis (Saussure, 1860) (Mexican Long-nosed Bat).—A Mexican species recorded only from Big Bend National Park in southern Brewster County and from the Chinati Mountains in Presidio County (Ammerman et al. 2012). Only known colony is from Emory Peak cave in the Chisos Mountains of Big Bend National Park (Schmidly et al. 2022). Leptonycteris nivalis is monotypic; not described from Texas specimens. Conservation status is endangered by IUCN, USFWS, and TPWD. Relatively rare throughout its range with indications of substantial population decline and downward trend at the roosting site in the Chisos Mountains (Ammerman et al. 2012; Yancey et al. 2023). Colony size thought to fluctuate with food availability in northern Mexico and Texas (Ammerman and Tabor 2008). Should be regularly monitored in the future.

Leptonycteris yerbabuenae Martinez and Villa, 1940 (Lesser Long-nosed Bat).—Known only from a single specimen submitted to the Texas Department of State Health Services in El Paso County for rabies testing on 19 October 2010. The specimen, a female that tested negative, was deposited in the mammal collection at the Museum of Arid Land Biology, University of Texas at El Paso, until it was discovered and published on 10 years later (Krejsa et al. 2020). This specimen is thought to represent an extralimital distribution record and is not indicative of an established population (Krejsa et al. 2020).

This species is monotypic and was not described from Texas specimens. Conservation status is least concern with no federal or state listing; formerly considered endangered across its range in the United States and Mexico. Thanks to the efforts of a Mexican mammologist, Dr. Rodrigo Medellin, and a partnership with some tequila agave growers, this species has made a remarkable recovery in Mexico and recently was delisted as an endangered species (Greshko 2018; Yancey et al. 2023).

Family Vespertilionidae (Vesper Bats)

Aeorestes cinereus (Palisot de Beauvois, 1796) (Hoary Bat).—A common statewide migratory (females spring–fall; males spring–summer) bat locally abundant in all of the geographic and vegetational areas of the state (Demere et al. 2012). Displays a common spring–fall migration pattern, although in Texas males and females demonstrate geographical segregation (Ammerman et al. 2012). Apparently, some females bear and raise young in Texas in late spring and summer (Schmidly and Bradley 2016). Recent county records are known from Bastrop, Carson, Castro, Collin, Crane, Ector, Gregg, Hale, Hood, Jack, Johnson, Lavaca, Parker, Smith, Webb, Williamson, and Young counties, but none of these represent significant range extensions (Demere et al. 2012; Krejsa et al. 2020).

Formerly assigned to the genus *Lasiurus*, it recently was reassigned to *Aeorestes* by Baird et al. (2015). This taxonomic change has not been adopted by the ASM Mammal Diversity Database (2024), which continues to list the name *Aeorestes* as a subgenus of *Lasiurus*. However, because of its high level of genetic divergence from other lasiurine bats and its morphological distinctness, we have followed Baird et al. (2015) in retaining it as a separate genus. The subspecies in Texas is *A. c. cinereus* (Palisot de Beauvois, 1796); not described from Texas specimens.

Conservation status is listed as least concern with no federal listing; TPWD considers it a species of greatest conservation need. Evidence of increased mortality around wind turbines and the continued expansion of wind energy could present problems in the future (Schmidly et al. 2022).

Antrozous pallidus (Le Conte, 1856) (Pallid Bat).—A common resident in the western half of the state from the High Plains, Rolling Plains, Trans-Pecos, and Edwards Plateau regions (Schmidly and Bradley 2016). There are scattered extralimital reports from southern Texas in Webb (Krejsa et al. 2020) and Cameron counties (Hall 1981). Abundant in the Trans-Pecos, inhabiting mountainous areas, intermontane basins, and lowland desert scrub habitats at elevations ranging from 600 to 1,800 m (Yancey et al. 2023). Considerably less abundant toward the eastern margin of its range on the Edwards Plateau (Schmidly 1991). There is an unvouchered iNaturalist photographic record (12 August 2022) from Williamson County, which is 148 miles to the east of the nearest vouchered specimen of this bat in Kerr County.

Subspecies recorded from Texas are *A. p. bunkeri* Hibbard, 1934 in the Panhandle, vicinity of the Red River, and adjacent parts of the Rolling Plains (Schmidly and Bradley 2016), with a recent record from Crosby County extending its distribution to the eastern edge of the Llano Estacado (Krejsa et al. 2020); and *A. p. pallidus* (Le Conte, 1856) over the remainder of the species' range in Texas. Type locality of *A. p. pallidus* is El Paso, El Paso County (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. No data to suggest that wind farms are causing damage to this bat, although a more complete understanding of the impact of these farms on bat populations is needed.

Corynorhinus rafinesquii (Lesson, 1827) (Rafinesque's Big-eared Bat).—Known from extreme eastern Texas in small numbers at scattered localities in 15 counties of the Pineywoods region (Schmidly and Bradley 2016). The westernmost records are from Walker and Harris counties and the northernmost record is from Marion County (Demere et al. 2017). Most Texas specimens have been captured in barns and abandoned wells (Schmidly and Bradley 2016). Although captures of this species have been recorded from May through December, only two winter records have been documented (Demere et al. 2012).

The subspecies in Texas is *C. r. macrotis* Le Conte, 1831 (see Handley 1955); not described from Texas specimens. Conservation status is least concern; not listed by USFWS (previously considered a candidate species for listing); regarded by TPWD as threatened because of its scarcity, lack of information about its natural history, and potential for degradation

of roosting and feeding sites by commercial logging practices in its preferred habitat (Schmidly et al. 2022). There are only about 50 specimens recorded from 15 counties in the state (Ammerman et al. 2012).

Corynorhinus townsendii (Cooper, 1837) (Townsend's Big-eared Bat).—An uncommon, yearround resident of suitable habitat (preferring caves and mine tunnels) in the western half of the state, where it has been recorded in the northern High Plains and from the Trans-Pecos and Edwards Plateau regions. Easternmost records are from Baylor and Kimble counties (Schmidly and Bradley 2016).

The subspecies are *C. t. australis* (Handley, 1955) in the western and central regions of the state, and *C. t. pallescens* (Miller, 1897) in northwestern Texas (Smith and Tumlison 2004; Smith et al. 2008; Schmidly and Bradley 2016). Neither was described from Texas specimens.

Conservation status is listed as least concern by IUCN, but both the USFWS and TPWD list it as a species of concern (Yancey et al. 2023). Its habit of roosting in caves makes it potentially susceptible to the spread of white-nose syndrome in the state.

Dasypterus ega (Gervais, 1856) (Southern Yellow Bat).-Occurs primarily in southern and south-central Texas, having been recorded from seven counties in the Lower Rio Grande Valley, northward to Comal, Fayette, Travis, and Montgomery counties and westward to Bandera and Webb counties (Decker et al. 2020). Uncommon but year-round resident of the state. Subspecies in Texas is D. e. panamensis (Thomas, 1901); not described from Texas specimens. Application of the generic name Dasypterus for the yellow bats instead of Lasiurus (as listed in previous checklists) follows Baird et al. (2015). Conservation status is least concern; not listed by USFWS; considered threatened by TPWD because of its limited distribution and scarcity in the southern part of the state (Schmidly et al. 2022).

Dasypterus intermedius (H. Allen, 1862) (Northern Yellow Bat).—Known from the eastern, coastal, and southern parts of Texas from Shelby County southward to Cameron County in the Lower Rio Grande Valley and westward to Bexar and Uvalde counties in southern Texas (Schmidly and Bradley 2016). Recent specimen from Dallas County is probably of accidental occurrence (Ammerman et al. 2012). Uncommon but yearround resident that appears to be expanding its range in the state from coastal areas inland, as indicated by recent county records from Angelina, Comal, Hays, Lee, Montgomery, Washington, Wharton, and Williamson counties (Decker et al. 2020).

Two subspecies in Texas, *D. i. floridanus* (Miller, 1902) from Dallas and Bexar counties eastward and north at least to Shelby County, and *D. i. intermedius* (H. Allen, 1862) from Victoria County southward. Neither described from Texas specimens. Recent studies reveal the two subspecies are differentiated at mitochondrial loci and sympatric in southern Texas (Chipps et al. 2020; Decker and Ammerman 2020). Taxonomic implications of this situation should be explored further.

Conservation status is least concern with no federal listing; TPWD considers it a species of greatest conservation need. Little is known of its population status in Texas, and for that reason it bears watching in the future.

Dasypterus xanthinus Thomas, 1897 (Western Yellow Bat).—Of relatively recent occurrence in Texas, having been recorded first from both Big Bend National Park and Black Gap Wildlife Management Area in Brewster County, and subsequently from the Davis Mountains, Jeff Davis County, to the north, from Del Rio, Val Verde County, to the east, and from El Paso County in the west (Tipps et al. 2014; Yancey et al. 2023). Recent record from Webb County indicates the species has expanded its range into southern Texas (Decker et al. 2020).

Formerly classified as a subspecies of the eastern yellow bat, *Lasiurus ega xanthinus*, but subsequently elevated to separate species status and moved from the genus *Lasiurus* to *Dasypterus* (Baker et al. 1988; Baird et al. 2015). *Dasypterus xanthinus* is a monotypic species; not described from Texas specimens.

Conservation status is least concern with no federal listing; TPWD considers it to be a species of greatest conservation need. Its complete distribution and population abundance must be better documented before its status can be accurately determined. There is an established fall population in the Big Bend region of Brewster County (Yancey et al. 2023).

The three species of Dasypterus reach their distributional limits in the US in Texas. Decker et al. (2020) documented eight county records for D. ega (Bandera, Caldwell, Hays, Montgomery, San Patricio, Starr, Travis, and Victoria counties), eight county records for D. intermedius (Angelina, Comal, Hays, Lee, Montgomery, Washington, Wharton, and Williamson counties) and one county record for D. xanthinus (Webb County). These records, in conjunction with other previously reported ones (Ammerman et al. 2012), reveal that all three of the yellow bats have been taken in Webb County in southern Texas. Chipps et al. (2020) reported possible hybridization between D. ega and D. intermedius in the Lower Rio Grande Valley of southern Texas (Starr and Hidalgo counties) and this deserves further study. Genetic monitoring of these bats is necessary to better understand systematic and taxonomic relationships among these species.

Eptesicus fuscus (Palisot de Beauvois, 1796) (Big Brown Bat).-Widely distributed across North America and found year-round in Texas; recorded primarily from the eastern, northern, and western parts of the state (Ammerman et al. 2012). Not yet reported from central Texas (Krejsa et al. 2020); nearest records are from Nolan County (Halsey et al. 2018) and Fisher County in the Rolling Plains ecoregion (Krishnamoorthy et al. 2021). A record from Victoria County represents the southernmost record within the state (Krejsa et al. 2020). Marginal unvouchered photographic records in iNaturalist have been reported from Kerr County (9 June 2021) in the Hill Country and three counties in southern Texas (Brooks, 16 March 2022; Hidalgo, 23 August 2019 and 9 September 2021; and Uvalde, no date).

Two subspecies in the state, *E. f. fuscus* (Palisot de Beauvois, 1796) in northern and eastern Texas, and *E. f. pallidus* Young, 1908 in far western Texas (Ammerman et al. 2012; Schmidly and Bradley 2016); neither described from Texas specimens. The two recent voucher specimens from Nolan and Fisher counties mentioned above extend the distribution of *E*.

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f. fuscus southward into the Rolling Plains ecoregion. The iNaturalist reports mentioned above, if verified by voucher specimens, would extend the subspecies range into central and southern Texas all the way into the Lower Rio Grande Valley.

Conservation status is least concern; not listed by USFWS; TPWD considers it a species of greatest conservation need. Evidence of increased mortality around wind turbines and the spread of white-nose syndrome could present problems in the future.

Euderma maculatum (J. A. Allen, 1891) (Spotted Bat).—Recorded only from Big Bend National Park (Brewster County) in diverse habitats at both high elevations and lowland areas with open scrub vegetation (Higginbotham and Ammerman 2002). Expected elsewhere in the Trans-Pecos region, but no records to date outside of the national park (Schmidly and Bradley 2016). *Euderma maculatum* is a monotypic species; not described from Texas specimens. Conservation status is listed as threatened by TPWD because of restricted range and apparent low population abundance; no action by USFWS on possible status as threatened or endangered (Yancey et al. 2023). The IUCN considers it least concern.

Lasionycteris noctivagans Le Conte, 1831 (Silver-haired Bat).-Broadly but intermittently distributed in six physiographic regions (Pineywoods, Gulf Prairies and Marshes, Edwards Plateau, Rolling Plains, High Plains, and Trans-Pecos) (Schmidly and Bradley 2016); not yet documented from the East-Central Texas Plains, Blackland Prairies, Cross Timbers, and Southern Texas Plains. Pattern of dispersal attributed to fall and spring migrations (Demere et al. 2012). Except for the Guadalupe Mountains in the Trans-Pecos, midsummer records do not exist for Texas, although there is a record of a female taken in Swisher County in May. Other new records from Bailey, Collin, Dallas, Midland, Parmer, Potter, Travis, and Williamson counties are all from September, October, and November (Demere et al. 2012). Recent records of females taken in March at Big Bend Ranch State Park (Brant et al. 2002) and of males taken in May at Big Bend National Park (Ammerman 2005) represent the southern-most records in the Trans-Pecos (Yancey et al. 2023).

This species is monotypic and was not described from Texas specimens. Conservation status is least concern with no federal or state listing. Wind turbine facilities could prove to be a problem in the future as this is one of the bats with the highest mortality rates at such facilities in the United States (Thompson et al. 2017).

Lasiurus borealis (Muller, 1776) (Eastern Red Bat).-Statewide and yearlong resident of Texas that roosts in trees and prefers forested habitat (Schmidly and Bradley 2016). Highly migratory, although some individuals over-winter in Texas; dramatic decrease in state distribution throughout the winter months. Common in eastern and central parts of the state, but less common in northern and western parts (Schmidly and Bradley 2016). Uncommon summer resident across much of the Trans-Pecos, primarily in mountainous areas (Yancey et al. 2023). Four specimens obtained in Big Bend Ranch State Park in southern Presidio County represent the only specimens from the state park (Jones and Lockwood 2008). Recent county records within the state have been reported from Caldwell, Coryell, Ector, Ellis, Freestone, Henderson, Hockley, Hood, Lee, Midland, Potter, Taylor, Washington, and Wilson counties, but none represent a significant range extension (Demere et al. 2012; Krejsa et al. 2020).

This species is monotypic and was not described from Texas specimens. The conservation status is least concern with no federal listing; TPWD considers it to be a species of greatest conservation need. Mortality has been high around wind turbines in some regions of the United States, and this situation bears monitoring in Texas (Thompson et al. 2017).

Lasiurus frantzi (Peters, 1870) (Western Red Bat).—Known in Texas by a single specimen obtained in 1988 in the Sierra Vieja of Presidio County and a recent record from Starr County (Weaver et al. 2020) in the Lower Rio Grande Valley of southern Texas (Schmidly et al. 2022). Eastern and Western Red Bats exhibit a mostly allopatric distribution in the US, but there appears to be a zone of overlap in far western Texas and possibly in Hidalgo County in southern Texas (Solick et al. 2020). Thus, naturalists should be on the lookout for additional records of both species in these regions. Previous checklists classified this bat as *L. blossevillii* (Manning et al. 2008), but a recent taxonomic review of the genus using genetic data recognized *L. frantzii* as distinct from *L. blossevillii* and elevated it to independent species status (Baird et al. 2015). *Lasiurus frantzii* is monotypic; not described from Texas specimens.

Conservation status is least concern with no federal or state listing. Because of its rarity and patchy distribution, more work is needed to accurately determine its status and whether a resident population occurs in the state. It is relatively common in the riparian forests associated with streams in arid mountain ranges in the southwestern US (New Mexico and Arizona) and northeastern Mexico (Tamaulipas).

Lasiurus seminolus (Rhoads, 1895) (Seminole Bat).-Primarily known from the eastern part of the state (oak-hickory, pine-oak, and longleaf pine forest regions) with recent records extending the range westward to Hunt, Dallas, Coryell, Williamson, and Travis counties (Schmidly and Bradley 2016). Marginal records are from Val Verde County, 275 km (171 mi) west of the main range (Brant and Dowler 2000) and from Cameron County, 373 km (233 mi) south of the main range in extreme southern Texas (Hall 1981). Sixteen new county records recently reported, mostly from within the expected distribution for the species, but records from two counties (Hidalgo and Cameron) represent the southern-most documentation of the species in the state (Demere et al. 2012). A record from Nueces County bridges the gap between the East Texas populations and those in Hidalgo and Cameron counties (Demere et al. 2012). Recent research suggests this species is experiencing a rapid shift northward, likely in response to climate change, and an expansion westward, possibly due to changes in vegetation communities across historic grassland regions (Perry 2018).

This species is monotypic and was not described from Texas specimens. The conservation status is least concern with no federal or state listing. No indication of serious conservation issues in Texas.

Myotis austroriparius (Rhoads, 1897) (Southeastern Myotis).—Known in Texas primarily from the Pineywoods region in the eastern part of the state (Schmidly and Bradley 2016). Appears to be expanding its range westward in Texas in recent years; in 1995, a specimen from Comanche County extended the known range approximately 240 km (149 mi) westward into central Texas (Higginbotham and Jones 2001); in subsequent years, records have been documented from Dallas, Leon, Freestone, Smith, and Walker counties (Demere et al. 2012; Ammerman et al. 2012; Tipps et al. 2014).

The subspecies in Texas is *M. a. austroriparius* (Rhoads, 1897); not described from Texas specimens. Conservation status is least concern (IUCN); at one time considered a species of management concern by the USFWS, but no longer included in that category; TPWD considers it a species of greatest conservation need. Declines in populations have been documented in other states over several decades and many (e.g., Florida, Alabama, North Carolina, and Mississippi) regard it as a species of concern. Potential threats include clearing of bottomland hardwood habitats, destruction of major cave roosting sites, and exposure to white-nose syndrome.

Myotis californicus (Audubon and Bachman, 1842) (California Myotis).—A common year-round resident of the desert, grassland, and woodland habitats in the western half of the Trans-Pecos in El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties (Yancey et al. 2023). Records from Randall County in the Panhandle of Texas (Choate and Killebrew 1991), Hidalgo County in southern Texas (Tipps et al. 2014), and Midland County in western Texas (Krejsa et al. 2020) suggest this species is more broadly distributed in the state than previously thought. Apparently, it is common in the warmer months of the year in Palo Duro Canyon State Park in the Texas Panhandle (Riedle and Matlack 2013).

The subspecies in Texas is M. c. californicus (Audubon and Bachman, 1842); not described from Texas specimens. Conservation status is least concern with no federal listing; TPWD considers it as a species of greatest conservation need. More fieldwork is needed to determine its population abundance in Texas so that future conservation threats can be accurately assessed. *Myotis ciliolabrum* (Merriam, 1886) (Western Small-footed Myotis).—Known primarily from the mountainous regions of the Trans-Pecos, but single specimens have been recorded from Palo Duro Canyon in Armstrong County and from Canyon in Randall County in the High Plains and Panhandle regions (Schmidly and Bradley 2016). Captured, acoustically recorded, or observed roosting nearly year-round in Palo Duro Canyon State Park, indicating it probably is a permanent resident of the Texas Panhandle (Riedle and Matlack 2013).

This bat has had a convoluted taxonomic history. For years, it was classified as a subspecies of *M. subulatus*, then aligned with *M. leibii*, and finally recognized as a full species, *M. ciliolabrum* (Yancey et al. 2023). The subspecies in Texas is *M. c. ciliolabrum* (Merriam, 1886); not described from Texas specimens.

The conservation status is least concern with no federal listing; TPWD considers it a species of greatest conservation need. This is another species that needs more fieldwork to determine its population abundance so that future threats can be accurately assessed.

Myotis lucifugus (Le Conte, 1831) (Little Brown Myotis).—Reported from Texas on the basis of a single specimen from 12 miles north of Burkeville, Newton County, in eastern Texas (Schmidly et al. 1977). At the time, this was the only reported record of this species and the subspecies *M. l. lucifugus* from the state. Some previous checklists (e.g., Jones and Jones 1992) and publications (Davis and Schmidly 1994; Schmidly 2004) listed *M. lucifugus* as part of the Texas fauna, but with reference to the subspecies *M. l. lucifugus*, from Fort Hancock in Hudspeth County (see below) in far western Texas.

Five other specimens of *Myotis*, all identified as *M. austroriparius*, were obtained at the same time and place as the single specimen of *M. l. lucifugus*. Subsequent study and analysis of the skulls of the six Burkeville specimens by Schmidly and colleagues (1979) revealed that all of them were *M. austroriparius* and none were *M. lucifugus*. Therefore, based on this finding, there is no justification for including *M. l. lucifugus* as a member of the Texas mammal fauna. The Little Brown Myotis is listed as endangered throughout its range in the US by the USFWS and the IUCN because of severe mortality caused by white-nose syndrome (Ammerman et al. 2012). If the species is ever documented in Texas, serious conservation efforts and monitoring will be required to ensure its survival.

Myotis occultus Hollister, 1909 (Southwestern Little Brown Myotis).-Known from only two records in far western Texas (Yancey et al. 2023). First recorded in 1893 from Fort Hancock in Hudspeth County (Schmidly 1991; Ammerman et al. 2012), and more than a century later from El Paso County in 2011 (Krejsa et al. 2020). This bat has a complicated taxonomic history. Most recently it was a subspecies of the Little Brown Myotis (Myotis lucifugus), and it has gone back and forth either as a subspecies of that taxon or as a separate species (Yancey et al. 2023). A recent molecular analysis of its taxonomic status has confirmed it to be a distinct species (Piaggio et al. 2002). Myotis occultus is monotypic; not described from Texas specimens. The conservation status is least concern with no federal or state listing. The two Texas records are most likely vagrant individuals, and it is doubtful that a resident population occurs in the state (Schmidly and Bradley 2016).

Myotis septentrionalis (Trouessart, 1897) (Northern Long-eared Myotis).—Although widely distributed over eastern and northern North America, known in Texas only from a single specimen collected at Winterhaven, Dimmit County, in southern Texas in August 1942 (Schmidly 1991; Schmidly and Bradley 2016). The first published account as a member of the Texas fauna was by Schmidly (1991), and it has appeared in all subsequent checklists (Jones and Jones 1992; Manning et al. 2008) and guidebooks (Schmidly 2004; Ammerman et al. 2012; Schmidly and Bradley 2016). The Winterhaven record is almost 800 km from the nearest record of this species in Louisiana and for that reason should be regarded as extralimital until more specimens are captured (Barnes and Hoffman 2023).

This species is monotypic and was not described from Texas specimens. In 2022, the USFWS published a final rule to reclassify the Northern Long-eared Myotis as endangered due to severe mortality from white-nose syndrome. It is listed by the IUCN as near threatened but it is not listed as a species of concern by TPWD. Should more records be documented from the state, this species will require special monitoring and conservation action.

Myotis thysanodes Miller, 1897 (Fringed Myotis).—A western bat known from numerous localities in the Trans-Pecos region in summer (Yancey et al. 2023). Two specimens from Crosby County in northwestern Texas are thought to represent seasonal migrants (Schmidly and Bradley 2016). No winter records in Texas. The subspecies of this bat in Texas is *M. t. thysanodes* Miller, 1897; not described from Texas specimens. Conservation status is least concern with no federal listing; regarded as a species of greatest conservation need by TPWD. More fieldwork is needed to determine its population abundance in Texas so that any future potential threats can be accurately assessed.

Myotis velifer (J. A. Allen, 1890) (Cave Myotis).— A year-round resident of Texas, occurring over most of the Trans-Pecos, South Texas, eastern portions of the Panhandle, and the Edwards Plateau (Schmidly and Bradley 2016). Recent records from Collin, Dallas, and Tarrant counties (see Krejsa et al. 2020) as well as from Childress, Lampasas, Scurry, and Stonewall counties (Demere et al. 2017) in northeastern Texas suggest it may be exhibiting a permanent eastward expansion of its range. Additionally, this species recently was reported from five counties in South Texas (Brooks, Duval, Jim Hogg, McMullen, and Starr counties), suggesting it is expanding its range in this region as well (Krishnamoorthy et al. 2021).

There are two subspecies in Texas, *M. v. incautus* (J. A. Allen, 1896) over much of the southern half of the state and *M. v. magnamolaris* Choate and Hall, 1967 northwestwardly into the High Plains and Panhandle (Ammerman et al. 2012). Both were described from Texas specimens, with the type locality of the former from San Antonio, Bexar County, and the latter from Laubach Cave (now Inner Space Caverns), Georgetown, Travis County (Schmidly et al. 2023). Recent reports of this species from Nolan and Taylor counties in the Rolling Plains ecoregion are from the proposed border of the two subspecies (Demere et al. 2017; Halsey et al. 2018).

There is confusion about the taxonomic status of this species in Texas. Myotis magnamolaris was described as a distinct species from late Pleistocene deposits from Inner Space Caverns near Georgetown, Travis County, Texas (Choate and Hall 1967). Dorsey (1977) examined specimens from the type locality and concluded that magnamolaris and extant samples of *velifer* were conspecific, thus rendering the fossil taxon a subspecies of M. velifer. Hayward (1970) previously had described a new subspecies of velifer, M. v. grandis, from the northern Great Plains, which included specimens from northwestern Texas. Dalquest and Stangl (1984) conducted a morphological analysis of all populations of *M. velifer* in the northern Plains, including Texas, and concluded that grandis was a valid if not strongly marked subspecies that could not be differentiated from magnamolaris, but that the latter name had nomenclatorial priority over the name grandis. To further complicate the matter, modern taxonomists placed all specimens from Travis County within the range of the subspecies incautus (Ammerman et al. 2012), thereby creating a situation where the current distribution of magnamolaris does not include its type locality (see Schmidly et al. 2023 for more detail).

Conservation status is least concern with no federal listing; considered by TPWD as a species of greatest conservation need. The recent discovery of white-nose syndrome in several caves where these bats roost in north-central and central Texas, followed by a precipitous decline in bat populations at many of those sites, suggests this species could be in serious trouble, which will require immediate monitoring and action (Schmidly et al. 2022).

