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**REVIEW OF THE RECENT MAMMAL
FAUNA OF CALIFORNIA**

BY

JOSEPH GRINNELL

UNIVERSITY OF CALIFORNIA PUBLICATIONS IN ZOOLOGY

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REVIEW OF THE RECENT MAMMAL FAUNA OF CALIFORNIA

BY
JOSEPH GRINNELL

(Contribution from the University of California Museum of Vertebrate Zoology)

INTRODUCTION

The first attempt that I know of to catalogue the mammals of California was made by Doctor James Graham Cooper in 1868 in an unsigned chapter (vii) of Cronise's *Natural Wealth of California* (pp. 435-448). A brief account is there given of 115 kinds, beginning with the Grizzly Bear and ending with the Killer (*Orca*). Then Walter E. Bryant, in 1891 (*Zoe*, 1:353-360), enumerated 109 species of exclusively land mammals. About that time began the great activity largely inspired by the geographic and systematic work of Doctor C. Hart Merriam. Large numbers of new mammals from California were described by various authors, including Doctor Merriam himself. In 1906, Frank Stephens included treatment of 276 kinds in his book, *California Mammals* (list on pp. 292-305).

No further attempt was made to compile a general catalogue of our mammals until the California Museum of Vertebrate Zoology had for several years been carrying on the work for which it was established. In August, 1913, appeared "A Distributional List of the Mammals of California" (Grinnell, *Proc. Calif. Acad. Sci.*, 3:265-390, pls. 15, 16); in this list 337 species and subspecies were entered in full status. In 1923, the same author published (*Univ. Calif. Publ. Zool.*, 21:313-324) a nominal list of 417 species and subspecies. The number of "full" species (discarding the third term of all trinomials) was then 225; there were represented 88 genera, 31 families, and 9 orders.

Collecting of specimens in series, and the systematic revision of genera and families of mammals affecting California, continue with no apparent signs of cessation. Indeed, the institutions and individuals actively identified with the systematic mammalogy of western North America are increasing in number and this portends further great expansions in knowledge in this field.

This highly desirable condition of affairs might argue for further delay in publishing any summation until such time as there might be apparent some token of completion in investigations along these lines. But I am not at all sure that a final stage of systematic perfection is anywhere in sight. Also there is fair justification for offering without further delay, another periodic sum-

mation of our geographic and systematic knowledge of California mammals, since stimulus will doubtless be afforded thereby for still more extensive and intensive study of the problems concerned. As experience has shown over and over again, in various regions and with various groups of animals, there is nothing like the appearance of a new catalogue of species to speed up study and publication.

The present *Review of the Recent Mammal Fauna of California* is, then, now published as a progress report; in no sense is it to be considered any more "final" than any of the similar preceding contributions. There are here listed 460 species and subspecies in full standing; 220 of these are "full species" (so determined by disregarding the third term of trinomials). There are 90 genera represented, 35 families, and 10 orders.

THE RECENT MAMMAL FAUNA OF CALIFORNIA

BY GROUPS DESIGNATED VERNACULARLY, AS KNOWN ON MAY 1, 1933

Opossum	1	Marmots	3	Rabbits	20
Moles	10	Ground Squirrels	18	Elk	2
Shrew-moles	2	Chipmunks	20	Deer	7
Shrews	23	Tree Squirrels	5	Antelope	1
Bats	34	Flying Squirrels	5	Bison	1
Bears	9	Pocket Gophers	37	Bighorn	4
Coons	3	Pocket Mice	31	Cetaceans	18
Ring-tailed Cats	3	Kangaroo Rats	34		
Martens	2	Kangaroo Mice	4	Total Species and	
Fisher	1	Beavers	3	Subspecies.....	460
Weasels	6	Grasshopper Mice	7		
Mink	2	Harvest Mice	7		
Wolverine	1	White-footed Mice	20		
River Otters	2	Cotton Rat	1		
Sea Otter	1	Wood Rats	13		
Spotted Skunks	7	Lemming Mice	4		
Striped Skunks	4	Red-backed Mice	3		
Badgers	2	Meadow Mice	24		
Foxes	13	Musk Rats	2		
Coyotes	3	House Rats and Mice.....	4		
Wolf	1	Mountain Beavers	5		
Cats	7	Jumping Mice	4		
Seals	6	Porcupine	1		
Men	4	Pikas	5		
				Total.....	460

BY ORDERS

Marsupialia	1
Insectivora	35
Chiroptera	34
Carnivora	67
Pinnipedia	6
Primates	4
Rodentia	255
Lagomorpha	25
Artiodactyla	15
Cetacea	18
Total.....	460

PLAN

The classification and general sequence followed in the present paper is that employed by Gerrit S. Miller in his *List of North American Recent Mammals, 1923* (U. S. Nat. Mus. Bull., 128, 1924: xvi + 673). Where genera or higher groups have been formally and authoritatively revised within recent years, I have adopted the conclusions of such revisers. But where genera have not lately been revised, or where material now at hand and studied has seemed

to justify differing views, my own independent judgment has been expressed. Thus a few current names will be found synonymized, and some other names not generally recognized are given full standing.

The accepted scientific name for each species or subspecies is given as a heading, in bold-face type, followed by the authority. On the next line is the vernacular name for the form, chosen in the first place on the ground of most general previous use; then fitness has been given consideration, especially as to geographic propriety; and where it can be done without conflicting with the other considerations, relationship is indicated. Especially in a series of subspecies within one species has effort been made to heed this latter desideratum.

The citation to "original description" has been ascertained and written by me, personally, throughout, with two or three exceptions, and here quotation marks are put around the citation. Special care has been taken to specify as exactly as possible the date of publication of the description cited.

The "type locality" where amply stated in connection with the original description is given as originally specified. But very often I have expanded this statement so that the locality will be more clearly determinable on modern maps. Where the original designation was vague or inexact, supplementary information has been added; and in a few cases, restriction is made, on seemingly perfectly proper grounds, from a vaguely given type locality to a definite one.

Under "synonyms" are given the names applying to the species or subspecies under consideration, both scientific and vernacular (other than the accepted ones and the one appearing under "original description"), which have been applied in print to the said species or subspecies *as occurring in California*. Where a specific or subspecific name now considered synonymous with the accepted one was based upon a type specimen *from California*, the full citation for it, and its type locality, are given. Where the term "part" is used it means that the name which it follows has been used for another *Californian* species or subspecies. No user of this list must expect the synonymy here given to apply to the same form, or to a closely related form, in its occurrence outside the confines of California. In a way, therefore, the present offering is exceedingly "provincial"; but hard and fast lines had to be predetermined so as to make feasible the attainment of the prime object sought—the one indicated in my title.

The "range" of each species or subspecies is stated as concisely as possible, first, in general geographic terms; then significant marginal or limiting stations of occurrence are designated; and reference is given to sources of this information, especially, where available, to the latest published revision. Where the abbreviation "Mus. Vert. Zool." is used, specimens significantly indicating the stated range, or the localities definitely mentioned, are con-

tained in the California Museum of Vertebrate Zoology. Sometimes comment is offered as to the places of intergradation between related subspecies. Where available data permit, extremes of altitudinal occurrence are given; and where practicable the distribution of the form in terms of life-zones and faunal areas is stated. Finally, wherever it can be done usefully and with good basis in field experience, an indication of habitat or association is offered, with mention of conspicuous floral markers or features of the terrain.

A considerable number of mammals have been ascribed to "California" which were never found within the confines of the present State of that name. Most of these ascriptions were made at an early time when a more or less vaguely larger portion of western North America was covered by that geographic designation. Species definitely in this category are not included in the present enumeration, though in some instances a comment concerning such is offered in a "note."

The writer is aware of certain inconsistencies of treatment in this paper. There are included primarily what are generally thought of as *native* species. In addition, there are included a few species of "non-native" mammals (Norway Rat, for example, and *Homo sapiens sapiens*)—these with the idea that they got here *of their own accord*. But, I find that there is also entered in regular fashion the Virginia Opossum, the original plantings of which were brought to California by the white man! Almost as logical from a biological standpoint, it would seem, would be inclusion of all man's domestic and captive animals even though these be largely if not completely dependent upon his care for their continuing survival. This is not done; so, perhaps, the best delimiting term for the present enumeration as it stands would be the "free-living" mammals of California.

ACKNOWLEDGMENTS

The prime basis of the present distributional study of the mammals of California is comprised in the collections of specimens and accompanying field notes contained in the California Museum of Vertebrate Zoology. These have been definitely and actively in process of accumulation ever since the founding of the Museum, in 1908, by Miss Annie M. Alexander. In addition to her continual financial support of this institution throughout this 25-year period of activity, Miss Alexander has herself done a great amount of field work within this and adjacent states, and this has contributed much of direct value at the present stage reached in our general knowledge of California's mammal fauna.

I wish also to acknowledge helps from time to time, of various sorts, from my fellow staff members of the Museum, both former and present. Most recently, I have received special aid, in going over my manuscript, catching

errors, and suggesting changes and additions, from Doctor E. Raymond Hall, Curator of Mammals, and Doctor Seth B. Benson, Assistant Curator of Mammals.

ACCOUNTS OF SPECIES

CLASS **Mammalia** Mammals

Order MARSUPIALIA Pouched Mammals

FAMILY DIDELPHIIDAE Opossums

Didelphis virginiana virginiana Kerr

Virginia Opossum

Original description—*Didelphis virginiana* Kerr, Animal Kingdom, 1792:193.

Type locality—Virginia.

Synonyms—Possum; Opossum; Tennessee Possum.

Status—Not native; apparently no form of opossum ever existed naturally within boundaries of California. Now present through agency of man; and establishment has very likely taken place at many points and at as many times. A positively known introduction was in vicinity of San Jose about 1910, from Tennessee (Grinnell, Calif. Fish and Game, 1, 1915:114–116). Reports indicate possibility of presence along San Gabriel river bottom in Los Angeles County so early as 1906 (Little, Calif. Fish and Game, 2, 1916:46). From initial points of establishment such as these, the species has spread rapidly, reaching nearly all counties of San Francisco Bay region and of Pacific slope of southern California. Now (1932) more or less common in parts of Upper and Lower Sonoran life-zones west of desert divides, from Contra Costa and Amador counties south to San Diego County. Altitudes of occurrence extend from sea level up to 4000 feet (as on Mount Hamilton, Santa Clara County). Readily adapts itself to cultivated areas throughout warm lowlands; follows up stream courses well into foothills and mountains.

NOTE—*Didelphis Californica* was named by Bennett (Proc. Zool. Soc. London, 1833, pt. 1:40) "from that part of California which adjoins Mexico." This was doubtless in what is now Mexico proper, and the name *californica* should probably be used for, or synonymized under, one of the subspecies of *Didelphis mes-americana* Oken, a species the range of which is not now thought ever to have reached into California as this State is now delimited. Californian references include as other names, *Didelphis marsupialis californica*, *Didelphys virginiana californica*, and Texas Possum or Opossum.

Order INSECTIVORA Insectivorous Mammals

FAMILY TALPIDAE Moles

Scapanus townsendii (Bachman)

Townsend Mole

Original description—*Scalops Townsendii* Bachman, Jour. Acad. Nat. Sci. Phila., 8, pt. 1, 1839:58–60.

Type locality—Fort Vancouver, Clarke County, Washington (*vide* True, Proc. U. S. Nat. Mus., 19, 1896:63).

Synonyms—Oregon Mole; Western Mole, part.

Range—Extreme northwestern corner of State, south in humid coast belt from Delnorte County as far at least as Ferndale and Carlotta, in Humboldt County (Mus. Vert. Zool.). Altitudes of known occurrence all below 400 feet. Life-zone, chiefly Transition. Inhabits level, open ground, where soil is of finely sedimentary consistency.

Scapanus orarius orarius True

Northwestern Woods Mole

Original description—*Scapanus orarius* True, Proc. U. S. Nat. Mus., 19, December, 1896:52.

Type locality—Shoalwater Bay, Pacific County, Washington.

Synonyms—Coast Mole; Northwest Coast Mole; Northwestern Mole.

Range—Extreme northwestern portion of State, altogether within narrow humid coast belt; recorded south from Del Norte County as far as Ferndale and Cuddeback, Humboldt County (Mus. Vert. Zool.), and Hardy (A. B. Howell, Jour. Mammalogy, 3, 1922:21-22) and Mendocino (Elliot, Field Columb. Mus., zool. ser., 3, 1903:197), Mendocino County. Restricted to altitudes within 300 feet of sea level. Life-zone, chiefly Transition. Inhabits moist ground, of fine-textured soil, usually where well shaded in woods.

Scapanus latimanus latimanus (Bachman)

Central California Mole

Original description—*Scalops latimanus* Bachman, Boston Jour. Nat. Hist., 4, January, 1842:34-35.

Type locality—Probably Santa Clara, Santa Clara County, California (*vide* Osgood, Proc. Biol. Soc. Wash., 20, 1907:52).

Synonyms—*Scalops californicus* Ayres, Proc. Calif. Acad. Sci., 1, 1855:54 (type from San Francisco); *Scapanus californicus*, part; *Scapanus townsendii*, part; *Scalops townsendii*, part; *Scalops townsendii* var. *californicus*; California Mole; Broad-palmed Shrew-mole; Western Mole, part.

Range—In general, west-central California, west of San Joaquin-Sacramento valley; recorded north to Cuddeback [Carlotta], Humboldt County, and thence northeasterly as far as Hornbrook and Beswick, Siskiyou County; east across the upper Sacramento Valley to Red Bluff, Tehama County; and south through central coast region to Santa Margarita, San Luis Obispo County (Mus. Vert. Zool.; Jackson, N. Am. Fauna, No. 38, 1915:67). Altitudes of known occurrence extend from near sea level (as at Bolinas, Marin County, and Seaside, Monterey County) up to 5500 feet (on South Fork Mountain, in eastern Humboldt County). Life-zones, Upper Sonoran, Transition, and (exceptionally) Canadian. Inhabits chiefly rich, often heavy, rather moist ground, whether on forest floors, on chaparral-clothed slopes, or in open grasslands.

Scapanus latimanus occultus Grinnell and Swarth

Southern California Mole

Original description—*Scapanus latimanus occultus* Grinnell and Swarth, Univ. Calif. Publ. Zool., 10, April 13, 1912:131.

Type locality—Santa Ana Canyon, 400 feet altitude [12 miles northeast of Santa Ana], Orange County, California.

Synonyms—*Scapanus californicus*, part; *Scapanus latimanus*, part; *Scapanus townsendii*, part; *Scapanus anthonyi*; *Scapanus californicus anthonyi*; Anthony Mole.

Range—Southern California, chiefly west of desert divides and south of 35th parallel, hence San Diegan district; northwesternmost stations of verified occurrence, Santa Barbara, and Tehachapi, Kern County; northernmost, Olancho, Inyo County (Mus. Vert. Zool.; Jackson, N. Am. Fauna, No. 38, 1915:69). Last two records indicate more or less continuous occurrence northeast from Ventura County through the Tehachapi and Walker Pass country to south end of Owens Lake. Altitudinally, extends from near sea level (as at Ventura, Ventura County) up to 9100 feet (at Dry Lake, San Bernardino Mountains). Life-zone, chiefly Upper Sonoran; but occurs also in the two adjacent zones, even reaching Canadian in one instance. Inhabits mainly rather even ground, of fairly rich and somewhat moist soil; hence "spotty" in local distribution.

Scapanus latimanus grinnelli Jackson

Owens Valley Mole

Original description—*Scapanus latimanus grinnelli* Jackson, Proc. Biol. Soc. Wash., 27, March 20, 1914:56.

Type locality—Site of old Fort Independence (on ranch of Carl Walters), 2 miles north of Independence, 3900 feet altitude, Inyo County, California.

Synonyms—*Scapanus californicus*, part; Grinnell Mole.

Range—While actual specimens continue to be known only from vicinity of type locality, as above (Mus. Vert. Zool.), local reports indicate that this race of mole occupies Owens Valley, Inyo County, north from Owens Lake to the vicinity of Bishop. Altitudes of occurrence, 3600 to 4300 feet. Life-zones, Lower and Upper Sonoran. Inhabits stream margins and more or less well watered ranch lands.

Scapanus latimanus monoensis Grinnell

Mono Mole

Original description—*Scapanus latimanus monoensis* Grinnell, Univ. Calif. Publ. Zool., 17, April 25, 1918:423-424.

Type locality—Taylor Ranch [5300 feet altitude], 2 miles south of Benton Station, Mono County, California.

Range—Along east base of Sierra Nevada, altogether within Mono County, from Farrington's Ranch, near Mono Lake, south to vicinity of Benton Station (Mus. Vert. Zool.). Altitudes of occurrence extend from 5300 feet (near Benton Station) up at least to 8000 feet (near Mammoth). Life-zones, Upper Sonoran and Transition. Inhabits loose sandy ground of, at least at times, remarkable dryness—out in sagebrush; but also occurs in moist ground at edges of meadows and beneath pines.

Scapanus latimanus campi Grinnell and Storer

San Joaquin Mole

Original description—*Scapanus latimanus campi* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:1-2.

Type locality—Snelling, 250 feet altitude, Merced County, California.

Synonyms—*Scapanus latimanus occultus*, part; Southern California Mole, part.

Range—East side of San Joaquin Valley, at least from Snelling, Merced County, south to Porterville, Tulare County (Mus. Vert. Zool.; Jackson, N. Am. Fauna, No. 38, 1915:69 [under *occultus*]). Altitudinally, extends from 250 feet (at Snelling, Merced County) up to at least 2000 feet (at Dunlap, Fresno County). Life-zones, Lower and Upper Sonoran. Inhabits sandy soil of river bottomlands and cañon beds.

Scapanus latimanus sericatus Jackson

Yosemite Mole

Original description—*Scapanus latimanus sericatus* Jackson, Proc. Biol. Soc. Wash., 27, March 20, 1914:55.

Type locality—Yosemite, Yosemite Valley, 4000 feet altitude, Mariposa County, California.

Range—Western slope of Sierra Nevada in the Yosemite "section"; recorded from Dudley (3000 feet altitude), 3 miles northeast of Coulterville, and El Portal (2000 feet), in Mariposa County, east to Lyell Cañon at 9500 feet, Tuolumne County (Grinnell and Storer, Animal Life in the Yosemite, 1924:43). Life-zones, Transition to Hudsonian. Inhabits loose sandy ground along cañon bottoms, rich sod in meadows, and ordinarily quite dry ground on forest floors where not too rocky.

Scapanus latimanus minusculus Bangs

Central Sierra Nevada Mole

Original description—*Scapanus californicus minusculus* Bangs, Proc. New England Zool. Club, 1, July 31, 1899:70.

Type locality—Fyffe, 3500 feet altitude, Eldorado County, California.

Synonyms—*Scapanus townsendii*, part; *Scapanus latimanus*, part; Townsend Mole, part; Smaller California Mole; Sierra Mole.