Myotis volans H. Allen, 1866 (Long-legged Myotis).—A common spring, summer, and autumn resident of the Trans-Pecos, with most records from the central part of the region in the Guadalupe, Davis, and Chisos mountains (Yancey et al. 2023). Prefers forests and open woodlands on rugged terrain at higher elevations (Higginbotham and Ammerman 2002; Jones et al. 2011). A single, enigmatic specimen from Knox County in the Rolling Plains was probably a wandering individual and not indicative of a resident population (Schmidly 1991; Schmidly and Bradley 2016). The subspecies of the bat in Texas is *M. v. interior* Miller, 1914; not described from Texas specimens. Conser-

vation status is least concern with no federal listing; regarded as a species of greatest conservation need by TPWD. More fieldwork is needed to determine its population abundance in Texas so that any future potential threats can be accurately assessed.

Myotis yumanensis H. Allen, 1864 (Yuma Myotis).—A common summer resident of the southern tier of counties in the Rio Grande corridor of the Trans-Pecos region and the area just east of the Pecos River in Val Verde County (Schmidly and Bradley 2016; Yancey et al. 2023). There is a disjunct record from Starr County in the South Texas Plains and another from Tarrant County in north-central Texas (Ammerman et al. 2012). The latter record was confirmed by DNA sequence data (Tipps et al. 2014), and it represents the easternmost record of the species in the state. An adult male collected in Oldham County represents the first record of this species from the Texas Panhandle (Krishnamoorthy et al. 2021). Taken collectively, these records reveal the distribution of this species is much more extensive than previously thought (Schmidly 2004).

The subspecies of this bat in Texas is *M. y. yu-manensis* (H. Allen, 1864); not described from Texas specimens. Conservation status is least concern with no federal listing; TPWD regards it as a species of greatest conservation need, which suggests it should be periodically monitored in the future.

Nycticeius humeralis (Rafinesque, 1818) (Evening Bat).---A common year-round resident of the eastern one-third and the southern regions of the state. However, recent outlying records suggest that the species is expanding westward as a rare and recent invader of counties such as Val Verde and Tom Green on the edge of the Hill Country (Dowler et al. 1999; Ammerman et al. 2012); Randall County in the Texas Panhandle (Riedle and Matlack 2013); and Presidio and El Paso counties in the Trans-Pecos (Krejsa et al. 2020; Yancey et al. 2023). These latter records, in addition to those from Knox, Lubbock, Midland, Ochiltree, Wichita, Bailey, and Yoakum counties in the northwestern part of the state, closer to the Texas-New Mexico border, along with records from western Oklahoma and eastern New Mexico, suggest a western expansion of its range in the US (Yancey and Jones 2006; Andersen et al. 2017). Krejsa et al. (2020) reported 38 new county occurrences that helped define its distribution within western Texas and substantiate the current range in eastern Texas with vouchered records.

The subspecies of the Evening Bat in Texas is *N*. *h. humeralis* (Rafinesque, 1818); not described from Texas specimens. Conservation status is least concern with no federal or state listing.

Parastrellus hesperus (Allen, 1864) (American Parastrelle or Canyon Bat).—Widely distributed in suitable rocky habitats in the Trans-Pecos region and along the eastern escarpment of the Llano Estacado. Eastern distributional limits are approximately along the 100th meridian, with records from Knox and Haskell counties in the north and Uvalde and Webb counties in the south. The southernmost record is from Laredo, Webb County (Schmidly and Bradley 2016). iNaturalist contains an unvouchered photgraphic record (18 June 2017) from Llano County that is 132 miles from the nearest location in Tom Green County.

We follow Hoofer et al. (2006) in the use of *Para*strellus as the correct genus of this bat, which formerly was known as *Pipistrellus*, and the application of the common name American Parastrelle or Canyon Bat in place of Western Pipistrelle. The subspecies in Texas is *P. h. maximus* Hatfield, 1936; not described from Texas specimens.

The conservation status is least concern with no federal listing; TPWD regards it as a species of greatest conservation need, although there are no obvious reasons for such a listing at the present time. This is one of the most common bats in western Texas (Schmidly and Bradley 2016).

Perimyotis subflavus (F. Cuvier, 1832) (American Perimyotis or Tricolored Bat).—Found in all of the vegetative regions of Texas except for those of the far western portion of the Trans-Pecos in El Paso and Hudspeth counties. Most common in the eastern half and central part of the state. Closely associated with riparian woodlands and heavily utilizes waterways (Ammerman et al. 2012). Recent records from Lubbock, Brewster, and Presidio counties (Demere et al. 2012, 2017) as well as from Moore, Potter, Hutchinson, and Collingsworth counties (Riedle and Matlack 2013) in the Texas Panhandle suggest a northward and westward expansion in the state (Krejsa et al. 2020). Records from mist netting and acoustic calls obtained from Palo Duro State Park (Randall, Armstrong, and Briscoe counties) on the northeastern edge of the Llano Estacado confirm its presence there during five months of the year (Riedle and Matlack 2013). A recent record from the Guadalupe Mountains in Culberson County documents its continued spread in the Trans-Pecos (Hanttula and Valdez 2021), although it has not been documented from Jeff Davis, Reeves, Pecos, and Terrell counties in that region.

We follow Hoofer and Van Den Bussche (2003) in the use of the generic name *Perimyotis* in place of its formerly assigned genus *Pipistrellus*. Because the common name Tricolored Bat is widely accepted and used in the literature, we have listed both it and American Perimyotis as common names. The subspecies in Texas are *P. s. clarus* (Baker, 1954) in extreme southwestern Val Verde County and *P. s. subflavus* (F. Cuvier, 1832) over the rest of its range in the state; neither was described from Texas specimens.

The conservation status is least concern (IUCN); proposed for listing as an endangered species by the USFWS because of recent high mortality in populations (Yancey et al. 2023); regarded as a species of greatest conservation need by TPWD but not yet listed as endangered or threatened. Historical populations were presumably large, but populations have declined greatly over much of its range since 2006 because of white-nose syndrome and substantial mortality from turbines at wind energy facilities, and the scope and severity of these threats have continued to increase (NatureServe, <u>https://explorer.natureserve.org/Taxon/ELE-MENT_GLOBAL.2.102580/Perimyotis_subflavus</u>).

ORDER CARNIVORA—CARNIVORES Family Canidae (Dogs, Foxes, and Wolves)

Canis latrans Say, 1823 (Coyote).—Known from a variety of habitats statewide (Schmidly and Bradley 2016). Common throughout all of Texas and populations are expanding their ranges throughout much of North America, including Texas. Their natural range covered approximately the western half of the state and the area south of San Antonio (Mech and Nowak 2010). Formerly rare in East Texas where Red Wolves were more common, but with the eradication of the latter, Coyotes expanded their range to include that area and began to hybridize with Red Wolves (Schmidly et al. 2022). Thus, inland populations of Texas specimens represent a single population of wild *Canis*, predominately Coyotes but modified through hybridization with Red Wolves (see account of Red Wolf below; Nowak 1979). They have adapted well to humans and to urban environments. Intensive efforts to control their numbers fail more often than not (Schmidly and Bradley 2016).

The subspecies are *C. l. frustror* Woodhouse, 1851 in the eastern half of Texas; *C. l. latrans* Say, 1823 in the Panhandle; and *C. l. texensis* Bailey, 1905 in the western half of the state south of the Panhandle. None of them were described from Texas specimens and thus do not have type localities in the state.

The conservation status is least concern with no federal or state listings. Reports of conflicts between coyotes and people in urban and suburban environments are regularly reported by newspapers across the state (Schmidly et al. 2022).

Canis lupus Linnaeus, 1758 (Gray Wolf).—Formerly ranged over the western part of the state, as far east as Jack and Kimble counties in north-central and central Texas, respectively (Mech and Nowak 2010). Still common in the late 19th century over most of the plains and mountain country in the state, mainly west of the 100th meridian (Bailey 1905). Extirpated from Texas by the early 1940s as a result of predator control efforts and habitat destruction (Schmidly et al. 2022), although individuals of the subspecies *C. l. baileyi* apparently crossed back and forth from Mexico as recently as 1970 (Mech and Nowak 2010). The last authenticated reports in Texas are of two animals shot in December 1970 in Brewster County in the Trans-Pecos (Scudday 1972).

Bogan and Mehlhop (1983) recognized two subspecies of the Gray Wolf from Texas: *C. l. baileyi* Nelson and Goldman, 1929 in the far western part of the state; and *C. l. nubilus* Say, 1823 in the northern Panhandle and central Texas. Previously, *C. lupus* monstrabilis (Goldman 1937) was considered the subspecies in the Panhandle, but that taxon was placed in synonymy of *C. l. nubilis* (Bogan and Mehlhop 1983). Neither of the subspecies were described from Texas specimens and thus do not have type localities within the state. The subspecies *C. l. baileyi* (Mexican Gray Wolf or Lobo), which once occurred in extreme western Texas (Nelson and Goldman 1929), has now been reintroduced into southern New Mexico and Arizona (Schmidly et al. 2022).

Conservation status is least concern by IUCN. Listed as endangered and protected by the Endangered Species Act in the contiguous states and Mexico, except for the northern Rocky Mountain and Minnesota populations, which are regarded as threatened. Not listed by TPWD based on the status "extinct in the wild" in the state. This species is not likely to return to Texas unless reintroduced or with natural migration from populations in Mexico or New Mexico.

Canis rufus Audubon and Bachman, 1851 (Red Wolf).—Formerly ranged throughout the eastern half of Texas, as far west as Edwards County in the central part of the state; once common along the Texas Gulf Coast (Mech and Nowak 2010). Coyotes began to hybridize with Red Wolves in central Texas in about 1900 (McCarley 1962). That process spread eastward, and the genetic identity of the Red Wolf was gradually suppressed (Schmidly and Bradley 2016). A large, unmodified population apparently survived into the 1970s in extreme southeastern Texas and southern Louisiana (Mech and Nowak 2010), but their numbers quickly declined due to intensive land use and human presence in the region. Zones of past hybridization with morphological and genetic admixture between Red Wolves and Coyotes persist in Texas even today. Mech and Nowak (2010) noted this in specimens from Cooke County in north-central Texas, and Ladine (2020) reported the presence of large canids possessing wolf-like characters near Marshall, Harrison County, in northeastern Texas. Likewise, genetic samples of road-killed canids on Galveston Island revealed the presence of "ghostalleles" from Red Wolves that were intermixed with Coyote genes (Heppenheimer et al. 2018).

Historically, there were two subspecies of the Red Wolf in Texas: Canis r. gregoryi Goldman, 1937 along the eastern border of the state, and *C. r. rufus* Audubon and Bachman, 1851 in the remainder of the range in Texas. The description of the latter was based on an iconotype taken from artwork drawn from an individual seen 15 miles west of Austin, Travis County (Schmidly et al. 2023).

Conservation status is listed as critically endangered by IUCN, USFWS, and TPWD. Because of the high density of humans on the upper Texas coast, it is doubtful if reintroductions of red wolves could ever be successful in the state.

Urocyon cinereoargenteus (Schreber, 1775) (Common Gray Fox).-Widely distributed throughout Texas except in the northern Panhandle region; especially common in the Post Oak Savannah, Cross Timbers and Prairies, and Edwards Plateau regions in both upland and bottomland communities (Schmidly and Bradley 2016). Recent reports of Gray Foxes from Padre Island in Kleberg County indicate their presence on this barrier island (Jones and Frey 2008). Two subspecies of the Common Gray Fox are recognized in Texas: U. c. floridanus Rhoads, 1895 east of the Balcones Fault Zone in the eastern one-third of the state, and U. c. scottii Mearns, 1891 in the western two-thirds of the state. The subspecies were not described from Texas specimens and thus do not have type localities within the state. Conservation status is least concern with no federal or state listings. This fox is broadly distributed and common throughout its range in the state (Schmidly and Bradley 2016).

Vulpes macrotis Merriam, 1888 (Kit Fox).— Known from the southwestern portion of the state (Trans-Pecos and western Edwards Plateau) eastward to Menard County and northward to Andrews, Martin, and Howard counties (Schmidly and Bradley 2016).

The Kit Fox was listed in the 2008 checklist (Manning et al. 2008) as a subspecies of the Swift Fox (*Vulpes velox*) but it is now regarded as a separate species based on genetic distinctions (Mercure et al. 1993; Schmidly et al. 2022). Wilson and Reeder (2005) abandoned the recognition of subspecies based on the recommendation of Mercure et al. (1993), but Yancey et al. (2023) continue to refer Texas specimens to the subspecies *V. m. neomexicanus* Merriam, 1902, which we follow in this checklist. This subspecies was not

described from Texas specimens and does not have a type locality within the state.

The conservation status is least concern with no federal or state listings. This fox is particularly vulnerable to predator control measures, and extensive trapping campaigns carried out against coyotes have likely resulted in population declines (Schmidly et al. 2022), and for this reason there is a need to monitor its status in the future.

Vulpes velox (Say, 1823) (Swift Fox).-Historically known from approximately 79 counties in the Panhandle and Llano Estacado regions of Texas, as far south as Gaines, Howard, and Ward counties (Schwalm et al. 2012; Schmidly and Bradley 2016). Formerly maintained a zone of parapatric contact with the Kit Fox with slight geographic overlap along the southern edge of the Llano Estacado (Thornton et al. 1971; Thornton and Creel 1975), but the geographic range of the Swift Fox has now shrunk such that the two species no longer contact one another. Surveys in 2005-2007 (based on scat-transects, camera traps, and live trapping) showed a dramatic reduction in the range of V. velox to two counties in extreme northern Texas (Dallam and Sherman) on the border with Oklahoma (Schwalm et al. 2012).

The Swift Fox and the Kit Fox are now regarded as separate species, as explained in the account of the latter (Schmidly et al. 2022). The subspecies of the Swift Fox in Texas is *V. v. velox* (Say, 1823); it was not described from Texas specimens and does not have a type locality within the state.

Conservation status is least concern with no federal listing; TPWD considers it a species of greatest conservation need. Given its dramatic decline in range and population abundance in the 21st century, this species should be regularly monitored in the future (Schmidly et al. 2022).

Family Felidae (Cats)

Leopardus pardalis Linnaeus, 1758 (Ocelot).— At one time ranged over most of southern Texas with occasional records from east and central Texas and the Big Bend region of the Trans-Pecos. Now reduced to two isolated breeding populations, with fewer than 80 individuals, in three counties (Willacy, Kenedy, and Cameron) of the southern Rio Grande Valley (Tewes 2019). A 2021 report of a road-killed ocelot in Hidalgo County has produced speculation they might be expanding their range in South Texas, although most conservationists seem skeptical of this interpretation (San Antonio Express News 2024, <u>https://www.expressnews.</u> com/news/article/south-texas-ocelots-19426081.php). Extralimital records exist from Donley, McLennan, and Falls counties in northern Texas (Schmidly 2004), and in 2010 a road-killed specimen of a large male Ocelot was salvaged in Palo Pinto County in north-central Texas (Stangl and Young 2011).

The subspecies in Texas is *L. p. albescens* (Pucheran, 1855), and it was described from specimens obtained at Brownsville, Cameron County (Schmidly et al. 2023).

The Ocelot is listed as endangered by both the USFWS and TPWD, but not the IUCN, which still considers it to be of least concern because of its wide distribution in Mexico, Central America, and South America. Habitat loss and fragmentation have led to population reductions and losses in genetic diversity across Ocelot populations in Texas, and vehicle-caused mortality has become a primary anthropogenic factor in their deaths (Tewes 2019). The USFWS and the East Foundation (headquartered in San Antonio, Texas) recently signed a safe harbor agreement to aid ocelot recovery on private lands in South Texas (TPWD 2024a). Under this agreement, ocelots will be strategically released at the East Foundation San Antonio Viejo Ranch in Jim Hogg and Starr counties with the hopes of establishing another permanent population in that region of South Texas.

Herpailurus yagouaroundi (E. Geoffroy Saint-Hilaire, 1803) (Jaguarundi).—Historically, this species occurred in small numbers in the dense, thorny thickets of extreme southern Texas in Cameron, Hidalgo, Starr, and Willacy counties, but it is now considered extinct in the state. The last documented record was in 1986 when a road-killed individual was salvaged 3.2 kilometers south of Brownsville in Cameron County (Schmidly et al. 2022). We follow Segura et al. (2013) and the ASM Mammal Diversity Database (2024) in assigning this species to the genus *Herpailurus* instead of *Puma* as recommended by Wilson and Reeder (2005). Historically, *H. y. cacomitli* (Berlandier, 1859) was the recognized subspecies in Texas. It was described from specimens from Matamoras, Tamaulipas, Mexico, just across the border from Texas.

Conservation status listed as endangered by the USFWS and TPWD, but IUCN considers it to be of least concern. As with the jaguar and ocelot, predator control and habitat destruction took their toll on this species (Schmidly et al. 2022). There are many reports of people observing this species in Texas, but there have not been any verified reports in almost four decades.

Known in the state on the basis of a single specimen taken near Eagle Pass in Maverick County in the 1850s; that specimen originally was classified as an Ocelot (Schmidly et al. 2022), but in 1914 it was correctly identified as a Margay (Hollister 1914). It is speculated that this animal was most likely a pet brought to the border and sold. Whether or not this is true is difficult to determine, but it is certain that Margays no longer occur in Texas (Schmidly and Bradley 2016). The subspecies in the state was L. w. glauculus (Thomas, 1903), and it was described from specimens taken in Mexico. Conservation status listed as near threatened and decreasing in numbers by the IUCN; listed as endangered in Mexico by the USFWS; not listed by TPWD based on the status "extinct in the wild" in the state.

Lynx rufus (Schreber, 1777) (Bobcat).—Common in a variety of habitats throughout the state; highly adaptable and copes well with the encroachment of humans.

Two subspecies are recognized in Texas, *L. r. rufus* (Schreber, 1977) across most of the state except for the Trans-Pecos and western Panhandle where the subspecies is *L. r. fasciatus* (Rafinesque, 1817) (Kitchener et al. 2017). These subspecies were not described from Texas specimens and do not have type localities within the state. Previously, all Bobcats in Texas were assigned to the subspecies *L. r. texensis* Allen, 1895 (Schmidly and Read 1986). The type specimen is an iconotype drawn from a specimen procured near the vicinity of Castroville, on the headwaters of the Medina River, Medina County (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. In Texas, they have maintained a wide distribution, high abundance, and population connectivity despite continued legal harvesting and frequent road-related mortality (Janecka et al. 2016).

Panthera onca (Linneaus, 1758) (Jaguar).— Distribution once extended from southern Texas well into the central part of the state, including much of the Edwards Plateau to the eastern edge of the Trans-Pecos, and most of the eastern part of the state to Louisiana and north to the Red River. There are many records and sightings that date from the late 1800s and early 1900s (Bailey 1905). Historical newspaper accounts of Jaguars killed in the state in the 20th century are from Brownsville, Cameron County (1946); Ozona, Crockett County (1915); London, Kimble County (1909); and Goldthwaite, Mills County (1903) (Wild Texas History 2023). The last documented record from the state was in 1948, when a Jaguar was shot 4.8 km southeast of Kingsville, Kleberg County, Texas (Schmidly et al. 2022).

The historical subspecies in Texas was *P. o. veraecrucis* (Nelson and Goldman, 1933). Its description was based on specimens from Veracruz, Mexico, and not Texas.

Conservation status is listed as near threatened and declining in numbers by the IUCN, and it is listed as endangered in Mexico by the USFWS. It is not listed by TPWD based on the status "extinct in the wild" in the state. There have been recent reports from Arizona (McCain and Childs 2008) and central Tamaulipas, Mexico, just south of the Texas border (Ceballos 2014).

Puma concolor (Linnaeus, 1771) (Mountain Lion).—Historically, the Mountain Lion was distributed throughout the state in almost every kind of habitat. However, years of predator control efforts by livestock producers (primarily during the 1940s to 1960s) forced them into the more remote, thinly populated areas in the desert mountain ranges of the Trans-Pecos region, especially in the Big Bend area, on parts of the Edwards

Plateau, and in the dense brushlands of the Rio Grande Plains (Schmidly and Bradley 2016). With the slowing of predator control efforts since about 1970, Mountain Lions have increased in number and appear to be repopulating portions of their former range as indicated by numerous sightings reported around the state (see Schmidly et al. 2022).

The subspecies in Texas is *Puma concolor couguar* (Kerr, 1772) (Culver et al. 2000), and it was not described from Texas specimens. Previously, Mountain Lions in Texas were classified as *P. c. stanleyana* Goldman, 1936 except for populations in El Paso County, which were assigned to *P. c. azteca* Merriam, 1901 (Schmidly and Bradley 2016). The type locality for the subspecies *stanleyana* is from the Bruni Ranch, Bruni, in southeastern Webb County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; considered by TPWD to be a species of greatest conservation need. Sizable populations remain throughout the Trans-Pecos, with smaller populations in South Texas, the Hill Country, and the Panhandle regions (Schmidly et al. 2022). A genetic study by Walker et al. (2000) found that mountain lions in southern Texas have low levels of genetic diversity and appear to be isolated from those in western Texas. Current management practices in Texas are controversial because TPWD classifies the species as a predator, thus allowing unregulated trapping, killing, and transporting of mountain lions, whereas most other states list them as a game species with regulation of harvest within the state. In 2022, Texans for Mountain Lions (https://www.texansformountainlions.org/) submitted a Petition for Rulemaking to TPWD requesting several actions to stabilize mountain lion populations in Texas. Though the petition was denied, the TPWD Commission formed a Mountain Lion Stakeholder Group to advise them about the petition. The full report of the stakeholder group (TPWD 2024b) was presented to the Commission in January 2024, and in May 2024, TPWD unanimously passed a proposal to prohibit canned hunting of mountain lions and to implement a 36-hour trap check for the species (https://www. texansformountainlions.org/post/texas-makes-historyby-granting-first-ever-protections-for-mountain-lions). These are the first steps taken to actively manage the state mountain lion population.

Family Mephitidae (Skunks)

Conepatus leuconotus (Lichtenstein, 1832) (White-backed Hog-nosed Skunk).—Ranges throughout southern and central Texas, north at least to Briscoe and Collin counties (Jefferson et al. 2022). The record from Briscoe County extended the range of *C. leuconotus* by approximately 100 km north of its known distribution in the Texas Panhandle (Jefferson et al. 2022). Recent sightings and records in the Rio Grande Valley (Hidalgo and Brooks counties) indicate a viable population in that region of Texas (Holbrook et al. 2012). A former isolated population in the Big Thicket region of southeastern Texas has been extirpated (Schmidly 1983).

Formerly two species of hog-nosed skunks, *C. leuconotus* and *C. mesoleucus*, were recognized in Texas, but they now have been combined into a single species based on morphological and genetic data (Dragoo et al. 2003). The subspecies in the state are *C. l. leuconotus* (Lichtenstein, 1832) throughout most of the range in the state and *C. l. telmalestes* Bailey, 1905 (presumably now extinct) from the Big Thicket region. Both subspecies were described from Texas specimens, *C. l. telmalestes* from northeast of Sour Lake, Hardin County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; considered a species of greatest conservation need by TPWD. Although common in the central part of the state, especially in the Hill Country, some professional mammalogists have suggested that the overall population of Hog-nosed Skunks in Texas may be declining. However, the consistent appearance of individuals on game cameras, as well as evidence of these skunks frequently being killed by vehicles, would suggest that the population is possibly stable (Jefferson et al. 2022).

Mephitis macroura Lichtenstein, 1832 (Hooded Skunk).—Records of the Hooded Skunk are known only from the central part of the Trans-Pecos region (Reeves, Pecos, Jeff Davis, Presidio, and Brewster counties). The species is rare in Texas with a vouchered specimen last collected in 1999 (Yancey et al.

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2017). Camera trap studies have documented five photographic records of hooded skunks from Big Bend National Park in Brewster County within the last 12 years (Jefferson et al. 2022). Many mammalogists are of the opinion that these skunks have declined dramatically in the last 50 years for unknown reasons (Yancey et al. 2023). However, the observations from Big Bend National Park mentioned above, although unvouchered, suggest that a small but perhaps viable population of this rare skunk remains in that part of the state (Jefferson et al. 2022).

The subspecies in Texas is *Mephitis m. milleri* Mearns, 1897; described from specimens taken in Pima County, Arizona. Conservation status is least concern with no federal listing; because of its constrained distribution it is considered by TPWD to be a species of greatest conservation need (Jefferson et al. 2022). The relative rarity of sightings and documented records argues for regular monitoring in the future (Yancey et al. 2023).

Mephitis mephitis (Schreber, 1776) (Striped Skunk).—Occurs statewide; unquestionably the most common skunk in the state. Despite its statewide distribution, many counties do not have a representative vouchered specimen or documented observation. Jefferson et al. (2022) recently documented 39 new county records and 41 unvouchered photographic records from 12 counties, and Krishnamoorthy et al. (2021) reported a recent record from Lynn County in the Texas Panhandle.

The subspecies in Texas are *M. m. varians* Gray, 1837 in the western part of the state and *M. m. mesomelas* Lichtenstein, 1832 roughly east of the Balcones Fault Zone (Jefferson et al. 2022). The subspecies *varians* was described from a specimen from an unknown locality in Texas, and *mesolmelas* was described from specimens taken in Louisiana (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. There is no reason to have any concerns about this skunk, with the only major threat being road mortalities from increased vehicular traffic. Where this skunk is sympatric with other skunks, it is usually the most abundant species.

Spilogale leucoparia Merriam, 1890 (Desert Spotted Skunk).-Occurs from southern part of the Panhandle into southern Texas and from central Texas west into the Trans-Pecos region (Schmidly and Bradley 2016); recorded with its closely related congener S. interrupta in several counties in central Texas as described in the account of the latter. A non-vouchered photographic record from Mills County, a specimen from Burnet County, and a new record from Travis County represent eastern range extensions (Morgan and Mueller 2016; Jefferson et al. 2022). Another new record from Bandera County borders the southern edge of the Edwards Plateau (Brashear et al. 2011). These records depict an eastward shift in the range of this species over the past 15 years. A specimen obtained near Seminole, Gaines County, represents the northern limits of the range of this species in the Texas Panhandle (Dowler et al. 2008).