Range—Central Sierra Nevada, chiefly on west flank; actual specimens examined from vicinity of Placerville and Fyffe, Eldorado County, and Tahoe City, Placer County (Mus. Vert. Zool.). Altitudes of occurrence extend from 2000 to at least 6300 feet. Life-zone, chiefly Transition; probably Canadian also. Inhabits ground of forest floor and stream sides.

NOTE—The relationships of this and the other described races of mole along the Sierra Nevada are, at this writing (November 29, 1931), very much in doubt.

Scapanus latimanus dilatus True

Klamath Mole

Original description—*Scapanus dilatus* True, Proc. U. S. Nat. Mus., 17, April 26, 1894:242.

Type locality—Fort Klamath, Klamath County, Oregon.

Synonyms—*Scapanus californicus*, part; *Scapanus latimanus*, part; *Scapanus truei* Merriam, Proc. Biol. Soc. Wash., 11, 1897:102 (type from Lake City, Modoc County, California); *Scapanus californicus truei*; *Scapanus latimanus truei*; Modoc Mole; True Mole.

Range—In general, northeastern corner of State; recorded west to Sisson, Siskiyou County, Tower House, Shasta County, and Dale's, Tehama County; and south over northern Sierra Nevada as far as Auburn, Placer County (Mus. Vert. Zool.; Jackson, N. Am. Fauna, No. 38, 1915:74). Altitudes of known occurrence extend from 600 feet (at Dale's, on Paine's Creek, Tehama County) up to 8200 feet (at Lake Helen, close to Lassen Peak, in Shasta County). Life-zones, Upper Sonoran to Hudsonian. Lives in sandy or loamy soil along streams, around meadow or lake borders, and on forest floors.

Neurotrichus gibbsii gibbsii (Baird)

Gibbs Shrew-mole

Original description—*Urotrichus gibbsii* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 76-77.

Type locality—White River Pass, north of Mount Rainier, Pierce County, Washington.

Synonyms—*Neurotrichus gibbsii*, part; *Neurotrichus gibbsii major* Merriam, N. Am. Fauna, No. 18, October 28, 1899:88 (type from Carberry Ranch, 4100 feet altitude, between Mount Shasta and Mount Lassen, Shasta County); Gibbs Mole, part; Large Shrew-mole; Shrew Mole, part.

Range—Extreme northwestern portion of State; south along seacoast to Eureka, Humboldt County, and in interior Coast Ranges to South Yolla Bolly Mountain, in western Tehama County; east to Beswick and vicinity of Mount Shasta, Siskiyou County, and thence south to vicinity of Lassen Peak, in Tehama County (Jackson, N. Am. Fauna, No. 38, 1915:95-97; Mus. Vert. Zool.). Altitudes of capture extend from near sea level (at Humboldt Bay) up at least to 6800 feet (near Black Butte, eastern Tehama County). Life-zones, Transition and Canadian. Inhabits ground that is usually moist, of forest floors, meadow edges, and stream sides.

Neurotrichus gibbsii hyacinthinus Bangs

California Shrew-mole

Original description—*Neurotrichus gibbsii hyacinthinus* Bangs, Am. Naturalist, 31, March, 1897:240, 241.

Type locality—Nicasio, Marin County, California.

Synonyms—*Neurotrichus gibbsii*, part; *Neurotrichus gibbsii major*, part; Hyacinthine Shrew-mole; Southern Shrew-mole; Gibbs Mole, part; Southern Gibbs Mole; Shrew Mole, part.

Range—Narrow humid coast belt, from Cuddeback, Humboldt County, south as far as near Watsonville, Santa Cruz County, and vicinity of Fremont Peak, near north end of Gabilan Range, Monterey County (Jackson, N. Am. Fauna, No. 38, 1915:97-98; Mus. Vert. Zool.). Intergradation between *N. g. gibbsii* and *N. g. hyacinthinus* appears to take place through Humboldt County. All precisely known altitudes of capture, below 800 feet. Life-zone, chiefly Transition. Restricted rather closely to coast redwood belt; inhabits ground at edges of forest, around wet meadows, and along streams.

FAMILY SORICIDAE Shrews

Sorex lyelli Merriam

Mount Lyell Shrew

Original description—*Sorex tenellus lyelli* Merriam, Proc. Biol. Soc. Wash., 15, March 22, 1902:75.

Type locality—Mount Lyell, Tuolumne County, California. Collector of type, Dr. W. K. Fisher, states (*in litt.*) that it was captured near head of Lyell Fork of Tuolumne River, at about 10,000 feet altitude and within Hudsonian life-zone.

Range—A southern representative of a northern group of species and found only restrictedly in California, on central Sierra Nevada. Stations of known occurrence are few and lie from Vogelsang Lake, Mariposa County, and near Williams Butte, Mono County, southeast to Mammoth, Mono County (Jackson, N. Am. Fauna, No. 51, 1928:58; A. B. Howell, Jour. Mammalogy, 5, 1924:27; Mus. Vert. Zool.). Altitudes of capture, 6900 to 10,350 feet. Life-zones, Canadian and Hudsonian. Inhabits moist situations near streams, in grass or under willows (Grinnell and Storer, Animal Life in the Yosemite, 1924:47).

Sorex trowbridgii trowbridgii Baird

Trowbridge Shrew

Original description—*Sorex trowbridgii* Baird, Pac. R. R. Rept., 8, 1857, Mammals:13.

Type locality—Astoria, Clatsop County, Oregon.

Synonyms—*Sorex montereyensis*, part; Monterey Shrew, part.

Range—A northern Pacific coast form entering California only in extreme north-western corner of State, in Del Norte and western Siskiyou counties. Recorded south to Requa and east to Happy Camp, on the Klamath River, and to Stud Horse Cañon in Siskiyou Mountains (Jackson, N. Am. Fauna, No. 51, 1928:95). Altitudinal range, near sea level to 6500 feet. Life-zones, Transition and Canadian. Found usually on log-strewn and relatively dry forest floors.

Sorex trowbridgii humboldtensis Jackson

Humboldt Bay Shrew

Original description—*Sorex trowbridgii humboldtensis* Jackson, Jour. Wash. Acad. Sci., 12, June 4, 1922:264.

Type locality—Carson's Camp, Mad River, Humboldt Bay, Humboldt County, California.

Synonyms—*Sorex montereyensis*, part; Monterey Shrew, part; Humboldt Shrew.

Range—Coastal strip of Humboldt and northern Mendocino counties. Recorded definitely from Orick and Hoopa Valley south to vicinity of Mendocino; interiorly to Sher-

wood (Jackson, N. Am. Fauna, No. 51, 1928:97). Altitudinal range, near sea level to 2300 feet. Life-zones, Transition and Canadian. Found usually under damp tangles beneath or adjacent to forests. This subspecies intergrades at south with *S. t. montereyensis* in vicinity of Point Arena; at north its range meets that of *S. t. trowbridgii* at mouth of Klamath River (*vide* Jackson, *op. cit.*:94, 96, 98).

***Sorex trowbridgii montereyensis* Merriam**

Monterey Shrew

Original description—*Sorex montereyensis* Merriam, N. Am. Fauna, No. 10, December 31, 1895:79.

Type locality—Monterey, Monterey County, California.

Synonyms—*Sorex montereyensis montereyensis*; *Sorex suckleyi*, part (?).

Range—Coastal strip of west-central California, from southern Mendocino County south to southern San Luis Obispo County (San Luis Obispo). One record for northern Santa Barbara County: "Peachtree River," San Rafael Mountains (Jackson, N. Am. Fauna, No. 51, 1928:98), decidedly to southeastward of main range of species. Some extreme interior stations of capture: Mount St. Helena, Napa County; Berkeley, Alameda County; Mount Hamilton, Santa Clara County; and Fremont Peak, Gabilan Range, Monterey County (Jackson, *loc. cit.*; Mus. Vert. Zool.). Recorded altitudes of capture, near sea level up to 2000 feet. Life-zone, chiefly Transition, with a few occurrences in Upper Sonoran. Inhabits dryish hillsides beneath chaparral, as well as moist forest-shaded cañon bottoms.

***Sorex trowbridgii mariposae* Grinnell**

Yosemite Shrew

Original description—*Sorex montereyensis mariposae* Grinnell, Univ. Calif. Publ. Zool., 10, March 20, 1913:189-190.

Type locality—Yosemite Valley at 4000 feet altitude [near the old Sentinel Hotel], Mariposa County, California.

Synonyms—*Sorex montereyensis*, part; Monterey Shrew, part.

Range—Northern Sierra Nevada, south on west slope as far as Kaweah River, Tulare County; north to Oregon line; east at north to Parker Creek, Warner Mountains, Modoc County, and west to Jackson Lake, Siskiyou County; also thence south along higher, inner Coast Ranges to vicinity of Mount Sanhedrin, Mendocino County (Jackson, N. Am. Fauna, No. 51, 1928:99-100; Mus. Vert. Zool.). Extremes of altitudinal range, 1268 and 7500 feet. Life-zone, predominantly Transition; occurs locally also in Canadian. Inhabits damp ground beneath luxuriant vegetation, chiefly near streams.

***Sorex vagrans vagrans* Baird**

Northwestern Wandering Shrew

Original description—*Sorex vagrans* Baird, Pac. R. R. Rept., 8, 1857, Mammals:15-18, pl. 18, figs. 5, 6.

Type locality—Shoalwater [or Willapa] Bay, Pacific County, Washington.

Synonyms—*Sorex suckleyi*, part; Vagrant Shrew.

Range—Northern humid coast belt, within 20 miles of the sea, from Oregon line south to north side of San Francisco Bay. Southernmost stations, Novato Point and vicinity of Inverness, Marin County, and Petaluma, Sonoma County (Jackson, N. Am. Fauna, No. 51, 1928:105; Mus. Vert. Zool.). Known occurrences are all within 200 feet of sea level; life-zones, Transition and Canadian, except for stations on San Francisco Bay which are in Upper Sonoran. Inhabits swampy or at least very wet ground under abundant low vegetation.

Sorex vagrans halicoetes Grinnell

Salt Marsh Wandering Shrew

Original description—*Sorex halicoetes* Grinnell, Univ. Calif. Publ. Zool., 10, March 20, 1913:181-185.

Type locality—Salt marsh bordering San Francisco Bay near Palo Alto, Santa Clara County, California.

Range—Salt marshes bordering south arm of San Francisco Bay, from San Francisco around to West Berkeley; also near ocean shore of San Mateo County, at San Gregorio (Jackson, N. Am. Fauna, No. 51, 1928:108-109; Mus. Vert. Zool.). Known only from close to sea level, where found beneath low-growing, halophilous vegetation. Life-zone, Upper Sonoran.

Sorex vagrans amoenus Merriam

Sierra Nevada Wandering Shrew

Original description—*Sorex amoenus* Merriam, N. Am. Fauna, No. 10, December 31, 1895:69-70.

Type locality—Near Mammoth, 8000 feet altitude, east side of Sierra Nevada, Mono County, California (see A. B. Howell, Jour. Mammalogy, 4, 1923:266).

Synonyms—*Sorex vagrans*, part; *Sorex shastensis* Merriam, N. Am. Fauna, No. 16, October 28, 1899:87 (type from Wagon Camp, 5700 feet altitude, Mount Shasta, Siskiyou County, California); Wandering Shrew, part; Sierra Shrew; Shasta Shrew.

Range—Northern Sierra Nevada, north to Oregon line; east at north to Warner Mountains, Modoc County, west to Salmon Mountains, southwestern Siskiyou County; southernmost station of record, Alvord (near Big Pine), Inyo County (Jackson, N. Am. Fauna, No. 51, 1928:110; Mus. Vert. Zool.). Altitudinal range, 3900 to 8100 feet; life-zones, Canadian and upper Transition. Inhabits wet meadows, stream sides, and, in forests, damp places under logs.

Sorex obscurus obscurus Merriam

Northern Dusky Shrew

Original description—*Sorex obscurus* Merriam, N. Am. Fauna, No. 10, December 31, 1895:72-73.

Type locality—Timber Creek, 8200 feet, Salmon River (now Lemhi) Mountains, Lemhi County, Idaho (see Merriam, N. Am. Fauna, No. 5, July 31, 1891:34).

Range—Sierra Nevada, north to McCloud River, Shasta County, and south to Jordan Hot Springs and Olancha Peak, Tulare County (Jackson, N. Am. Fauna, No. 51, 1928:121; Mus. Vert. Zool.). Extremes of altitudinal range, 4500 and 11,000 feet; life-zones, Hudsonian and Canadian; occurs but rarely so low as upper Transition. Inhabits stream sides, moist forest floors, mountain-side seepage places under willows, and wet meadows; the common shrew of the "high Sierra."

Sorex obscurus parvidens Jackson

San Bernardino Dusky Shrew

Original description—*Sorex obscurus parvidens* Jackson, Jour. Mammalogy, 2, August 19, 1921:161.

Type locality—Spring at what was known formerly as Thurman's Camp, now Bluff Lake, 7500 feet, San Bernardino Mountains, San Bernardino County, California.

Range—San Bernardino and San Gabriel mountains, where apparently rare. Only two stations of capture so far: the type locality, and Camp Baldy, 4200 feet altitude in San Antonio Cañon, San Gabriel Mountains; both localities in San Bernardino County (Jackson, N. Am. Fauna, No. 51, 1928:124).

Sorex pacificus pacificus Coues

Pacific Shrew

Original description—*Sorex pacificus* Coues, Bull. U. S. Geol. and Geog. Surv. Terr., 3, May 15, 1877:850.

Type locality—Fort Umpqua, mouth of Umpqua River, Douglas County, Oregon.

Range—Northwestern humid coast belt, from Oregon line south to vicinity of Mendocino, Mendocino County; interiormost localities, Gasquet, Del Norte County, and Dyer-ville, Humboldt County (Jackson, N. Am. Fauna, No. 51, 1928:143; Mus. Vert. Zool.). Found from 1500 feet altitude down to near sea level; life-zones, Canadian and Transition. Inhabits moist ground beneath or adjacent to heavy forest.

Sorex pacificus sonomae Jackson

Sonoma Shrew

Original description—*Sorex pacificus sonomae* Jackson, Jour. Mammalogy, 2, August 19, 1921:162.

Type locality—Sonoma County side of Gualala River, near Gualala, coast of California.

Synonyms—*Sorex pacificus*, part; Pacific Shrew, part.

Range—Humid coast belt from vicinity of Point Arena, Mendocino County, south to Inverness, near Point Reyes, Marin County (Jackson, N. Am. Fauna, No. 51, 1928:143-144; Mus. Vert. Zool.). Altitudes of capture all below 300 feet above sea level; life-zone, Transition. Inhabits moist ground beneath dense vegetation.

Sorex ornatus ornatus Merriam

Adorned Shrew

Original description—*Sorex ornatus* Merriam, N. Am. Fauna, No. 10, December 31, 1895:79-80.

Type locality—Head of San Emigdio Cañon, [at about 5500 feet altitude, in dense grass in boggy place, on north side of] Mount Pinos, in Kern County, California. (Details in brackets furnished by the collector of the type, E. W. Nelson, in letter of August 31, 1932.)

Synonym—Southern California Long-tailed Shrew.

Range—Southern portion of California chiefly west of desert divides, from Mexican line north to Dudley and El Portal, in Mariposa County, on western flank of Sierra Nevada; northwest along Coast Ranges to vicinity of Monterey, and east to Little Lake, Inyo County (Jackson, N. Am. Fauna, No. 51, 1928:167-168; Mus. Vert. Zool.). Found both in lowlands and well up on mountains; altitudinal range, near sea level (as at San Diego) up to 9000 feet (on San Jacinto Mountains). Metropolis lies apparently in Upper Sonoran life-zone; but has been captured in all zones from Lower Sonoran (as at Little Lake, Inyo County) to Canadian. Inhabits marshy ground, stream sides, and seepage areas on cañon walls; sometimes dry slopes beneath chaparral.

Sorex ornatus salicornicus von Bloeker

Southern California Salt Marsh Shrew

Original description—*Sorex ornatus salicornicus* von Bloeker, Proc. Biol. Soc. Wash., 45, September 9, 1932:131-132.

Type locality—Playa del Rey, Los Angeles County, California.

Range—Coastal marshes of southern California, from Point Mugu, Ventura County, southeast to Nigger Slough, Los Angeles County. Altitudes of capture, at or near sea level. Life-zone, Upper Sonoran. Inhabits salt marshes, such as are characterized by growths of pickle-weed (*Salicornia*).

***Sorex ornatus relictus* Grinnell**

Buena Vista Lake Shrew

Original description—*Sorex ornatus relictus* Grinnell, Univ. Calif. Publ. Zool., 38, June 9, 1932:389.

Type locality—Excavated along just outside of east side levee, 290 feet altitude, Buena Vista Lake, Kern County, California.

Range—Probably marshlands of upper (southern) portion of floor of San Joaquin Valley, from about where waters of Kings River divide toward San Joaquin River and toward bed of Tulare Lake, respectively, in Kings County, south to vicinity of Bakersfield and Buena Vista Lake, in Kern County. Range now much restricted through disappearance of the lakes. Altitudinal range, below 300 feet. Life-zone, Lower Sonoran.

***Sorex ornatus californicus* Merriam**

California Shrew

Original description—*Sorex californicus* Merriam, N. Am. Fauna, No. 10, December 31, 1895:80-81.

Type locality—Walnut Creek [near town of], Contra Costa County, California.

Synonyms—*Sorex californicus californicus*; California Long-tailed Shrew.

Range—West-central California, centering in San Francisco Bay region; north to Rumsey, Yolo County, northeast to Auburn, Placer County, southeast to Mendota, Fresno County, and south to Chalk Peak, Monterey County; but not in humid coast belt north of San Mateo County (Jackson, N. Am. Fauna, No. 51, 1928:169; Mus. Vert. Zool.). Intergradation between this race and *S. o. ornatus* takes place in Fresno and Monterey counties. Altitudinal range, near sea level up to 3000 feet; life-zone, mainly Upper Sonoran, entering Lower Sonoran in San Joaquin Valley. Inhabits stream sides, marshy ground (not salty or alkaline), and damp-earthed hill slopes, either grassy or clothed with chaparral.

Note—A skull (in Mus. Vert. Zool.) from near Bloody Island, Sacramento River, Tehama County, while surely of the species *ornatus*, is not so certainly of the subspecies *californicus* (see Grinnell, Dixon and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:451). If of the race *californicus*, then the known range of this form is carried north nearly to the head of the Sacramento Valley.

***Sorex sinuosus* Grinnell**

Suisun Shrew

Original description—*Sorex sinuosus* Grinnell, Univ. Calif. Publ. Zool., 10, March 20, 1913:181, 187.

Type locality—Grizzly Island, Suisun Bay, Solano County, California.

Range—So far, known only from Grizzly Island, bordering Suisun Bay, Solano County. Life-zone, Upper Sonoran. Inhabits brackish-water marsh lands where these are subject to tidal inundation.