Listed in previous checklists as a subspecies of *S. gracilis* (*S. g. leucoparia*), but a recent molecular genetics study has confirmed its status as a distinct species (McDonough et al. 2022). This taxon is monotypic; its type locality is Mason, Mason County, Texas (Schmidly et al. 2023).

Conservation status by the IUCN is based on its previous taxonomic assignment as a subspecies of *S. gracilis*, which is least concern. Not yet listed by the USFWS but currently under review for listing. Texas Parks and Wildlife Department considers it a species of greatest conservation need. Given its current population trend, this is a species that should be regularly monitored.

Spilogale interrupta (Rafinesque, 1820) (Plains Spotted Skunk).—Occurs from the northeastern panhandle to extreme southern Texas and from eastern Texas through the eastern extent of the Edwards Plateau (Schmidly and Bradley 2016). Recent records reveal a general area of distributional overlap between this skunk and *S. leucoparia* that stretches from Garza County eastward to several counties along the eastern edge of the Edwards Plateau (Jefferson et al. 2022). A recent study revealed viable populations in the Katy Prairie region of Harris and Waller counties and at Fort Cavazos Military Installation in Coryell and Bell counties, respectively (Jefferson et al. 2022).

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Previous checklists listed this taxon as a subspecies of *S. putorius* (*S. p. interrupta*), but a recent molecular genetics study has confirmed its separate species status (McDonough et al. 2022). *Spilogale interrupta* (Rafinesque, 1820) is monotypic; its type locality is not from Texas (Schmidly et al. 2023).

Conservation status by the IUCN is based on its previous taxonomic assignment as a subspecies of *S. putorius*, which is listed as vulnerable. Not yet listed by the USFWS but currently under review for listing. Texas Parks and Wildlife Department considers it a species of greatest conservation need. Since the 1940s, this skunk has experienced a range-wide population decline (Gompper 2017). It is now uncommon in Texas and there are concerns about its future conservation status in the state (see Jefferson et al. 2022).

Family Mustelidae (Mustelids)

Lontra canadensis (Schreber, 1777) (Northern River Otter).-Presently known from the major watersheds in the eastern one-fourth of the state, especially in the Sabine and Angelina-Neches River drainage of the Pineywoods region; there are trapper reports from Wheeler County in the Panhandle, a few records from north-central Texas, and from Duval and Starr counties in the Rio Grande Valley (Schmidly et al. 2022). Pitts (2022) reported a road killed specimen from the Cross Timbers and Prairies ecoregion in Denton County, which is 120 km east of records in Lamar and Wood County. iNaturalist contains accounts that serve as unvouchered photographic records from the western edge of the species' range near Crowell, Hardeman County (March 2023), between Abilene and Buffalo Gap, Taylor County (February 2020), and from near Tivydale, Gillespie County (April 2023), in the Hill Country.

The subspecies in Texas is *L. c. lataxina* (F. Cuvier, 1823); described from specimens taken in South Carolina (Miller and Kellog 1955). Conservation status is least concern with no federal or state listing. Distribution and population size are increasing as a result of human establishment of impoundments, canals, and levees (Schmidly et al. 2022).

Mustela nigripes (Audubon and Bachman, 1851) (Black-footed Ferret).-Once occurred in the northwestern third of the state, including the Panhandle, much of the Trans-Pecos, and a considerable part of the Rolling Plains region, corresponding with the distribution of the prairie dog, its principal prey (Schmidly and Bradley 2016). Now extirpated because of the destruction of large prairie dog towns (Schmidly et al. 2022). Last confirmed records from Dallam (1953) and Bailey (1963) counties (Davis 1966). Mustela nigripes is monotypic; described from specimens taken in Wyoming (Miller and Kellog 1955). Conservation status listed as endangered by the IUCN and USFWS; not listed by TPWD based on the status "extinct in the wild" in the state. Captive breeding programs have been successful, and reintroductions have occurred in Wyoming, but currently there are no plans to restock individuals in Texas (Schmidly et al. 2022).

Neogale frenata (Lichtenstein, 1831) (Longtailed Weasel).—Occurs statewide, although scarce in most areas, especially in western and northern Texas (Schmidly and Bradley 2016). Reduction in natural surface water in Texas may have prompted this decline, as the absence of water sources for drinking and hunting is a factor limiting their distribution (Schmidly et al. 2022).

Five subspecies recognized in Texas (Schmidly et al. 2022): *N. f. arthuri* Hall, 1927 in the east-central and southeastern areas; *N. f. frenata* (Lichtenstein, 1831) along the southern Gulf Coast (Schmidly et al. 2022); *N. f. neomexicana* (Barber and Cockerell, 1898) mostly west of the 100th meridian; *N. f. primulina* Jackson, 1913 in the extreme northeastern part of the state; and *N. f. texensis* Hall, 1936 in the north-central part of the state. The only subspecies described from Texas is *N. f. texensis* Hall, 1936, type locality 20 miles north of Kerrville, Kerr County (Schmidly et al. 2023). We follow Patterson et al. (2021) in applying the generic name *Neogale* to this weasel instead of *Mustela*.

Conservation status is least concern with no federal listing; considered a species of greatest conservation need by TPWD. There is concern about its longterm status because of the decline of natural surface water in the state, and this is a species that should be monitored in the future (Schmidly and Bradley 2016; Schmidly et al. 2022).

Neogale vison (American Mink).—Known from approximately eastern half of state, with an extralimital record from Hansford County in the Panhandle (Schmidly and Bradley 2016). Found only in habitats near permanent water. The name of the American Mink has been changed several times in the past few years, from *Mustela vison* (Wilson and Reeder 2005) to *Vison vison* (Harding and Smith 2009) and most recently to *Neogale vison* (Patterson et al. 2021). The subspecies in Texas is *N. v. mink* (Peale and Palisot de Beauvois, 1796); described from Maryland (Miller and Kellog 1955).

The conservation status is least concern with no federal or state listing. According to Schmidly et al. 2022), the American Mink may have declined in abundance because of the loss of natural surface water in the state. However, 35 research-grade iNaturalist accounts of mink from 2005 to 2024 serve as unvouchered photographic records from central and eastern Texas and suggest the species may not be as rare as previously suspected.

Taxidea taxus (Schreber, 1777) (American Badger).-Found across the state except for the extreme eastern part; recent records from Lamar, Cherokee, and Grimes counties indicative of an eastward range extension due to land clearing and the increase in artificial grasslands (Schmidly 1983; Schmidly and Bradley 2016). Range from sea level, on Padre Island, to at least 1,500 m in the Davis Mountains (Schmidly et al. 2022). The subspecies in Texas is T. t. berlandieri Baird, 1858; described from the Llano Estacado (no specific locality), near the border with New Mexico (Schmidly et al. 2023). Conservation is least concern with no federal or state listing. Reduction of their primary food source (prairie dogs and ground squirrels) would be a primary future concern for this species (Schmidly and Bradley 2016).

Family Procyonidae (Raccoons, Ringtails, and Coatis)

Bassariscus astutus (Lichtenstein, 1830) (Ringtail).—Statewide, although much more common in the Trans-Pecos, Edwards Plateau, and Cross Timbers regions of western and central Texas (Schmidly 1984) than in the eastern half of the state, where it was thought to be rare in the wooded areas east of the Trinity River and in the Lower Rio Grande and Coastal Plains of southern Texas (Schmidly and Bradley 2016). Swanson et al. (2022) used video cameras to document a Ringtail in an urban neighborhood of Houston, Harris County, in 2018. This record, in combination with iNaturalist sightings from Nada in Colorado County, Galveston in Galveston County, and Katy in Harris County, which are within 100 km of the site in Houston, serve as unvouchered photographic records and suggest that Ringtails may be increasing in number in eastern Texas or that an increase in camera-trap usage by the general public is resulting in more records of this species (Swanson et al. 2022).

The subspecies in Texas is *B. a. flavus* Rhoads, 1894, and the holotype specimen is from an unknown locality in the state (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. Continued habitat fragmentation in the Hill Country area could become a long-term conservation issue (Schmidly and Bradley 2016).

Nasua narica (Linnaeus, 1766) (White-nosed Coati).-Historically known from southern part of the state, extending from Brownsville to the Devils River and Big Bend region of the Trans-Pecos and to Kerr and Victoria counties further north in the state. Apparently repopulating Big Bend National Park and the Devils River regions, although there is no evidence that breeding populations have been established (Schmidly et al. 2016). The subspecies in Texas is N. n. molaris Merriam, 1902; described from specimens from Colima, Mexico (Miller and Kellog 1955). Conservation status is least concern with no federal listing; listed as threatened by the TPWD. Coati populations have been seriously impacted by the degradation and loss of much of the riparian woodland habitat in southern and southwestern Texas along the border with Mexico (Schmidly et al. 2022).

Procyon lotor (Linnaeus, 1758) (Northern Raccoon).—Ubiquitous throughout the state; seldom found far from water, which influences their distribution (Schmidly and Bradley 2016). They have adapted well to human populations and are common in urban and suburban areas (Schmidly et al. 2022). The subspecies in Texas are *P. l. hirtus* Nelson and Goldman, 1930 in the Panhandle north of the Canadian River; *P. l. mexicanus* Baird, 1858 in the western part of the Trans-Pecos; and *P. l. fuscipes* Mearns, 1914 throughout the remainder of the state. The subspecies *P. l. fuscipes* was described from Las Moras Creek at Fort Clark, Kinney County, Texas (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. Raccoon populations have increased dramatically across much of the state in the last several decades (Schmidly and Bradley 2016; Schmidly et al. 2022).

Family Ursidae (Bears)

Ursus americanus Pallas, 1780 (American Black Bear).—Once widespread in the state; from 1960s to the early 2000s, restricted to remnant populations in isolated, montane habitats of the Trans-Pecos region (Brewster, Presidio, and Jeff Davis counties), the Rio Grande Valley, and the Big Thicket of East Texas. In recent years, black bears have regained a foothold in other areas of Texas, apparently due to immigration from Oklahoma, Louisiana, New Mexico, Colorado, and Mexico (Schmidly and Bradley 2016; Schmidly et al. 2022). Records from TPWD, iNaturalist (unvouchered photographic records), and VertNet document them from seven counties in the Trans-Pecos (all but El Paso and Hudspeth counties), three counties in South Texas (Webb, Zapata, and Starr counties), 13 counties on the western edge of the Edwards Plateau, four counties in northeastern Texas, and four counties in the northern Texas Panhandle (Light et al. 2021a). Recent sightings from Zapata (iNaturalist, November 2018) and Webb (Goetze and Miller 2015) counties in the Tamaulipan biotic province of southern Texas, the Chinati Mountains in Presidio County in western Texas (Yancey and Lockwood 2018), and several counties (Scurry, Glasscock, Reagan, Sterling, and Menard) in the southeastern Permian Basin (Krishnamoorthy et al. 2021) serve as unvouchered photographic records and indicate that the current distribution may be expanding in some regions as a result of immigration from nearby areas. Breeding populations of American Black Bear have been documented in the Trans-Pecos, Edwards Plateau, and South Texas (Light et al. 2021a; Yancey and Kasper 2023).

Current taxonomy recognizes four subspecies in Texas (Schmidly et al. 2022): *U. a. amblyceps* Baird, 1859 in the Trans-Pecos area and northward along the New Mexico border; *U. a. americanus* Pallas, 1780 in the north-central part of the state; *U. a. eremicus* Merriam, 1904 in the western Hill Country; and *U. a. luteolus* Griffith, 1821 in the east adjacent to Louisiana; none of the subspecies were described from Texas. Two mitochondrial DNA studies have shed light on the origin of American Black Bear populations in western Texas and northern Mexico (Van Den Bussche et al. 2009) as well as the status of the four subspecies (Puckett et al. 2015). The recognition of the subspecies, particularly *amblyceps* and *eremicus* in western Texas, is questionable (Puckett et al. 2015).

Conservation status by the IUCN is least concern. Previously it was listed as threatened by the USFWS. However, a 2016 ruling (81 Federal Register 13124 issued on March 11), removed the Louisiana Black Bear (*U. a. luteolus*) from the Federal List of Endangered and Threatened Wildlife. The American Black Bear is listed by TPWD as threatened, which provides a level of protection for this recovering species.

Ursus arctos Linnaeus, 1758 (Grizzly or Brown Bear).—Only one specimen known from Texas, a large and very old male killed in the Davis Mountains on 2 November 1899 (see Bailey 1905; Fisher and Ludwig 2016; Schmidly et al. 2022). Previous reports of fossils or subfossils from northern Texas (Red River in Montague County; Schmidly 2004) are now identified as American Black Bear (Stangl et al. 2014). The historical subspecies in Texas was U. horriaeus texensis Merriam, 1914 (type locality Merrill Canyon, Davis Mountains, Jeff Davis County), but this taxon was later placed in synonymy of U. a. horribilis Ord, 1815, which has a type locality in Montana (Miller and Kellog 1955). The conservation status is least concern by IUCN; listed as threatened by the USFWS; not listed by TPWD based on the status "extinct in the wild" in the state. It was never common in Texas (Schmidly et al. 2022).

ORDER ARTIODACTYLA—EVEN-TOED UNGULATES Family Antilocapridae (Pronghorn)

Antilocapra americana (Ord, 1815) (Pronghorn).-Formerly distributed over western two-thirds of Texas, as far eastward as Robertson County in the north and Kenedy County in southern Texas (Schmidly and Bradley 2016). Now restricted to isolated areas from the Panhandle to the Tran-Pecos. An iNaturalist record (May 1990) from Happy Valley, Taylor County, in the Rolling Plains ecoregion is on the margin of what is thought to be their current geographic range but serves as an unvouchered photographic record. Numbers in the Panhandle appear to be increasing, but in the Trans-Pecos they appear to be steadily declining (Schmidly et al. 2022). Two subspecies recognized in Texas: A. americana americana (Ord, 1815) in the Panhandle, and A. americana mexicana Merriam, 1901 in western and central Texas. Reintroductions beginning in the late 1930s to augment declining populations may have altered this situation (Schmidly et al. 2022); neither described from Texas specimens or with type localities in the state. Conservation status is least concern; not listed by USFWS; considered by TPWD to be a species of greatest conservation need. The decline of the population in the Trans-Pecos requires regular monitoring and management of this species in the future (Schmidly et al. 2022).

Family Bovidae

(Cattle, Sheep, Goats, and African Exotics)

Bos bison Linnaeus, 1758 (American Bison).— Once numbered in millions and ranged over most of state except for dense woods of Big Thicket area; hunted to near extinction by the late 19th century (Schmidly and Bradley 2016). Now present only in private herds on some ranches and a captive herd recently established at Caprock Canyons State Park in the Panhandle (Schmidly et al. 2022). In mid-1880s, the Goodnight herd, named after the famed Texas rancher, of five wild-caught individuals was established to save some of the original Texas stock for the future benefit of the public. For about 120 years, this population remained reproductively isolated and fluctuated in size. In 1997, only 36 bison remained, and they were donated to TPWD and moved to Caprock Canyons State Park in the Texas Panhandle to form the Texas State Bison Herd (Halbert et al. 2004). Today, this herd represents the only extant bison population directly descended from the original Charles Goodnight herd. Genetic monitoring has revealed it exhibits low heterozygosity levels compared to bison from other geographic regions, and that its long-term existence is problematic without the introduction of new genetic variation from another bison herd (Halbert et al. 2004).

The name *Bison bison*, which was applied to these animals in earlier versions of the checklist, has reverted to the original name, *Bos bison*. The subspecies in Texas is *Bos bison bison* (Linnaeus, 1758), the so-called plains bison, and it was not described from Texas specimens.

Conservation status is near threatened by IUCN; not listed by USFWS; TPWD considers it a species of greatest conservation need. Steps have been taken by TPWD to inject some genetic variability into the herd that will allow the population to thrive in the future (Schmidly et al. 2022).

Ovis canadensis (Shaw, 1804) (Bighorn Sheep).— Formerly ranged throughout the isolated mountain ranges of the Trans-Pecos, but native populations now extirpated. The last known sighting of native Bighorn Sheep (subspecies O. c. mexicana) occurred in 1960 in the Sierra Diablo range along the Hudspeth-Culberson county line (Yancey et al. 2023). Captive breeding and reintroduction programs have helped to reestablish populations in 10 mountain ranges of the Trans-Pecos (Yancey et al. 2023; Wright et al., in revision).

The native subspecies originally was described as *O. c. texianus* [epithet later corrected to *texiana*] Bailey, 1912 (type locality Guadalupe Mountains, Culberson County), but it was subsequently regarded as morphologically identical with *O. c. mexicana* Merriam, 1901 (type locality Chihuahua, Mexico), which had priority (Cowan 1940). The native subspecies is now extinct in Texas. Other subspecies were subsequently introduced into the state, including *O. c. mexicana* and *O. c. nelsoni* (Schmidly et al. 2022). A study by Wright (2023) clearly shows that *O. c. mexicana* was translocated into the northern portions of the Trans-Pecos, and that *O. c. nelsoni* was translocated into the southern Trans-Pecos. Conservation status is near threatened (IUCN); not listed by UWFWS or TPWD. Efforts by TPWD and private landowners in the Trans-Pecos have helped to reestablish this species, although high mortality due to disease has reduced both numbers and distributions (Wright 2023). Success in maintaining large, self-sustaining herds will depend upon large blocks of available habitat with sufficient escape terrain, limited contact with domestic livestock and exotic sheep species (e.g., Aoudad) to prevent disease transmission and interspecific competition, predator management to allow populations time to become established, and availability of free-standing water to sustain the animals (Schmidly et al. 2022).

Family Cervidae (Deer)

Cervus canadensis (Erxleben, 1777) (Wapiti or Elk).-Native in the Guadalupe Mountains (Culberson County) at one time, but apparently extirpated by 1900 (Bailey 1905). In 1928, reintroductions were initiated from the Black Hills of South Dakota (C. c. canadensis) back into the Guadalupe Mountains and to other mountains of the Trans-Pecos (Schmidly 1977; Schmidly et al. 2022). Presently, free-ranging elk exist in Texas in five small herds in the Guadalupe Mountains, Glass Mountains (Brewster County), Wylie Mountains (Culberson County), Davis Mountains (Jeff Davis County), and Eagle Mountains (Hudspeth County); recently, free-ranging Elk have been observed in the Texas Panhandle (Dallam and Randall counties). Elk also have been noted from as far east as the Rosillos Mountains and northwestern edge of Big Bend National Park and in Presidio County (Yancey et al. 2006).

The taxonomic status and origin of current Elk populations in Texas remain uncertain. Until recently, Red Deer and Elk were considered to be one species, *Cervus elaphus*, but mtDNA studies strongly indicate that Elk or Wapiti should be a distinct species, *C. canadensis* (Ludt et al. 2004; Meiri et al. 2018), which is the arrangement we have followed in this checklist (see Dunn et al. 2017). Wilson and Reeder (2005) regarded *C. elaphus* as the appropriate species name for North American Elk, but the ASM Mammal Diversity Database (2024) now regards *C. canadensis* as the correct name, which means the subspecies of Elk in the TransPecos should be classified as C. c. nelsoni (Yancey et al. 2023). Clearly, there is a need for more research to determine the exact origin and subspecific identification of elk in Texas. The original native elk were thought to belong to the now extinct species Cervus merriami Nelson, 1902 (type locality White Mountains, Apache County, Arizona). The first reintroductions into Texas were either imported from South Dakota (subspecies C. c. canadensis Erxleben, 1777) or they represented natural immigrants from the Rocky Mountain herd in New Mexico (subspecies C. c. nelsoni Bailey, 1935). A recent molecular genetic study depicts the origin of contemporary elk in Texas to be the likely result of natural emigrants from New Mexico or descendants of previously introduced individuals from New Mexico (Dunn et al. 2017).

Conservation status is least concern and not listed by the USFWS or TPWD. Based on the interpretation that the present subspecies in the Trans-Pecos is nonnative, elk were designated as exotic wildlife in 1997 by the 75th Texas legislature, which means they do not have any harvest restrictions. The best thing for their conservation would be to reclassify them as a game species so that populations and harvest limits could be managed more effectively (Yancey et al. 2023).

Odocoileus hemionus Rafinesque, 1817 (Mule Deer).—Occur over most of the Trans-Pecos and Panhandle regions of Texas and in some areas immediately east thereof, partly as a result of reintroductions (Schmidly and Bradley 2016). Mule deer population numbers are considerably lower than those of white-tailed deer in the state (Schmidly et al. 2022).

For many years, two subspecies were thought to occur in Texas, O. h. crooki (Mearns, 1897) in the Trans-Pecos and the Panhandle and O. h. hemionus (Rafinesque, 1817) in the extreme northern Panhandle (Schmidly et al. 2022). However, a recent re-examination of the type specimen of O. h. crooki has revealed that it was a hybrid between O. hemionus and O. virginianus couesi (Coues and Yarrow, 1875), which according to the International Code of Zoological Nomenclature, invalidates the use of the crooki subspecies name (Heffelfinger 2000). Consequently, the oldest available name for the desert mule deer in Texas is O. h. eremicus (Mearns, 1897), which was described from

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specimens from Sonora, Mexico (Miller and Kellogg 1955).

Conservation status is least concern and not listed by the USFWS or TPWD. Long-term drought conditions appear to be pushing mule deer populations downward, especially in parts of the Trans-Pecos, and this is a species that bears monitoring in the 21st century (Yancey et al. 2023).

Odocoileus virginianus (Zimmerman, 1780) (White-tailed Deer).—Distributed in suitable wooded and brushy habitats throughout the state (Schmidly and Bradley 2016). Texas Parks and Wildlife Department developed a program to successfully restock deer from central or southern Texas into other regions of the state during the 1930s to 1950s, which stabilized the population. The species is now being successfully managed with the participation of private landowners, and it is the most numerous and economically valuable big game animal in Texas (Schmidly et al. 2022).

Historically, four subspecies were recognized in Texas: O. v. carminis (Goldman and Kellogg, 1940) known only from the Big Bend area; O. v. macroura (Rafinesque, 1817) in the extreme northeastern corner of the state; O. v. mcilhennyi (F. W. Miller, 1928) along the Gulf Coast; and O. v. texana (Mearns, 1898) throughout the central part of Texas (Schmidly et al. 2022). The only subspecies described from Texas specimens is O. v. texana (type locality Fort Clark, Kinney County). Native animals of the subspecies O. v. mcilhennyi and O. v. macroura were eliminated in eastern Texas and that area was restocked with individuals of O. v. texana (see Schmidly 1983; Schmidly and Bradley 2016). In several studies, sympatric populations of Mule Deer and White-tailed Deer in western Texas have been found to interbreed and produce hybrid offspring (Carr et al. 1986; Ballenger et al. 1992; Cathey et al. 1998). Genetic analyses indicate that these hybrids are more characteristic of White-tailed Deer than of Mule Deer (Bradley et al. 2003; Wright et al. 2022a; Wright et al. 2024a).

The conservation status is least concern with no federal or state listing. The continued spread of chronic wasting disease (CWD) in the state could present a threat in the future.

Family Tayassuidae (Peccaries)

Dicotyles tajacu Cuvier, 1816 (Collared Peccary).-Historically distributed across southwestern Texas north to the Red River and east at least to the Brazos River Valley, and absent from the High Plains and Panhandle regions and from eastern Texas (Schmidly and Bradley 2016). An isolated population was introduced into six counties (Foard, Willbarger, Wichita, Knox, Baylor, Archer) in the north-central part of the state (Dalquest and Horner 1984; Schmidly and Bradley 2016). Today, specimen and iNaturalist records indicate the species is more widely distributed than previously thought. There are iNaturalist records from three counties in the Rolling Plains (Throckmorton, January 2019; Young, October 2015; and Shackelford, April 2020) that serve as unvouchered photographic records, and a recent sighting from near Polar, Kent County (Robert D. Bradley, personal observation) in the same ecoregion. iNaturalist records from the High Plains in Parmer, Yoakum, Gaines, and Terry counties along and near the New Mexico border serve as unvouchered photographic records and indicate the species has moved westward into that ecoregion. Records from Bastrop County (Bauer et al. 2010; six iNaturalist records) serve as unvouchered photographic records and represent an extension eastward beyond the documented range, and a recent iNaturalist record from Brazoria County (April 2021), which is 240 kilometers (150 miles) east of Bastrop, serves as an unvouchered photographic record and extends its distribution all the way to the Texas coast. This species is most common in western Texas and the brush country south of San Antonio (Schmidly and Bradley 2016).

Previous publications about Texas mammals gave the scientific name as *Pecari angulatus* (Strecker 1926; Taylor and Davis 1947), *Tayassu tajacu* (Manning et al. 2008), *Dicotyles tajacu* (Schmidly 1977), or *Pecari tajacu* (Schmidly and Bradley 2016). In this checklist, we have followed Acosta et al. (2020) and the ASM Mammal Diversity Database (2024) in using the name combination *Dicotyles tajacu* for this species. The subspecies in Texas is *D. t. angulatus* (Cope, 1889), and it was described from specimens from the Llano River (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. Their historical range has declined in some regions of the state, but populations appear to be expanding in other areas. Populations still thrive along the Rio Grande and in the brush country of South Texas and the Big Bend region (Schmidly et al. 2022). This is another species that bears watching in the future.

ORDER RODENTIA—RODENTS Family Castoridae (Beavers)

Castor canadensis Linnaeus 1758 (American Beaver).—Found over most of state where suitable aquatic habitat prevails (Schmidly and Bradley 2016). Occurs in lower densities in the western parts of their range in the state, including much of the Trans-Pecos; recently documented from the Llano Estacado at Mackenzie Park in the city limits of Lubbock, Lubbock County (Garcia et al. 2016) and from outside the city limits in Canyon Lake, Buffalo Springs, and Ransom Canyon in Lubbock County (Langlois et al. 2022). Whether or not these represent natural occurrences or released animals has not been determined at this time. Recent records from Jones and Irion counties in the Rolling Plains regions (Brashear et al. 2011) and from the southwestern Cross Timbers region (Goetze and Nelson 2009) indicate their continued presence in those areas. iNaturalist reports that serve as unvouchered photographic records include four reports from Lubbock County and one report each from Hemphill (June 2022), Collingsworth (April 2023), Mitchell (August 2019), and Sterling (August 2018) counties, extending the distribution of the beaver along the western margin of its range in the state.

The subspecies in Texas are *C. c. mexicanus* Bailey, 1913 along the Rio Grande and its immediate tributaries (type locality from Lincoln County, New Mexico), and *C. c. texensis* Bailey, 1905 to the north (Schmidly et al. 2022). The latter subspecies was described from specimens taken at Cummings Creek, nine miles from New Ulm, Colorado County (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. Future threats could include depletion of natural and human-made surface water and competition with the introduced Nutria, *Myocastor coypus*. Overharvesting is no longer a serious threat (Schmidly 2004).

Family Cricetidae (New World Mice, Rats, and Voles)

Baiomys taylori (Thomas, 1887) (Northern Pygmy Mouse).-Distributed over most of the state, except for the extreme western and northeastern portions and most of the Trans-Pecos (Schmidly and Bradley 2016). Since the middle of the 20th century, this mouse has moved steadily northward and westward in Texas (Barnes and Hoffman 2023). A recent record from Hunt County (Green and Wilkins 2010) forms the northeastern limits of its range in the state, and recent records from Val Verde and Pecos counties (Bahm et al. 2008; unpublished by Tom Lee and Joel Brant) demonstrate its westward movement into the Trans-Pecos region. A 2018 record from the Texas Tech University Center near Junction, Kimble County, on the Edwards Plateau is of interest as trapping efforts have been continuously conducted at that site since the 1970s without a previous capture, which indicates a recent invasion of that county (Krishnamoorthy et al. 2021). Possible explanations for these movements include dispersal along highway rights-of-way, an increase in Conservation Reserve Program (CRP) acreage, individuals transported by hauling hay, and climate change (Schmidly et al. 2022).

The subspecies in Texas are *B. t. taylori* (Thomas, 1897), type locality San Diego, Duval County, over most of Texas, and *B. t. subater* (Bailey, 1905), type locality Bernard Creek, near Columbia, Brazoria County, in the southeastern part of the state (Schmidly et al. 2022; Schmidly et al. 2023). It is the former subspecies that has been expanding its geographic range in the state. Conservation status is least concern with no federal or state listing.

Microtus mogollonensis (Mearns, 1890) (Mogollon Vole).— Recorded only from higher elevations in Guadalupe Mountains of Culberson County where it has a decided preference for grassy meadows and open slopes of mountains in the pine-fir-oak association from about 2,375 to 2,600 m (Yancey et al. 2023). Its entire distribution in Texas is confined to Guadalupe Mountains National Park. Formerly known as the Mexican vole, *M. mexicanus*, the US populations of this vole are now classified as a distinct species, *M. mogollonensis*, from the populations in Mexico (Frey 1999; Schmidly and Bradley 2016). The subspecies in Texas is *M. m. guadalupensis* Bailey, 1902; described from specimens taken in McKittrick Canyon, Guadalupe Mountains, Culberson County (Schmidly et al. 2023). Conservation status is least concern with no federal listing; considered by TPWD to be a species of greatest conservation need. A catastrophic local event, such as a massive forest fire within the national park, could represent a future threat (Schmidly et al. 2022).

Microtus ochrogaster (Wagner, 1842) (Prairie Vole).—Known only from Hardin County in southeastern Texas and from specimens in owl pellets obtained from 21 counties on the Panhandle and High Plains, suggesting that this species is more common and broadly distributed than previously thought (Turpen et al. 2022). The southernmost locations where these voles have been collected on the High Plains are in Hockley and Lubbock counties.

Two subspecies are known in Texas: *M. o. ludovicianus* Bailey, 1902 (type locality from southern Louisiana) thought to be extinct in southeastern Texas (Schmidly 1983; Schmidly et al. 2022), and *M. o. taylori* Hibbard and Rinker, 1943 from the Texas Panhandle (type locality in Meade County, Kansas). During the late Pleistocene, *M. ochrogaster* was distributed throughout the northern half of Texas but retreated northward during the more arid Holocene (Stangl et al. 2004). The recent records of this vole on the Llano Estacado suggests that it has reclaimed portions of its original range occupied during the late Pleistocene and is not the result of a recent range extension into a previously unoccupied habitat (Roberts et al. 2015).

Conservation status is least concern with no federal listing; considered by TPWD to be a species of greatest conservation need. The combination of increased CRP acreage and irrigation of croplands and grasslands appears to have allowed this species to repopulate parts of its previously occupied habitat (Roberts et al. 2015).

Microtus pinetorum (Le Conte, 1830) (Woodland Vole).—Most widely distributed vole in Texas with a

highly scattered and localized distribution in eastern and central parts of the state west to Montague, Callahan, and Erath counties and south to Gillespie and Kerr counties (Schmidly and Bradley 2016). Not common with no recent records from the Hill Country or other places where it was once taken (Schmidly et al. 2022). Subspecies in Texas are *M. p. auricularis* Bailey, 1898 in the southern part of its range in the state and *M. p. nemoralis* Bailey, 1898 to the north; neither described from Texas. Conservation status is least concern with no federal or state listing. However, its rarity, apparent disappearance from places where it was once taken, and the continued degradation of grasslands and conversion to shrubland habitat in the state suggests it should be regularly monitored in the future (Schmidly et al. 2022).

Neotoma floridana (Ord, 1818) (Eastern Woodrat).--Recorded from the eastern part of Texas, south to Victoria County and westward to Wichita, Bell, and Edwards counties (Schmidly and Bradley 2016); recent records from Coryell County in the Cross Timbers and Prairies, and from Fort Bend County in the Gulf Prairies and Marshes region (Brashear et al. 2011); common throughout its range in Texas (Schmidly and Bradley 2016). Subspecies in Texas are N. f. attwateri Mearns, 1897, which occupies the northern and western parts of its state range, and N. f. rubida Bangs 1898, in the southeast. Additionally, N. f. illinoensis Howell, 1910 may be found in extreme northeastern Texas (Jones et al. 1988b). The subspecies N. f. attwateri was described from Lacey's Ranch, Turtle Creek, Kerr County, Texas (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Neotoma leucodon Merriam, 1894 (Whitetoothed Woodrat).—Found in the Panhandle and broken country south of the Red River, southeastward to Llano and Bexar counties, thence westward throughout much of southwestern part of state (Schmidly and Bradley 2016); common over almost the entire Trans-Pecos region (Yancey et al. 2023). This species formerly was assigned to *N. albigula*; however, Edwards et al. (2001) recognized eastern populations as a separate species and referred Texas specimens to *N. leucodon*. Two subspecies recognized in Texas: *N. l. warreni* Merriam, 1980 in the Panhandle, and *N. l. robusta* Blair, 1939 elsewhere (Edwards et al. 2001); latter described from specimens taken in Limpia Canyon, 16 miles north of
Fort Davis, Jeff Davis County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Neotoma mexicana Baird, 1855 (Mexican Woodrat).—Known only from mountainous areas of Brewster, Culberson, Hudspeth, Jeff Davis, and Presidio counties in Trans-Pecos region; occurs mostly at highest elevations of the Guadalupe, Davis, Chinati, Rosillos, and Chisos mountains (Yancey et al. 2023); most often found among talus slopes, rocky outcrops, rock piles, and cliffs, usually in or near juniper, pine, oak, or mixed deciduous and coniferous forests (Schmidly 1977; Yancey et al. 2023). The subspecies in Texas is *N. m. mexicana* Baird, 1855, but it was not described from specimens taken in the state. Conservation status is least concern with no federal or state listing.

Neotoma micropus Baird, 1855 (Southern Plains Woodrat).—Found in the western two thirds of Texas, eastward to Johnson County in the north and Calhoun County on the Gulf Coast (Schmidly and Bradley 2016); locally abundant over much of its range. The subspecies in Texas are *N. m. canescens* J. A. Allen, 1891 in the western part of the range and *N. m. micropus* Baird, 1855 in the east; neither described from Texas specimens (Miller and Kellogg 1955). This species and its subspecies are in need of taxonomic review in the state (Jones and Jones 1992; Manning et al. 2008). Conservation status is least concern with no federal or state listing; does not fare very well in areas of intense agricultural activity.

Ochrotomys nuttalli (Harlan, 1832) (Golden Mouse).—Occurs in hardwood and pine forests of extreme eastern Texas, west at least to Red River, Wood, Anderson and Madison counties (Schmidly and Bradley 2016); favored habitat includes heavily forested hardwood floodplain, upland pine-oak woodland, and hillsides with considerable grapevine and honeysuckle; absent from the coastal prairies and oak-hickory regions (Schmidly 1983). Subspecies in Texas is *O. n. lisae* Packard, 1969, described from specimens taken at the La Nana Creek bottoms on the Stephen F. Austin State University campus in Nacogdoches, Nacogdoches County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. Ondatra zibethicus (Linnaeus, 1766) (Common Muskrat).—Occurs in suitable aquatic habitats in the northern, southeastern, and southwestern parts of the state (Schmidly and Bradley 2016); inhabits marshes and creeks, edges of rivers, lakes, drainage ditches, and canals with requisite food and shelter (Schmidly et al. 2022). An iNaturalist sighting in Brazoria County (April 2024) serves as an unvouchered photographic record and represents a marginal record from the upper Texas coast.

Subspecies in Texas are *O. z. cinnamominus* (Hollister, 1910) in the north (Canadian River drainage southeastward to Falls and Trinity counties), *O. z. ripensis* (Bailey, 1902) along the Rio Grande and Pecos River and their immediate tributaries in the Trans-Pecos region, and *O. z. rivalicus* (Bangs, 1895) on the Gulf Coastal Plain as far west as Brazoria County (Jones et al. 1988a); none described from Texas localities (Miller and Kellogg 1955). A recent study of genetic variation in *O. z. ripensis* suggests it is closely aligned with subspecies in New Mexico (Falcone et al. 2019).

Conservation status is least concern with no federal listing; considered by TPWD to be a species of greatest conservation need. Although common along the upper Texas coast, muskrats are relatively rare in the tributaries of the Canadian River in the Panhandle (Jones et al. 1988b) as well as from the springs and tributaries associated with the Pecos River and the Rio Grande. A large population of O. z. cinnamominus recently was discovered on what was then Boone Pickens' Mesa Verde Ranch, 30 miles north of Pampa, Roberts County, along the Canadian River drainage (Richards 2007), where dredging to restore stream flow and provide for lakes on the ranch restored suitable habitat. Populations of O. z. ripensis appear to have declined in the 20th century (Falcone et al. 2019). There were records from Reeves County in 1980 (Swepston 1981), but muskrats apparently disappeared from San Solomon Cienega near Balmorhea by 1996 (Garrett 2004). No contemporary records existed from the Big Bend portion of the Rio Grande (Schmidly 2004). However, a population has been documented along the Rio Grande in the vicinity of El Paso, El Paso County (Holmes 1970), which remains today. Hafner et al. (1998) suggest that modern reductions in the flow of the Rio Grande between El Paso and Presidio,

Texas, drastically modified suitable habitat and reduced populations along the Lower Rio Grande. Competitive exclusion with the invasive Nutria (*Myocastor coypus*) forced muskrats from Lake Amistad, and the spread of Nutria remains a serious threat to extant populations statewide (Schmidly et al. 2022). For these reasons, there should be regular monitoring of the muskrat in far western Texas, where it is uncommon.

Onychomys arenicola Mearns, 1896 (Mearns' Grasshopper Mouse or Chihuahuan Grasshopper Mouse).—Occurs throughout all of the Trans-Pecos region except for the extreme southeastern part (Yancey et al. 2023); recorded east of the Pecos River from Crockett, Ward, and Winkler counties (Schmidly and Bradley 2016). Subspecies in Texas is O. a. arenicola Mearns, 1896; type specimen collected by E. A. Mearns along the Rio Grande about six miles (9.6 km) above El Paso, El Paso County, in 1892 (Schmidly et al. 2023); hence the common name, Mearns' grasshopper mouse. This mouse formerly was regarded as representing the species O. torridus (see Hinesley 1979). Conservation status is least concern with no federal or state listing.

Onychomys leucogaster (Wied-Neuwied, 1841) (Northern Grasshopper Mouse).-Known from throughout most of western Texas (except for the central part of the Trans-Pecos region) and throughout central Texas south to the Gulf Coast and the Rio Grande Plains (Schmidly and Bradley 2016). Subspecies in Texas are O. l. arcticeps Rhoads, 1898 in the Panhandle, east to Wichita County, and south to Crockett and Pecos counties; O. l. longipes Merriam, 1899 from Tom Green and Terrell counties southward to the Rio Grande and southeastward to Refugio County; and O. l. ruidosae Stone and Rehn, 1903 in El Paso and Hudspeth counties. The subspecies longipes was described from specimens taken in Concho County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Oryzomys couesi (Alston, 1877) (Coues' Rice Rat).—Occurs in the Lower Rio Grande Valley of Cameron, Hidalgo, Kenedy, and Willacy counties; primarily restricted to the resaca habitats bordered by cattailbulrush marshes and subtropical woodlands (Schmidt and Engstrom 1994; Brashear et al. 2011; Schmidly and Bradley 2016). The subspecies in Texas is *O. c.*

aquaticus J. A. Allen, 1891, and it was described from specimens obtained at Brownsville, Cameron County. Conservation status is least concern with no federal listing; regarded by the TPWD as threatened because of the decline of the resaca habitat in the Lower Rio Grande Valley due to drainage for irrigated agriculture (Schmidly et al. 2022).

Oryzomys texensis (J. A. Allen, 1894) (Marsh Rice Rat).—Found throughout the eastern part of Texas, west to Denton and Lee counties and then southward to Hidalgo and Cameron counties (Schmidly and Bradley 2016); a record from Hopkins County in northeastern Texas extends its range almost to the Red River on the Oklahoma border (Roberts et al. 2015). These rats typically inhabit marshy areas, although they may be found in almost any situation where grasses and sedges offer an adequate food supply and protective cover (Schmidly and Bradley 2016). Included in previous checklists as O. palustris (e.g., Jones et al. 1988a), but Hanson et al. (2010) used DNA sequence data to show that O. palustris actually represented two species of rice rats. The subspecies in Texas is O. t. texensis J. A. Allen, 1894, and its type locality is Rockport, Aransas County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. The continued loss of wetland habitat could place it in jeopardy in the future (Schmidly et al. 2022).

Peromyscus attwateri J. A. Allen, 1895 (Texas Deermouse).—Common in the central part of the state (Edwards Plateau), from Cooke County southward to Uvalde, Medina, and Bexar counties, and westward to Randall, Lynn, and Ward counties (Schmidly and Bradley 2016). Although commonly called the Texas Deermouse, its distribution also includes Oklahoma, Kansas, Missouri, and Arkansas. *Peromyscus attwateri* is a monotypic species; described from specimens taken at Turtle Creek, Kerr County (Schmidly et al. 2023). At one time, it was considered a subspecies of *P. boylii* (Schmidly 1973a). Conservation status is least concern with no federal or state listing. It has fared well with the massive expansion of brush species, especially cedar, in Texas (Schmidly and Bradley 2016).

Peromyscus boylii (Baird, 1855) (Brush Deermouse).—Common in the higher elevations of the mountainous counties of the Trans-Pecos region of Texas, but absent from Reeves, Pecos, and Terrell counties east of the Front Range in that region (Schmidly and Bradley 2016; Yancey et al. 2023). The subspecies in Texas is *P. b. rowleyi* (J. A. Allen, 1893); not described from specimens taken in the state (Miller and Kellogg 1955). Conservation status is least concern with no federal or state listing.

Peromyscus eremicus (Baird, 1858) (Cactus Deermouse).—Occurs in the Trans-Pecos eastward along the Rio Grande to Val Verde County on the western edge of the Edwards Plateau and to Webb County in southern Texas (Schmidly and Bradley 2016); common on bajadas and lowland desert habitat where rock outcrops or cliffs occur (Yancey et al. 2023).

Subspecies in Texas is P. e. eremicus (Baird, 1858); type locality is not from Texas (Caire 1999). Morphological (Legg 1978), allozyme (Avise et al. 1974), and mitochondrial DNA analysis (Walpole et al. 1997) revealed phylogeographic separation of eremicus populations between northeastern Sonoran and northwestern Chihuahuan deserts (from Texas, New Mexico, and Arizona), suggesting the presence of two cryptic, geographically separated species embedded within eremicus. A subsequent sequence analysis of mtDNA from across the entire range of P. eremicus confirmed this separation (Riddle et al. 2000). The latter study revealed that the western, Sonoran lineage extended well into the northwestern Chihuahuan Desert, contacting the eastern lineage in the area extending from the headwaters of the Rio Conchos in central Chihuahua, Mexico, eastward toward the Rio Grande in Texas. Additional sampling is needed from this area to determine if the two lineages maintain their genetic distinctness and integrity. Should that prove to be the case, then the appropriate scientific name for Texas populations would become Peromyscus arenarius Mearns, 1896 (see Veal and Caire 1979). The type locality of arenarius, presently a synonym of P. e. eremicus, is from the Rio Grande, about six miles from El Paso, El Paso County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Peromyscus gossypinus (Le Conte, 1850) (Cotton Deermouse).—Common in the woodlands of the eastern one-fourth of the state, west to Fannin and Hunt counties in the north and Limestone, Brazos, and Harris counties in the south (Schmidly and Bradley 2016). Recent records from Collin County in the Blackland Prairie ecoregion (Krishnamoorthy et al. 2021) and from Denton and Rockwall counties in the Cross Timbers and Prairies ecoregion (Pitts 2022) represent a westward extension of the Cotton Deermouse in the state (Pitts 2022). This is the most common small rodent in the Big Thicket and Pineywoods region of eastern Texas (Schmidly 1983).

Subspecies in Texas is P. g. megacephalus (Rhoads, 1894); type locality from Jackson County, Alabama (Miller and Kellogg 1955). McCarley (1954) reported natural hybrids between P. gossypinus and P. leucopus from Henderson and Nacogdoches counties based on two individuals that were morphologically intermediate between the two species. Subsequently, Engstrom et al. (1982) demonstrated the individuals in question were not morphologically intermediate when similar age groups were compared, thus raising doubts about the hybridization supposition (Schmidly 1983). It should be much easier to determine if hybridization is something of importance between these two species with the availability of modern molecular genetic techniques. Conservation status is least concern with no federal or state listing.

Peromyscus labecula Elliot, 1903 (Elliot's Deermouse).-Occurs in the Lower Sonoran Zone of southwestern Texas, where it has been documented from throughout the Trans-Pecos (Yancey et al. 2023) and areas immediately to the east and throughout South Texas except for the Lower Rio Grande Valley in Starr, Hidalgo, Willacy, and Cameron counties (Bradley et al. 2019). This species formerly was recognized as part of the wide-ranging deermouse, P. maniculatus [now P. sonoriensis], but two independent studies of mtDNA sequences (Bradley et al. 2019; Greenbaum et al. 2019) have revealed it to be a distinct species. The subspecies in Texas is P. l. blandus Osgood, 1904, and it was not described from Texas specimens (Miller and Kellog 1955). This species was recognized so recently that it has not been evaluated in terms of its conservation status by the IUCN, USFWS, or TPWD. However, from the available information, there are no obvious conservation concerns that would cause it to be included on a list of threatened species.

Peromyscus laceianus Bailey, 1906 (Lacey's White-ankled Deermouse).—Recorded from all of the Trans-Pecos region except for El Paso County (Yancey et al. 2023), extending from there northeastward through the central part of the state to the Oklahoma border and beyond (Schmidly and Bradley 2016). Its eastern limits correspond with the edge of the Balcones Escarpment, stretching from Cooke County in the north to Bexar County in the south. It appears to flourish under conditions of overgrazing and may be increasing in numbers throughout its range (Schmidly et al. 2022).

In previous checklists, regarded as a subspecies of *P. pectoralis* with a distribution that extended into central Mexico. Now recognized as a distinct species based on morphological and DNA sequence data; restricted in distribution to north of the Rio Grande (Bradley et al. 2015). *Peromyscus laceianus* is monotypic; described from specimens taken at Lacey's Ranch, Turtle Creek, seven miles southwest of Kerrville, Kerr County (Schmidly et al. 2023). Populations in Mexico continue to be recognized as *P. pectoralis* Osgood, 1904. Conservation status is least concern with no federal or state listing.

Peromyscus leucopus (Rafinesque, 1818) (Whitefooted Deermouse).—Most common and widespread of all the species of *Peromyscus* in Texas; occurs statewide except for the northeastern coastal bend (Schmidly and Bradley 2016); occupies a variety of habitats, including woodlands, bottomlands, uplands, and weedy pastures and fencerows depending on the region of the state.

Subspecies in Texas are P. l. leucopus (Rafinesque, 1818) in the eastern third of the state; P. l. texanus (Woodhouse, 1853) in central Texas westward to Brewster, Terrell, and Val Verde counties in the Trans-Pecos; and P. l. tornillo Mearns, 1896 in the Panhandle and the remainder of the Trans-Pecos. Peromyscus l. texanus was described from near El Paso, El Paso County, and P. l. tornillo from near Mason, Mason County (Schmidly et al. 2023). Two chromosomal races of P. leucopus, designated southwestern and northeastern, have been identified in the south-central United States (Baker et al. 1983). The division between the two occurs along the ecotone between the Great Plains Grassland and Eastern Deciduous Forest biomes, and both could possibly occur in Texas. Their ranges do not correspond to the classical subspecific boundaries for *P. leucopus* (Schmidly et al. 2022). There is a need for additional genetic sampling to determine the distribution of the two chromosomal races in the state and to clarify the taxonomic status of the subspecies (Manning et al. 2008).

Conservation status is least concern with no federal and state listing; no immediate threats, although local populations could succumb to land clearing associated with extensive development (Schmidly and Bradley 2016).

Peromyscus nasutus (J. A. Allen, 1891) (Northern Rock Deermouse).—Confined to Trans-Pecos region; spotty distribution restricted to the isolated Guadalupe, Franklin, Davis, Chinati, and Chisos mountain ranges (Yancey et al. 2023); appears to be most abundant in rocky terrain at higher elevations (above 2,100 m) in those mountains.

Two subspecies occur in the Trans-Pecos: *P. n. penicillatus* Mearns, 1896 in the extreme western part of the region, and *P. n. nasutus* (J. A. Allen, 1891) in the remainder (Yancey et al. 2023). The subspecies *P. n. nasutus* also has been taken along the breaks of the Llano Estacado in eastern New Mexico, just a few miles west of the Texas border (Choate 1997). The subspecies *penicillatus* was described from the foothills of the Franklin Mountains, near El Paso, El Paso County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; regarded by TPWD as a species of greatest conservation need; apparent preference for mesic habitats in the isolated mountain ranges of Trans-Pecos Texas could make it vulnerable to climate change favoring increasing aridity (Schmidly et al. 2022).

Peromyscus sonoriensis (J. A. Wagner, 1845) (Sonoran Deermouse).—Occurs in the Panhandle and High Plains vegetative regions with sporadic distribution in the grasslands of the northern, eastern, and upper coastal regions of the state (Bradley et al. 2019). A recent record from Cass County in the Pineywoods ecoregion is the most northeastern record of the species in the state and represents a range extension of 65 km SE from Red River County and 105 km E from Hopkins County (Pitts 2022).

The Sonoran Deermouse formerly was recognized as part of the wide-ranging deermouse, P. maniculatus, but two independent studies of mtDNA sequences (Bradley et al. 2019; Greenbaum et al. 2019) revealed it to be a distinct species. Subspecies in the state are P. s. luteus Osgood, 1905 in the Panhandle and adjacent Llano Estacado south to Andrews County; P. s. ozarkiarum Black, 1935 in Cooke, Denton, and Grayson counties; P. s. nebrascensis (Coues, 1877) in the extreme northwestern Panhandle; and P. s. pallescens J. A. Allen, 1896 in the eastern part of the range in Texas. The latter subspecies was described from San Antonio, Bexar County (Schmidly et al. 2023); a recent study has revealed that it is confined to the Blackland Prairies just to the east of the Balcones Escarpment (Light et al. 2021b).

This species was recognized so recently that its conservation status has not been evaluated by the IUCN, USFWS, or TPWD, but from the available information there are no obvious conservation concerns that would cause it to be included on a list of threatened species.

Peromyscus truei (Shufeldt, 1885) (Piñon Deermouse).—Occurs in Texas as three disjunct populations: one from the eastern breaks of the Llano Estacado in Armstrong, Briscoe, and Randall counties, another from the western breaks of the Llano Estacado in Deaf Smith County just to the east of the New Mexico border, and the third from the Guadalupe Mountains, Culberson County (Wright et al. 2020). The latter population is separated from those along the northern breaks of the Llano Estacado by approximately 120 km (75 mi) of inhospitable habitat.

Subspecies in Texas are *P. t. comanche* Blair, 1943 from the eastern Llano and *P. t. truei* (Shufeldt, 1885) for the other two populations. *Peromyscus t. comanche* was described from Tule Canyon, 22 miles east of Tulia, Briscoe County. It has a varied taxonomic history, shifting between species and subspecies status (Schmidly 1973b); the latest taxonomic arrangement using genomic data shows it is a separate subspecies of *Peromyscus truei* (Bradley and colleagues, unpublished data). A recent DNA sequence analysis of *P. truei* populations in Texas and New Mexico suggest a recent evolutionary history of isolation and divergence of *P. t. comanche* from a *P. t. truei*-like ancestor from northeastern New Mexico and West Texas approximately 0.71 mya (Wright et al. 2020).

Conservation status is least concern with no federal listing; TPWD considers the subspecies *P. t. comanche* as threatened, although there appear to be no significant threats to its habitat. Moreover, there are two state parks within the geographic range of *P. t. comanche* to serve as refugia (Yancey et al. 1996). Although not listed by the state as a species of concern, the other subspecies of the Piñon Deermouse in Texas, *P. t. truei*, is much rarer than *P. t. comanche*. It is known by only four specimens from Guadalupe Mountains National Park (Cornely et al. 1981) and 11 from along the northern edge of the Llano Estacado in Deaf Smith County (Choate 1997; R. D. Bradley, unpublished data). The conservation status of both subspecies should be monitored in the future.