***Sorex tenellus* Merriam**

Owens Valley Dwarf Shrew

Original description—*Sorex tenellus* Merriam, N. Am. Fauna, No. 10, December 31, 1895:81.

Type locality—"Summit of Alabama Hills" [really Lone Pine Creek at about 4500 feet altitude, where this creek cuts through those hills], near Lone Pine, Inyo County, California.

Synonyms—*Sorex tenellus tenellus*; Inyo Shrew.

Range—Only type specimen known, from locality as given above (see Jackson, N. Am. Fauna, No. 51, 1928:173). Zonally, this place is in midst of Lower Sonoran; but the stream-side conditions here are certainly Upper Sonoran.

Sorex myops Merriam

White Mountains Dwarf Shrew

Original description—*Sorex tenellus myops* Merriam, Proc. Biol. Soc. Wash., 15, March 22, 1902:76.

Type locality—Cottonwood Creek at about 9550 feet, east slope of White Mountains, Mono [not "Inyo"] County (see A. B. Howell, Jour. Mammalogy, 4, 1923:266).

Synonym—White Mountains Shrew.

Range—Known only from two specimens taken in 1891 in type locality, as above (see Jackson, N. Am. Fauna, No. 51, 1928:173-174). Life-zone, doubtfully, Canadian.

Sorex palustris navigator (Baird)

Mountain Water Shrew

Original description—*Neosorex navigator* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 11-12, pl. 26.

Type locality—"Fort Vancouver," Washington; but lately determined to have been near head of Yakima River, Cascade Mountains, Washington (see Jackson, N. Am. Fauna, No. 51, 1928:186).

Synonyms—*Sorex navigator*; *Neosorex palustris navigator*; *Neosorex navigator navigator*; Navigator Shrew; Rocky Mountain Water Shrew.

Range—Sierra Nevada from Whitney Meadows, Tulare County, north to Mount Shasta, Siskiyou County; also White Mountains, Mono and Inyo counties, Warner Mountains of eastern Modoc County, Salmon Mountains in Trinity County, and Yolla Bolly Mountains in Trinity and Tehama counties (Jackson, *op. cit.*:187-188; Mus. Vert. Zool.). Altitudes of occurrence range from 4500 feet (on Lone Pine Creek) to 11,600 feet (on the White Mountains). Life-zones, Canadian and Hudsonian; but follows cold mountain streams down into Sonoran territory, as in Owens Valley. Lives in, and along banks of, swift-flowing streams and less commonly around margins of alpine lakes.

Sorex bendirii bendirii (Merriam)

Bendire Marsh Shrew

Original description—*Atophyrax bendirii* Merriam, Trans. Linn. Soc. New York, 2, August 28, 1884:217-225, 1 pl.

Type locality—About a mile from Williamson River, and some 18 miles southeast of Fort Klamath, Klamath County, Oregon (See Jackson, N. Am. Fauna, No. 51, 1928:194).

Synonyms—*Neosorex bendirei bendirei*; *Sorex bendirii*; Bendire Shrew; Bendire Water Shrew.

Range—In California, a portion of narrow northwest humid coast strip from vicinity of Eureka, Humboldt County, south to south side of Gualala River, extreme northwestern Sonoma County (Jackson, N. Am. Fauna, No. 51, 1928:196; Mus. Vert. Zool.). All known occurrences, within 400 feet altitude of sea level. Life-zones, Canadian and Transition. Inhabits swampy places among logs and beneath dense living vegetation.

Sorex bendirii palmeri Merriam

Palmer Marsh Shrew

Original description—*Sorex (Atophyrax) bendirii palmeri* Merriam, N. Am. Fauna, No. 10, December 31, 1895:97, pl. 12, figs. 1-3.

Type locality—Astoria, Clatsop County, Oregon.

Synonym—Palmer Water Shrew.

Range—In California, only coastal portion of Delnorte County, in extreme northeastern corner of State; specimens have been taken in vicinity of Crescent City and Requa (Jackson, N. Am. Fauna, No. 51, 1928:198). Intergradation to southward with race *S. b. bendirii* takes place in vicinity of mouth of Klamath River (Jackson, *op. cit.*: 196, 197).

Notiosorex crawfordi crawfordi Coues

Gray Shrew

Original description—*Sorex* (*Notiosorex*) *crawfordi* Coues, Bull. U. S. Geol. and Geog. Surv. Terr., 3, May 15, 1877:651-652.

Type locality—Near old Fort Bliss, now in the environs of El Paso, Texas (*vide* Merriam, N. Am. Fauna, No. 10, 1895:32).

Synonyms—*Sorex crawfordi*; Crawford Shrew; Desert Shrew.

Range—Of scattering occurrence in southern fifth of State, being recorded west from the Colorado River bottom at Palo Verde to San Diego and thence north as far as San Bernardino (Stephens, Calif. Mammals, 1906:255; Dixon, Jour. Mammalogy, 5, 1924:3; Mus. Vert. Zool.). Although majority of captures have been on lower Pacific slope of San Diego County, all known data indicate greater tolerance of truly desert conditions by this than by any other species of shrew. Life-zone, chiefly Lower Sonoran. Has been found amid tules, in beehives, under pile of cornstalks, and amid yucca and cactus (Dixon, *loc. cit.*).

Order CHIROPTERA Bats

FAMILY PHYLLOSTOMIDAE American Leaf-nosed Bats

Macrotus californicus Baird

California Leaf-nosed Bat

Original description—*Macrotus californicus* Baird, Proc. Acad. Nat. Sci. Phila., May, 1858:116-117.

Type locality—Fort Yuma, Imperial County, California.

Synonyms—*Macrotus waterhousei*; *Otopterus californicus*.

Range—Chiefly Colorado Desert northward from Mexican line to Palo Verde, Imperial County, and to Toro, Riverside County; but recorded also northwest as far as Riverside, Riverside County, and west to De Luz, in northwestern San Diego County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:255; Mus. Vert. Zool.). Apparently absent during midwinter (see Stephens, Calif. Mammals, 1906: 276-277). Altitudinally, ranges from 200 up to 900 feet. Life-zone, Lower Sonoran. Colonizes in caves and mine shafts.

FAMILY VESPERTILIONIDAE Common Bats

Myotis lucifugus alascanis Miller

Alaska Little Brown Bat

Original description—*Myotis lucifugus alascanis* Miller, N. Am. Fauna, No. 13, October 16, 1897:63-64.

Type locality—Sitka, Alaska.

Range—In California, only extreme northwestern corner of State. One station of record: Eureka, Humboldt County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918: 267; Mus. Vert. Zool. [two specimens]). Apparently an inhabitant chiefly of forest margins within Transition and Canadian life-zones of northern humid coast belt.

Myotis lucifugus carissima Thomas

Yellowstone Little Brown Bat

Original description—*Myotis* (*Leuconoe*) *carissima* Thomas, Ann. and Mag. Nat. Hist., ser. 7, 13, May, 1904:383-384.

Type locality—Yellowstone Lake, Yellowstone National Park, Wyoming.

Synonyms—*Myotis yumanensis*, part; *Myotis yumanensis saturatus*, part; *Myotis longicrus*, part; *Myotis yumanensis altipetens* H. W. Grinnell, Univ. Calif. Publ. Zool., 17, Au-

gust 23, 1916:9-10 (type from one mile east of Merced Lake, 7500 feet, Yosemite National Park, California); *Myotis albicinctus* G. M. Allen, Jour. Mammalogy, 1, November 28, 1919:2-3 (type from 11,000 feet altitude near Mount Whitney in Inyo County, California); Yuma Bat, part; Long-legged Bat, part; High Sierra Bat; White-edged Bat.

Range—Higher, interior and mountainous portion of State including: entire Sierra Nevada from vicinity of Mount Whitney northward; San Bernardino Mountains; at north, east from Mount Shasta to Warner Mountains, eastern Modoc County, and west to Trinity Mountains, Siskiyou County. Specimens from latter region show tendencies toward race *M. l. alascensis*. (See Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:49, 52.) Altitudinal range, 3700 to 11,000 feet. Life-zone, predominantly Canadian, but occurrences recorded also in Hudsonian and Transition. Inhabits, as a rule, forested territory.

***Myotis lucifugus phasma* Miller and Allen**

Great Basin Little Brown Bat

Original description—*Myotis lucifugus phasma* Miller and Allen, U. S. Nat. Mus. Bull., 144, May 25, 1928:53-54.

Type locality—Snake River, south of Sunny Peak, Routt County, Colorado.

Synonym—*Myotis yumanensis*, part [?].

Range—Enters State, apparently in association with Great Basin flora, in Inyo region. One station of known occurrence: Shepherd Cañon, Argus Mountains, Inyo County (see Elliot, Field Columb. Mus., zool. ser., 3, 1904:279, 318-319 [under *M. yumanensis?*], map; Miller and Allen, *supra cit.*).

***Myotis yumanensis yumanensis* (H. Allen)**

Desert Yuma Bat

Original description—*Vespertilio yumanensis* H. Allen, Smithsonian Misc. Coll., No. 165, June, 1864:58.

Type locality—Old Fort Yuma, Imperial County, California.

Synonyms—*Vespertilio albescens*, part; *Vespertilio macropus*; Gila Bat; Fort Yuma Bat.

Range—Parts of Colorado and Mohave deserts; recorded south to Old Fort Yuma, on Colorado River, and northwest to vicinity of Lone Pine, Inyo County. Restricted to Lower Sonoran life-zone, save for one occurrence (post-breeding vagrant?) at timber line on east side of Mount Whitney; extremes of altitudinal occurrence, 150 and 11,000 feet (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:65, 67; H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:273-276; Mus. Vert. Zool.).

***Myotis yumanensis sociabilis* H. W. Grinnell**

Tejon Yuma Bat

Original description—*Myotis yumanensis sociabilis* H. W. Grinnell, Univ. Calif. Publ. Zool., 12, December 4, 1914:318-319.

Type locality—Old Fort Tejon, 3200 feet altitude, Kern County, California.

Synonyms—*Myotis yumanensis*, part; *Myotis lucifugus longiorus*, part; *Vespertilio albescens*, part; Yuma Bat, part; Long-legged Bat, part; Tejon Bat.

Range—Southern California west of desert divides north through middle and northern California east of humid coast belt. Specimens examined from San Luis Rey, San Diego County, and Capistrano, Orange County, north to Beswick, Siskiyou County, and Alturas Lake, Modoc County; east toward south to San Bernardino Mountains and to Fresno; west toward north to Chalk Peak, Monterey County, and to Winslow, Glenn County (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:69; H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:278; Mus. Vert. Zool.). Altitudinal range, near sea level up to 5200 feet; life-zone, chiefly Upper Sonoran, but Lower Sonoran and Transition invaded locally. Found mostly in areas clothed openly with oaks or pines, or with broken chaparral.

Myotis yumanensis saturatus Miller

Miller Yuma Bat

Original description—*Myotis yumanensis saturatus* Miller, N. Am. Fauna, No. 13, October 16, 1897:68.

Type locality—Hamilton, Skagit County, Washington.

Synonym—Miller Bat.

Range—Northwestern humid coast belt, from Oregon line close to seacoast south as far as near Piedras Blancas, San Luis Obispo County; occurs interiorly at north as far as Baird, Shasta County, where, however, grading strongly toward race *M. y. sociabilis* (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:70-71; Mus. Vert. Zool.). Found chiefly in or adjacent to coniferous forest; life-zone, predominantly Transition; altitudinal range, near sea level up to at least 1000 feet.

Myotis velifer velifer (J. A. Allen)

Arizona House Bat

Original description—*Vespertilio velifer* Allen, Bull. Am. Mus. Nat. Hist., 3, December 10, 1890:177.

Type locality—Santa Cruz del Valle, Guadalajara, Jalisco, Mexico.

Synonym—Cave Bat.

Range—In California, only valley of Colorado River, in extreme southeastern San Bernardino County, where has been found roosting in numbers in an old storehouse at Needles (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:260-261; Mus. Vert. Zool.). Life-zone, Lower Sonoran; altitude, near 500 feet.

Myotis occultus Hollister

Hollister Bat

Original description—*Myotis occultus* Hollister, Proc. Biol. Soc. Wash., 22, March 10, 1909:43.

Type locality—West side of Colorado River, 10 miles above Needles, San Bernardino County, California.

Range—Valley of Colorado River, from near Needles (as above) to near Yuma, in Imperial County (Grinnell, Univ. Calif. Publ. Zool., 12, 1914:263; Mus. Vert. Zool.). Life-zone, Lower Sonoran; altitudinal range, 125 to near 500 feet. Found in summer season in willow-cottonwood association.

Myotis evotis evotis (H. Allen)

Northwestern Long-eared Bat

Original description—*Vespertilio evotis* H. Allen, Smithsonian Misc. Coll., No. 165, June, 1864:48-50, figs. 42-44.

Type locality—Puget Sound, Washington (*Ade* Miller, U. S. Nat. Mus. Bull., 123, 1924:73); not Monterey, California, as previously thought (see Miller, N. Am. Fauna, No. 13, 1897:77-78).

Synonyms—*Myotis evotis*, part; Little Big-eared Bat, part.

Range—Northwestern corner of State, chiefly within humid coast belt; south to Mount Sanhedrin, Mendocino County; east as far as Beswick and Mount Shasta, Siskiyou County, latter locality producing specimens which grade in characters toward race *M. e. chrysonotus* (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:114-116; Mus. Vert. Zool.). Life-zone, chiefly Transition; altitudes of capture, 2800 to 7000 feet. Associated usually with open type of coniferous forest.

Myotis evotis chrysonotus (J. A. Allen)

Golden Long-eared Bat

Original description—*Vespertilio chrysonotus* J. A. Allen, Bull. Am. Mus. Nat. Hist., 8, November 21, 1896:240.

Type locality—Kinney Ranch, Sweetwater County, Wyoming.

Synonyms—*Vespertilio evotis*, part; *Vespertilio albescens evotis*, part; *Myotis evotis*, part; Little Big-eared Bat, part; Prominent-eared Bat.

Range—Of extensive occurrence from one end of State to other, interiorly from humid coast belt at north, west of deserts at south; recorded north near seacoast to Pescadero Creek, San Mateo County, in interior to Warner Creek, near Mount Lassen, Shasta County; south to Dulzura, San Diego County; east to Inyo Mountains, Inyo County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:294-296; Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:117; Mus. Vert. Zool.). Altitudes of capture range from near sea level up to 8000 feet; life-zones, Upper Sonoran and Transition. Found in or near forests or heavy chaparral.

Myotis thysanodes thysanodes Miller

California Fringed Bat

Original description—*Myotis thysanodes* Miller, N. Am. Fauna, No. 13, October 16, 1897:80-85.

Type locality—Old Fort Tejon [3200 feet altitude], Kern County, California.

Synonyms—*Vespertilio albescens velifer*; *Vespertilio albescens evotis*, part; *Myotis evotis thysanodes*; Fringed Bat.

Range—Of scattering occurrence interiorly and southerly, west of desert divides. Recorded south to Dulzura, San Diego County; northwest in Coast Ranges as far as Stonewall Creek, near Soledad, Monterey County; and north along western flank of Sierra Nevada as far as Limekiln, Middle Fork of American River, Eldorado County (Miller, *supra cit.*; H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:298; Grinnell and Storer, Animal Life in the Yosemite, 1924:57). Apparently belongs to Upper Sonoran life-zone, entering Transition locally; altitudinal range of captures, 1200 to 3000 feet. Apparently, in California, restricted to areas of heavy chaparral or of mixed forest and chaparral.

Myotis volans longicrus (True)

Northwestern Long-legged Bat

Original description—*Vespertilio longicrus* True, Science, 8, December 24, 1886:588.

Type locality—"Vicinity of" Puget Sound, Washington.

Synonyms—*Vespertilio albescens*, part; *Myotis lucifugus longicrus*, part; *Myotis longicrus longicrus*, part; *Vespertilio lucifugus*; *Vespertilio subulatus*; True Bat, part; Long-shanked Bat, part.

Range—Northwestern coast belt, rather broadly, from Oregon line south as far as Chalk Peak, Monterey County; occurs interiorly to Mount Sanhedrin, Mendocino County, to Mount Veeder, Sonoma County, and to Pacheco Pass, Santa Clara County (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:140-142; Mus. Vert. Zool.). Found chiefly within Transition and Upper Sonoran life-zones; recorded altitudes of capture extend from near sea level up to 3000 feet. Appears to affect forests or their near vicinity, or else heavy chaparral.

Myotis volans interior Miller

Interior Long-legged Bat

Original description—*Myotis longiorus interior* Miller, Proc. Biol. Soc. Wash., 27, October 31, 1914:211-212.

Type locality—Five miles south of Twining, 11,800 feet altitude, Taos County, New Mexico.

Synonyms—*Myotis lucifugus longiorus*, part; *Myotis longiorus longiorus*, part; True Bat, part; Long-shanked Bat, part.

Range—Widely though scatteringly distributed over interior and southern parts of State, northwest through Coast Ranges from near Mexican line in San Diego County to vicinity of Fort Tejon, Kern County, and thence north through Sierra Nevada to Mount Shasta, Siskiyou County, and Fredonyer Peak, Lassen County; also on certain mountain ranges of Inyo region (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:142-143; H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:271, 273; Mus. Vert. Zool.). Intergradation with northwest coast race *longiorus* is apparent over a wide belt including northern Sierra Nevada and inner northern Coast Ranges. Life-zones, chiefly Upper Sonoran and Transition; altitudes of ascertained occurrence extend from 1000 feet up to as high as 11,000 feet (near Mount Whitney—a midsummer vagrant!). Found mostly in or near forest of open or sparse type.

Myotis californicus caurinus Miller

Northwestern Little California Bat

Original description—*Myotis californicus caurinus* Miller, N. Am. Fauna, No. 13, October 16, 1897:72.

Type locality—Massett, Graham Island, Queen Charlotte Islands, British Columbia.

Synonyms—*Myotis californicus*, part; Little California Bat, part.

Range—Northern humid coast belt, rather narrowly, south as far as Menlo Park, San Mateo County, and Walnut Creek, Contra Costa County; interiormost station, Mount Sanhedrin, Mendocino County (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:155; Mus. Vert. Zool.). Found mainly within Transition zone, and at low altitudes, as far as known below 1400 feet. Forages among scattering trees, that is, where not forming dense forests.

Myotis californicus californicus (Audubon and Bachman)

Southern Little California Bat

Original description—*Vespertilio californicus* Audubon and Bachman, Jour. Acad. Nat. Sci. Phila., 8, 1842:285-287.

Type locality—"California"; by subsequent restriction, Monterey, Monterey County (see Miller and Allen, *infra cit.*:153).