Reithrodontomys fulvescens J. A. Allen, 1894 (Fulvous Harvest Mouse).—Occurs in eastern and central Texas west to Hemphill, Armstrong, and Floyd counties in the north and parts of the Trans-Pecos region; absent from the western Panhandle and the Llano Estacado (Schmidly et al. 2022).

Subspecies in Texas are *R. f. aurantius* J. A. Allen, 1895 in the eastern part of the state; *R. f. canus* Benson, 1939 in the eastern and southern Trans-Pecos; *R. f. intermedius* J. A. Allen, 1895 on the Rio Grande Plains and in adjacent areas of southern Texas; and *R. f. laceyi* J. A. Allen, 1896 in the central part of the state. Two of the described subspecies, *laceyi* (type locality Watson's Ranch, 15 miles south of San Antonio, Bexar County) and *intermedius* (type locality Brownsville, Cameron County), were described from Texas specimens (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. This species prefers weedy or grassy habitats intermixed with shrubs, vines, and bushes. It has fared well since the turn of the century as mesquite and other brush have covered many areas of the state that were formerly prairie or grassland (Schmidly et al. 2022). *Reithrodontomys humulis* (Audubon and Bachman, 1841) (Eastern Harvest Mouse).—Known from the eastern part of the state, west to Fort Bend, Hunt, and McLennan counties (Schmidly and Bradley 2016); rarest of the harvest mice in Texas, presumably due to its habitat requirements of primarily grasslands and herbaceous plants characteristic of early vegetational succession (Schmidly and Bradley 2016). The subspecies in Texas is *R. h. merriami* J. A. Allen, 1895, and it was not described from Texas specimens. Conservation status is least concern with no federal or state listing; continued degradation and fragmentation of grassland habitats over time could pose a problem (Schmidly and Bradley 2016).

Reithrodontomys megalotis (Baird, 1857) (Western Harvest Mouse).—Occurs in western Texas, where it is known from numerous counties in the Panhandle, High Plains, and Rolling Plains southward to the Trans-Pecos; barely reaches the northwestern portion of the Edwards Plateau (Schmidly and Bradley 2016). The subspecies in Texas are *R. m. aztecus* J. A. Allen, 1893 in the northern part of the range and *R. m. megalotis* (Baird, 1858) to the south; neither described from Texas. Conservation status is least concern with no federal or state listing; seldom captured in large numbers by mammalogists.

Reithrodontomys montanus (Baird, 1855) (Plains Harvest Mouse).—Found in the Panhandle and High Plains, in the western and central parts of the state, east and southeast at least to Grayson, Madison, Bexar, and Val Verde counties (Schmidly and Bradley 2016).

Subspecies in Texas are *R. m. griseus* Bailey, 1905 throughout most of the range in Texas and *R. m. montanus* (Baird, 1855) in the Trans-Pecos region; subspecies *griseus* was described from San Antonio, Bexar County (Miller and Kellogg 1955). The Plains and Western Harvest Mouse were both apparently absent from the Panhandle and High Plains when Vernon Bailey and the USBS field agents surveyed the region from 1889 to 1905 (Bailey 1905), but currently both species occur over that entire region (Schmidly et al. 2022). Interestingly, both have been collected along the "railtrail" created by TPWD between the High Plains and the Rolling Plains (Yancey and Jones 1997). This example of using manmade dispersal routes may be

representative of the way other small mammals have dispersed across different vegetative regions during the 20th century (Schmidly et al. 2022). Conservation status is least concern with no federal or state listing; continued degradation and loss of grassland habitat could constitute a potential future threat.

Sigmodon fulviventer J. A. Allen, 1889 (Tawnybellied Cotton Rat).—Known in Texas only from specimens taken at a single locality, collected in a single year (March and July 1991), along the southwestern flanks of the Davis Mountains near Fort Davis in Jeff Davis County (Yancey et al. 2023). The specimens were collected in dense grass or grassy areas with scattered mesquite and catclaw acacia (Stangl 1992). Mammalogists at Texas Tech University have been conducting an extensive trapping survey in suitable habitat at and near the known locality in Jeff Davis County, but no additional records have been obtained to date.

The subspecies in Texas was described by Stangl (1992) as *S. f. dalquesti*, and it is endemic to the Trans-Pecos region. A recent genetic and morphometric study by Caleb Phillips and colleagues at Texas Tech University (in prep.) supports continued recognition of *dalquesti* as a valid subspecies.

Conservation status is least concern with no federal listing; however, regarded by TPWD as threatened because of its scarcity and uncertain distribution in Texas (Yancey et al. 2023). There is a need for continued collecting to determine where this rare species occurs in Texas.

Sigmodon hispidus Say and Ord, 1825 (Hispid Cotton Rat).—Occurs statewide; during 20^{th} century broadened its distribution across the entire state (Barnes and Hoffman 2023). Levels of genetic distinction between eastern and western populations of this species approach those observed between other species of rodents (Peppers and Bradley 2000; Phillips et al. 2007). A contact zone between the two lineages has been located in the vicinity of Galveston Bay, southeast of Houston, but further research is needed to determine if hybridization occurs or if *S. hispidus* should be recognized as two species in Texas (Beal and Pfau 2016). The subspecies in the state are *S. h. berlandieri* Baird, 1855 from the Panhandle southward

to the Trans-Pecos region and the Rio Grande Plains, and *S. h. texianus* (Audubon and Bachman, 1853) in the eastern and central parts of Texas (Schmidly et al. 2022). Both described from Texas specimens; *S. h. berlandieri* from the Rio Grande, about six miles above El Paso, El Paso County, and *S. h. texianus* from the Brazos River (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing; it is one of the most common small mammals in Texas.

Sigmodon ochrognathus Bailey, 1902 (Yellownosed Cotton Rat).—Restricted to the central part of the Trans-Pecos region from Culberson, Jeff Davis, Presidio, and Brewster counties (Yancey et al. 2023); occurs mostly at higher elevations in the central mountainous core of the Chinati, Chisos, Davis, and Guadulupe mountains, Elephant Mountain, and the Sierra Vieja; uncommon compared to the Hispid Cotton Rat, Sigmodon hispidus (Yancey et al. 2023).

This species is monotypic (Carroll et al. 2002); described from Chisos Mountains, Brewster County, Texas (Schmidly et al. 2023). Conservation status least concern with no federal or state listing. Given its restricted distribution and often low population size, this species warrants periodic monitoring in the future (Schmidly and Bradley 2016).

Family Erethizontidae (New World Porcupines)

Erethizon dorsatum (Linnaeus, 1758) (North American Porcupine).—During early 1900s, restricted to the northernmost Panhandle and part of the Trans-Pecos (Bailey 1905; Strecker 1926; Taylor and Davis 1947); by the mid-1900s, expanded into southern Panhandle and western Edwards Plateau (Milstead and Tinkle 1958); in late 20th century and early 21st century, continued eastward expansion across the southern Rolling Plains as far as Travis, Van Zandt, and Harris counties in the central and eastern parts of the state and southward into Hidalgo County in extreme southern Texas (Baird et al. 2009; Goetze and Miller 2012; Barnes and Hoffman 2023). iNaturalist records from Denton (July 2016), Ellis (November 2020), Lee (July 2019), Fayette (October 2011), and Wharton (April 2019) counties in the east and from Maverick (October 2014, November 2020), Frio (February 2022, August 2018), and Bexar (May 2022) counties in the south serve as unvouchered photographic records and are indicative of its range expansion in the state. East-ward expansion corresponds with increase of woody vegetation especially along riparian corridors due to wildfire suppression and damming of rivers (Barnes and Hoffman 2023).

Subspecies in Texas are *E. d. bruneri* Swenk, 1916 in the northern Panhandle and along the Red River; *E. d. couesi* Mearns, 1897 over most of the state, including the western, central, and southern parts; and *E. d. epixanthum* Brandt, 1835 from the extreme western edge of the Panhandle (Schmidly and Bradley 2016; Schmidly et al. 2022); none were described from Texas.

Conservation status is least concern with no federal or state listing.

Family Geomyidae (Pocket Gophers)

Cratogeomys castanops (Baird, 1852) (Yellowfaced Pocket Gopher).—Found in the western onethird of the state from the Panhandle southward to the extreme northwestern and western portion of the Edwards Plateau and continuing along the Rio Grande into Maverick and Cameron counties (Schmidly and Bradley 2016).

Seven subspecies are recognized in the state (Bradley et al. 2023), and all but three (C. c. tamaulipensis, C. c. lacrimalis, and C. c. parviceps) were described from specimens taken in Texas. The subspecies are: C. c. angusticeps Nelson and Goldman, 1934, known only from vicinity of type locality at Eagle Pass, Maverick County; C. c. clarkii (Baird, 1855) known from restricted type locality (see below) at the mouth of Cuervo Creek about 18 km from El Indio in Maverick County; C. c. dalquesti Hollander, 1990 from west-central Texas to north of Edwards Plateau but southeast of Llano Estacado (type locality 1 mile north, 4 miles west of Sterling City, Sterling County); C. c. lacrimalis Nelson and Goldman, 1934 from New Mexico border south in Pecos drainage to Reeves, Ward, and Winkler counties; C. c. parviceps (Russell, 1968) from far western Trans-Pecos; C. c. perplanus Nelson and Goldman, 1934 from the High Plains of northwestern Texas (type locality Tascosa, Oldham County); *C. c. pratensis* (Russell, 1968) from Big Bend and much of the southern Trans-Pecos area (type locality 3 miles south, 8 miles west, Alpine, Brewster County); and *C. c. tamaulipensis* Nelson and Goldman, 1934, from Cameron County (Schmidly et al. 2022). Schmidly et al. (2023) restricted the type locality of *C. c. clarkii* from Presidio County to Maverick County in South Texas, resulting in a change of subspecific assignment of populations from the Big Bend region to *C. c. pratensis*.

Conservation status is least concern with no federal or state listing. The three subspecies with highly localized ranges (*C. c. angusticeps*, *C. c. clarkii*, and *C. c. tamaulipensis*) should be monitored periodically to ascertain whether they are under threat (Bradley et al. 2023).

Geomys arenarius Merriam, 1895 (Desert Pocket Gopher).—Occurs only in the Trans-Pecos, where it occupies the cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties (Yancey et al. 2023). Although its distribution is restricted, this gopher may be locally common within its range. It prefers loose soils of disturbed terrain and sandy areas along riverbanks and cannot tolerate clay or gravelly soils (Schmidly 1977). Subspecies in the Trans-Pecos is G. a. arenarius Merriam, 1895, and its type locality is El Paso, El Paso County (Schmidly et al. 2023). Conservation status listed as near threatened by IUCN due to its patchy and restricted distribution, but not listed by USFWS or TPWD. Although there currently are no known threats, periodic monitoring would be advisable given its restricted geographic range (Schmidly and Bradley 2016).

Geomys attwateri Merriam, 1895 (Attwater's Pocket Gopher).—Occurs in the Brazos River drainage of eastern Texas, as far north as Robertson County, southeast to Fort Bend County, and in southern Texas near the San Antonio River and along the coast from Matagorda to San Patricio counties, and westward to at least Frio County (Bradley et al. 2023). *Geomys attwateri* is monotypic; described from specimens taken at its type locality, Rockport, Aransas County (Schmidly et al. 2023). The ranges of *G. attwateri* and *G. brazensis* are generally separated by the Brazos River, except

where the river has periodically changed course in the past and left isolated remnant populations on its opposite sides (Honeycutt and Schmidly 1979). A zone of contact between *G. attwateri* and *G. brazensis* occurs just west of the Brazos River in Burleson County and hybridization has been documented between the two forms there (see Tucker and Schmidly 1981). Conservation status is least concern with no federal or state listing. In the Brazos Valley, these gophers no longer occur at places where they were found decades ago that are now inundated by fire ants (D. J. Schmidly, personal observation). This susceptibility could be a limiting factor in local distribution and abundance.

Geomys brazensis Davis, 1938 (Brazos River Pocket Gopher).-Occurs in the eastern portion of Texas along the Brazos River drainage, throughout much of the Post Oak vegetative region, and in the Big Thicket in the southern Pineywoods (Bradley et al. 2023). This recently defined species originally was described as a subspecies of G. breviceps (Davis 1938) and then placed in synonymy of G. bursarius sagittalis by Honeycutt and Schmidly (1979). With its recent elevation as a separate species (Bradley et al. 2023), two subspecies are recognized in Texas: G. b. brazensis Davis, 1938 (type locality five miles east of Kurten, Grimes County) in the eastern part of the species' range, and G. b. pratincola Davis, 1940 (type locality two miles east of Liberty, Liberty County) in the Big Thicket region (Bradley et al. 2023). Because of its recent taxonomic elevation, the conservation status of this gopher has not been evaluated by the IUCN, USFWS, or TPWD. However, our personal experience with these gophers within their range of occurrence indicates there are no serious conservation issues except perhaps where fire ants occur in high densities.

Geomys breviceps Baird, 1855 (Baird's Pocket Gopher).—Has a disjunct distribution, occurring in the northeastern part of the state along the Red River westward to Cooke and Wise counties, and thence extending eastward along a line to Panola County on the border with Louisiana; a second population extends along the upper Texas Coast from Brazoria County to Jefferson County (Bradley et al. 2023). The intervening area is occupied by *G. brazensis brazensis* and *G. brazensis pratincola*. The subspecies in Texas are *G. breviceps dutcheri* Davis, 1940 in the northeastern area of the state and *G. b. sagittalis* Merriam, 1895 along the upper Texas coast (Bradley et al. 2023). The subspecies *sagittalis* was described from Texas specimens obtained at Clear Creek, Galveston Bay, southern Harris County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. Due to land subsidence and land clearing, it has declined dramatically in the coastal prairies around the western edge of Galveston Bay, and it no longer occurs around Clear Creek and toward Houston (Hice and Schmidly 1999). To the north, however, it appears to be doing well with no serious conservation issues.

Geomys bursarius (Shaw, 1800) (Plains Pocket Gopher).—Occurs from northwestern and north-central Texas, from the Panhandle and High Plains south to Runnels and Midland counties, and eastward to McLennan and Grayson counties (Bradley et al. 2023). Pitts (2022) reports a record from the Blackland Prairies ecoregion that extends the distribution of the species 46 km southeastward from Waco in McLennan County. The subspecies in Texas is *G. b. major* Davis, 1940, and its type locality is 8 miles west of Clarendon, Donley County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Geomys jugossicularis Hooper, 1940 (Hall's Pocket Gopher).—Restricted to Dallam and Hartley counties in the extreme northeastern part of the Panhandle on the border with Oklahoma (Bradley et al. 2023). The subspecies in Texas is *G. j. jugossicularis* Hooper, 1940, but it was not described from Texas specimens and does not have a type locality within the state. Conservation status is least concern with no federal or state listing. Because of its apparent rarity and highly restricted distribution, this species should be monitored in the future (Schmidly et al. 2022).

Geomys knoxjonesi Baker and Genoways, 1975 (Jones' Pocket Gopher).—Known from southwestern Llano Estacado and adjacent areas immediately to the south; records from Cochran, Yoakum, Terry, Gaines, Dawson, Andrews, Martin, Winkler, Ward, and Crain counties at sites of deep sandy soils of aeolian origin; also occurs in adjoining southeastern New Mexico (Schmidly and Bradley 2016). *Geomys knoxjonesi* originally was described as a subspecies of *G. bursarius* (Baker and Genoways 1975) and was elevated to species status by Baker et al. (1989). *Geomys knoxjonesi* is monotypic; described from specimens taken 4.1 miles north and 5.1 miles east of Kermit, Winkler County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Geomys personatus True, 1889 (Texas Pocket Gopher).—Broadly distributed across South Texas as far north as Val Verde County on the west and San Patricio County on the east; also occurs on the barrier islands of the southern Texas coast (Schmidly and Bradley 2016).

Six subspecies recognized in Texas (Schmidly et al. 2023; Bradley et al. 2023): G. p. davisi Williams and Genoways, 1981 in Rio Grande Valley in western Webb and Zapata counties (type locality 2.8 miles west of Zapata, Zapata County); G. p. fallax Merriam, 1895 from Nueces Bay northward to Karnes County (type locality south side of Nueces Bay, Nueces County); G. p. fuscus Davis, 1940 from Kinney and Val Verde counties (type locality Fort Clark [Brackettville], Kinney County); G. p. maritimus Davis, 1940 in Kleberg and Nueces counties (type locality Flour Bluff, 11 miles southeast of Corpus Christi, Nueces County); G. p. megapotamus Davis, 1940 from La Salle County southeastward to south side of Baffin Bay and to Rio Grande (type locality 4 miles southeast of Oilton, Webb County); and G. p. personatus True, 1889 from Mustang and Padre islands (type locality Padre Island, Cameron County).

Conservation status of the species is least concern with no federal or state listing. However, three of the subspecies (*G. p. davisi*, *G. p. maritimus*, and *G. p. personatus*) are listed by TPWD as taxa of greatest conservation concern and bear watching because of their limited geographic distribution or because they occur in a growing metropolitan area, such as Padre Island, where development threatens natural habitat.

Geomys streckeri Davis 1940 (Strecker's Pocket Gopher).—Restricted to the vicinity of Carrizo Springs and Crystal City in South Texas (Schmidly and Bradley 2016). Originally described as a subspecies of *G. personatus*, *streckeri* was elevated to species status by Jolley et al. (2000). *Geomys streckeri* is monotypic; described from Carrizo Springs, Dimmit County, Texas (Schmidly et al. 2023). The IUCN still classifies G. *streckeri* as a subspecies of G. *personatus*; its conservation status is listed as least concern with no federal listing; considered by TPWD to be a species of greatest conservation need; should be monitored regularly because of its rarity and limited geographic range.

Geomys texensis Merriam, 1895 (Llano Pocket Gopher).-Occurs as two disjunct populations: one from Coleman, McCulloch, San Saba, Lampasas, Gillespie, Llano, Blanco, Kimble, and Mason counties on the Edwards Plateau, and the other restricted to Medina, Uvalde, and Zavala counties in South Texas (Bradley et al. 2023). The two populations are regarded as different subspecies: G. t. bakeri Smolen et al., 1993 in southern Texas (type locality 1 mile east of D'Hanis, Medina County), and G. t. texensis Merriam, 1895 on the Edwards Plateau (type locality Mason, Mason County) (Bradley et al. 2023; Schmidly et al. 2023). Some taxonomists recognize a third subspecies, G. t. Ilanensis Bailey, 1905 (type locality Llano, Llano County) (Block and Zimmerman 1991). Conservation status is least concern with no federal or state listing. Populations of G. t. bakeri, which occur in the patchily distributed soils of the Frio River drainage, should be periodically monitored (Schmidly and Bradley 2016).

Thomomys baileyi Merriam, 1901 (Bailey's Pocket Gopher).—Known from western and central parts of state; recorded from much of the Trans-Pecos region, eastward across the Edwards Plateau to Mason County (Schmidly and Bradley 2016).

Recent molecular genetics analyses have revealed that populations of this taxon from Texas, formerly classified as *T. bottae*, represent a separate species for which the name *T. baileyi* Merriam 1901 is now applied (Álvarez-Castañeda 2010; Bradley et al. 2023). Unfortunately, the ASM Mammal Diversity Database (2024) has not recognized this new name combination, citing the need for a "pending revision of the species across the entirety of its distribution." Historically, 10 subspecies were described from Texas (Hall 1981), but a recent morphological study reduced that number to seven (Beauchamp-Martin et al. 2019): *T. b. baileyi* Merriam, 1901 from Sierra Blanca in Hudspeth County (type locality Sierra Blanca, Hudspeth County); *T. b. confinalis* Goldman, 1938, from the eastern half of the Edwards Plateau west to the Devils River (type locality 35 miles east of Rock Springs [in Kerr County]; T. b. lachuguilla Bailey, 1902 from El Paso County to the Big Bend in Brewster County (type locality 1 mile northeast of El Paso, El Paso County); T. b. limpiae Blair, 1939 from the lower Limpia Canyon in Jeff Davis County (type locality Limpia Canyon, 1 mile north of Fort Davis, Jeff Davis County); T. b. robertbakeri Beauchamp-Martin et al., 2019 from the Stockton Plateau in Terrell County into western Edwards Plateau bordered on the east by Devils River (type locality 2.5 miles east of McCamey, Upton County); T. b. spatiosus Goldman, 1938 from Alpine, Brewster County (type locality Alpine, Brewster County); and T. b. texensis Bailey, 1902 from the northern Front Range of Hudspeth and Culberson counties southward to the Davis Mountains in Jeff Davis County (type locality Limpia Creek, Davis Mountains, 18 miles west-northwest Fort Davis, Jeff Davis County). However, the molecular data do not support this interpretation and the recognition of subspecies of T. bailevi remains unresolved (Bradley et al. 2023).

Conservation status of the species is least concern with no federal or state listing. However, over the last half century, Cratogeomys castanops has replaced Thomomys baileyi at many places in the Trans-Pecos (Reichman and Baker 1972), and based on our experiences, this competitive dominance appears to be spreading, which could present a conservation threat for T. bailevi in the future. Texas Parks and Wildlife Department lists three subspecies of T. bailevi (T. b. guadalupensis, T. b. limpiae, and T. b. texensis) as taxa of greatest conservation need. The former is no longer recognized as a valid subspecies (Beauchamp-Martin et al. (2019) and the latter two occupy an extremely limited range in the Davis Mountains of Jeff Davis County. Despite numerous attempts, T. b. baileyi has not been collected in several decades and may now be extinct (Schmidly et al. 2022).

Family Heteromyidae (Pocket Mice and Kangaroo Rats)

Chaetodipus collis (Blair, 1938) (Highland Coarse-haired Pocket Mouse).—Common in suitable habitat throughout most of the Trans-Pecos, except for El Paso and Hudspeth counties in far western part

of region (Yancey et al. 2023); also occurs just east of Pecos River in Upton and Val Verde counties, thence southeastward along the Rio Grande to Webb County (Schmidly and Bradley 2016); shows a strong preference for rocky places in grassland and desert scrub vegetation; most abundant on steep, rocky slopes between 1,200 and 1,700 m elevation (Yancey et al. 2023).

In earliest editions of checklist (Strecker 1926; Taylor and Davis 1947), this taxon was classified as *Perognathus nelsoni*. Subsequently, pocket mice of the genus *Perognathus* were reassigned to the genus *Chaetodipus*, and *P. nelsoni* formally was replaced in later checklists by *C. nelsoni* (Jones et al. 1988a; Jones and Jones 1992; Manning et al. 2008). A morphological, chromosomal, and molecular study by Neiswenter et al. (2019) split *C. nelsoni* into three species, with populations from Texas classified as *C. collis* (Neiswenter et al. 2019). The subspecies is *C. c. collis* (Blair, 1938); type locality is Limpia Canyon, about 1 mile northwest of Fort Davis, Jeff Davis County (Yancey et al. 2023; Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. This species is common in suitable habitat throughout most of the Trans-Pecos and does not have any serious conservation threats (Yancey et al. 2023).

Chaetodipus eremicus (Mearns, 1898) (Chihuahuan Desert Pocket Mouse).-Occurs in Trans-Pecos region eastward across the Pecos River into Loving, Winkler, Ward, Crain, Crockett, and Val Verde counties (Schmidly and Bradley 2016). Chaetodipus eremicus is monotypic. Several previous checklists classified this pocket mouse as C. penicillatus eremicus (Jones et al. 1988a; Jones and Jones 1992), but in a genetic and morphological study of this species, Lee et al. (1996) determined that C. penicillatus represented two species: C. penicillatus, a Sonoran Desert form, and C. eremicus, a Chihuahuan Desert form. Thus, Texas specimens of this species are now classified as C. eremicus (Schmidly et al. 2022); its type locality is Fort Hancock, Hudspeth County (Schmidly et al. 2023). The conservation status is least concern with no federal or state listing.

Chaetodipus hispidus Baird, 1858 (Hispid Pocket Mouse).—Occurs throughout the state except for the

extreme southeastern part (Schmidly and Bradley 2016); recent record reported from Irion County on the edge of the Edwards Plateau (Brashear et al. 2011). There are three subspecies in Texas: C. h. hispidus (Baird, 1858) in the eastern two-thirds of the state; C. h. paradoxus (Merriam, 1889) in the western onethird of the state; and C. h. spilotis (Merriam, 1889) in a limited area of north-central Texas along the Red River (type locality at Gainesville, Cooke County). Their distributions, compared to Bailey's (1905) original arrangement, have been changed by modern taxonomists, and the systematics of this species need to be reviewed (Schmidly et al. 2022). Conservation status is least concern with no federal or state listing. This is another species that could be impacted by the continued degradation of grassland habitats in Texas (Schmidly et al. 2022), and it should be periodically assessed to determine population levels.

Chaetodipus intermedius Merriam, 1889 (Rock Pocket Mouse).—Occurs in western part of Trans-Pecos; recorded from all counties except Pecos, Terrell, and Val Verde; eastern limits of its range roughly follow the western boundary of the range of *C. collis* (Yancey et al. 2023). All three species of *Chaetodipus* (*C. eremicus*, *C. collis*, and *C. intermedius*) in western Texas have been recorded at Big Bend Ranch State Park in southern Presidio County (Yancey 1997). Subspecies in Texas is *C. i. intermedius* (Merriam, 1889); not described from Texas specimens. Conservation status is least concern with no federal or state listing.

Dipodomys compactus True, 1889 (Gulf Coast Kangaroo Rat).—Occurs on South Texas mainland, from Bexar and Gonzales counties south to the Lower Rio Grande Valley, and on Mustang and Padre barrier islands (Schmidly and Bradley 2016).

Davis (1942) arranged *compactus* and *sennetti* as subspecies of the wide-ranging kangaroo rat *Dipodomys ordii*, and their status remained that way until Schmidly and Hendricks (1976) and Baumgardner and Schmidly (1981) identified trenchant genetic and morphological distinctions that separated them from *ordii* and found localities where they co-occurred without hybridizing. Two recognized subspecies in Texas: *D. c. compactus* True, 1889 on the barrier islands (type locality Padre Island, Cameron County) and *D. c. sennetti* (J. A. Allen, 1891) on the mainland (type locality Santa Rosa, 85 miles southwest of Corpus Christi, Cameron County) (Schmidly et al. 2023).

Conservation status of the species is least concern with no federal or state listing. However, TPWD considers the subspecies *D. c. compactus* as a taxon of greatest conservation need because continued growth and development on Mustang and Padre islands could present a long-term conservation threat, and the taxon should be regularly monitored.

Dipodomys elator Merriam, 1894 (Texas Kangaroo Rat).—Presently known from five counties in north-central Texas (Childress, Cottle, Hardeman, Wichita, and Wilbarger); historical records available from six other counties (Motley, Foard, Baylor, Archer, Clay, and Montague) (Stuhler et al. 2023).

This species is monotypic; described from specimens taken at its type locality of Henrietta, Clay County (Bailey1905). A low but significant genetic differentiation has been noted between western and eastern subpopulations of D. *elator* (Halsey et al. 2022).

Conservation status listed as vulnerable by IUCN; under consideration for listing by USFWS and TPWD because of its supposed rarity, restricted geographic range, and habitat loss for agricultural purposes. Stuhler et al. (2023) surveyed the historical and current range of this species in north-central Texas and found that it was the eighth most abundant of the 14 species captured, suggesting it might not be as rare as previously suspected.

Dipodomys merriami Mearns, 1890 (Merriam's Kangaroo Rat).—Known primarily from the Trans-Pecos region northeastward to Gaines and Midland counties in the southwestern sector of the Llano Estacado, to the extreme western portion of the Edwards Plateau, and to Dimmit County in southern Texas (Schmidly and Bradley 2016; Schmidly et al. 2022).

Subspecies in Texas is *D. m. ambiguus* Merriam, 1890; type locality is El Paso, El Paso County (Schmidly et al. 2023). Strecker (1926) followed Bailey's (1905) interpretation that two subspecies occurred in Texas, *D. m. ambiguus* along the Rio Grande from El Paso to Boquillas in the Big Bend country and *D*. *m. merriami* over the remainder of the species' range. However, a later comprehensive review of the species (Lidicker 1960) revealed only a single subspecies in the state, *D. m. ambiguus*, and that classification has been followed in all subsequent checklists (Schmidly et al. 2022). Conservation status is least concern with no federal or state listing.

Dipodomys ordii Woodhouse, 1853 (Ord's Kangaroo Rat).—Widely distribution in semi-arid areas of the western, southwestern, and southern parts of the state (Schmidly and Bradley 2016); partial to friable soils, especially sand, and substrate seems more critical in determining its presence than does vegetation (Yancey et al. 2023).

Subspecies in Texas are: *D. o. medius* Setzer, 1949 from the central Llano Estacado southward east of the Pecos River to Crane, Crockett, and Upton counties, and east to Jones County; *D. o. obscurus* (J. A. Allen, 1903) in the western, central, and southern parts of the Rio Grande Plains and in the southern Big Bend area; *D. o. ordii* Woodhouse, 1853 in most of the Trans-Pecos region (type locality El Paso, El Paso County); and *D. o. richardsoni* (J. A. Allen, 1891) from the Panhandle and adjacent areas southward at least to Floyd County and east to Montague County (Baumgardner and Schmidly 1981). Conservation status is least concern with no federal or state listing.

Dipodomys spectabilis Merriam, 1890 (Bannertailed Kangaroo Rat).—Known from western and central Trans-Pecos region, east of Pecos River to as far as Reagan County, and to the north in Lubbock County on the Llano Estacado (Schmidly and Bradley 2016). Subspecies in Texas is *D. s. baileyi* Goldman, 1923; not described from Texas. Conservation status regarded as near threatened by IUCN; not listed by the USFWS or TPWD. Remains common throughout its range in Texas, but there are concerns that further degradation or loss of grassland habitat could severely reduce populations in the future (Schmidly et al. 2022).

Heteromys irroratus (Gray, 1868) (Mexican Spiny Pocket Mouse).—A Mexican species that reaches the United States in extreme South Texas; recorded from seven counties (Cameron, Hidalgo, Jim Hogg, Kenedy, Starr, Willacy, and Zapata) in Lower Rio Grande Valley, with northernmost localities from Kenedy, Jim Hogg, and Zapata counties. Abundant in dense brush/thorny legume communities lining oxbows (resacas) and in scattered remnants of the subtropical palm forests along the Rio Grande near Brownsville (Karges and Parker 1984).

Previous versions of the checklist (Jones et al. 1988a; Jones and Jones 1992; Manning et al. 2008) included the Mexican Spiny Pocket Mouse in the genus *Liomys*. However, based on recent molecular genetic studies that used mitochondrial and nuclear genes to determine the classification of this species (Hafner et al. 2007; Bateman et al. 2023), we follow the ASM Database in placing it in the genus *Heteromys*. Subspecies in Texas is *H. i. texensis* (Merriam, 1902); type locality from Brownsville, Cameron County (Schmidly et al. 2023).

Conservation status is least concern with no federal or state listing. Rapid development and land conversion in the Lower Rio Grande Valley, which is causing major habitat loss, could represent a future threat to this species.

Perognathus flavescens Merriam, 1889 (Plains Pocket Mouse).—Known from El Paso County in the far western Trans-Pecos and from the High Plains and adjacent areas in the northwestern part of the state, east to Wilbarger County, and south at least to Midland and Ward counties (Schmidly and Bradley 2016). Subspecies in Texas are *P. f. copei* Rhoads, 1894 in northwestern Texas (type locality from Mobeetie, Wheeler County) and *P. f. melanotis* Osgood, 1900 in the western Trans-Pecos (not described from Texas) (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Perognathus flavus Baird, 1855 (Silky Pocket Mouse).—Discontinuous range in far northern Panhandle and western Trans-Pecos regions; absent from intervening area where its closely related congener, *Perognathus merriami*, occurs (Schmidly et al. 2022). Tolerant of more habitat conditions than other small species of pocket mice (Schmidly and Bradley 2016).

Although *Perognathus flavus* and *P. merriami* are remarkably similar morphologically, they are

genetically distinct and do not appear to interbreed in areas of sympatry (Coyner et al. 2010). A recent biogeographic analysis by Neiswenter and Riddle (2010) has shown their separation corresponded with pre-Pleistocene geological and climatic events, particularly the late-Miocene expansion of interior grasslands and Miocene-Pliocene evolution of Basin and Range geomorphology. There is a need for continued systematic and biogeographic work on these two species in Texas and surrounding areas (Manning et al. 2008). Subspecies of *P. flavus* in Texas is *P. f. flavus* Baird, 1855; described from El Paso, El Paso County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Perognathus merriami J. A. Allen, 1892 (Merriam's Pocket Mouse).—Known from western twothirds of the state, but absent from extreme northern Panhandle and some portions of Trans-Pecos where *P. flavus* occurs (Schmidly and Bradley 2016).

As mentioned in the previous account, the systematic and distributional relationships of this taxon and P. flavus are not fully resolved (Schmidly et al. 2022). Both species occur in the Trans-Pecos, with P. flavus occupying the western, central, and northern parts of that region and P. merriami occupying the central, southern, and eastern regions. Their ranges overlap in northern Brewster and Jeff Davis counties westward to El Paso County (Yancey et al. 2023). Subspecies of P. merriami in Texas are P. m. gilvus Osgood, 1900 in the western part of the Panhandle, Trans-Pecos, and western Edwards Plateau and P. m. merriami J. A. Allen, 1892 in the eastern part of the Panhandle, eastern Edwards Plateau, and South Texas (type locality Brownsville, Cameron County). Conservation status is least concern with no federal or state listing.

Family Sciuridae (Squirrels and Allies)

Ammospermophilus interpres (Merriam, 1890) (Texas Antelope Squirrel).—Occurs throughout Trans-Pecos region, extending eastward to western portions of Edwards Plateau in Crane, Crockett, Reagan, Upton, Kinney, and Val Verde counties (Schmidly and Bradley 2016; Yancey et al. 2023); easternmost record from Kinney County (Schwertner et al. 2011) and northernmost from Gaines County (Schmidly 2004). There are iNaturalist images of these squirrels from areas adjacent to both the Rio Grande and Pecos rivers in places where they previously were thought to be absent (Schmidly 1977). These images serve as unvouchered photographic records for this species. *Ammospermophilus interpres* is monotypic; type locality is El Paso, El Paso County (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Cynomys ludovicianus (Ord, 1815) (Black-tailed Prairie Dog).—At one time occurred in immense numbers (hundreds of millions) in western half of state north of Rio Grande Plains; easternmost records from Montague and Tarrant counties in northeast and Bexar County in south; now absent from much of former range and greatly reduced in numbers (Schmidly and Bradley 2016; Schmidly et al. 2022). iNaturalist images that have been posted from Johnson (March 2024) and Williamson (January 2023) counties serve as unvouchered photographic records and indicate that the species is still present along the eastern edge of its range.

Hollister (1916), in his revision of the genus, recognized two subspecies in Texas, C. l. arizonensis Mearns, 1890 in the Trans-Pecos and C. l. ludovicianus (Ord, 1815) elsewhere, but he admitted that the subspecies were weakly defined. Previous versions of this checklist (Strecker 1926; Jones et al. 1988a; Jones and Jones 1992; Manning et al. 2008) and most modern accounts (Schmidly 2004; Schmidly and Bradley 2016; Schmidly et al. 2022) continue to recognize the two subspecies. However, in doing so, it appears the work of Pizzimenti (1975), who conducted a thorough taxonomic review of the Black-tailed Prairie Dog and concluded that C. ludovicianus was monotypic, was overlooked. After examination of Pizzimenti's work, we no longer recognize two subspecies of Black-tailed Prairie Dogs in Texas and referring all Texas specimens to C. l. ludovicianus.

Conservation status is listed as least concern with no federal listing; considered by TPWD to be a species of greatest conservation need. Populations of prairie dogs in Texas declined precipitously in the 20th century. It is estimated that 98% of the original population in the state has been lost and that only 300,000 prairie dogs remain (Schmidly et al. 2022). In 1998, the National Wildlife Federation petitioned the USFWS to list the species as threatened or endangered, but the agency refused the request on the grounds that it had to address higher priority species. The species temporarily appeared on the list of candidates for threatened status but it was removed from that list in 2004. In 2008, several conservation groups again petitioned the USFWS to consider the species for protected status; after a 12-month review, the agency concluded that listing the species as threatened or endangered under the Endangered Species Act was not warranted (Federal Register 2009).

Glaucomys volans (Linnaeus, 1758) (Southern Flying Squirrel).-Known from wooded areas in the eastern one-third of the state as far south as Brazoria County on the coast and Bastrop County in the Lost Pines area, and as far west as Montague, Wise, and Parker counties in northern Texas (Schmidly and Bradley 2016). iNaturalist records from the western edge of its range in Williamson (March 2020, January and March 2021) and Jackson (May 2020) counties serve as unvouchered photographic records for this species. Subspecies in Texas is G. v. texensis Howell, 1915; type locality 7 miles northeast of Sour Lake, Hardin County, in the Big Thicket region (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing. However, forestry and timber harvesting practices that eliminate old-growth habitats would be harmful to its long-term status (Schmidly and Bradley 2016).

Ictidomys parvidens (Mearns, 1896) (Rio Grande Ground Squirrel).—Occurs throughout the desert grasslands of southern and western Texas (west to Culberson, Jeff Davis, and Presidio counties in the Trans-Pecos), north almost to the Red River just east of the Panhandle, and east to Erath and Travis counties (Schmidly and Bradley 2016).

The previous checklist (Manning et al. 2008) classified this species as a subspecies of *Spermophilus mexicanus*, but a 2009 taxonomic revision placed *parvidens* into the genus *Ictidomys* as a monotypic species (Helgen et al. 2009). Stangl et al. (2012) and Thompson et al. (2013, 2015) provided evidence of hybridization between *I. parvidens* and *I. tridecemlineatus* where their ranges abut from Hobbs in eastern

New Mexico to near Wichita Falls in Texas. *Ictidomys parvidens* was described from specimens collected at Fort Clark in Kinney County in 1893 (Schmidly et al. 2023). Conservation status is least concern with no federal or state listing.

Ictidomys tridecemlineatus (Mitchell, 1821) (Thirteen-lined Ground Squirrel).—Known from northwestern part of Texas, east to Lamar County, and in a corridor in east-central Texas extending from Tarrant and Dallas counties south to Atascosa, Bee, and Calhoun counties along the Gulf Coast (Schmidly and Bradley 2016).

This species previously was recognized as *Spermophilus tridecemlineatus*, until Helgen et al. (2009) placed it in the genus *Ictidomys*. As discussed above, it hybridizes with *I. parvidens* (Thompson et al. 2013, 2015). Subspecies in Texas are *I. t. arenicola* (Howell, 1928) in the Panhandle and adjacent areas to the south, and *I. t. texensis* (Merriam, 1898) elsewhere within its distribution in the state (type locality Gainesville, Cooke County) (Schmidly et al. 2023). The latter subspecies has become rare in the prairies extending through the middle part of the state as those areas have become encroached by brush and chaparral (Schmidly et al. 2022).

Conservation status is least concern with no federal or state listing. As mentioned above, populations of *I. t. texensis* in the central part of the state have not been observed or captured in several years. Pitts (2022) reported three specimens from Jackson County in the Gulf Coast Prairie and Marshes ecoregion that were collected in 1966, and iNaturalist contains an image that serves as an unvouchered photographic record of this ground squirrel in Colorado County in 2012, which as far as we know is the most recent record in this ecoregion. This subspecies should be monitored in the future (Schmidly et al. 2022).

Neotamias canipes (V. Bailey, 1902) (Grayfooted Chipmunk).—Known only in the Guadalupe Mountains and Sierra Diablos of Culberson County from Trans-Pecos region, but the latter population is apparently extirpated today (Schmidly et al. 2022; Yancey et al. 2023). Schmidly (1977) classified this chipmunk as *Eutamias canipes*, but it was subsequently placed into the genus *Tamias* (Nadler et al. 1977; Levenson et al. 1985) and then moved into the genus *Neotamias* (Patterson and Norris 2016). Subspecies in Texas is *N. c. canipes* (Bailey, 1902); described by Bailey from Dog Canyon, Guadalupe Mountains, Culberson County, in 1902 (Schmidly et al. 2023).

Conservation status is least concern with no federal listing; considered by TPWD to be a species of greatest conservation need. Its status within Guadalupe Mountains National Park is stable and its habitat is protected, but it could be vulnerable to a catastrophic event such as a massive fire within the national park (Schmidly et al. 2022).

Otospermophilus variegatus (Erxleben, 1777) (Rock Squirrel).—Common throughout Trans-Pecos region (Yancey et al. 2023) and Edwards Plateau and a few adjacent counties (Schmidly and Bradley 2016). Recent iNaturalist records from Bastrop (August 2020 and May 2021) and Wilson (September 2023) counties extend the range slightly east and south of the Edwards Plateau. These images serve as unvouchered photographic records for this species.

The Rock Squirrel prefers rough, rocky areas such as cliffs, canyon walls, talus slopes, and boulder piles where they seek refuge and make dens (Yancey et al. 2023).

The previous checklist (Manning et al. 2008) classified this species as *Spermophilus variegatus*, but a recent taxonomic revision moved it into the genus *Otospermophilus* (Helgen et al. 2009). There is apparent confusion about the status of the subspecies in Texas. Historically, Texas specimens were assigned to three subspecies: *O. v. buckleyi* (type locality from Packsaddle Mountain, Llano County, and distributed in the central and eastern sections of the Edwards Plateau); *O. v. couchii* (type locality from near Monterrey, Nuevo Leon, Mexico, and distributed across Coahuila and Nuevo Leon northward into the Chisos Mountains of the Big Bend); and *O. v. grammurus* (type locality from Las Animas County, Colorado, and distributed across the remainder of the Trans-Pecos (Strecker 1926; Howell 1938; Hall 1981; Oaks et al. 1987). However, for unexplained reasons, recent checklists and publications have either recognized two subspecies in the state, O. v. bucklevi (Slack, 1861) in the south-central part of the state and O. v. grammurus (Say, 1823) to the west (Jones et al. 1988a; Jones and Jones 1992; Manning et al. 2008), or erroneously used the name O. v. variegatus (Erxleben, 1777), a Mexican subspecies, in reference to Texas specimens (Schmidly and Bradley 2016; Schmidly et al. 2022). Inexplicably, the subspecies couchii was dropped with reference to Texas specimens beginning in about 1988. In lieu of these factors, we have followed Yancey et al. (2023) in restoring the subspecies name couchii for rock squirrels from the Big Bend region of southern Brewster County (Yancey et al. 2023). Clearly, there is real need for a taxonomic review of this species in Texas. Conservation status is least concern with no federal or state listing.

Sciurus carolinensis Gmelin, 1788 (Eastern Gray Squirrel).-Native distribution includes riparian and wooded areas in eastern one-third of the state, as far west as Cooke County in the north and as far south as McClennan, Hays, and Bexar counties in the south (Schmidly and Bradley 2016); a recent record from Fort Bend County represents a new record from the Gulf Prairies and Marshes region (Brashear et al. 2011). iNaturalist records from Bell (December 2021), Williamson (July 2022), Travis (February 2022), and Medina (April 2022) counties represent marginal records from the western edge of the species' range where it abuts the Edwards Plateau, and additional records from Parker (April 2024), Tarrant (May 2023), Dallas (April 2020 and 2023), and Somervell (November 2021) counties are the first reports of these squirrels in north-central Texas; these reports serve as unvouchered photographic records for this species.

Gray squirrels also have been introduced at locations to the west of their native range. A thriving population was established in the city of Lubbock in the 1970s, more than 600 km (373 mi) from the species' normal range (Schmidly et al. 2022). Recent iNaturalist records from Lamb (March 2022), Hockley (May 2022), and Yoakum (April 2023) counties further extend the species' range on the High Plains and serve as unvouchered photographic records for this species. Subspecies in Texas is *S. c. carolinensis* Gmelin, 1788; not described from Texas specimens (Miller and Kellogg 1955). Conservation status is least concern with no federal or state listing. The most serious long-term conservation threat is the logging, flooding, and draining of lowland bottomland forest, which is their primary habitat (Schmidly et al. 2022).

Sciurus niger Linnaeus, 1758 (Eastern Fox Squirrel).-Occurs in suitable habitats throughout eastern four-fifths of Texas; distribution expanding westward by recent introductions and spread into pecan orchards (Schmidly and Bradley 2016). Interestingly, the biological survey field agents did not document the occurrence of fox squirrels in the Texas Panhandle (Bailey 1905). Mammalogists from Texas Tech University found them to be common in the deciduous riparian vegetation along the Canadian River and its tributaries (Jones et al. 1988b), suggesting these squirrels occupied this region sometime during the 20th century, dispersing along the Red River drainage system (Schmidly et al. 2022). Also, they have been introduced in several places on the Llano Estacado (Frey and Campbell 1997) as well as El Paso County in western Texas where they have inflicted damage to pecan orchards (Frey et al. 2013). iNaturalist contains images of these squirrels from Andrews (October 2023), Brewster (April 2023), and Pecos (December 2018 and March 2024) counties that serve as unvouchered photographic records for this species and indicate that this species is continuing to spread into other areas of West Texas.

Subspecies in Texas are *S. n. limitis* Baird, 1855 in most of the western part of the range in the state (type locality Devils River, Val Verde County); *S. n. ludovicianus* Curtis, 1806 in the east; and *S. n. rufiventer* E. Geoffroy St.-Hilaire, 1803, in Canadian River drainage and adjacent areas of northwestern and extreme northcentral Texas (Manning et al. 2008). Conservation status is least concern with no federal or state listing.

Xerospermophilus spilosoma (Bennet, 1833) (Spotted Ground Squirrel).—Known from approximately western half of Texas, excluding most of Edwards Plateau, southward to Rio Grande Plains (Schmidly and Bradley 2016). The previous checklist (Manning et al. 2008) included this species as *Spermophilus spilosoma*, but a recent publication (Helgen et al. 2009) placed it into the genus *Xerospermophilus*. Subspecies in Texas are: *X. s. annectens* (Merriam, 1893) in the southern part of the state (type locality "The Tanks," 12 miles from Point Isabel, Padre Island, Cameron County); *X. s. canescens* (Merriam, 1890) in the western Trans-Pecos (type locality El Paso, El Paso County); and *X. s. marginatus* (Bailey, 1890) in the remainder of the range (type locality 4 miles east of Alpine, Brewster County (Schmidly et al. 2023).

Conservation status is least concern with no federal listing. This species is common throughout its range in Texas (Schmidly et al. 2022), although for some reason, TPWD considers it a species of greatest conservation need. As far as we are aware, there are no serious conservation threats to this ground squirrel.

Section 2: Domesticated, Feral, and Introduced Terrestrial Mammals

This part of the checklist includes three categories of non-native mammals that occur in Texas, namely domesticated, feral, and introduced wild mammals. Domesticated species are animals that have been selectively bred and genetically adapted over generations to live alongside humans. Feral mammals are domestic mammals that have reverted to a "wild" or free-ranging state. They have become established as breeding populations in natural habitats in many areas of the state. Finally, there are several nonnative mammals from outside of Texas that over the centuries have been intentionally or accidentally imported and introduced into towns, small communities, and some natural habitats throughout the state. Some were imported for sport hunting and subsequently escaped, dispersed, and became established as free-living populations. In many places in the state, these mammals have become so well established in natural habitats that they have a significant impact on Texas landscapes and native wildife.

Information for the species accounts of these species have been adapted from a variety of sources. For the domesticated species, statistics published by the United States Department of Agriculture (USDA) and the Texas Agriculture Department (TDA) have been used. Feral species accounts come from the primary literature or from the most recent guidebook of Texas mammals (Schmidly and Bradley 2016) and from *Texas Natural History in the 21st Century* (Schmidly et al. 2022). Three books about introduced wild mammals, *Exotics on the Range: The Texas Example* (Mungall and Sheffield 1994), *Exotic Animal Field Guide: Nonnative Hoofed Mammals in the United States* (Mungall 2007), and *Unnatural Texas? The Invasive Species Dilemma* (Doughty and Turner 2019) have good summaries for those species that have been introduced into Texas. The last statewide census of these exotics was conducted in 1994 (Traweek 1995).

The exotic wildlife industry has become a growing and important segment of the Texas economy, contributing to the vitality of rural areas in the state. The total economic impact of the industry, combining breeding and hunting components, is \$1.3 billion annually, which generates more than 14,000 jobs, most of which are in rural Texas (Anderson et al. 2007). The total number of exotic ungulates in the state has been estimated to be somewhere between 275,000 and a million individuals belonging to at least 76 species (Middleton 2007). Most of them are game mammals from Africa and Asia raised and housed primarily for hunting in the Hill Country and South Texas. In this checklist, those species marked by an asterisk (*) are thought to be free ranging in the state.

ORDER PRIMATES—PRIMATES Family Cercopithecidae (Old World Monkeys)

Macaca fuscata (Blyth, 1825) (Japanese Macaque).—Brought to South Texas from Japan in 1972; eventually adapted to the South Texas environment and escaped into the wild. Free-living monkeys previously were sighted around Dilley in Frio County (Jones et al. 1997) and in Kerr County in the Hill Country (Schmidly and Bradley 2016). Today, these monkeys are housed in a sanctuary near Dilley. Subspecies introduced into Texas was *M. f. yuakui* Kuroda, 1941. Conservation status in native range is listed as least concern by the IUCN with no federal or state listing in the US.

A detailed account of the history of these monkeys and their status in Texas is provided in Schmidly and Bradley (2016).

ORDER CARNIVORA—CARNIVORES Family Canidae (Dogs, Foxes, and Wolves)

Canis familiaris Linnaeus, 1758 (Feral Dog).— Domestic dogs are numerous all across Texas and include feral residents, free-ranging pets, and strays. Feral dogs can mate with coyotes and produce fertile offspring, which are called "coy-dogs" (Schmidly 1983). Free-ranging feral dogs feed mainly on garbage, carrion, and small mammals, and they are known to chase and kill white-tailed deer. They can do great damage to wildlife and should be eliminated whenever possible (Schmidly and Bradley 2016). The total number of feral dogs in Texas is unknown but in Houston, Texas, alone there are more than one million stray dogs, according to the city's pet shelter.

*Vulpes vulpes (Linnaeus, 1758) (Red Fox).— Introduced for purposes of sport in eastern and central part of Texas beginning in about 1895; today, occur over most of the state except for the far western counties (El Paso, Hudspeth, and Culberson; Yancey et al. 2023) and southern regions south of the San Antonio River (Schmidly and Bradley 2016); favorite habitat seems to be mixed wooded uplands interspersed with farms and pastures. Subspecies in Texas is *V. v. fulva* (Desmarest, 1820). Conservation status is least concern with no federal or state listing in the US. This introduced fox has done remarkably well in Texas, having expanded to cover most of the state except for the far western and southern regions, although it does not seem to be abundant anywhere (Schmidly and Bradley 2016).

Family Felidae (Cats)

Felis catus Linnaeus, 1758 (Feral Cat).—Fairly common statewide. They can be great decimators of wildlife, particularly of songbirds, small rodents, and lizards. Domestic cats do irreparable damage to wildlife in areas where they are released into the wild, and this practice should be avoided to the extent possible (Schmidly and Bradley 2016). The number of Feral Cats in the US is estimated to be in the tens of mil-

lions, but the estimated number in Texas is unknown. Literature from across the globe documents the negative impact domestic and feral cats have on wildlife populations in rural areas (Loss et al. 2022). Their impact needs to be more thoroughly assessed in Texas.

ORDER ARTIODACTYLA—EVEN-TOED UNGULATES Family Bovidae

(Cattle, Sheep, Goats, and African Exotics)

*Ammotragus lervia (Pallas, 1777) (Barbary Sheep or Aoudad).-Native of North Africa; introduced into Texas Panhandle in 1957-1958; now present from eastern edge of Llano Estacado, in the rough country of Trans-Pecos, parts of Edwards Plateau, as well as Rolling Plains, Post Oak Savannah, and South Texas Plains; total population thought to exceed 30,000 (Wright et al. 2022b). Populations in Texas are descended from two subspecies, A. l. lervia (Pallas, 1777) and A. l. sahariensis (Rothschild, 1913) (Wright et al. 2022b). Conservation status (IUCN) is vulnerable in its native range, with fewer than 10,000 individuals thought to exist; no federal or state listing in the US. Through the spread of disease and direct competition, Aoudad are having a deleterious effect on bighorn sheep populations and reintroduction efforts (Wright et al. 2022b; Wright et al. 2024b; Wright et al., in press).