Synonyms—*Vespertilio obscurus*; *Vespertilio nitidus* H. Allen, Proc. Acad. Nat. Sci. Phila., April, 1862:247-248 (type, by subsequent elimination, from Monterey, California); *Myotis californicus*, part; *Vespertilio nitidus ciliolabrum*, part; *Myotis californicus quercinus* H. W. Grinnell, Univ. Calif. Publ. Zool., 12, December 4, 1914:317-318 (type from Seven Oaks, 5000 feet altitude, San Bernardino Mountains, San Bernardino County, California); Little California Bat, part; Oak Foliage Bat.

Range—Widely and commonly distributed northwest from Mexican line, west of Colorado Desert, to vicinity of San Francisco Bay; north, interiorly of northern humid coast belt, to Oregon line; also present on Santa Cruz, Santa Catalina, and San Clemente islands (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:153-154; Mus. Vert. Zool.). Intergradation between races *californicus* and *caurinus* takes place in San Francisco Bay region and to northward along inner Coast Ranges, and different specimens from that strip of territory

have been recorded under the one name or the other with about equal propriety. Inhabits Transition and Upper Sonoran life-zones; extends altitudinally from near sea level up to 6700 feet (on San Bernardino Mountains). Found in wooded cañon bottoms, on chaparral slopes, and in a broken type of forest land, either deciduous or coniferous.

***Myotis californicus pallidus* Stephens**

Desert Little California Bat

Original description—*Myotis californicus pallidus* Stephens, Proc. Biol. Soc. Wash., 13, June 13, 1900:153.

Type locality—Vallecito, [desert slope of] eastern San Diego County, California.

Synonyms—*Vespertilio oregonensis* (?); *Vespertilio nitidus ciliolabrum*, part; *Myotis californicus*, part; Stephens Little Pallid Bat; Little Pallid Bat.

Range—Colorado and Mohave deserts, north from Mexican line to north end of Death Valley and to Lone Pine Creek, in Inyo County; west to La Puerta Valley, in eastern San Diego County, and to Redrock Cañon, near Ricardo, in Kern County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:289; Mus. Vert. Zool.). Life-zone, rather strictly Lower Sonoran; altitudinal range, 125 to near 2400 feet. Forages low amid sparse wash and stream-side vegetation.

***Myotis subulatus melanorhinus* (Merriam)**

Black-nosed Bat

Original description—*Vespertilio melanorhinus* Merriam, N. Am. Fauna, No. 3, "August," 1890:46-47.

Type locality—"San Francisco Mountain, Arizona"; more exactly, Little Spring, 8250 feet, north base of San Francisco Mountain, Coconino County, Arizona.

Synonyms—*Myotis californicus*, part; *Vespertilio albesoens melanorhinus* (?); *Myotis orinomus*; *Myotis lucifugus longicrus*, part; Long-legged Bat, part; Little California Bat, part; La Grulla Brown Bat.

Range—Interruptedly distributed over more arid, southern and eastern portions of State, chiefly at middle levels in main mountain ranges. Specimens examined from localities northwest from near Mexican line in San Diego County to vicinity of Bakersfield, Kern County; thence north sparingly along western flank of Sierra Nevada as far as Yosemite Valley, Mariposa County; east of Sierran divides, north to White Mountains, in Inyo County, and even to Petes Valley, Lassen County (Miller and Allen, U. S. Nat. Mus. Bull., 144, 1928:170-171; Mus. Vert. Zool.). Found in Upper Sonoran and Transition life-zones, and from 450 feet (near Bakersfield) to 8250 feet (on White Mountains). Forages among trees, in open stands, and over chaparral.

***Lasionycteris noctivagans* (LeConte)**

Silvery-haired Bat

Original description—*V[espertilio]. noctivagans* LeConte, in Appendix McMurtrie's ed., Cuvier's Animal Kingdom, 1831:431.

Type locality—None designated, but probably in eastern United States.

Synonyms—*Vesperugo noctivagans*; *Scotophilus noctivagans*; Silver-haired Bat.

Range—Northwestern California: east at north to Mount Shasta, Siskiyou County, and to Willow Lake, Plumas County; southeast along northern Sierra Nevada to Fyffe and Bijou, Eldorado County; south in coast belt as far as Pacific Grove, Monterey County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:301-304, text fig. O; Mus. Vert. Zool.). Records are for summer and fall only. Altitudes of recorded capture extend from near sea level (as at Pacific Grove) up to 7000 feet (on Mount Shasta). Life-zone, mostly Transition; enters Canadian locally. Seems to prefer borders of forests for foraging.

Pipistrellus hesperus hesperus (H. Allen)

Western Cañon Bat

General description—*Scotophilus hesperus* H. Allen, Smithsonian Misc. Coll., No. 165, June, 1864:43-44, figs. 38-40.

Type locality—Fort Yuma, Imperial County, California.

Synonym—*Vesperugo hesperus*, part; *Vespertilio hesperus*; Cañon Bat; Western Bat.

Range—Colorado and Mohave deserts chiefly, from Mexican line northward, extending north through Inyo region as far as Coleville, Mono County; west toward south to Dulzura, San Diego County, to Banning, Riverside County, and to Kern River below Bodfish, Kern County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:308-309, text fig. P; Mus. Vert. Zool.). Life-zone, predominantly Lower Sonoran, very restrictedly Upper Sonoran; altitudinal range 200 feet (as near Yuma) to 7000 feet (on White Mountains, in Inyo County). Roosts in crevices of cliffs and cañon walls, foraging out over all sorts of terrain and visiting water, perhaps of necessity, each evening.

Pipistrellus hesperus merriami (Dobson)

Merriam Cañon Bat

Original description—*Vesperugo merriami* Dobson, Ann. and Mag. Nat. Hist., ser. 5, 18, 1886:124.

Type locality—Red Bluff, Tehama County, California (*vide* Miller, N. Am. Fauna, No. 13, 1897:31).

Synonyms—*Vesperugo hesperus*, part; *Scotophilus hesperus*, part; *Pipistrellus hesperus*, part; Western Bat, part.

Range—West of desert divides, from Mexican line near San Diego northwest through San Diegan district, and through San Joaquin and Sacramento valleys, altogether east of humid coast belt and west of high Sierra Nevada, to vicinity of Red Bluff, Tehama County; westernmost stations, vicinity of Mount Sanhedrin, Mendocino County, and Arroyo Seco, Monterey County (J. Grinnell, Proc. Calif. Acad. Sci., ser. 4, 3, 1913:279-280; H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:311-314, text fig. P; Mus. Vert. Zool.). Altitudinal range, from 50 feet (at Butte Slough, Sutter County) up to 5300 feet (at Shaver Ranger Station, Fresno County). Life-zone, mainly Upper Sonoran, but enters Transition along slopes directly upward from Upper Sonoran. Forages over open ground of valleys and cañons; apparently not a forest dweller.

Eptesicus fuscus (Peale and Beauvois)

Large Brown Bat

Original description—*Vespertila* [*sic*] *fuscus* Peale and Beauvois, Catal. Peale's Museum, Phila., 1796:14.

Type locality—Philadelphia, Pennsylvania.

Synonyms—*Eptesicus fuscus bernardinus* Rhoads, Proc. Acad. Nat. Sci. Phila., December, 1901 [February, 1902]:619 (type from San Bernardino Valley, San Bernardino County, California); *Eptesicus fuscus melanopterus* Rehn, Proc. Acad. Nat. Sci. Phila., October 17, 1904:590-591 (type from Mount Tallac, Eldorado County, California); *Vespertilio fuscus*; *Adelonycteris fuscus*; *Scotophilus fuscus*; *Vesperugo serotinus*; *Vespertilio fuscus bernardinus*; *Vespertilio fuscus melanopterus*; San Bernardino Brown Bat; Black-winged Bat; Common Brown Bat; Big Brown Bat.

Range—Practically throughout State, but most abundant west of deserts proper and east of northern humid coast belt (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:318-320, text fig. Q; Mus. Vert. Zool.). Extremes of altitudinal occurrence, near sea level (as at Pacific Grove, Monterey County) and 11,000 feet (near Mount Whitney, in Inyo County). Life-zones, chiefly Upper Sonoran and Transition, but has been captured in every zone from Lower Sonoran (as near Yuma) to Hudsonian (near Mount Whitney [see G. M. Allen,

Jour. Mammalogy, 1, 1919:5]). Forages far and wide over open country as well as in forest lanes; roosts in caves, in rock crannies, in crevices of tree trunks, and about buildings of all sorts. Apparently in winter absent from much, if not all, of its summer range; at least, inactive.

NOTE—There are probably two or more subspecies within the boundaries of the State; but it has not proved feasible as yet to define such satisfactorily.

Nycteris borealis teliotis (H. Allen)

Western Red Bat

Original description—*Atalapha teliotis* H. Allen, Proc. Am. Philos. Soc., 29, 1891:5-7.

Type locality—Not known, but probably southern California.

Synonyms—*Lasiurus borealis teliotis*; *Lasiurus noveboracensis*; *Nycteris borealis*; *Atalapha noveboracensis*.

Range—West of desert divides; in winter and spring: Sacramento and San Joaquin valleys, from Paine's Creek at Dale's, Tehama County, southward; central coast district; and throughout San Diegan district (Mus. Vert. Zool.). In spring and summer, females in Lower Sonoran life-zone; males in Upper Sonoran and, rarely, Transition zones (see H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:326-329). Northwesternmost station of record, near Laytonville, Mendocino County (male, April 2); easternmost, north of Tehachapi, Three Rivers, Tulare County. Altitudes of capture, authenticated, range from near sea level (as at Berkeley) up to 1900 feet (in Cuyama Valley, San Luis Obispo County). Roosts solitarily in foliage of trees, and forages mainly among deciduous growths in stream bottoms.

Nycteris cinerea (Peale and Beauvois)

Hoary Bat

Original description—*Vespertilio cinereus* Peale and Beauvois, Catal. Peale's Museum, Phila., 1796:15.

Type locality—Pennsylvania.

Synonyms—*Atalapha cinerea*; *Lasiurus cinereus*; Great Northern Bat.

Range—Widely but sparingly distributed from one end of State to other, but apparently migratory. In winter and spring: chiefly valleys of west-central and southern California, south through San Diegan district; in summer, Transition and Canadian life-zones of Sierra Nevada and northern humid coast belt. Recorded north to Eureka, Humboldt County, and Haydenhill, Lassen County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:332-335, text fig. B), and east to Death Valley, Inyo County (April 12, Mus. Vert. Zool.). Altitudinal range, from below sea level (—178 feet in Death Valley [in migration?]) to 7500 feet (August 20, in Yosemite National Park). Roosts solitarily in tree foliage; forages among scattering trees or in an open type of forest.

Euderma maculatum (J. A. Allen)

Spotted Bat

Original description—*Histiotus maculatus* Allen, Bull. Am. Mus. Nat. Hist., 3, February 20, 1891:195-198.

Type locality—Mouth of Castac Creek [8 miles east of Piru], Santa Clara Valley, Los Angeles County, California (*Adæ Merriam, in Miller, N. Am. Fauna, No. 13, 1897:49*).

Range—Known to us only from capture of three specimens, in central and southern parts of State: the type (locality as above), "caught on a fence" in March, 1890; one found dead in overflow from railway water tank at Mecca, Riverside County, October 1, 1907 (Grinnell, Univ. Calif. Publ. Zool., 5, 1910:317-320, pl. 30); and one found alive hanging on side of a building in Yosemite Valley, Mariposa County, August 17, 1931 (Ashcraft, Jour. Mammalogy, 13, 1932:162-163). The first two of these localities lie in Lower Sonoran life-zone, one at close to 1000 feet altitude, the other a little below sea level; the third locality is in Transition life-zone and at altitude of 4045 feet.

***Corynorhinus rafinesquii pallescens* Miller**

Pale Lump-nosed Bat

Original description—*Corynorhinus macrotis pallescens* Miller, N. Am. Fauna, No. 13, October 16, 1897:52.

Type locality—Kearney Cañon, Navajo County, Arizona.

Synonyms—*Synotis Townsendii*, part; *Corynorhinus megalotis pallescens*, part; Pallid Big-eared Bat, part; Townsend Big-eared Bat, part; Pallid Lump-nosed Bat.

Range—Chiefly Mohave and Colorado deserts, but extends west to seacoast in San Diegan district. Recorded north to Lone Pine, in Owens Valley, Inyo County, and west at south to San Diego (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:342-343, text fig. T; Mus. Vert. Zool.). Occupies mainly Lower Sonoran life-zone; altitudes of occurrence vary from near sea level up to 4500 feet (at Kenworthy, San Jacinto Mountains). Roosts in caves and mine tunnels, sometimes in buildings.

***Corynorhinus rafinesquii intermedius* H. W. Grinnell**

Intermediate Lump-nosed Bat

Original description—*Corynorhinus macrotis intermedius* H. W. Grinnell, Univ. Calif. Publ. Zool., 12, December 4, 1914:320.

Type locality—Auburn, 1300 feet altitude, Placer County, California.

Synonyms—*Synotis Townsendii*, part; *Corynorhinus macrotis townsendii*; *Corynorhinus macrotis pallescens*, part; *Corynorhinus megalotis townsendii*; *Corynorhinus rafinesquii townsendii*, part; *Corynorhinus megalotis pallescens*, part; Pallid Big-eared Bat, part; Townsend Big-eared Bat, part; Northwestern Lump-nosed Bat; Pale Lump-nosed Bat, part.

Range—Resident scatteringly west of Sierra Nevada and interiorly from northern humid coast belt, chiefly around margins of the Great Valley of central California; recorded south to Santa Catalina Island, west to Mount Veeder, Napa County, northwest to Happy Camp, Siakiyou County, and northeast to near Bloody Island, Sacramento River, Tehama County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:345, text fig. T; Mus. Vert. Zool.). Occurs nearly altogether within Upper Sonoran life-zone; altitudes of capture extend from near sea level up to 2600 feet.

***Corynorhinus rafinesquii townsendii* (Cooper)**

Townsend Lump-nosed Bat

Original description—*Plecotus Townsendii* Cooper, Annals Lyceum Nat. Hist. New York, 4, 1837:73-75.

Type locality—Columbia River, Oregon.

Range—Extends into California only at extreme northwest, within humid coast belt. Two specimens taken, April 14, 1918, and August 3, 1919, at Carlotta, Humboldt County (Dickey, Jour. Mammalogy, 3, 1922:116), and another taken at same place, June 16, 1926 (Mus. Vert. Zool.); all three captures made by H. E. Wilder (*teste in litt.*) in his house. Belongs apparently in Transition life-zone. Altitude of Carlotta, 133 feet.

***Antrosous pallidus pallidus* (LeConte)**

Desert Pallid Bat

Original description—*V[espertilio]. pallidus* LeConte, Proc. Acad. Nat. Sci. Phila., 7, 1855 (1856):437.

Type locality—El Paso, El Paso County, Texas (*vide* Baird, Pac. R. R. Rept., 8, 1859, pt. 2:5).

Synonyms—*Antrosous pallidus*; Pale Bat; Big-eared Pale Bat.

Range—Colorado and Mohave deserts. Reported west from Colorado River to Vallecitos, extreme eastern San Diego County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:350-

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351), and north to Death Valley and Independence, Inyo County (specimens in Mus. Vert. Zool.). Altitudinal range, from below sea level (—178 feet in Death Valley in early April) up to 5200 feet (15 miles north of Darwin, Inyo County, September 28). Life-zone, Lower Sonoran. Has been found roosting in and about buildings; forages among deciduous trees as well as over open terrain.

***Antrozous pallidus pacificus* Merriam**

Pacific Pallid Bat

Original description—*Antrozous pallidus pacificus* Merriam, Proc. Biol. Soc. Wash., 11, July 1, 1897:179–180.

Type locality—Fort Tejon [3200 feet altitude], Kern County, California.

Synonyms—*Vespertilio pallidus*, part; *Antrozous pallidus*, part; *Antrozous pacificus*; Pacific Pale Bat.

Range—Widely but interruptedly distributed over lower portions of State to westward of southeastern deserts and main Sierra Nevada. Recorded from Mexican line north through San Diegan district and central coast belt as far as Marin County, and through interior valleys and adjacent foothills to Tehama County. Has been found once in northern humid coast belt, at Ferndale, Humboldt County (specimen in Mus. Vert. Zool., taken by H. E. Wilder, September 8, 1924), and several times in Modoc region of northeastern California: Bray, Siskiyou County (specimen in Mus. Vert. Zool., taken August 21, 1920), Fort Crook [near Burgettville], Shasta County (Miller, N. Am. Fauna, No. 13, 1897:45), and Goose Lake, Modoc County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:355, text fig. V). [These Modoc specimens are not exactly typical of *pacificus*.] Altitudinal range, from near sea level (as at Palo Alto and Berkeley, in San Francisco Bay region) up to as high as 4800 feet (at Bray, Siskiyou County). Life-zones, Lower and Upper Sonoran, rarely entering Transition; evidently, in part at least, migratory. Has been found roosting chiefly in and around buildings; forages both among deciduous trees and over open ground.

FAMILY MOLOSSIDAE Free-tailed Bats

***Tadarida mexicana* (Saussure)**

Mexican Free-tailed Bat

Original description—*M[olossus]. mexicanus* Saussure, Rev. et Mag. de Zool., ser. 2, 12, 1860:283–285, pl. 15, figs. 2, 2a.

Type locality—Ameca, Jalisco, Mexico (see Shamel, Proc. U. S. Nat. Mus., 78, 1931:5).

Synonyms—*Nyctinomus mexicanus*; *Nyctinomus mohavensis*; *Nyctinomus brasiliensis*; *Nyctinomus nasutus*; *Nyctinomus brasiliensis californicus* H. Allen, U. S. Nat. Mus. Bull., 43, 1893 [= March, 1894]:166, pl. 32, fig. 5 (“California,” no type designated); *Nyctinomus mexicanus mohavensis*; *Nyctinomops mohavensis*; *Nyctinomus cynocephalus californicus*; Mohave Bat.

Range—Widely distributed, abundant at lower levels, from Mexican line north through State, east of Sierra Nevada, to Walker Lake, Mono County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:364–367, text fig. X); west of Sierra Nevada, north in San Joaquin-Sacramento Valley to Manton, Tehama County (Mus. Vert. Zool.), and in coast belt through San Francisco Bay region at least to Petaluma, Sonoma County (Mus. Vert. Zool.). Altitudinal range, below sea level (—200 feet in Salton Sink) up, rarely, to as high as 8000 feet (as at Walker Lake, Mono County). Life-zones, Lower and Upper Sonoran, occasionally entering Transition in summer. At least partly migratory. Roosts commonly in and about buildings; also in caves, and in crevices of cliffs and earth banks. Forages far and wide over all sorts of terrain, both among trees and over open ground; also over water.

Tadarida femorosacca (Merriam)

Pocketed Bat

Original description—*Nyctinomus femorosaccus* Merriam, N. Am. Fauna, No. 2, October 30, 1889:23.

Type locality—Agua Caliente [=Palm Springs], Riverside County, California.

Synonyms—*Nyctinomops femorosaccus*; Palm Springs Free-tailed Bat.