*Antilope cervicapra (Linnaeus, 1758) (Blackbuck).—Native to India and Pakistan; originally released in Texas in the Edwards Plateau (Kerr County) in 1932; recent estimates suggest approximately 20,000 individuals living in the wild, with few found outside controlled areas. Conservation status is near threatened in its native range with no federal or state listing in the US. The Blackbuck population in Texas could become an important source for reestablishing populations within its native range and habitat.

Bos taurus Linnaeus, 1758 (Domestic Cattle).— Introduced into Texas by early Spanish explorers. Cattle ranching has been a major Texas industry for three centuries, and cattle are found all over the state. Texas has 12.5 million cattle and calves, ranking it first in the US in total cattle numbers (USDA 2024). Cattle are not free ranging like some of the other species in this section.

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*Boselaphus tragocamelus (Pallas, 1766) (Nilgai).—Native to India and Pakistan; imported into Texas as game animals and have readily established free-ranging populations with an estimated 15,000 individuals now living in south-central and southern Texas; majority found in free-ranging populations on several large ranches in Kenedy and Willacy counties (Schmidly and Bradley 2016). The IUCN lists Nilgai as a species of least concern in its native range, and it does not appear on any federal or state list of species of concern in the US. It has occurred in Texas longer than any other exotic ungulate and appears to have minimal impact on native species.

Capra hircus Linnaeus, 1758 (Domestic Goat).— Found all over Texas; most common in the Hill Country and southwestern parts of state; USDA (2024) estimates as many as 812,000 head in Texas; not free ranging like some of the other species in this section.

Ovis aries Linnaeus, 1758 (Domestic Sheep).— Brought to Texas by first Spanish explorers and missionaries and have steadily expanded since; especially common in the Hill Country and much of the Trans-Pecos (Schmidly and Bradley 2016). The USDA (2024) estimates as many as 680,000 head of sheep in Texas; not free ranging like some other species in this section.

Several other introduced bovid species occur in Texas, although most are limited to a few exotic game ranches and seldom are found in free-ranging populations (Schmidly and Bradley 2016). Included in this group are *Eudorcus thompsoni* (Gunther, 1884) (Eastern Thompson's Gazelle), *Hippotragus niger* (Harris, 1838) (Sable Antelope), *Oryx dammah* (Cretzschmar, 1827) (Scimitar-horned Oryx), *Taurotragus oryx* (Pallas, 1766) (Common Eland), and *Tragelaphus strepsiceros* (Pallas, 1766) (Greater Kudu). In the future, some of these species could escape their high-fence environments, proliferate, and establish free-ranging populations.

Family Cervidae (Deer and Allies)

*Axis axis (Erxleban, 1777) (Axis Deer).—Native of India; introduced into Texas about 1932; occurs primarily in counties in central and southern parts of state; most abundant exotic ungulate in the state with as many as 15,000 free-living individuals. Conservation status is least concern with no federal or state listing in the US. Their effect on native fauna and flora has not been fully determined but should be monitored.

**Cervus elaphus* (Linnaeus, 1758) (Red Deer).— Native to Europe; introduced into Texas for hunting; uncommon, with most records from central mountainous regions of the Trans-Pecos (Yancey et al. 2023) or from high-fenced ranches in a few other places throughout the state; prefer open forests in montane areas with vegetative cover such as grass and shrubs. Conservation status is least concern with no federal or state listing in the US.

**Cervus nippon* Temminck, 1838 (Sika Deer).— Native of the Orient, found in Texas primarily in central and southern parts of state; introduced in at least 77 counties of central and southern Texas, with free-ranging populations located in at least 12 of these counties; total statewide population estimated to be over 5,500 individuals, about half of which are free ranging. Conservation status is least concern with no federal or state listing in the US. Their effect on native fauna and flora has not been fully determined but should be monitored.

*Dama dama (Linnaeus, 1758) (Fallow Deer).— Native of Mediterranean region of Europe and Asia Minor; mostly found on managed high-fence ranches throughout Edwards Plateau and adjacent areas of Texas; estimated total of more than 10,000 individuals, with about one-third of those outside of confinement. Conservation status is least concern with no federal or state listing in the US. Their effect on native fauna and flora has not been fully determined but should be monitored.

ORDER PERISSODACTYLA—ODD-TOED UNGULATES Family Equidae (Horses and Asses)

**Equus asinus* Linnaeus, 1758 (Burro or Feral Ass).—Fairly common in desert regions of southwestern United States; slowly becoming established in Trans-Pecos Texas. A small group of 8–10 individuals recorded at the Brewster-Presidio county line (Stangl et al. 2007); other small herds reported along the Rio Grande at Candelaria, south and east to Black Gap Wildlife Management Area, and in remote areas of Big Bend National Park. Camera traps documented a large herd (more than 50 individuals) in the southern reaches of Big Bend Ranch State Park (Yancey and Manning 2018). Texas Parks and Wildlife Department used lethal control measures against these burros because they were deemed to pose a serious threat to native wildlife in the park, but those efforts were eventually terminated because of public concerns and pressure (Heinrich 2012).

Equus caballus Linnaeus, 1758 (Feral or Wild Horse).—Brought to Texas in 1542 by early Spanish explorers; common at one time but rare today. Herds from Mexico periodically cross the Rio Grande and graze in the riparian areas of Big Bend National Park where they trample vegetation and foul the water (Schmidly and Bradley 2016). Texas is home to more than 1 million horses, which accounts for nearly 15 percent of all horses nationwide, and almost all are captives (Texas A&M AgriLife Extension 2024).

Equus caballus Linneaus, 1758 female *x Equus asinus* Linneaus, 1758 male (Mule).—Found on many farms and ranches across Texas but seldom in large enough numbers to cause damage to the landscape. The Texas Department of Agriculture estimates there are between 150,000 to 250,000 Mules in Texas in dry and rainy years, respectively, but in 1926 that number was estimated to be 1.6 million. A mule is a hybrid of a male donkey, called a jack, and a female horse, called a mare. Because mules are sterile, they are not classified as a distinct species. Some sources refer to them by the species name *Equus mulus*, but this name is invalid because the Code of Zoological Nomenclature does not allow the naming of hybrids.

Family Suidae (Pigs)

*Sus scrofa Linnaeus, 1758 (Feral Hog).—Today's free-range pig population in the US, including Texas, is made up of feral pigs, Eurasian wild boar, and hybrid populations resulting from cross-breeding of European wild boar and escaped domestic swine that established feral populations (Kinsey 2020). The total United States population was estimated at up to 6.9 million animals in 2016, with as many as 2.6 million occurring in Texas (Delgado-Acevedo et al. 2021). Feral hogs have established sizeable, free-ranging populations across almost all of Texas (Schmidly and Bradley 2016). Recent iNaturalist records from Yoakum (October 2019) and Andrews (November 2021) counties serve as unvouchered photographic records and extend their range westward to the New Mexico border.

Feral hogs constitute one of the most serious conservation threats in the state. They are responsible for significant damage to native plant and animal communities, agriculture, and livestock, and they pose a significant disease risk for humans, livestock, and native wildlife (Schmidly et al. 2022). Feral hogs are prolific breeders with a fecundity that is more than four times higher than native ungulates, which is part of the reason they are so hard to control (Taylor et al. 1998). Two recent studies of genetic structuring of populations revealed that most individuals and local populations are admixed, which suggests that multiple introductions and artificial movements of individuals have occurred (Delgado-Acevedo et al. 2021; Mangan et al. 2021). There are many studies in Texas that document the damage caused by these pigs and various methods and recommendations for controlling them (e.g., Chavarria et al. 2007; Franckowiak and Poche 2018).

The nominate subspecies that was introduced into the United States and constitutes the population in Texas is *S. s. scrofa* Linnaeus, 1758 (Wilson and Reeder 2005). Conservation status is least concern with no federal or state listing. Texas Parks and Wildlife Code and Texas Agricultural Code both list feral hogs as exotic livestock (neither game nor nongame) that belong to the landowner whose property they inhabit (Doughty and Turner 2019). Thus, they can be hunted and killed year-round, which happens on many Texas ranches where these pigs are common.

ORDER RODENTIA--RODENTS Family Echimyidae (Nutria)

**Myocastor coypus* Molina, 1782 (Nutria).—Nutria were first imported to the United States between 1899 and 1930 in an attempt to establish a fur farm

industry. When the Nutria fur market collapsed in the 1940s, thousands of animals were released into the wild; in addition, wildlife agencies initiated other introductions at places to control undesirable aquatic vegetation (USFWS 2015). A hurricane in the late 1940s aided dispersal by scattering Nutria over wide areas of coastal Louisiana and southeastern Texas (Towns et al. 2003). Nutria rapidly expanded across Texas, such that they are now common in the eastern two-thirds and southern portion of the state (Schmidly and Bradley 2016), and their range continues to expand westward as evidenced by recent reports from Val Verde and Terrell counties in the Trans-Pecos and along the Rio Grande in Big Bend National Park (Milholland et al. 2010; Yancey et al. 2023). Recent studies of their natural history in Texas have been conducted in central Texas (Hays County; Denena et al. 2003; Towns et al. 2003) and the Trans-Pecos (Brewster County; Milholland et al. 2010).

The original Nutria introduced into Louisiana and Texas came from Argentina and are referable to the subspecies *M. c. bonariensis* (Geoffroy St.-Hilaire, 1805), which is the subspecies introduced over most of North America (Schmidly 1983; Woods et al. 1992). Conservation status is least concern with no federal or state listing in the US. In many southeastern states, Nutria populations have become so large that they are causing extensive damage to marshes, and they are major contributors to the demise of coastal wetlands (Doughty and Turner 2019). The federal government spends millions of dollars annually to attempt to control them. Their spread across Texas has happened to the detriment of the native Muskrat, which occupies much of the same habitat (Schmidly and Bradley 2016).

Family Muridae (Old World Rats and Mice)

**Mus musculus* Linnaeus, 1758 (House Mouse).— Widely distributed over Texas, occurring either as a commensal—living in buildings and farm structures in close association with humans—or as feral populations established in abandoned fields, along fencerows and weedy roadsides, and in cultivated fields where they may live side by side with various species of native rodents (Schmidly and Bradley 2016; Schmidly et al. 2022). They were so numerous in cane-dominated habitats along the Rio Grande that some native mice were excluded or displaced (Yancey et al. 2023). On recently reclaimed strip-mined lands in Freestone County in east-central Texas, they were found to live side by side with five species of native rodents (Waggoner 1975; Gust and Schmidly 1986), and in Brazos County they lived in association with as many as eight species of native rodents in old field, pasture, cultivated field, and highway right-of-way habitats (Wilkins and Schmidly 1981).

According to Schmidly (1983), the subspecies in Texas was formerly listed as *M. m. brevirostris*, but that name has now been placed in synonymy and the appropriate name combination for the subspecies in the United States and Texas is *M. m. domestica* (see Wilson and Reeder 2005). Conservation status is least concern with no federal or state listing in the US.

*Rattus rattus (Linnaeus, 1758) (Black or Roof Rat).-These rats were established in the US by the beginning of the 1700s and quickly spread across the country (Silver 1927). A recent molecular genetics study has demonstrated the invasion of the Black Rat was characterized by a single rapid expansion into the US from one or two geographic sources (Lack et al. 2013). In Texas, all seven editions of the Mammals of Texas, beginning with Taylor and Davis (1947) and concluding with Schmidly and Bradley (2016), list their status as "Common over most of Texas, especially in towns." Apparently, they quickly spread inland, as Bailey (1905) documented them from the Hill Country in 1902 (Ingram, Kerr County) and Strecker (1926) documented them from Waco in McLennan County. Black Rats are far less common in western Texas than in the eastern and southern parts of the state. For example, Choate (1997) did not report them from the Llano Estacado and Jones et al. (1988b) noted their absence from the northern Panhandle region. In these areas, Brown Rats (Rattus norvegicus) predominate. They also appear to be absent from most of the Trans-Pecos except for El Paso and Brewster counties (Yancey et al. 2023).

Historically, three subspecies of the Black Rat were recognized (*R. r. rattus*, *R. r. alexandrius*, *R. r. frugivorous*), but today these name combinations are considered color morphs and they have been placed in synonymy (Wilson and Reeder 2005). The subspecies in Texas is *R. r. rattus* (Linnaeus, 1758). Conservation status is least concern with no federal or state listing in the US.

*Rattus norvegicus (Brown or Norway Rat).— Brown Rats entered the US later than Black Rats, arriving around 1730 (Guiry et al. 2024). Their spread involved at least four invasions, distinct in space and time from each other (Lack et al. 2013). Their distribution in Texas is described in all seven editions of Mammals of Texas as "Widespread in Texas, but not so common in the southern half of the state as the roof rat." Specimen records from the VertNet database confirm their widespread occurrence in coastal, southern, and northwestern parts of the state, but there are very few records from counties in the central, east-central, and northeastern parts of the state. Whether this lack of representation in museum collections is due to researchers' bias against collecting and preparing specimens of this species or a biological reality cannot be determined at the present time. The prevailing theory is that where Brown Rats occur with Black Rats, the former are more aggressive and will supplant the latter (Guiry et al. 2024). A corollary to that theory is that Brown Rats are more likely to establish feral populations (Schmidly et al. 2022). However, the latter certainly has not been the case in Galveston County. Hice and Schmidly (1999) recorded Black Rats in all habitat associations, including relatively undisturbed habitat, on both Galveston and Pelican Islands, whereas Brown Rats were limited

to grain elevators within the city limits of the city of Galveston. The same trend was documented in northcentral Texas and adjacent southwestern Oklahoma where *Rattus rattus* was broadly distributed in rural areas and *R. norvegicus* was recorded only within the city limits of Wichita Falls (Girard et al. 1990). Clearly, there is a need for more research on the distribution and interactions of Black and Brown rats in Texas.

According to Hall (1981), the subspecies in Texas is R. *n. norvegicus*. Conservation status is least concern with no federal or state listing in the US.

Family Sciuridae (Squirrels and Allies)

Marmota monax (Linnaeus, 1758) (Woodchuck).—Known in Texas from one specimen obtained four miles south of Kennedale, Tarrant County, in 1964 (Schmidly 1983); it has been suggested that this animal most likely had been brought to the county and released even though it had established a burrow system (Schmidly and Bradley 2016). Recent westward range expansions of *M. monax* have been recorded in the Great Plains of the US, with extralimital records recorded in Kansas and Oklahoma (Barnes and Hoffman 2023); naturalists should be on the lookout for this species in Texas. Conservation status is least concern with no federal or state listing.

Section 3: Marine Mammals of the Gulf of Mexico, Including Texas and Its Offshore Waters

The marine mammal fauna of the Gulf of Mexico (GOM), including the Texas coast and offshore waters, encompasses 3 orders, 9 families, 20 genera, and 30 species as recognized by modern taxonomists (Würsig et al. 2000). The Order Cetacea comprises the great majority (27 of 30) of the marine mammal species in the GOM. Of these, 21 species, representing a unique mix of subtropical and temperate species, routinely occur off the Texas coast in the northern GOM (Rosel and Mullin 2015).

The recognition of taxonomic orders, use of scientific and common names, and the taxonomic authority for scientific names herein follow the Society of Marine Mammalogy's (SMM) Committee on Taxonomy, which is the official list of marine mammal nomenclature (2024; <u>https://marinemammalscience.org</u>), with one exception. We have not followed the SMM in the ordinal classification of whales and dolphins. For most of the 20th century, they were placed in the separate order Cetacea. In 1997, the name "Cetartiodactyla" was proposed to reflect molecular data that showed a close relationship of Cetacea to Artiodactyla (Montgelard et al. 1997), and this arrangement began to spread in popularity (e.g., Asher and Helgen 2010). In 2022, the "Committee on Taxonomy" of the SMM arranged Cetacea as an infraorder of the Order Artiodactyla, with mysticete and odontocete whales, formerly suborders of Cetacea, listed as categories for baleen and toothed whales, respectively, without any official designation in the taxonomic hierarchy. Further, we are rejecting the use of Cetartiodactyla or Artiodactyla instead of Cetacea because of the long-accepted practice among systematists not to modify the names of higher groups when new subgroups are added to them (see Prothero et al. 2021 for a discussion).

With the passage of the Marine Mammal Protection Act in 1972, a proliferation of research ensued across the oceans of the world, including the GOM. This started with the establishment of volunteer marine mammal stranding networks, followed by the initiation of dedicated air and ship surveys to determine the status of marine mammals deemed to be in critical conservation status. A comprehensive volunteer marine mammal stranding network was established in Texas in 1974 (Schmidly and Shane 1978), and the Texas Marine Mammal Stranding Network continues to operate today (https://www.gulfbase.org). In the 1980s and 1990s, dedicated aerial and shipboard surveys of cetaceans commenced in the waters of the continental shelf and the deeper waters of the central Gulf (e.g., the USFWS/Fritts, GulfCet, and NOAA surveys) to systematically compile data on sightings of various species (see Jefferson and Shiro 1997 and Würsig et al. 2000 for detailed accounts of these surveys).

This increased research activity produced an exponential increase in the published literature about marine mammals in the Gulf, including accounts about individual species as well as summary articles of a more comprehensive nature. Schmidly and Melcher (1974) published the first checklist and key to the cetaceans of Texas waters, and reports about new strandings of rare species began to appear in the literature (e.g., Shane and Schmidly 1976). Historical records for the entire GOM prior to 1980 were reviewed by Schmidly (1981) in Marine Mammals of the Southeastern United States and the Gulf of Mexico and later modified and corrected by Jefferson (1995, 1996). Other contributions included those of Fritts et al. (1983), Jones (1987), Mullin et al. (1994), Jefferson and Shiro (1997), and Mullin and Hansen (1999). A significant advancement involved the publication of a guidebook in 2000, Marine Mammals of the Gulf of Mexico, by Bernd Würsig and colleagues, which provided illustrated identification keys of all the

species in the Gulf, including the whales and dolphins that have stranded on Texas beaches or been sighted in the state's offshore waters. Updates after the 2000 guidebook include Baumgartner et al. (2001), Mullin et al. (2004), Brant and Jones (2005), Maze-Foley and Mullin (2006), Schmidly and Würsig (2009), Rosel and Mullin (2015), Schmidly and Bradley (2016), and Würsig (2017). Brant and Jones (2005) issued a second checklist of marine mammals from Texas, and Piwetz et al. (2022) summarized the information about the strandings of marine mammals along the Texas coast from 1980 to 2019.

Another source of information about Texas marine mammals includes museum specimens processed and salvaged from the carcasses of stranded animals. These are especially valuable for future systematic and taxonomic studies of marine mammals. Prior to the establishment of the Texas stranding network, there were almost no museum specimens of marine mammals from the Texas coast available in systematic collections. Despite the challenges associated with processing and housing these types of specimens, the number available gradually accumulated; Jefferson and Baumgardner (1997) documented those housed in the Biodiversity Research and Teaching Collections (formerly Texas Cooperative Wildlife Collections) at Texas A&M University, and their availability is listed in the species accounts.

Marine mammals are protected domestically and internationally under the Marine Mammal Protection Act (https://en.wikipedia.org/wiki/Marine Mammal Protection Act), which was passed in 1972. Marine mammal species that are endangered or threatened are protected by the Endangered Species Act, under the jurisdiction of the United States Fish and Wildlife Service. The Texas Parks and Wildlife Department also maintains a list of endangered and threatened species, but it only deals with the status of the species from Texas (https://tpwd.texas.gov/wildlife/wildlifediversity/nongame/listed-species/). The IUCN Red List or Red Data Book also tracks the global conservation status of marine mammals. In the checklist, we have summarized the current conservation status of Texas marine mammals from each of these entities as discussed in Schmidly and Bradley (2016) or modified by newer information after that publication.

ORDER SIRENIA–MANATEES AND DUGONGS Family Trichechidae (Manatees)

Trichechus manatus Linnaeus, 1758 (West Indian Manatee).—Occurs patchily along coastal areas throughout the GOM and Caribbean Sea, the southeastern United States, and the northern and eastern waters of South America (Lefebvre et al. 2001); today, confined largely to peninsular Florida; historically found along the entire GOM Coast, from the Suwannee River in Florida to the Bay of Campeche, Mexico; once common in South Texas (Gunter 1941). Texas records consist of 53 sightings, eight carcasses, and five captures (Fertl et al. 2005); recent sightings are thought to represent strays from Mexico waters farther to the south or from Florida in the northern Gulf (Würsig et al. 2000; Fertl et al. 2005).

Subspecies in the GOM is *T. manatus manatus* Linnaeus, 1758. Vouchered museum specimens of this subspecies are available from Refugio and Galveston counties.

The IUCN lists the West Indian Manatee as vulnerable, and TPWD lists it as threatened and as a species of greatest conservation need. The USFWS downlisted it from endangered to threatened in 2017 (https://www. fws.gov/sites/default/files/documents/news-attachedfiles/west-indian-manatee-reclassification-final-rule. pdf) after decades of population increases. However, in 2022, manatees in Florida began to die at an alarming rate from starvation due to the decline in sea grass, a main staple of their diet, as well as water pollution, injury from boating accidents, and red tide events, and the West Indian Manatee is now under consideration for relisting as an endangered species (https://www. fws.gov/species-publication-action/90-day-findingstwo-petitions-reclassify-west-indian-manatee).

ORDER CARNIVORA Suborder Pinnipedia—Eared and Earless Seals Family Phocidae (Earless Seals)

Neomonachus tropicalis (Gray, 1850) (Caribbean Monk Seal).—Monk seals in the GOM have been ex-

tinct since the middle of the 20^{th} century due to hunting by inhabitants of the Caribbean region (LeBoeuf et al. 1986). Reports of sightings along the Texas coast are difficult to verify and may not be credible (Rice 1998; Würsig et al. 2000). Records from archeological sites on the Texas coast could have been traded from elsewhere (Raun 1964). Subspecies of *N. tropicalis* were not recognized.

Family Otariidae (Eared Seals)

Zalophus californicus (Lesson, 1828) (California Sea Lion).—Known from sighting of feral animals released near Texas waters. Gunter (1968) reported these sea lions about 32 miles off Cameron, Cameron Parish, Louisiana. There have been no other sightings since 1972 (Würsig 2017). Conservation status is least concern with no federal or state listing.

ORDER CETACEA—WHALES AND DOLPHINS Suborder Mysticeti—Baleen Whales Family Balaenidae (Right Whales)

Eubalaena glacialis (Muller, 1776) (North Atlantic Right Whale).-Known from the western GOM based on a single stranded individual near Freeport, Brazoria County, in 1972 (Schmidly et al. 1972). This individual was most likely an extralimital stray from the wintering grounds of this species off the southeastern United States coast (Jefferson and Shiro 1997). The Northern Right Whale is not a normal inhabitant of the Gulf of Mexico (Würsig 2017). Eubalaena glacialis is monotypic. The North Atlantic Right Whale is one of the most endangered of all large whales, with a long history of human exploitation and little sign of recovery possible (World Wildlife Fund, https://www. worldwildlife.org/species/north-atlantic-right-whale). The IUCN lists it as critically endangered, as does the USFWS. Texas Parks and Wildlife Department considers it as both endangered and a species of greatest conservation need, although it is extralimital in the western Gulf and not likely to have serious conservation threats in that region.

Family Balaenopteridae (Rorquals or Baleen Whales)

Balaenoptera acutorostrata Lacepede, 1804 (Common Minke Whale).-Most reports in GOM are from Florida Keys, although strandings recorded from eastern and northern Florida, Louisiana, and Texas (Würsig et al. 2000); first stranding on Texas coast occurred on Matagorda peninsula in March 1988 (Würsig et al. 2000; Piwetz et al. 2022). Minke Whales are thought to regularly migrate into the Gulf in small numbers in winter, or these records could represent strays from low-latitude breeding grounds elsewhere in the western North Atlantic (Jefferson and Shiro 1997). Subspecies in the GOM is B. a. acutorostrata Lacepede, 1804. A skull and skeleton of this subspecies is archived in the Biodiversity Research and Teaching Collections at Texas A&M University (Jefferson and Baumgardner 1997). Common Minke Whales are listed by the IUCN as least concern because population estimates are well above thresholds for a threatened category. They are not listed by either the USFWS or the TPWD as having conservation concerns.

Balaenoptera borealis Lesson, 1828 (Sei Whale).-Five stranding records known from the GOM, including a single animal (sex unknown) that stranded 19 miles from Freeport in Brazoria County in November 2002 (NOAA Marine Mammal Stranding Database). The NOAA database also includes a record of a live male, preliminarily identified as a Sei Whale, sighted off the coast at Galveston on 22 December 2015. Apparently, these records represent the two occurrences listed by Piwetz et al. (2022) from the Texas coast. This species is most likely of accidental occurrence in the Gulf (Jefferson and Shiro 1997). The subspecies in the GOM is B. b. borealis Lesson, 1828. The IUCN and USFWS both list the Sei Whale as endangered because the global population is estimated to have declined by about 80% over the last three generations (Schmidly and Bradley 2016). Texas Parks and Wildlife Department lists it as both endangered and a species of greatest conservation need. This whale is extralimital in the western Gulf and likely does not support a resident population.

Balaenoptera musculus (Linnaeus, 1758) (Blue Whale).—Two historical but questionable records re-

ported from Texas coast (from Sabine Pass, Louisiana, in 1924 and between Freeport and San Luis Pass in 1940) (Schmidly 1981). This whale is not thought to regularly inhabit the GOM (Jefferson and Shiro 1997). Subspecies in the GOM would be *B. m. musculus* (Linnaeus, 1758). Conservation status listed as endangered by both the IUCN and USFWS. According to the IUCN, the total global population has been depleted by at least 70%, and possibly as much as 90%, over the last three generations. Texas Parks and Wildlife Department lists it both as endangered and a species of greatest conservation need.

Balaenoptera physalus (Linnaeus, 1758) (North Atlantic Fin Whale).-Five strandings and a few rare sightings recorded in the GOM (Würsig 2017). There is a historical stranding from Gilchrist, Chambers County, in February 1951, and a recent stranding from Mustang Island, Aransas County, in February 2010 (Schmidly and Bradley 2016). Piwetz et al. (2022) list the same two strandings but without any details. Most cetologists believe these are accidental occurrences of stray animals that wandered into the Gulf from outside the region (Würsig 2017). The subspecies in the GOM would be B. p. physalus (Linnaeus, 1758). The IUCN, USFWS, and TPWD all list this whale as endangered, noting that its global population has declined by more than 70% over the last three generations (Schmidly and Bradley 2016).

Balaenoptera ricei Rosel et al., 2021 (Rice's Whale).-Occurs only in GOM; recently elevated to a separate species on basis of morphological and molecular genetic characters (Rosel et al. 2021). Although this whale has yet to strand on the Texas coast (Piwetz et al. 2022), there is a stranding record from Cameron Parish, Louisiana, 50 miles east of Port Arthur, Texas (Shane and Schmidly 1976), and a confirmed sighting off the Texas coast in 225 m water depth (Rosel et al. 2021). Balaenoptera ricei is monotypic. Previous publications about Texas cetaceans classified this whale as B. brydei Olsen, 1913 (Brant and Jones 2005; Schmidly and Bradley 2016) or B. edeni Anderson, 1879 (Würsig et al. 2000). Rice's Whale is the most common baleen whale in the Gulf of Mexico, although there are thought to be fewer than 50 individuals in the entire Gulf population (Würsig 2017). It was granted protection under the Endangered Species Act in 2019 (Federal Register 2022), and both the IUCN and TPWD list it as endangered. This is undoubtedly the most threatened marine mammal in the GOM, and it should be continuously monitored (Würsig 2017).

Megaptera novaeangliae (Borowski, 1781) (Humpback Whale).--Known from Texas coast based on a sighting of an immature individual off Galveston near the Houston Ship Channel on 19 February 1992 (Weller et al. 1996); no other reported sighting or strandings along the Texas coast (Piwetz et al. 2022). Humpback whales in the North Atlantic migrate to wintering areas in the Caribbean and occasionally stray into the Gulf of Mexico during the breeding season or on their return migration northward (Würsig et al. 2000). Subspecies in the GOM is M. n. novaeangliae (Borowski, 1781). The USFWS lists the Humpback Whale as threatened, but the IUCN regards it as least concern and increasing. Texas Parks and Wildlife Department considers it be both endangered and a species of greatest conservation need. This whale is extralimital in the western Gulf and likely does not support a resident population (Würsig 2017).

Suborder Odontoceti—Toothed Whales Family Delphinidae

(Toothed Whales and Dolphins)

Delphinus delphis Linnaeus, 1758 (Common Dolphin).-First reported from western GOM on basis of a vouchered specimen (TCWC 50849) from Galveston Island (Schmidly 1981) and by sighting reports (Fritts et al. 1983) on the continental slope off the Texas coast. However, re-examination of the specimen revealed its true identification was Stenella clymene (Jefferson and Shiro 1997), and there currently are no valid specimen records or confirmed observations indicating dolphins of the genus Delphinus occur in the GOM (Jefferson and Shiro 1997; Jefferson et al. 2009). The IUCN lists the conservation status of the Common Dolphin as least concern; USFWS does not consider it to be threatened or endangered, but like all marine mammals, it is protected by the Marine Mammal Protection Act (MMPA) throughout its range.

Feresa attenuata Gray, 1874 (Pygmy Killer Whale).—A stranded individual found near Brazos Santiago Pass, South Padre Island, Cameron County,

Texas, on 21 January 1969, was the first record for the GOM and the western North Atlantic (Schmidly and Melcher 1974). The NOAA Marine Mammal Stranding Database for 2002–2022 recorded more recent standings from Kleberg County (January 2004) and Brazoria County (October 2008). Piwetz et al. (2022) reported a total of eight strandings on the Texas coast since 1980. Würsig (2017) reported "medium common sightings" of this small whale from the oceanic waters of the GOM. *Feresa attenuata* is monotypic. Museum voucher specimens are available from Matagorda County (March 1989) and Aransas Pass, Nueces County (November 1983). Conservation status is least concern with no federal listing; considered by TPWD to be threatened and a species of greatest conservation need.

Globicephala macrorhynchus Gray, 1846 (Shortfinned Pilot Whale).-Occurs in deep waters of GOM but more common over the continental slope (Würsig 2017); historical stranding reports common from 1936 to 1945 (Schmidly 1981); recent stranding from Cameron County on 30 June 2021 (Piwetz et al. 2022). A preponderance of records in the older, historical record, compared to the number of current reports, suggests that the abundance or distribution patterns of this whale may have changed over the past few decades (Jefferson and Shiro 1997). Pilot Whales are known to mass strand, and 15 such instances have been recorded from the GOM, but none of those occurred along the Texas coast (Würsig 2017). Globicephala macrorhynchus is monotypic. A vouchered specimen is available from St. Joseph Island, Aransas County (obtained 5 September 1945). Conservation status is least concern with no federal listing; regarded by TPWD as threatened.

Grampus griseus (G. Cuvier, 1812) (Risso's Dolphin).—Commonly sighted in Gulf oceanic waters (Würsig 2017); first reported from western Gulf by a sighting off the Texas coast in November 1980 along with a single stranded individual (Würsig et al. 2000). Other strandings recorded in the NOAA Marine Mammal Stranding Database are from Nueces County (October 2004), Cameron County (May 2005), and Galveston County (April 2009). Piwetz et al. (2022) listed a total of seven strandings on the Texas coast since 1980, and although Risso's Dolphin previously was considered to be rare (Jefferson and Shiro 1997), now there are numerous stranding records and pelagic

sightings from the western and northern Gulf (Jefferson and Shiro 1997; Würsig et al. 2000; Würsig 2017). *Grampus griseus* is monotypic. Vouchered museum specimens are available from San Jose Island, Aransas County (a male obtained on 12 February 1988) and from 7.3 miles east of the mouth of the Colorado River, Matagorda County (a female obtained on 17 December 1988). Conservation status is least concern with no federal listing; protected by the MMPA throughout its range. Texas Parks and Wildlife Department lists it as threatened.

Lagenodelphis hosei Fraser, 1956 (Fraser's Dolphin).—Occasionally sighted in the northern GOM with at least three strandings reported along the Texas coast (Würsig et al. 2000), although Piwetz et al. (2022) only list one. The first sightings of this dolphin in the GOM were made in 1992, but since then there have been others associated with aerial surveys (Jefferson and Shiro 1997; Würsig 2017). Lagenodelphis hosei is monotypic. Conservation status is least concern with no federal or state listing; protected by the MMPA throughout its range.

Orcinus orca (Linnaeus, 1758) (Killer Whale).--Uncommon in the GOM (Schmidly and Würsig 2009); stranding records few and poorly documented, with only a single unverified report of a Killer Whale that washed ashore near the jetties on South Padre Island in Cameron County on 21 January 1969 (Schmidly and Melcher 1974). Piwetz et al. (2022) do not list any strandings on the Texas coast since 1980. Killer Whales have been sighted near the 200 m depth contour off South Padre Island, Texas (Würsig et al. 2000; Würsig 2017). Apparently, a small number of pods periodically use the offshore waters of the GOM as all or part of their normal range (Jefferson and Shiro 1997). Orcinus orca is monotypic. Conservation status is "data deficient" by the IUCN. The USFWS recognizes the "southern resident" population (from the coasts of Washington, Oregon, and California) as endangered, but does not list the GOM populations. Considered by TPWD as threatened and a species of greatest conservation need.

Peponocephala electra (Gray, 1846) (Melonheaded Whale).—First recorded in the GOM from a stranding on the Texas coast in June 1990 (Matagorda peninsula, Matagorda County); there was a second stranding in Cameron Parish, Louisiana, in the same month but a year later (Jefferson and Shiro 1997; Würsig et al. 2000). In the summer of 1998, a young male stranded south of Corpus Christi, Texas, and from 2002 to 2022, 16 strandings were reported in the NOAA Marine Mammal Stranding Database from nine Texas coastal counties: Brazoria (1 stranding, June 2016); Cameron (2, April 2007, February 2013); Calhoun (2, June 2010, May 2012); Chambers (1, May 2004); Galveston (1, March 2018); Kenedy (4, May 2003, December 2007, July 2010); Kleberg (2, March 2006, September 2011); Matagorda (2, August 2010, June 2014); and Nueces (1, August 2021). Piwetz et al. (2022) listed 22 strandings from the Texas coast since 1980 without details as to location, but it is almost certain that many of these are duplicated in the NOAA database. There are numerous sightings of this small whale from the deeper waters of the western Gulf well beyond the edge of the continental shelf (Würsig 2017). This species is monotypic. Conservation status is least concern with no federal or state listing. Melon-headed Whales appear to occur in relatively large numbers in the northern GOM (Würsig 2017).

Pseudorca crassidens (Owen, 1846) (False Killer Whale).--Moderate number of sightings and a few strandings have been recorded in the western GOM and along the Texas coast (Würsig 2017). The first report of an individual in Texas waters was a single individual harpooned 20-30 miles beyond Flower Garden Banks, 120 mi SSE Galveston, in 1961 (Schmidly and Melcher 1974). A complete skeleton of this specimen is archived in the Houston Museum of Natural Science. Piwetz et al. (2022) reported three strandings of False Killer Whales after 1980. This whale is thought to be moderately common in the deeper waters of the northwestern GOM (Würsig 2017) as there have been several sightings in the slope and oceanic waters over the continental shelf (Jefferson and Shiro 1997). Pseudorca crassidens is monotypic. Conservation status is listed as near threatened by the IUCN, endangered by USFWS, and threatened by TPWD. Potential threats to the species include high levels of noise, especially military sonar and seismic surveys, and fisheries bycatch (Schmidly and Bradley 2016).

Stenella attenuata (Gray, 1846) (Pantropical Spotted Dolphin).—Most common cetacean in waters

deeper than 100 m and into the open abyssal zone of the GOM (Würsig et al. 2000; Würsig 2017). The NOAA Marine Mammal Stranding Database lists records from three Texas counties: Nueces (October 2009), Kenedy (March 2010), and Cameron (September 2018). Piwetz et al. (2022) report 14 strandings on the Texas coast since 1980, but they do not give the exact locations. The previous conclusion that this species was uncommon (Schmidly 1981) was probably mostly a result of its confused taxonomic status (Jefferson and Shiro 1997). Many older records of Stenella that could not be identified to species were probably of this species. Since its redescription (Perrin et al. 1987), there have been abundant records reported (Jefferson and Shiro 1997; Würsig 2017). The subspecies in the GOM is S. a. attenuata (Gray, 1846). Museum vouchered specimens exist from three coastal counties, Galveston (July 1988), Kenedy (April 1988), and Nueces (April 1988). This dolphin is not considered a species of concern by the USFWS, TPWD, or IUCN, but it is protected by the MMPA throughout its range. Pantropical Spotted Dolphins are likely the most numerous of the genus Stenella in the world's oceans, and they are probably the most numerous marine mammal in the Gulf of Mexico (Würsig 2017).

Stenella clymene (Gray, 1850) (Clymene Dolphin).--Not fully described as a distinct species until 1981, and not a great deal is known about it (Perrin et al. 1981). It has been observed at sea only in deep waters (250-1,000 m) and does not seem rare in the GOM (Jefferson and Shiro 1997). Rarity of historical records (Schmidly 1981) is probably a result of its recently clarified taxonomic status and the tendency of observers to confuse it with other Stenella species (Perrin et al. 1981). The NOAA Marine Mammal Stranding Database lists records from Jefferson (April 2004), Galveston (November 2011, January 2017), Kleberg (October 2012), and Brazoria counties (January 2021). Piwetz et al. (2022) reported 19 strandings on the Texas coast, making this the most common species of the genus Stenella in the stranding record since 1980. Stenella clymene is monotypic. Vouchered museum specimens are available from Brazoria County (February 1986), Galveston County (September 1987), Kleberg County (March 1985, 2 specimens April and October 1984), and Nueces County (September 1971, April 1984). The Clymene Dolphin is not considered to have conservation concerns by the USFWS, TPWD, or IUCN. It has often been confused with Spinner Dolphins (*S. longirostris*), and it occurs only in the tropical Atlantic Ocean (Würsig 2017).

Stenella coeruleoalba (Meyen, 1833) (Striped Dolphin).-Another dolphin routinely sighted in the deeper ocean waters of the GOM but rarely strands on Texas beaches. The most recent standing, as recorded in the NOAA Marine Mammal Stranding Network database, is from Jefferson County (May 2021). Piwetz et al. (2022) only reported five strandings since 1980, the fewest of any of the species in the genus Stenella known from the Texas coast. Stenella coeruleoalba is monotypic. Museum voucher specimens are available from Galveston (April 1986), Jefferson (September 1986), and Nueces (April 1985) counties (Jefferson and Baumgardner 1997). Striped Dolphins are numerous, especially in the central and eastern GOM (Würsig 2017). Their conservation status is least concern with no federal or state listing, but they are fully protected by the MMPA.

Stenella frontalis (G. Cuvier, 1829) (Atlantic Spotted Dolphin).-Generally occur within the 200 m (656 ft) depth contour and the shallower waters of the oceanic zones (Würsig 2017). Schmidly et al. (1972) reported the first records from the Texas coast, but these specimens were later determined to be Stenella clymene and not S. frontalis (Perrin et al. 1981). The NOAA Marine Mammal Stranding Database includes a single record of this species that stranded in Galveston County in May 2020. Piwetz et al. (2022) reported a total of 11 strandings on the Texas coast since 1980. Gulf populations of this species previously were known as Stenella plagiodon Kellogg, 1940, the scientific name commonly used in the historical literature (see Perrin et al. 1987). Stenella frontalis is monotypic. Correctly identified and preserved museum voucher specimens are available from Galveston (April 1986), Jefferson (September 1986), and Nueces (April 1985) counties. Conservation status is least concern; not listed by the USFWS, although it remains protected by the MMPA. Because of its rarity in the stranding record, TPWD lists this dolphin as threatened and a species of greatest conservation need. Stenella frontalis and Stenella clymene are the only species of cetaceans found in the GOM that are endemic to the Atlantic Ocean (Würsig 2017).

Stenella longirostris (Gray, 1828) (Spinner Dolphin).-Almost all sightings in the GOM have been in the central and eastern Gulf (east and southeast of the Mississippi Delta), with only a few sightings in the slope waters of the western Gulf (Würsig et al. 2000; Würsig 2017). The NOAA Marine Mammal Stranding Database contains records from Galveston (5 individuals, March 2003 and December 2021), Nueces (2 individuals, April 2004 and 2010), Kleberg (October 2012), Cameron (March 2015), and Kenedy (June 2022) counties. Piwetz et al. (2022) reported 13 strandings on the Texas coast since 1980. The subspecies in the GOM is S. l. longirostris (Gray, 1828). Museum voucher specimens are available from Jefferson (May 1974), Kleberg (March 1975), and Nueces (June 1987) counties (Jefferson and Baumgardner 1997). Conservation status is least concern with no federal listing, but it remains protected throughout its range by the MMPA. Texas Parks and Wildlife Department considers it to be a species of greatest conservation need. This is the rarest of the five species of Stenella known from the Texas coast and its offshore waters, but it is difficult to identify serious threats to its population (Würsig 2017).

Steno bredanensis (Lesson, 1828) (Roughtoothed Dolphin).-Although not very common, historical stranding records have been documented throughout the year in the GOM (Jefferson and Shiro 1997), and Rough-toothed Dolphins are routinely observed in the deep waters of the GOM (Würsig et al. 2000; Würsig 2017). Strandings are not common along the Texas coast. The first beached in June 1969 on the northern shore of San Luis Pass at the western end of Galveston Island (Schmidly and Melcher 1974). Piwetz et al. (2022) reported only six strandings on the Texas coast since 1980. Stenella bredanensis is monotypic. Museum voucher specimens are available from Galveston Island and from Crystal Beach, Bolivar Peninsula, the latter collected in September 1985. Conservation status is least concern with no federal listing, although it is protected by the MMPA. For no apparent reason, other than perhaps its rarity in the stranding record, TPWD lists it as threatened and a species of greatest conservation need.

Tursiops truncatus (Montagu, 1821) (Common Bottlenose Dolphin).—Ubiquitous in nearshore areas of both northern and southern GOM and along the continental shelf to and beyond the 200 m depth contour (Würsig 2017). The overwhelming majority of the stranded marine mammals along the Texas coast are of these dolphins. Piwetz et al. (2022) reported 4,976 strandings of this species on the Texas coast, which constituted 94% of the total stranding records of all marine mammals since 1980. The current subspecific assignment is T. t. truncatus (Montagu, 1821), but the taxonomic status of subspecies remains unresolved and further research is required to determine if subspecies assignments are justified (Schmidly and Bradley 2016). Seventy-four vouchered museum specimens of this species are available from 10 counties along the Texas coast. Conservation status is least concern with no federal listing, but it remains protected by the MMPA. Perhaps because of the large number of strandings along the Texas coast, which could be suggestive of high mortality rates, TPWD considers it a species of greatest conservation need. Because they occur throughout most bays, sounds, and estuaries of the GOM, often into quite brackish water, they are potentially threatened by anthropogenic influences, such as toxins, noises, and other aspects of human coastal development (Würsig 2017).

Family Kogiidae (Pygmy and Dwarf Sperm Whales)

Kogia breviceps (Blainville, 1838) (Pygmy Sperm Whale).---Numerous sightings and strandings of this small whale are known from Texas and its offshore waters. Historically, seven strandings were recorded prior to 1975 (Schmidly and Shane 1978) and six from 1984 to 1990 (Würsig et al. 2000). More recently, the NOAA Marine Mammal Stranding Database included 27 reports from nine coastal counties: Aransas (4 separate strandings), Brazoria (2), Calhoun (2), Cameron (1) Galveston (4), Jefferson (4), Kenedy (2), Kleberg (2), and Nueces (6) (2002–2022). Piwetz et al. (2022) reported 36 total strandings of this whale since 1980. Kogia breviceps is monotypic. Vouchered museum specimens are available from Port O'Connor, Calhoun County (20 August 1974); Galveston Beach, Galveston County (1 January 1984); and Padre Island National Seashore, Kleberg County (19 October 1986). Conservation status is least concern with no listing by the USFWS, although it remains protected by the MMPA; regarded as threatened by TPWD. This species was previously considered rare in the Gulf (Schmidly 1981), but the number of recent strandings and sightings clearly indicate that it is one of the most common cetaceans in Texas waters. There are no known specific conservation threats in the GOM at the present time (Würsig 2017).

Kogia sima (Owen, 1866) (Dwarf Sperm Whale).-Theses small sperm whales strand fairly frequently in the GOM, although not as often as Pygmy Sperm Whales (Würsig et al. 2000). Pygmy and Dwarf Sperm Whales were not recognized as separate species until the 1960s (see Handley 1966). The two species have similar habitats and often cannot be identified to species during surveys (Würsig 2017). The first record of a Dwarf Sperm Whale from the Texas coast was an individual that stranded in Galveston, Galveston County, in 1957 (Raun et al. 1970). The NOAA Marine Mammal Stranding Database includes 14 strandings from seven counties along the Texas coast: Aransas (1 stranding), Brazoria (2), Calhoun (1), Galveston (6), Kleberg (1), Matagorda (1), and Nueces (2). Piwetz et al. (2022) reported a total of 22 stranding records of Dwarf Sperm Whales on the Texas coast since 1980. Kogia simus is monotypic. Museum voucher specimens are available from Matagorda Island, Calhoun County (23 February 1991) and Matagorda Peninsula, Matagorda County (3 November 1985). Conservation status is least concern; it is not included on the USFWS federal list, although it remains protected by the MMPA. Texas Parks and Wildlife Department lists it as threatened and a species of greatest conservation need but does not explain why. Kogia sima, like its congener K. breviceps, previously was thought to be rare in the Gulf, but given the increase in the number of recent strandings and sightings, that clearly is not the case (Jefferson and Shiro 1997). There are no known specific conservation threats in the GOM at the present time.

Family Physeteridae (Sperm Whale)

Physeter macrocephalus Linnaeus, 1758 (Sperm Whale).—Multiple sightings and strandings have been documented from the Texas coast and its offshore waters. During aerial and shipboard surveys from 1979 to 1981, 47 adults and 12 young Sperm Whales were

observed, and most of these were at the continental shelf edge (200 m) or over the slope, and 71% of the sightings occurred off the Texas coast (Würsig 2017). Historically, strandings were reported from 1910 (Sabine, Jefferson County), 1933 (South Padre Island), 1968 (Mansfield Channel, Padre Island National Seashore), and 1975 (north of Port Isabel) (Schmidly and Shane 1978). Strandings reported in the NOAA Marine Mammal Stranding Database for 2002–2022 are from Cameron County (July 2007), Nueces County (June 2008), Kleberg County (September 2008), Aransas County (November 2016), and south of Galveston (December 2020). Piwetz et al. (2022) reported 11 total sperm whale stranding on the Texas coast since 1980.

Sperm Whales are, by far, the most common large whale in the Gulf, and they can be found there any time of year, generally in waters deeper than about 500 m (1,640 ft) because of their habit of seeking largely deepdiving squid and fishes (Würsig 2017). It also appears likely there is a resident population in the Gulf that is different from Sperm Whales of the North Atlantic, although it is unclear how much interchange there is with surrounding bodies of water (Jefferson and Shiro 1997). Mitochondrial DNA (inherited only from the mother) shows significant differences between Gulf Sperm Whales and Sperm Whales in parts of the North Atlantic, while nuclear (bi-parentally inherited) DNA shows no difference (Würsig 2017). This suggests that females stay within the Gulf but that at least some males travel and breed in both the Gulf and North Atlantic.

For many years, Physeter catodon Linnaeus, 1758 was the scientific name applied to these whales, but modern cetologists now use P. macrocephalus. This species is monotypic. The IUCN lists the Sperm Whale as vulnerable because of commercial whaling, but both the USFWS and TPWD list it as endangered. The latest estimate of Sperm Whale numbers in the northern GOM is about 1,665 individuals. Conservation threats include detrimental effects of incursion into shipping lanes between New Orleans and Houston, industrial seismic activities, and deepwater oil/gas rigs (Würsig 2017). They were the only large whales to be hunted in the Gulf (although apparently not into the 20th century), and their population characteristics may still be influenced by this earlier depredation (Würsig 2017). There is not enough precision to estimate population trends and current productivity rates, so regular monitoring is highly advisable.

Family Ziphiidae (Beaked Whales)

Mesoplodon densirostris (Blaineville, 1817) (Blainville's Beaked Whale).-Only three confirmed records of this beaked whale are known from the GOM, plus one questionable record (Jefferson and Shiro 1997). Records from Texas include a single individual stranded on Padre Island in February 1980 and another stranded animal from Matagorda Bay (date unknown) (Würsig et al. 2000). Piwetz et al. (2022) reported one individual from the modern stranding record. Mesoplodon densirostris is monotypic. A voucher specimen from an unspecified locality on the Texas Coast is available. Because no substantial population data exist for this rare whale, it is difficult to determine its status in the GOM. It is listed by the IUCN as least concern, but previously was regarded by that organization as "data deficient." It is not listed by the USFWS but remains protected throughout its range by the MMPA. Texas Parks and Wildlife Department does not list it as a species of conservation concern. These whales are almost invariably found in deep waters and less is known about their ecology than other cetaceans in the Gulf. There is a continued need to learn more about their distribution, population size, and habitats before their conservation status can be fully clarified (Würsig 2017).

Mesoplodon europaeus (Gervais, 1855) (Gervais's Beaked Whale).—Several strandings have been reported from Texas beaches. In September 1946, an adult male stranded on the Gulf Beach of Padre Island about 72 km (45 mi) south of Port Aransas, Kleberg County (Gunter 1955). Gunter (1955) identified the specimen as *M. densirostris*, but later Moore (1960, 1966) showed this whale to be *M. europaeus* (Schmidly and Melcher 1974). Subsequently, there was a stranding about 72 km south of Port Aransas on Padre Island (Schmidly 1981). Piwetz et al. (2022) reported a total of four strandings on the Texas coast since 1980, which is the most strandings of any beaked whale in the GOM and Texas coast. *Mesoplodon europaeus* is monotypic. A vouchered museum specimen is avail-

able from South Padre Island, Cameron County (May 1989). The genus Mesoplodon is a problematic group, because the taxonomy is still in a state of flux and identification presents major challenges due to poor documentation of diagnostic characters (Moore 1966). Conservation status is least concern by IUCN but previously that organization characterized it as "data deficient" (Schmidly and Bradley 2016). It does not appear on the list of the USFWS but remains protected by the MMPA. It is listed as threatened and a species of greatest conservation need by TPWD. These whales are almost invariably in deep waters and less is known about their ecology than other cetaceans in the Gulf. There is a continued need to learn more about their distribution, population size, and habitats before their conservation status can be fully clarified.

Ziphius cavirostris G. Cuvier, 1823 (Cuvier's or Goose-beaked Whale).-This is the most cosmopolitan and common of the beaked whales (Jefferson and Shiro 1997). It is estimated from aerial surveys that about 654 of these whales occur in the northern GOM (Würsig 2017), and several strandings have been recorded along the Texas coast. The first report was of a single animal that stranded on Galveston's West Beach, Galveston County, during Hurricane Carla in September 1961 (Schmidly and Melcher 1974). The NOAA Marine Mammal Stranding Database also includes a record from Calhoun County that stranded in October 2004. Piwetz et al. (2022) reported four other strandings along the Texas coast since 1980. Ziphius cavirostris is monotypic. Museum voucher specimens are available from Port Isabel, Cameron County (June 1980), 15 kilometers west of Sabine Pass, Jefferson County (December 1984), and Padre Island National Seashore (no date). Conservation status is least concern; it is not listed by the USFWS, but it remains protected throughout its range by the MMPA. Texas Parks and Wildlife Department considers it a species of greatest conservation need. These whales are almost invariably found in deep waters and less is known about their ecology than other cetaceans in the Gulf. There is a continued need to learn more about their distribution, population size, and habitats before their conservation status can be fully clarified.

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