Range—Probably, in California, only Colorado Desert. So far, known only from three records: of type, shot at Palm Springs, March 27, 1885 (see Stephens, Calif. Mammals, 1906:274), of mummified specimen found in February, 1902, impaled on mesquite bush over pool in Palm Cañon (Elliot, Field Columb. Mus., zool. ser., 3, 1904:321), and of specimen from "Colorado River mouth" (Shamel, Proc. U. S. Nat. Mus., 78, 1931:13). Life-zone, evidently lower Sonoran.

Tadarida macrotis (Gray)

Large-eared Free-tailed Bat

Original description—*Nyctinomus macrotis* Gray, Annals Nat. Hist., 4, September, 1839:5-6.

Type locality—Interior of the Island of Cuba (see Shamel, Proc. U. S. Nat. Mus., 78, 1931:16).

Synonyms—*Nyctinomus macrotis nevadensis* H. Allen, U. S. Nat. Mus. Bull., 43, 1893 [= March, 1894] : 171-174, pls. 34, 35 (type from "California," *vide* Lyon and Osgood, U. S. Nat. Mus. Bull., 62, 1909:280); *Nyctinomus nevadensis*; *Nyctinomus depressus*; *Nyctinomops depressus*; *Tadarida depressa*; *Tadarida nevadensis*; Nevada Bat; Tacubaya Free-tailed Bat.

Range—Probably the southeastern deserts. The first known specimen from California is an alcoholic in the U. S. National Museum, "collected by John Mullan" previous to August 31, 1885, and record is lacking of exact locality (Lyon and Osgood, *loc. cit.*). Only other known specimen to date was found in mummified condition hanging in building in San Diego, December 30, 1930; preserved in collection of San Diego Society of Natural History (Huey, Jour. Mammalogy, 13, 1932:160).

Eumops perotis californicus (Merriam)

California Mastiff Bat

Original description—*Molossus californicus* Merriam, N. Am. Fauna, No. 4, October 8, 1890:31-32.

Type locality—Alhambra, Los Angeles County, California.

Synonyms—*Promops californicus*; *Eumops californicus*; *Molossus perotis californicus*; *Promops perotis californicus*; Bonnet Bat.

Range—San Diegan district, chiefly from San Diego County to Los Angeles County, and also southern (upper) portion of San Joaquin Valley, in Kern, Tulare, and Fresno counties. Northwesternmost definite station of occurrence, Mendota, Fresno County; southeasternmost, Otay, San Diego County (H. W. Grinnell, Univ. Calif. Publ. Zool., 17, 1918:372-373). Has been found once on Colorado Desert, at Mecca, Riverside County (H. W. Grinnell, *loc. cit.*). Altitudinal range, from — 190 feet (at Mecca) up to 1250 feet (at Sierra Madre, Los Angeles County). Life-zone, chiefly if not altogether Lower Sonoran. Resident and colonial; roosts within and about buildings of various sorts (see A. B. Howell, Jour. Mammalogy, 1, 1920:111; Howell and Little, Jour. Mammalogy, 5, 1924:262).

Order CARNIVORA Carnivorous Mammals

FAMILY URSIDAE Bears

Ursus americanus altifrontalis Elliot

Northwestern Black Bear

Original description—*Ursus altifrontalis* Elliot, Field Columb. Mus., zool. ser., 3, June, 1903:234-235.

Type locality—Shore of Lake Crescent, Clallam County, Washington.

Synonyms—*Ursus americanus*, part; *Euarctos americanus*, part; *Ursus cinnamomeus*; Cinnamon Bear, part; Brown Bear, part; Black Bear, part.

Range—Northwestern coast belt, from Sonoma County north to Oregon line. Extends interiorly to include, at farthest, vicinity of Yolla Bolly Mountain, where reaching into extreme western Tehama County (Grinnell, Univ. Calif. Publ. Zool., 32, 1929:397). Southernmost fairly reliable report, from neighborhood of Bodega, Sonoma County (Stearns, Am. Naturalist, 10, 1876:177). There is no dependable record of black bear from coast belt south of San Francisco Bay. Altitudes of occurrence extend from near sea level up to 7000 feet. Life-zones, Transition and Canadian. Inhabits forested territory and is holding its own as to numbers quite well wherever forest or at least heavy undergrowth has not been seriously depleted.

Ursus americanus californiensis J. Miller

Sierra Nevada Black Bear

Original description—*Ursus Californiensis* J. Miller, True Bear Stories (Rand, McNally and Co., Chicago), 1900:250.

Type locality—"California." Subsequently restricted to Sierra Nevada, in California (Grinnell, Univ. Calif. Publ. Zool., 32, 1929:396).

Synonyms—*Ursus americanus*, part; *Ursus americanus altifrontalis*, part; *Euarctos americanus*, part; Black Bear, part; Brown Bear, part; Cinnamon Bear, part; Sierra Bear.

Range—Sierra Nevada, north from Tehachapi Mountains, Kern County, to vicinity of Mount Shasta, Siskiyou County. Northwesternmost station for definitely this race, Calhahan, toward head of Scott River, Siskiyou County; intergradation with coastal subspecies, *altifrontalis*, assumed to take place through western Siskiyou and Trinity counties (Grinnell, *loc. cit.*). At southern end of Sierra Nevada, occurs southwest from Walker Pass through Tehachapi Mountains at least to vicinity of Tejon Ranch. "Black" bears are reported of recent years to occur in numbers clear into Ventura and Santa Barbara counties; but actual specimens of such have not been examined. No dependable record within history from southern California south or southeast of Kern County. Altitudes of known occurrences extend from 1200 up to 8500 feet, though these extremes are doubtless now and then exceeded by vagrant individuals. Life-zones, Canadian and Transition, with some occurrences locally in Upper Sonoran. A characteristic inhabitant of forests, but also invades brushlands where and when these afford food as in case of manzanita chaparral. With disappearance of the grizzly, the black bears, it is thought, have extended their range locally, especially at the south as remarked above.

Ursus californicus Merriam

California Coast Grizzly

Original description—[*Ursus horribilis*] *californicus* Merriam, Proc. Biol. Soc. Wash., 10, April 13, 1896:76, fig. 15.

Type locality—Monterey, Monterey County, California.

Synonyms—*Ursus horribilis*, part; *Ursus horribilis horriacus*; *Ursus ferox*, part; *Ursus arctos*, part; *Ursus arctos horribilis*; Grizzly Bear, part; California Grizzly, part.

Range (formerly)—Coast region south from San Francisco Bay about to San Luis Obispo (Merriam, N. Am. Fauna, No. 41, 1918:29). Now extinct.

Ursus tularensis Merriam

Tejon Grizzly

Original description—*Ursus californicus tularensis* Merriam, Proc. Biol. Soc. Wash., 27, August 13, 1914:188.

Type locality—[Vicinity of] Fort Tejon, Cañada de las Uvas, Kern County, California.

Synonyms—*Ursus horribilis*, part; *Ursus ferox*, part; *Ursus horribilis californicus*, part; *Ursus horriacus*; *Ursus arctos*, part; California Grizzly, part; Grizzly Bear, part.

Range (formerly)—Chiefly chaparral belt (Upper Sonoran zone) in inner Coast Ranges from (probably) San Benito County south to Los Angeles County including "the Tehachapi, Tejon, Sierra Madre, and San Gabriel ranges, and probably San Bernardino Mountains also"; at north covering "the San Rafael and Gabilan ranges, and southern part of the Diablo Range" (Merriam, N. Am. Fauna, No. 41, 1918:30). Now probably nearly if not quite extinct. The last definitely known capture of a grizzly bear of this form was made on October 28, 1916, in the lower Tujunga Cañon, near Sunland, Los Angeles County (specimen in Mus. Vert. Zool.).

Ursus colusus Merriam

Sacramento Grizzly

Original description—*Ursus colusus* Merriam, Proc. Biol. Soc. Wash., 27, August 13, 1914:187-188.

Type locality—Sacramento River valley, California (probably between Colusa and Sacramento).

Synonyms—*Ursus arctos*, part; *Ursus horribilis*, part; Grizzly Bear, part.

Range (formerly)—Sacramento Valley (and perhaps also San Joaquin Valley); west at north through inner Coast Ranges "to Dobbins Creek Canyon on the boundary between southeastern Humboldt and southwestern Trinity Counties" (Merriam, N. Am. Fauna, No. 41, 1918:82). Now extinct.

Ursus klamathensis Merriam

Klamath Grizzly

Original description—*Ursus klamathensis* Merriam, Proc. Biol. Soc. Wash., 27, August 13, 1914:185-186.

Type locality—Beswick, near mouth of Shovel Creek, Klamath River, Siskiyou County, California.

Synonyms—*Ursus horribilis*, part; Grizzly Bear, part.

Range (formerly)—Siskiyou Mountains and neighborhoods of Mount Shasta and Lassen Peak, south in northern Sierra Nevada an unknown distance (Merriam, N. Am. Fauna, No. 41, 1918:72). Now extinct.

Ursus mendocinensis Merriam

Mendocino Grizzly

Original description—*Ursus mendocinensis* Merriam, Proc. Biol. Soc. Wash., 29, September 6, 1916:145-146.

Type locality—Long Valley [north of Sherwood], Mendocino County, California.

Synonyms—*Ursus horribilis*, part; Grizzly Bear, part.

Range—Unknown; probably northwest coast belt generally. An old record, likely for this race of grizzly, is for Petaluma, Sonoma County (Baird, Pac. R. R. Rept., 8, 1857, Mammals:225). Now long extinct.

Ursus magister Merriam**Southern California Grizzly**

Original description—*Ursus magister* Merriam, Proc. Biol. Soc. Wash., 27, August 13, 1914:189–190.

Type locality—Los Biacitos, head of San Onofre Cañon, Santa Ana Mountains, in San Diego or Riverside County, California.

Synonyms—*Ursus horribilis*, part; *Ursus horribilis californicus*, part; Grizzly Bear, part; California Grizzly, part; Cinnamon Bear, part.

Range (formerly)—Extreme southern California, in Santa Ana, Cuyamaca, and Santa Rosa Mountains, and probably also San Jacinto Mountains (Merriam, N. Am. Fauna, No. 41, 1918:75). Now probably extinct.

Ursus henschawi Merriam**Henshaw Grizzly**

Original description—*Ursus henschawi* Merriam, Proc. Biol. Soc. Wash., 27, August 13, 1914:190.

Type locality—Southern Sierra Nevada, near Havilah, Kern County, California.

Synonyms—*Ursus horribilis*, part; Grizzly Bear, part.

Range (formerly)—Lower slopes (Upper Sonoran chaparral belt chiefly) of southern Sierra Nevada; limits unknown (Merriam, N. Am. Fauna, No. 41, 1918:87). It has been assumed to be this form of grizzly that occurred north along west flank of Sierra Nevada at least through Yosemite region (Grinnell and Storer, Animal Life in the Yosemite, 1924:68). Latest definitely known occurrence of a live wild grizzly bear in California is reported by C. Hart Merriam (Sierra Club Circular, No. 12, 1925) from within assumed range of this form: one shot at Horse Corral Meadows, Tulare County, in August, 1922. Now probably everywhere nearly if not quite extinct.

FAMILY PROCYONIDAE Raccoons, etc.**Procyon lotor psora Gray****California Coon**

Original description—*Procyon psora* Gray, Ann. and Mag. Nat. Hist., 10, December, 1842:261.

Type locality—Sacramento, Sacramento County, California.

Synonyms—*Procyon lotor*; *Procyon hernandezii*; *Procyon lotor hernandezii*; *Procyon psora psora*; *Procyon psora pacifica*, part; *Procyon lotor pacifica*; *Procyon lotor californicus* Mearns, Proc. Biol. Soc. Wash., 27, March 20, 1914:66–67 (type from close to Mexican boundary monument No. 258, in San Diego County, near San Diego, California); *Procyon psora californicus*; Pacific Raccoon; Southwestern Raccoon; San Diego Raccoon; California Raccoon; San Diego Coon; Pacific Coon, part; Coon, part.

Range—Nearly throughout that portion of State that lies west of Great Basin and Mohave and Colorado deserts. At north, recorded east from Trinidad, on coast of Humboldt County, to Little Shasta Valley, Siskiyou County, and Eagle Lake, Lassen County; centrally, recorded east from San Francisco Bay region to vicinity of Yosemite Valley; and thence south and southeast as far as Victorville and Oro Grande (out into western edge of Mohave Desert), in San Bernardino County, and San Diego and Cuyamaca mountains, in San Diego County. Altitudes of occurrence extend from sea level (as along marshes of Suisun Bay) up, locally, to at least 7200 feet (as at Crumbo Lake, near Lassen Peak, in Shasta County). Life-zones, characteristically Upper Sonoran and Transition. Lives chiefly along stream courses, in marshes, and about margins of lakes and estuaries.

Procyon lotor pallidus Merriam

Pallid Coon

Original description—*Procyon pallidus* Merriam, Proc. Biol. Soc. Wash., 13, June 13, 1900:151-152.

Type locality—New River, Colorado Desert, Imperial County, California. [More exactly, about 6 miles west of Imperial: *vide* F. Stephens, MS, 1909.]

Synonyms—Desert Raccoon; Pallid Raccoon; Pale Raccoon; Coon, part.

Range—Colorado Desert region, in Imperial County; north from Mexican line along Colorado River to vicinity of Needles, San Bernardino County, and in Imperial Valley, along Alamo and New rivers. Altitudes of known occurrence, all below 500 feet. Life-zone, Lower Sonoran. Lives exclusively in or near river bottomlands.

Procyon lotor excelsus Nelson and Goldman

Snake River Valley Coon

Original description—*Procyon lotor excelsus* Nelson and Goldman, Jour. Mammalogy, 11, November 11, 1930:458.

Type locality—Owyhee River, Oregon, 10 miles west of Fairylawn, Owyhee County, Idaho.

Synonyms—*Procyon psora pacifica*, part; Pacific Coon, part; Coon, part.

Range—Extreme northeastern corner of State, within and in neighborhood of Warner Mountains, Modoc County (Mus. Vert. Zool.; Mailliard, Proc. Calif. Acad. Sci., ser. 4, 16, 1927:343). Altitudinally, extends from 4800 feet (near Eagleville) up to 7300 feet (on Parker Creek). Life-zones, Upper Sonoran and Transition. Apparently restricted closely to riparian type of habitat.

FAMILY BASSARISCIDAE Ring-tailed Cats

Bassariscus astutus raptor (Baird)

California Ring-tailed Cat

Original description—*Bassariscus raptor* Baird, Mammals Mex. Boundary, 1859:19.

Type locality—Northern California (see Merriam, Proc. Biol. Soc. Wash., 11, 1897:186-187); by subsequent restriction, Glen Ellen, Sonoma County (Hall, Univ. Calif. Publ. Zool., 30, 1926:44).

Synonyms—*Bassariscus astuta*, part; *Bassariscus flavus oregonus*; *Bassariscus astutus*; *Bassariscus astutus oregonus*; *Bassariscus raptor*; *Bassariscus astutus flavus*; *Bassariscus oregonus*; Civet Cat; Raccoon Fox; Cacomistle; Western Cacomistle; Miner's Cat; Ring-tail; Oregon Ring-tailed Cat; Ring-tailed Civet Cat; Mountain Cat; Cat Squirrel.

Range—Chiefly, if not altogether, on Pacific drainage slope of State, from Oregon line west of longitude of Mount Shasta south to Ventura County, where merges with race *octavus*. Avoids extreme northwestern humid coast belt. Occurs on western flank of Sierra Nevada from Tehama County south at least to Tulare County. Altitudinal range, near sea level up, exceptionally, to 7200 feet (at Glacier Point, Yosemite National Park). Belongs chiefly to Upper Sonoran life-zone, but occasionally invades Transition in northwestern part of State and along Sierra Nevada. Lives in chaparral, especially of cañon walls, foraging also along streams.

Bassariscus astutus octavus Hall

San Diego Ring-tailed Cat

Original description—*Bassariscus astutus octavus* Hall, Univ. Calif. Publ. Zool., 30, September 8, 1926:39-40, pl. 2, figs. a, b, pl. 3, figs. a, b.

Type locality—San Luis River, 1700 feet altitude, near Escondido, San Diego County, California.

Synonyms—*Bassaris astuta*, part; *Bassariscus astutus raptor*, part; California Ring-tailed Cat, part.

Range—Pacific slope of southern California, from Jacumba, near Mexican line, northwest at least to Matilija, Ventura County. Altitudinal range definitely known to extend from 750 to 5000 feet. Life-zone, almost exclusively Upper Sonoran. Rather local in occurrence, inhabiting chiefly brushy slopes adjacent to streams.

***Bassariscus astutus nevadensis* Miller**

Nevada Ring-tailed Cat

Original description—*Bassariscus astutus nevadensis* Miller, Proc. Biol. Soc. Wash., 26, June 30, 1913:159.

Type locality—Eldorado Canyon, Clark County, Nevada.

Range—Probably inclusive of mountain ranges, generally, lying east of southern Sierra Nevada. One definite locality of occurrence: Union Mine, 4000 feet altitude, west slope of Inyo Mountains, Inyo County (two specimens in Mus. Vert. Zool.).

FAMILY MUSTELIDAE Weasels, Otters, etc.

***Martes caurina sierrae* Grinnell and Storer**

Sierra Nevada Pine Marten

Original description—*Martes caurina sierrae* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:2-3.

Type locality—Head of Lyell Cañon, 9800 feet altitude, Yosemite National Park, Tuolumne County, California.

Synonyms—*Mustela americana*; *Mustela caurina*, part; *Martes caurina*, part; *Mustela caurina sierrae*; Northwestern Pine Marten, part; Marten, part; American Sable.

Range—Chiefly main Sierra Nevada above 6000-foot level. Has been found, though not continuously, north from vicinity of Mineral King and Jordan Hot Springs, Tulare County, to Mount Shasta, Siskiyou County; thence west and northwest through Trinity, Scott and Salmon mountains, in Trinity and Siskiyou counties. Stations of occurrence extend, altitudinally, from 4000 feet (as near Weed, Siskiyou County) up to 10,600 feet (at Bullfrog Lake, Fresno County). Life-zones, mainly Hudsonian and Canadian; vagrants may traverse Transition where adjacent to higher zones. Lives in or closely adjacent to coniferous forests; resorts in places to rock slides for shelter or for forage purposes.

***Martes caurina humboldtensis* Grinnell and Dixon**

Humboldt Pine Marten

Original description—*Martes caurina humboldtensis* Grinnell and Dixon, Univ. Calif. Publ. Zool., 21, March 17, 1926:411-413, figs. 3, 7.

Type locality—Ridge about 5 miles northeast of Cuddeback [Carlotta], Humboldt County, California.

Synonyms—*Mustela caurina*, part; *Martes caurina*, part; *Martes caurina sierrae*, part; *Mustela caurina humboldtensis*; Marten, part; Northwestern Pine Marten, part.

Range—Narrow northwest humid coast strip, chiefly within limits of redwoods, from Oregon line in Del Norte County south, at least formerly, as far as old Fort Ross, Sonoma County (specimens and MS, in Mus. Vert. Zool.). Altitudinal range, from near sea level up to about 3000 feet. Life-zones, Transition and Canadian. Most of animals taken of late years for fur have come from higher ridges back from seacoast, where redwoods give way to Douglas spruce and hardwoods (H. E. Wilder, MS).

Martes pennanti (Erxleben)

Fisher

Original description—"[*Mustela*] *pennanti* Erxleben, Syst. Regni Anim., 1, 1777:470."
[Not seen by me.]

Type locality—Eastern Canada.

Synonyms—*Mustela pennanti*; *Mustela canadensis pacifica*; *Martes pennanti pacifica*; *Mustela pennanti pacifica*; Pennant Marten; Pacific Fisher; Pekan; Pennant Cat; Black Cat.

Range—Forested parts of higher mountains south from Oregon line in Siskiyou County to Mendocino County, and more interiorly from vicinities of Mount Shasta and Lassen Peak through Sierra Nevada as far as Greenhorn Mountain, north-central Kern County (MSS and specimens in Mus. Vert. Zool.). Formerly occurred near coasts of Sonoma and Marin counties, and in Lake County. Belongs to middle altitudes—2000 feet (near sea at northwest) to 8000 feet (along Sierra Nevada), exceptionally to 10,900 feet (near Mount Lyell). Life-zone, characteristically Canadian; individuals may wander, or occur locally, somewhat above or below this zone. Keeps pretty closely within heavy forests. Now becoming rare, if not already gone, in most of its former range.

NOTE—After some study of the materials in the National Museum in Washington as well as those in the Museum of Vertebrate Zoology, I find myself unable to recognize a Pacific race of fisher as separable from an Eastern one.

Mustela streator streator (Merriam)

Puget Sound Weasel

Original description—*Putorius streator* Merriam, N. Am. Fauna, No. 11, June 30, 1896: 13-14, pl. 2, figs. 5, 6.

Type locality—Mount Vernon, Skagit Valley, Skagit County, Washington.

Range—Narrow humid coast belt, northward from Sonoma County probably to Oregon line. Apparently rare; two captures: near mouth of Gualala River, in Sonoma County, and 10 miles northeast of Carlotta, Humboldt County (Mus. Vert. Zool.). Life-zone, Transition. Both specimens above referred to, taken in or near redwood belt; first in swampy place where sword ferns grew (A. C. Shelton, MS), other on ridge where pine marten were being trapped for (H. E. Wilder, MS).

Mustela muricus (Bangs)

Sierra Least Weasel

Original description—*Putorius (Arctogale) muricus* Bangs, Proc. New England Zool. Club, 1, July 31, 1899:71.

Type locality—Echo [near head of South Fork American River], Eldorado County, California.

Synonyms—*Putorius muricus*; Little Weasel; Mousing Weasel.

Range—Higher interior mountains of northern portion of State, south along Sierra Nevada at least as far as Yosemite National Park. Recorded as follows: head of Rush Creek and Castle Lake, Salmon and Trinity mountains, Siskiyou County (L. Kellogg, Univ. Calif. Publ. Zool., 12, 1916:358); vicinity of Lassen Peak, in Tehama County (Grinnell, Dixon and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:463); type locality, as above, as also other places in mountains on west side of Lake Tahoe, in Placer and Eldorado counties (Mus. Vert. Zool.); Yosemite region, in Tuolumne and Mariposa counties (Grinnell and Storer, Animal Life in the Yosemite, 1924:89). Altitudes of known occurrence extend from 5400 feet (in the Trinity Mountains) up to 10,350 feet (at Vogelsang Lake, Yosemite Park). Life-zones, Canadian and Hudsonian. Lives in and about rock slides and on forest floors where logs afford cover and productive forage ground.

Mustela arizonensis arizonensis (Mearns)

Mountain Weasel

Original description—*Putorius arizonensis* Mearns, Bull. Am. Mus. Nat. Hist., 3, June 5, 1891:234-235.

Type locality—San Francisco forest, near Flagstaff, Coconino County, Arizona.

Synonyms—*Putorius brasiliensis frenatus*, part; Arizona Weasel.

Range—Chiefly main Sierra Nevada; but also north to Mount Shasta, Siskiyou County, and Warner Mountains, Modoc County, east to White Mountains, in Mono County, and south to San Jacinto Mountains, Riverside County (Mus. Vert. Zool.). Altitudes of definitely ascertained occurrence extend from 4000 feet (as on the floor of Yosemite Valley, Mariposa County) up to 9800 feet (as on Whitney Meadows, Tulare County) and even to 11,000 feet (on White Mountains, Mono County). Life-zones, Transition to Hudsonian; but metropolis apparently lies in Canadian. Lives in and around rock piles and old logs, seeking prey almost anywhere, both on forest floors and on open ground where burrowing rodents are plentiful.

Mustela arizonensis saturata (Merriam)

Siskiyou Weasel

Original description—*Putorius saturatus* Merriam, N. Am. Fauna, No. 11, June 30, 1896:21-22.

Type locality—Siskiyou, altitude 4000 feet, Jackson County, Oregon.

Synonym—*Mustela saturata*.

Range—The Trinity Mountains, of northwestern interior; one record: vicinity of Jackson Lake, 6000 feet altitude, Siskiyou County (L. Kellogg, Univ. Calif. Publ. Zool., 12, 1916:358). Life-zone, Canadian. The two specimens obtained were trapped in *Aplodontia* runways in tracts of alder on a hillside and along a stream.

Mustela xanthogenys xanthogenys Gray

California Weasel

Original description—*Mustela xanthogenys* Gray, Ann. and Mag. Nat. Hist., 11, February, 1843:118.

Type locality—Southern California, probably near San Diego (*vide* Merriam, N. Am. Fauna, No. 11, 1896:25).

Synonyms—*Putorius xanthogenys*, part; *Putorius frenatus* [?]; *Mustela brasiliensis* [?]; Yellow-cheeked Weasel, part.

Range—West-central and southern portions of State, altogether west of Sierra Nevada and Colorado and Mohave deserts. Northwest from Mexican line (east to Julian, San Diego County, and to Redlands, San Bernardino County) through coastal valleys to San Francisco Bay; also San Joaquin Valley (east to Isabella, Kern County) north at least to vicinity of Stockton, San Joaquin County (Mus. Vert. Zool.). [A specimen of weasel doubtfully referable to *xanthogenys* is at hand also from near Independence, in Owens Valley, Inyo County.] Altitudinally, extends from near sea level up to (rarely as high as) 2500 feet (at Isabella). Life-zones, Lower and Upper Sonoran. Inhabits, as a rule, open ground where perforated by burrows of pocket gophers and ground squirrels.

Mustela xanthogenys munda (Bangs)

Redwoods Weasel

Original description—*Putorius xanthogenys mundus* Bangs, Proc. New England Zool. Club, 1, June 9, 1899:56-57.

Type locality—Point Reyes, Marin County, California.

Synonyms—*Putorius xanthogenys*, part; *Mustela longicauda munda*; *Putorius brasiliensis frenatus*, part; Decorated Weasel; Yellow-cheeked Weasel, part.

Range—Northwest coast belt, north from north side of San Francisco Bay, in Marin County, at least as far as Eureka, Humboldt County; interiorly, east to near Laytonville, Mendocino County (Mus. Vert. Zool.). Altitudes of occurrence extend from near sea level up to 1800 feet. Life-zone, chiefly Transition. Inhabits margins of forests among "down" timber and open ground where burrows of rodents are plentiful.

***Mustela vison energumenos* (Bangs)**

Pacific Mink

Original description—*Putorius vison energumenos* Bangs, Proc. Boston Soc. Nat. Hist., 27, March, 1896:5.

Type locality—Sumas, British Columbia, Canada.

Synonyms—*Putorius vison*, part; *Mustela vison*, part; *Lutreola vison energumenos*, part; American Mink, part; Western Mink; Devilish Mink.

Range—In general, northern third of State. South from Oregon line through northwest coast belt at least to Gualala, Mendocino County; in upper Sacramento Valley to vicinity of Marysville Buttes, Sutter County; in Sierra Nevada to Merced Lake, Mariposa County; and east of Sierra Nevada to Fish Springs, near Big Pine, Inyo County (Grinnell, Proc. Biol. Soc. Wash., 29, 1916:214; Mus. Vert. Zool.). Altitudes of occurrence extend from near sea level (as on Van Duzen River near Carlotta, Humboldt County) up to 7500 feet (as at Merced Lake, Yosemite National Park). Life-zones, Canadian and Transition; occurs down into Upper Sonoran locally. Inhabits margins of fish-supporting streams and lakes.

***Mustela vison aestuarina* Grinnell**

California Lowland Mink

Original description—*Mustela vison aestuarina* Grinnell, Proc. Biol. Soc. Wash., 29, September 22, 1916:213-214.

Type locality—Grizzly Island, Suisun Bay, Solano County, California.

Synonyms—*Mustela vison*, part; *Mustela vison energumenos*, part; *Lutreola vison energumenos*, part; *Putorius vison*, part; American Mink, part; Pacific Mink, part.

Range—Lowlands of west-central California, chiefly lower courses of Sacramento and San Joaquin rivers and delta region at their confluence; recorded west to Petaluma, Sonoma County, and Tomales Point, Marin County, north definitely to near Woodland, Yolo County, and south to Mendota, Fresno County (Mus. Vert. Zool.). Altitudes of occurrence, all below 200 feet. Life-zones, chiefly Upper and Lower Sonoran. Inhabits fresh-water stream sides and banks of brackish or salt tidal sloughs; in one place (Tomales Point), rocky seashore (see Hall, Jour. Mammalogy, 10, 1929:351).

***Gulo luscus luteus* Elliot**

Southern Wolverine

Original description—*Gulo luteus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:260.

Type locality—"Crater Meadows" [= Groundhog Meadow, 8700 feet], on "Whitney Creek" [= Golden Trout Creek], [27 miles south of] "Mount Whitney," in Tulare County, California (see Elliot, Field Columb. Mus., zool. ser., 3, 1904:280).

Synonyms—*Gulo luscus*; Sierra Nevada Wolverine; Wolverine; Glutton.

Range—Mainly, and of late years, exclusively, central and southern Sierra Nevada, chiefly above 8000-foot level, from vicinity of Lake Tahoe south through Mount Whitney region to (exceptionally) Piute Mountains, Kern County (MSS in Mus. Vert. Zool.). Lowest station of positively known occurrence, 5000 feet altitude (Camp Nelson, Tulare County, in

winter); highest station, 13,000 feet (near Mount Lyell). Metropolis of species seems to lie in semi-open country at and near timberline, but individuals prone to wander extensively. There are some old records, from outside above-indicated range, not now verifiable: near Carberry Ranch, Shasta County, about 1893 (Merriam, N. Am. Fauna, No. 16, 1899:105); "mountains of the northern coast region" (Stephens, Calif. Mammals, 1906:243); near San Rafael, Marin County, in 1855, and on Mill Creek, near Healdsburg, Sonoma County, in 1857 (W. E. Bryant, Zool., 1, 1891:377).

Lutra canadensis brevipilosus Grinnell

California River Otter

Original description—*Lutra canadensis brevipilosus* Grinnell, Univ. Calif. Publ. Zool., 12, October 31, 1914:306-309, pl. 14.

Type locality—Grizzly Island, Suisun Bay, Solano County, California.

Synonyms—*Lutra californica*; *Lutra canadensis*; *Lutra canadensis pacifica*; *Lutra hudsonica pacifica*; *Lutra hudsonica*; *Lutra pacifica*; California Otter; Pacific River Otter; Land Otter.

Range—Streams and marshes of northern half of State; occurs, or has occurred in past years, south from Oregon line in coast belt at least to head of Drakes Bay, Marin County, and through Sacramento and San Joaquin river systems to Kaweah River near Lemon Cove, Tulare County; formerly lived in Tulare Lake, Kings County, the southernmost known place of occurrence (MSS in Mus. Vert. Zool.). Restricted to fresh water, and extends altitudinally from sea level up to as high, exceptionally, as 9000 feet (at Babcock Lake, Yosemite National Park [C. P. Russell, Yosemite Nature Notes, 7, 1928:78]). Life-zones, chiefly Upper Sonoran and Transition.

Lutra canadensis sonora Rhoads

Sonora River Otter

Original description—*Lutra hudsonica sonora* Rhoads, Trans. Am. Philos. Soc., n.s., 19, September, 1898:431-432.

Type locality—Montezuma Well, Beaver Creek, Yavapai County, Arizona.

Synonym—Sonora Otter.

Range—Colorado River where in former years "not very rare" (*Id.* Stephens, Calif. Mammals, 1906:234). Most recent definite occurrence is attested by a specimen in the Ralph Ellis, Jr., collection taken December 31, 1926, in Colorado River, 5 miles north of Needles, San Bernardino County.

Enhydra lutris nereis (Merriam)

Southern Sea Otter

Original description—*Latax lutris nereis* Merriam, Proc. Biol. Soc. Wash., 17, October 6, 1904:159.

Type locality—San Miguel Island, Santa Barbara County, California.

Synonyms—*Latax lutris*; *Latax lutris gracilis*; *Enhydra lutris*; *Enhydra marina*; San Miguel Island Sea Otter; Slender Otter.

Range—Formerly, ocean along open seashore and about islands whole length of State; especially numerous around Santa Barbara and Farallon islands (see Scammon, Marine Mammals, 1874:168-174). Once abundant; now rare, though individuals have been reported as seen almost every year off coasts of Monterey and San Luis Obispo counties. Last actual specimen (no. 23658, Mus. Vert. Zool.) from near Monterey, September 9, 1915.

Spilogale gracilis phenax* Merriam*California Spotted Skunk**

Original description—*Spilogale phenax* Merriam, N. Am. Fauna, No. 4, October 8, 1890: 13-14.

Type locality—Nicasio, Marin County, California.

Synonyms—*Mephitis bicolor*; *Mephitis sorilla*; *Mephitis putorius*; *Spilogale sorilla*; *Spilogale putorius*; *Spilogale interrupta*; *Spilogale latifrons*, part; *Spilogale phenax gracilis*; Western Spotted Skunk; Little Spotted Skunk, part; Oregon Spotted Skunk, part; Striped Skunk, part; Civet Cat, part; Spotted Skunk, part.

Range—Main part of State west of Sierran divides, north from Santa Barbara and Kern counties to southern Humboldt, Trinity, and Siskiyou counties; some easternmost stations are: Paine's Creek at 600 feet altitude, Tehama County; near Hetch Hetchy Valley, Tuolumne County; Mirror Lake, Yosemite Valley; Kings River Cañon at 5000 feet, Fresno County; Bodfish, Kern County (Mus. Vert. Zool.). Altitudes of occurrence extend from sea level commonly up to 4000 feet, exceptionally to as high as 6200 feet (west flank of Sierra Nevada in Fresno County). Life-zone, chiefly Upper Sonoran; enters Transition in northern coast district and along Sierra Nevada. Inhabits, for most part, dry uplands, especially where rocky or brushy.

NOTE—The name combinations for the spotted skunks of California as here given are based on a study of all the western forms (Grinnell and Linsdale, MS).

Spilogale gracilis microrhina* Hall*San Diego Spotted Skunk**

Original description—*Spilogale phenax microrhina* Hall, Jour. Mammalogy, 7, February 15, 1926:53-56.

Type locality—Julian, San Diego County, California.

Synonyms—*Spilogale phenax*, part; Spotted Skunk, part; California Spotted Skunk, part; Western Spotted Skunk, part; Civet Cat, part; Hydrophobia Skunk.

Range—Extreme southwestern portion of State, in other words, San Diegan district; west from edges of Mohave and Colorado deserts to seacoast, and northwest from Mexican line as far as Ventura County. Intergradation from *microrhina* to *phenax* takes place up coastal region from Los Angeles County to San Luis Obispo County. Altitudinally, extends from near sea level up at least to 4500 feet. Life-zones, Upper and Lower Sonoran. Inhabits, usually, dry rocky or brushy hillsides or cañon walls.

Spilogale gracilis amphialus* Dickey*Channel Islands Spotted Skunk**

Original description—*Spilogale phenax amphialus* Dickey, Proc. Biol. Soc. Wash., 42, April 4, 1929:158-159.

Type locality—"2½ miles north of ranch house near coast," Santa Rosa Island, Santa Barbara County, California.

Synonyms—*Spilogale phenax*, part; California Spotted Skunk, part.

Range—Santa Rosa and Santa Cruz islands, Santa Barbara County. Life-zone, Upper Sonoran.

Spilogale gracilis latifrons Merriam

Oregon Spotted Skunk

Original description—*Spilogale phenax latifrons* Merriam, N. Am. Fauna, No. 4, October 8, 1890:15.

Type locality—Roseburg, Douglas County, Oregon.

Synonyms—Little Spotted Skunk, part; Broad-headed Spotted Skunk.

Range—Extreme northwestern corner of State, in Delnorte County, Humboldt County (at least from Van Duzen River northward), and western Siskiyou County, east to Hornbrook (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 26, 1906:33). Most of stations of occurrence are at low altitudes. Life-zone, chiefly Transition.

Spilogale gracilis saxatilis Merriam

Great Basin Spotted Skunk

Original description—*Spilogale saxatilis* Merriam, N. Am. Fauna, No. 4, October 8, 1890:13.

Type locality—Provo, Utah County, Utah.

Synonyms—Spotted Skunk, part; Civet Cat, part.

Range—Extreme northeastern corner of State, in Modoc and Lassen counties, and south near Nevada line at least to north end of Lake Tahoe (Mus. Vert. Zool.). Altitudes of known occurrence extend from 4200 feet (at Susanville) up to 6200 feet (near Tahoe City). Life-zone, chiefly Upper Sonoran, but also Transition locally. Most places of capture, in or near broken lava escarpments of rock outcrops.

Spilogale gracilis gracilis Merriam

Grand Cañon Spotted Skunk

Original description—*Spilogale gracilis* Merriam, N. Am. Fauna, No. 3, September 11, 1890:83.

Type locality—Grand Cañon of the Colorado (3500 feet altitude), north of San Francisco Mountain, Coconino County, Arizona.

Synonyms—Spotted Skunk, part; Cañon Spotted Skunk.

Range—In California, only in Inyo County: Panamint and Inyo mountains and near vicinity of Owens Lake (Howell, N. Am. Fauna, No. 26, 1906:23; Mus. Vert. Zool.). Altitudes of capture, 3600 feet to at least 5500 feet. Life-zones, Upper and Lower Sonoran. Found on rocky, sparsely brushy slopes.

Spilogale gracilis arizonae Mearns

Arizona Spotted Skunk

Original description—*Spilogale phenax arizonae* Mearns, Bull. Am. Mus. Nat. Hist., 3, June, 1891:256–257.

Type locality—Fort Verde, Yavapai County, Arizona.

Synonyms—*Spilogale arizonae*; Spotted Skunk, part.

Range—Valley of lower Colorado River, from near Pilot Knob, Imperial County, north probably to Needles, San Bernardino County (Mus. Vert. Zool.). Altitudes of occurrence, below 500 feet. Life-zone, Lower Sonoran. Captured in belt of arrowweed in river bottom.

Mephitis mephitis occidentalis Baird

Northern California Striped Skunk

Original description—*Mephitis occidentalis* Baird, Pac. R. R. Rept., 8, 1857, Mammals:194.

Type locality—Petaluma, Sonoma County, California.

Synonyms—*Mephitis mephitica*; *Mephitis mesomelas*; *Mephitis varians*; *Chincha occidentalis*; *Chincha platyrhina*, part; *Mephitis platyrhina*, part; *Mephitis occidentalis occidentalis*; California Skunk; Striped Skunk, part; Polecat, part; Broad-nosed Skunk, part.

Range—Nearly all of western and northwestern California south from Oregon line to about latitude of Monterey, east to Sierra Nevada as far south at least as Fresno County; also (less typically subspecies *occidentalis*) south along eastern side of Sierra Nevada from Mono Lake to lower part of Owens Valley. Some easternmost stations: Shasta Valley, Siskiyou County; Fort Crook, Shasta County; Mineral, Tehama County; Chinquapin, Mariposa County; Dunlap, Fresno County; Independence, Inyo County (Howell, N. Am. Fauna, No. 20, 1901:35; Mus. Vert. Zool.). Altitudinally, extends from sea level up regularly to 4000 feet, locally or exceptionally up to 7000 feet (as near Mono Lake). Metropolis of abundance lies in Upper Sonoran life-zone, but range also includes Transition (especially in northwestern humid coast belt) and locally (as in Owens Valley) Lower Sonoran. Lives under wide range of habitat conditions, but most numerous on river bottomlands of valleys, in open, lower foothill territory, and along cañons in mountains; seemingly avoids dense forest and heavy chaparral.

NOTE—The name combinations for our striped skunks here used were adopted upon the advice of Dr. E. R. Hall, who has been making a special study of mustelid taxonomy.

***Mephitis mephitis holzneri* Mearns**

Southern California Striped Skunk

Original description—*Mephitis occidentalis holzneri* Mearns, Proc. U. S. Nat. Mus., 20, January 12, 1897:461.

Type locality—San Isidro Ranch (within 2 miles of United States boundary and 19 miles east from Pacific seacoast), Lower California, Mexico.

Synonyms—*Mephitis occidentalis*, part; *Mephitis Americana*; *Chincha occidentalis holzneri*; *Chincha platyrhina* Howell, N. Am. Fauna, No. 20, August 31, 1901:39 (type from South Fork of Kern River, "25 miles east of Kernville" [= 3 miles above Onyx], Kern County); *Mephitis platyrhina*, part; Striped Skunk, part; Broad-nosed Skunk, part; Broad-nosed Striped Skunk; Lower California Skunk; Southern California Skunk.

Range—Most of southern California west of Mohave and Colorado deserts and north from Mexican line to about latitude of Monterey (where intergradation with *M. m. occidentalis* takes place); east to include Kern River basin on west flank of southern Sierra Nevada (Howell, *loc. cit.*:38; Mus. Vert. Zool.). Altitudes of known occurrence extend from sea level up to 6500 feet (in San Bernardino Mountains). Life-zone, chiefly Upper Sonoran; but range includes Lower Sonoran and Transition locally. Inhabits wide variety of terrain, but for most part avoids heavy chaparral and forest; most numerous in vicinity of permanent fresh water.

***Mephitis mephitis major* (A. H. Howell)**

Great Basin Striped Skunk

Original description—*Chincha occidentalis major* Howell, N. Am. Fauna, No. 20, August 31, 1901:37-38.

Type locality—Fort Klamath, Klamath County, Oregon.

Synonyms—*Mephitis occidentalis*, part; *Mephitis occidentalis major*; Striped Skunk, part; Great Basin Skunk.

Range—"Great Basin" portion of State, that is, northeastern corner and eastern margin south from Oregon line to Lake Tahoe. Westernmost station, Eagle Lake, Lassen County; southernmost station, Tahoe City, Placer County (Mus. Vert. Zool.). Altitudes of capture extend from 4000 feet (at Honey Lake, Lassen County) up at least to 6200 feet (at Lake Tahoe). Life-zones, Upper Sonoran and Transition. Frequents mainly vicinity of streams or bodies of water, and more open parts of uplands.

Mephitis mephitis estor* Merriam*Arizona Striped Skunk**

Original description—*Mephitis estor* Merriam, N. Am. Fauna, No. 3, September 11, 1890:81-82.

Type locality—San Francisco Mountain [Little Spring, at north base, 8200 feet altitude], Coconino County, Arizona.

Synonym—Arizona Skunk.

Range—Valley of Colorado River, from Needles, San Bernardino County, to Mexican line in Imperial County (Mus. Vert. Zool.). Altitudinal range in California apparently altogether below 500 feet. Life-zone, Lower Sonoran. Inhabits chiefly river bottomlands.

Taxidea taxus neglecta* Mearns*California Badger**

Original description—*Taxidea americana neglecta* Mearns, Bull. Am. Mus. Nat. Hist., 3, June 5, 1891:250-251.

Type locality—Fort Crook [near Burgettville], Shasta County, California.

Synonyms—*Meles labradoria*; *Taxidea Americana*, part; *Taxidea Americana* var. *Californica*; *Taxidea americana neglecta*; *Taxidea taxus*; Western Badger, part; American Badger.

Range—Nearly entire State from Mexican line west and northwest of Colorado and Mohave deserts, north to Oregon line east of extreme northwestern coastal strip; but general range interrupted, because of animal's preference for levelish, open, unforested territory. No zonal restriction in evidence; recorded from near sea level in coast counties up to as high as 10,000 feet altitude on alpine meadows of southern Sierra Nevada.

Taxidea taxus berlandieri* Baird*Mexican Badger**

Original description—*Taxidea berlandieri* Baird, Pac. R. B. Rept., 8, 1857, Mammals: 205.

Type locality—Llano Estacado, Texas, near border of New Mexico.

Synonyms—*Taxidea Americana*, part; Western Badger, part; Texas Badger.

Range—Southeastern portion of State as comprised chiefly in Mohave and Colorado deserts. Recorded from near Mexican line in Imperial County north as far as neighborhood of Laws, Inyo County; and from Colorado River Valley west to Fairmont, Los Angeles County, San Jacinto, Riverside County, and La Puerta Valley, San Diego County (Mus. Vert. Zool.). Altitudinally, extends from 200 feet below sea level (in Death Valley) up at least to 6200 feet (in Panamint Mountains).

FAMILY CANIDAE Wolves and Foxes***Vulpes fulva necator* Merriam****Sierra Nevada Red Fox**

Original description—*Vulpes necator* Merriam, Proc. Wash. Acad. Sci., 2, December 23, 1900:664-665, pl. 36, fig. 2.

Type locality—Whitney Meadow, 9500 feet altitude, Sierra Nevada, Tulare County, California.

Synonyms—*Vulpes macrourus*; *Vulpes alopec var. macrurus*; *Vulpes vulgaris pennsylvanicus*; *Vulpes pennsylvanica macrurus*; *Vulpes fulvus argentatus*; *Vulpes fulva macroura*; *Vulpes cascadiensis*; Red Fox; High Sierra Red Fox; Cascade Red Fox; Mountain Red Fox; Cross Fox; Silver Fox; Black Fox.

Range—Chiefly high Sierra Nevada above 7000-foot contour, occurring north probably quite continuously from vicinity of Monache Meadows, Tulare County, to Sierra County. Also the two mountain masses of which Lassen Peak and Mount Shasta are, respectively, the highest points; westernmost reported station of capture, near Coffee, Trinity County, in Trinity Mountains west of Mount Shasta (Grinnell, Dixon, and Linsdale MS, in Mus. Vert. Zool.). Altitudinally, extends from 4500 feet (at Buck Meadows, Tuolumne County) to 11,500 feet (on south side of Cirque Peak, Tulare County). Life-zones, mainly Hudsonian and Canadian. Inhabits almost all sorts of ground to be found within general range of species.

NOTE—A population of Red Foxes is established on the floor of the Sacramento Valley, mostly in the vicinity of the Marysville Buttes. Pelts have been reported taken from the vicinity of Corning, Tehama County, south to the plains south of Marysville, in Sutter County. The subspecific status of the foxes of this area has not been determined. There is a possibility that a stock of Eastern origin was planted there some time prior to about 1885.

***Vulpes macrotis mutica* Merriam**

San Joaquin Kit Fox

Original description—*Vulpes muticus* Merriam, Proc. Biol. Soc. Wash., 15, March 22, 1902:74.

Type locality—Tracy, San Joaquin County, California.

Synonyms—*Vulpes macrotis*, part; Kit Fox, part; Swift Fox, part.

Range—San Joaquin Valley of south-central California. On west side occurred formerly north to Tracy, San Joaquin County, on east side to Lagrange, Stanislaus County; southernmost point of known occurrence, Rose Station, Kern County, near mouth of Tejon Cañon. Now restricted to driest stretches in southern and western portions of valley. Not known to range altitudinally higher than 1200 feet. Inhabits open plains.

***Vulpes macrotis macrotis* Merriam**

Long-eared Kit Fox

Original description—*Vulpes macrotis* Merriam, Proc. Biol. Soc. Wash., 4, February 18, 1888:135-138.

Type locality—Riverside, Riverside County, California. More exactly, on western margin of San Jacinto Plain in vicinity of Box Springs, within 10 miles southeast of Riverside (Ade F. Stephens).

Synonyms—Kit Fox, part; Big-eared Kit Fox, part.

Range—Open, level parts of San Diegan subfaunal district, from Alessandro, Perris, and San Jacinto valleys, Riverside County, northwest at one time to San Fernando Valley, Los Angeles County. Believed to be now extinct; last captured in 1903. Life-zone, Lower Sonoran.

***Vulpes macrotis arsipus* Elliot**

Desert Kit Fox

Original description—*Vulpes arsipus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:256.

Type locality—Daggett, Mohave Desert, San Bernardino County, California.

Synonyms—*Vulpes macrotis*, part; *Vulpes velox*; Kit Fox, part; Big-eared Kit Fox, part; Mohave Desert Kit Fox.

Range—Colorado and Mohave deserts: west from border of Colorado River valley to Palm Springs, Riverside County, and Victorville, San Bernardino County; north from near Mexican line, in Imperial County, to vicinity of Oasis, in Mono County. Altitudinally extends from below sea level, as in Death Valley and around Salton Sea, up to 5000 feet. Inhabits level desert floors, especially where sandy, irrespective of vegetational conditions.

Urocyon cinereoargenteus townsendi Merriam

Townsend Gray Fox

Original description—*Urocyon californicus townsendi* Merriam, N. Am. Fauna, No. 16, October 28, 1899:103-104.

Type locality—Baird, Shasta County, California.

Synonyms—*Canis Virginianus*, part; *Vulpes virginianus*, part; *Urocyon cinereoargenteus*, part; *Urocyon virginianus littoralis*, part; *Urocyon californicus*, part; *Urocyon cinereoargenteus californicus*, part; *Urocyon virginianus virginianus*; *Urocyon virginianus scottii*, part; *Urocyon californicus sequoiensis* Dixon, Univ. Calif. Publ. Zool., 5, February 12, 1910:303-305 (type from Lagunitas, Marin County, California); *Urocyon cinereoargenteus sequoiensis*; Gray Fox, part; California Gray Fox, part; Silver Gray Fox, part; Redwood Gray Fox, part.

Range—In general, foothills and lower mountain slopes of northwestern two-thirds of State. More in detail, from Oregon line south through coast belt and foothills on each side of Great Valley as far as southern Monterey and Mariposa counties; east, at north, from interior of Humboldt County to vicinity of Mount Shasta. Absent from extreme northern humid coast belt and from Modoc region. Altitudinal range, from near sea level up, locally, to at least 7500 feet. Life-zones, Upper Sonoran (characteristically) and Transition. Inhabits chiefly chaparral and oak belts, thus mostly below, or outside of, main belts of "green" forest.

Urocyon cinereoargenteus californicus Mearns

California Gray Fox

Original description—*Urocyon cinereoargenteus californicus* Mearns, Proc. U. S. Nat. Mus., 20, January 12, 1897:459-460.

Type locality—8000 feet altitude [= Tahquitz Valley], in San Jacinto Mountains, Riverside County, California.

Synonyms—*Canis Virginianus*, part; *Vulpes virginianus*, part; *Vulpes littoralis*, part; *Urocyon virginianus littoralis*, part; *Urocyon californicus*, part; *Urocyon cinereoargenteus*, part; *Urocyon cinereo-argentatus*; *Urocyon virginianus scottii*, part; Gray Fox, part; Silver Gray Fox, part; Coast Fox, part; Mountain Fox.

Range—Roughly, southern California west of desert divides. Extends from Mexican boundary in San Diegan district northwest at least to Ventura County and thence northeast around southern end of San Joaquin Valley through foothills of Sierra Nevada at least to Tulare County. Intergradation between races *californicus* and *townsendi* takes place gradually in regions immediately to northward of Ventura and Tulare counties, respectively. Altitudinally occurs from near sea level at seacoast up as high, locally, as 8000 feet. Life-zones, Upper Sonoran (chiefly) and Transition. Lives mainly within the great belts of chaparral.

Urocyon cinereoargenteus scottii Mearns

Arizona Gray Fox

Original description—*Urocyon virginianus scottii* Mearns, Bull. Am. Mus. Nat. Hist., 3, [June 5,] 1891:236-238.

Type locality—Pinal County, Arizona.

Synonyms—*Urocyon cinereoargenteus*, part; *Urocyon cinereo-argenteus inyoensis* Elliot, Field Columb. Mus., zool. ser., 3, March, 1904:268-269 (type from Beveridge Canyon [at spring at "6000 feet," in juniper belt, east slope of] Inyo Mountains, Inyo County, California); *Urocyon virginianus scottii*, part; Gray Fox, part; Scott Gray Fox; Inyo Mountains Gray Fox.

Range—Colorado and Mohave deserts and mountains included within them, from Mexican line in Imperial County north to east side of White Mountains in Mono County; west from valley of Colorado River to east slopes of San Jacinto and Santa Rosa mountains,

in Riverside County. Occurs altitudinally from within 300 feet of sea level (as near Palm Springs) up to 8000 feet. Life-zones, Lower and Upper Sonoran. Does not frequent open flat type of desert terrain, but is restricted to brushy bottomlands along streams and to rocky or brushy mountain slopes, yet always, perhaps, within easy reach of water.

Urocyon littoralis littoralis (Baird)

San Miguel Island Fox

Original description—*Vulpes (Urocyon) littoralis* Baird, Pac. R. R. Rept., 8, 1857, Mammals:143-145.

Type locality—San Miguel Island, California.

Synonyms—*Vulpes littoralis*, part; *Urocyon littoralis*, part; *Urocyon cinereo-argentatus* var. *littoralis*, part; *Urocyon virginianus littoralis*; *Urocyon cinereoargenteus littoralis*; *Canis littoralis*; Coast Fox; Short-tailed Fox; Island Fox, part.

Range—San Miguel Island, Santa Barbara County. Altitudes of occurrence, necessarily below 860 feet above the sea. Life-zone, Upper Sonoran. Lives on ground which is mostly sandy and open, free from brush and trees.

Urocyon littoralis santarosae Grinnell and Linsdale

Santa Rosa Island Fox

Original description—*Urocyon littoralis santarosae* Grinnell and Linsdale, Proc. Biol. Soc. Wash., 43, September 26, 1930:154.

Type locality—Santa Rosa Island, California.

Synonyms—*Vulpes cinereo-argentatus*, part; Island Fox, part.

Range—Santa Rosa Island, Santa Barbara County. Life-zone, Upper Sonoran. Inhabits slopes which extend from sea level to over 1500 feet altitude and which are well clothed with vegetation.

Urocyon littoralis santacruzae Merriam

Santa Cruz Island Fox

Original description—*Urocyon littoralis santacruzae* Merriam, Proc. Biol. Soc. Wash., 18, May 29, 1903:75.

Type locality—Santa Cruz Island, California.

Synonyms—*Vulpes littoralis*, part; *Urocyon littoralis*, part; *Urocyon cinereo-argentatus* var. *littoralis*, part; *Urocyon cinereoargenteus santacruzae*; Island Fox, part.

Range—Santa Cruz Island, Santa Barbara County. Life-zone, Upper Sonoran. Known to occur from sea level well up on slopes of hills highest of which reach an altitude of 2400 feet. Lives in brushy and rocky situations, foraging also along seashore.

Urocyon littoralis dickeyi Grinnell and Linsdale

San Nicolas Island Fox

Original description—*Urocyon littoralis dickeyi* Grinnell and Linsdale, Proc. Biol. Soc. Wash., 43, September 26, 1930:154.

Type locality—San Nicolas Island, California.

Synonyms—*Urocyon virginianus* var. *littoralis*; *Vulpes*; Island Fox, part.

Range—San Nicolas Island, Ventura County. Life-zone, Upper Sonoran. Altitudes of occurrence, necessarily below 900 feet above the sea. Inhabits open sandy surface of island, where there is but little shrubby vegetation to afford cover.

***Urocyon littoralis clementae* Merriam**

San Clemente Island Fox

Original description—*Urocyon clementae* Merriam, Proc. Biol. Soc. Wash., 16, May 29, 1903:75.

Type locality—San Clemente Island, California. More exactly, Smuggler's Cove [now Pyramid Cove] (Grinnell and Linsdale, MS).

Synonyms—*Urocyon littoralis*, part; Island Fox, part.

Range—San Clemente Island, Los Angeles County. Altitudes of occurrence all necessarily below 2000 feet above the sea. Life-zone, Upper Sonoran. Lives in rocky ravines, in chaparral, and in and about patches of cactus on open slopes; forages also along seashore.

***Urocyon littoralis catalinae* Merriam**

Santa Catalina Island Fox

Original description—*Urocyon catalinae* Merriam, Proc. Biol. Soc. Wash., 16, May 29, 1903:74.

Type locality—Santa Catalina Island, California.

Synonyms—*Urocyon littoralis*, part; Island Fox, part.

Range—Santa Catalina Island, Los Angeles County. Altitudes of known occurrence extend from sea level well up on sides of hills which reach to somewhat over 2000 feet above the sea. Life-zone, Upper Sonoran. Lives in chaparral and forages also along seashore.

***Canis latrans lestes* Merriam**

Mountain Coyote

Original description—*Canis lestes* Merriam, Proc. Biol. Soc. Wash., 11, March 15, 1897: 25-26.

Type locality—Toiyabe Mountains, near Cloverdale, Nye County, Nevada.

Synonyms—*Canis latrans*, part; Gray Wolf, part; Great Basin Coyote; Coyote, part.

Range—Higher parts of Sierra Nevada and northeastern plateau region, north to Oregon line; west at north from Nevada line to include Mount Shasta (Merriam, N. Am. Fauna, No. 16, 1899:103) and Trinity Mountains (Kellogg, Univ. Calif. Publ. Zool., 12, 1916:353). Extends south in Sierra Nevada throughout Mount Whitney region at least to vicinity of Monache Meadows, Tulare County (Mus. Vert. Zool.). Altitudes of occurrence extend from 4000 feet (as around Honey Lake, Lassen County) up to above timberline (for example, 11,100 feet near Mount Lyell, Tuolumne County, and 12,800 feet on slopes of Mount Langley, Tulare County). As to life-zone, metropolis lies within Boreal (that is, Canadian to Alpine-Arctic); but this race occurs also down into Upper Sonoran in Great Basin, and individuals occur to westward down through Transition, at least in winter (see Grinnell and Storer, Animal Life in the Yosemite, 1924:71). Inhabits almost all sorts of terrain, foraging widely; perhaps most plentiful in forest belts where "broken," that is, where meadows and tracts of trees or brush are interspersed.

***Canis latrans ochropus* Eschscholtz**

California Valley Coyote

Original description—*Canis ochropus* Eschscholtz, Zool. Atlas, 3, 1829:1-2, pl. 11.

Type locality—West-central California, most probably on Sacramento River not far south of Sacramento; specimens from Tracy, San Joaquin County, have been considered as likely typical (by Merriam, Proc. Biol. Soc. Wash., 11, 1897:32).

Synonyms—*Canis latrans*, part; *Chrysocyon latrans*; *Canis mearnsi*; *Canis ochropus mearnsi*; *Canis lestes*, part; *Canis ochropus ochropus*; Mearns Coyote; Valley Coyote; San Joaquin Valley Coyote; Ochraceous-footed Coyote; Prairie Wolf; Coyote, part.

Range—Throughout State west of high Sierra Nevada, and also southeast through San Diegan district and included mountains to Mexican line. At north, extends through mountains from head of Sacramento Valley at least to Shasta Valley (Merriam, N. Am. Fauna, No. 16, 1899:103); also occurs west through northern Coast Ranges to seacoast as far north at least as Humboldt Bay. This westward extension is thought to have taken place since opening up of forests through lumbering operations. Altitudinally, occurs from sea level up to at least 6800 feet (on Thomas Mountain, Riverside County). Life-zones, Upper and Lower Sonoran; coastwise, occupies Transition also, and in summer along Sierra Nevada invades Transition. Inhabits, characteristically, open plains and valley floors; penetrates country which is heavily forested, or grown thickly to chaparral, if broken here and there by clear areas.

NOTE—The three races of coyote here ascribed to California might be increased to four, as has been suggested, by the recognition of a race extending into the southern part of the San Diegan district from Lower California. But the material examined by me does not afford conclusive grounds for so doing. Indeed, the three races which are here recognized are not sharply set off; many specimens are so indeterminable by any character whatsoever that their assignment on any save geographic grounds has proved impossible to me. In other words, not only is there intergradation in the usual subspecific sense, but individual variation is so great (at least in the characters of skulls and teeth) that frequent specimens even from the metropolis of one or another of the races do not fit that race! There is a possibility suggested here, that in the last 50 years or so populations of coyotes have been abnormally mixed. Invasion of individuals out-of-bounds might well follow not only deforestation but the extermination of populations locally as a result of pest-control campaigns; a coyote-freed area would be open for invasion by animals from an adjacent faunal area where no such unnatural factor had operated to the same extent.

Canis latrans estor Merriam

Desert Coyote

Original description—*Canis estor* Merriam, Proc. Biol. Soc. Wash., 11, March 15, 1897: 31-32.

Type locality—Noland's Ranch, San Juan River, San Juan County, Utah.

Synonyms—*Canis latrans*, part; *Canis ochropus estor*; Noland's Ranch Coyote; Coyote, part.

Range—In general, Colorado and Mohave deserts; west from valley of Colorado River to Antelope Valley, northern Los Angeles County, and to San Gorgonio Pass, Riverside County; north from Mexican line in Imperial County to extreme head of Owens Valley, east of the Sierra Nevada, in Mono County. Altitudinally, extends from below sea level (—280 feet in Death Valley) up to at least 6200 feet (on Panamint Mountains, Inyo County). Metropolis of distribution lies in Lower Sonoran life-zone; but individuals occur up through Upper Sonoran on included or adjacent mountains. For most part, lives on more or less open desert floors, but probably not out of daily reach of water for drinking.

Canis lycaon nubilus Say

Plains Wolf

Original description—*Canis nubilus* Say, in Long's Exped. Rocky Mts., 1, 1823:169.

Type locality—Engineer Cantonment, near present town of Blair, Washington County, Nebraska (*sic* G. S. Miller, Smithsonian Misc. Coll., 59, 1912:2).

Synonyms—*Canis occidentalis*; *Canis lupus* var. *fusca*; *Canis occidentalis* var. *griseo-albus*; *Canis lupus griseo-albus*; *Canis gigas*; *Canis mexicanus*; Gray Wolf, part; Timber Wolf; Puget Sound Wolf; Northwestern Timber Wolf; Dusky Wolf.

Range—Formerly, doubtless, occurred far and wide through northern and eastern portions of State; no available evidence indicates presence within historic times in west-central California or in southern California west of deserts. Now probably altogether extinct within our boundaries—a result chiefly of operations against predatory animals. The last veritable wolves have held out along our eastern borders, in Modoc, Lassen, and eastern San Bernardino counties, where individuals were captured in 1922, 1924, and 1922, respectively (*Ides* Grinnell, Dixon, and Linsdale, MS).

FAMILY FELIDAE Cats

Felis onca hernandesii (Gray)

Mexican Jaguar

Original description—*Leopardus Hernandezii* Gray, Proc. Zool. Soc. London, 25, 1857: 278, pl. 58 (of "Mammalia").

Type locality—Mazatlan, Sinaloa, Mexico.

Synonyms—*Felis onca*; Tiger; Jaguar.

Range—Assumed to have formerly included Colorado Desert with adjacent Coast Ranges, and thence a strip of country north along western side of Mohave Desert as far as Tehachapi Mountains, Kern County; some early reports even indicate occurrence northwest to region between Monterey and San Francisco (see Merriam, Jour. Mammalogy, 1, 1919: 38-40). A circumstantial account of a family of jaguars seen in the Tehachapi Mountains somewhere not far from Fort Tejon, and in about the year 1855, is recorded by Hittell in "The Adventures of James Capen Adams" (Scribners, 1926:351-361). Reports from Indians, who apparently knew this species well, indicated that the last jaguar known to them to exist in the mountains along the west side of the Colorado Desert was killed "back of Palm Springs about 1860" (Strong, Jour. Mammalogy, 7, 1926:59).

Felis concolor californica May

California Mountain Lion

Original description—*Felis Californica* [May], California Game "marked down," 1896:22.

Type locality—Kern County, California; by subsequent action, restricted to upper Kern River (Nelson and Goldman, Jour. Mammalogy, 10, 1929:347).

Synonyms—*Felis concolor*, part; *Felis concolor oregonensis*, part; *Felis oregonensis oregonensis*; *Felis oregonensis californica*; *Felis hippolestes olympus*; Pacific Coast Cougar; Northwestern Puma; Mountain Lion, part; Northwestern Cougar; California Cougar; Panther.

Range—Almost throughout State except for lower, southeastern deserts; in general, limited on east by sage plains of Great Basin and by Mohave and Colorado deserts; to south, extends at least to Cuyamaca Mountains, San Diego County; to north, crosses Oregon line. (See Grinnell and Dixon, Univ. Calif. Publ. Zool., 21, 1923:326.) Greater part of population lives between altitudes of 2000 and 5000 feet; yet sea level is nearly or quite reached along coast from San Luis Obispo northward, and stragglers attain an altitude of over 11,000 feet in Mount Whitney region. Life-zone, chiefly Transition, save that toward southern end of State, Upper Sonoran is rather more commonly inhabited. Presence and numbers controlled locally by presence and abundance of deer, and deer inhabit mostly chaparral and an interrupted or mixed type of forest.

Felis concolor browni Merriam

Yuma Mountain Lion

Original description—*Felis astecus browni* Merriam, Proc. Biol. Soc. Wash., 16, May 29, 1903:73-74.

Type locality—Lower Colorado River, 12 miles south of Yuma, Arizona.

Synonyms—*Felis concolor*, part; *Felis concolor oregonensis*, part; *Felis oregonensis browni*; Mountain Lion, part; Brown Cougar; Yuma Cougar.

Range—Valley of Colorado River as far north, at least, as vicinity of Riverside Mountain; west along Mexican boundary to vicinity of Calexico, in Imperial Valley. Altitudes of known occurrence, all below 1000 feet. Life-zone, strictly Lower Sonoran. Lives mostly in heavy growths of bottomlands, but reported also from rocky uplands adjacent.

Lynx rufus californicus Mearns

California Wildcat

Original description—*Lynx rufus californicus* Mearns, Proc. U. S. Nat. Mus., 20, January 12, 1897:458.

Type locality—San Diego, California.

Synonyms—*Lynx rufus* [or *rufus*], part; *Lynx californicus*; *Lynx eremicus*, part; *Felis rufa*, part; *Felis canadensis*; *Felis rufa californica*; *Lynx eremicus californicus*; *Lynx fasciatus*, part; *Lynx fasciatus californicus*; *Lynx maculatus*, part; *Lynx canadensis*; *Lynx rufus*, var. *maculatus*, part; *Lynx (Cervaria) fasciatus oculus* Bangs, Proc. New England Zool. Club, 1, March 31, 1899:23-24 (type from Nicasio, Marin County, California); *Lynx fasciatus oculus*, part; *Felis rufa oculus*, part; *Felis maculata*; *Lynx maculatus*; American Wild Cat, part; Texas Wild Cat, part; California Bobcat; Desert Lynx, part; California Lynx; "Canada Lynx"; Bobcat, part; Lynx Cat, part; Southern Barred Wildcat, part.

Range—Main part of State west of Great Basin and southeastern deserts, and southeast of extreme northern humid coast belt. Occurs almost continuously, save on open plains and in thickly settled districts, from Oregon line, centrally, in Siskiyou region, south to, and across, Mexican line in San Diegan subfaunal district. (See Grinnell and Dixon, Univ. Calif. Publ. Zool., 21, 1924:339 ff.) Most abundant, perhaps, in foothill chaparral belt. Altitudinally, extends from sea level to at least 8500 feet (as on Mount Pinos, Ventura County). Bulk of population inhabits Upper Sonoran and Transition life-zones.

NOTE—The Canada Lynx (*Lynx canadensis* Kerr) has been reported repeatedly from California, but all the records run down have been found to pertain, by proof or with strong probability, to the California Wildcat, as indicated in the above list of synonyms.

Lynx rufus fasciatus Rafinesque

Northwestern Wildcat

Original description—*Lynx fasciatus* Rafinesque, Am. Monthly Magazine, 2, November, 1817:46.

Type locality—"North-West Coast" where "found by Capts. Lewis and Clarke"; probably near the mouth of the Columbia River (Miller, U. S. Nat. Mus. Bull., 128, 1924:160).

Synonyms—*Lynx rufus* [or *rufus*], part; *Lynx fasciatus*, part; *Lynx fasciatus oculus*, part; *Felis rufa oculus*, part; American Wild Cat, part; Southern Barred Wildcat, part; Sharp-sighted Lynx; Bobcat, part; Barred Bobcat; Lynx Cat, part.

Range—Extreme northwestern coast belt, south from Oregon line through Delnorte and Humboldt counties to and into Mendocino County. Restricted to narrow coastal strip characterized by high humidity; thence interiorly grades into *L. r. californicus*. (See Grinnell and Dixon, Univ. Calif. Publ. Zool., 21, 1924:348.) Inhabits river bottoms, brushlands, and forests. Altitudinally, ranges from sea level up to highest hilltops within area just designated. Life-zone, chiefly Transition, though occurring as well in humid coast Canadian.

Lynx rufus baileyi Merriam

Desert Wildcat

Original description—*Lynx baileyi* Merriam, N. Am. Fauna, No. 3, September 11, 1890: 79–80.

Type locality—Moccasin Spring (in Coconino County, north of Colorado River), Arizona.

Synonyms—*Lynx rufus* [or *ruffus*], part; *Lynx rufus*, var. *maculatus*, part; *Lynx maculatus*, part; *Felis rufa texensis*; *Lynx rufus eremicus* Mearns, Proc. U. S. Nat. Mus., 20, January 12, 1897:457–458 (type from New River, 6 miles northwest of Laguna Station, Colorado Desert, Imperial County, California); *Lynx eremicus*, part; *Lynx eremicus eremicus*; *Lynx rufus eremicus*; *Felis rufa eremica*; Desert Lynx, part; Desert Bobcat; Bailey Bobcat; Plateau Bobcat; Spotted Lynx; Bobcat, part; Lynx Cat, part.

Range—In general, Colorado and Mohave deserts, north from Mexican line to east flank of Sierra Nevada in Inyo and Mono counties and to desert mountains to eastward of Owens Valley, and west from the Arizona boundary to east slopes of Coast Ranges in extreme eastern San Diego County and to Antelope Valley in northern Los Angeles County (Mus. Vert. Zool.). Inhabits brushy and rocky situations, mostly in near vicinity of springs or streams. Altitudinally, known to occur from 178 feet below sea level (in Death Valley) up to 11,000 feet above sea level (at Cottonwood Lakes, Sierra Nevada). Life-zone, chiefly Lower Sonoran; but there is no absolute zonal restriction, for specimens have been taken through all zones up into Hudsonian.

Lynx rufus pallescens Merriam

Pallid Wildcat

Original description—*Lynx fasciatus pallescens* Merriam, N. Am. Fauna, No. 16, October 28, 1899:104.

Type locality—South base of Mount Adams, near Trout Lake, Skamania County, Washington.

Synonyms—*Lynx rufus* [or *ruffus*], part; *Felis rufa pallescens*; *Felis rufa*, part; Washington Lynx; Pallid Lynx; Pallid Barred Wildcat; Pallid Barred Bobcat; Bobcat, part; Lynx Cat, part.

Range—Great Basin portion of northeastern California; in other words, northeastern corner of State, from Nevada line west through Modoc and eastern Siakiyou counties to vicinity of Mount Shasta, and from Oregon line south through Modoc and Lassen counties (at least to as far as Plumas Junction, in extreme southeastern part of last-named county). (See Grinnell and Dixon, Univ. Calif. Publ. Zool., 21, 1924:350.) Inhabits all sorts of territory, but most especially broken rim-rock declivities. Altitudinally, extends (in known cases) from 4000 to 6000 feet. Life-zone, chiefly Transition; but extends into dilute tongues of Upper Sonoran such as occur in Modoc region and also up into Canadian, as on Mount Shasta (*vide* Merriam, *loc. cit.*).

Order PINNIPEDIA Fin-footed Mammals

FAMILY OTARIIDAE Eared Seals

Zalophus californianus (Lesson)

California Sea Lion

Original description—*Otaria californiana* Lesson, Diet. Class. d'Hist. Nat., 13, 1828:420.

Type locality—The coast of California.

Synonyms—*Otaria Gillespii* M'Bain, Proc. Roy. Physical Soc. Edinburgh, 1, 1858:422–428 (type from mouth of "Red River" [= Colorado River?], [Lower] California); *Zalophus gillespii*; *Arctocephalus gilliespii*; Lobo Marino; California Sea-lion.

Range—Seacoast and islands of southern California, breeding northward from below Mexican line to an islet off northwest end of San Miguel Island; occurs at times farther north, to Monterey Bay (J. Rowley, Jour. Mammalogy, 10, 1929:6 ff.) and, formerly, even to San Francisco (Bonnot, Calif. Div. Fish and Game, Fish Bull. No. 14, 1928:10).

Eumetopias jubata (Schreber)

Steller Sea Lion

Original description—*Phoca jubata* Schreber, Die Säugthiere, 3, 1778 [= 1776]:300-303, pl. 83B.

Type locality—North Pacific Ocean.

Synonyms—*Eumetopias stellerii*; *Otaria jubata*; *Arctocephalus monteriensis* Gray, Proc. Zool. Soc. London, 1859:358, 360, pl. 72 (type from Monterey); Northern Sea Lion; Steller Sea-lion.

Range—Seacoast and islands of central and northern California, breeding northward from San Miguel and Santa Rosa islands to near Oregon line (J. Rowley, Jour. Mammalogy, 10, 1929:6 ff.).

Callorhinus alascanus Jordan and Clark

Pribilof Fur Seal

Original description—*Callorhinus alascanus* Jordan and Clark, Fur Seals and Fur Seal Islands of North Pacific Ocean, pt. 3, November, 1899:2.

Type locality—Pribilof Islands, Bering Sea, Alaska.

Synonyms—*Callorhinus ursinus*, part; *Callotaria alascana*; Northern Fur Seal, part; Alaska Fur Seal.

Range—In annual migrations this fur seal occurs from January to March on ocean off northern California, south as far as vicinity of Point Conception (see Townsend, in Fur Seals and Fur Seal Islands of North Pacific Ocean, pt. 3, 1899:223-252, map). Season of appearance, December 10 to April (Starks, Calif. Fish and Game, 8, July, 1922:158). Comes ashore occasionally, by accident; for example, one near Monterey in 1925 (Bonnot, Calif. Div. Fish and Game, Fish Bull. No. 14, 1928:16).

Arctocephalus townsendi Merriam

Guadalupe Fur Seal

Original description—*Arctocephalus townsendi* Merriam, Proc. Biol. Soc. Wash., 11, July 1, 1897:178.

Type locality—Guadalupe Island, Lower California, Mexico.

Synonyms—*Callorhinus ursinus*, part; Northern Fur Seal, part.

Range—With little doubt this was the species of fur seal which was formerly resident and bred along coast and on islands of southern California (Scammon, Marine Mammals, 1874:154; Stephens, Calif. Mammals, 1906:206); also on coast of Monterey County, and on Farallon Islands up to about 1833 (Starks, Calif. Fish and Game, 8, July, 1922:155-160; Townsend, Zoologica, 9, 1931:444). There were still a few around Santa Barbara Islands up to about 1880. Now extinct north of Mexican line, or at least exceedingly rare. Reported as seen by fishermen in vicinity of Santa Barbara Islands in summer of 1929 (Townsend, Bull. New York Zool. Soc., 33, 1930:32). [Report of capture of a "two-year-old female" on a beach near San Diego, in April, 1922 (Starks, loc. cit.:159), proves to have been based on a young California Sea Lion.]

FAMILY PHOCIDAE Hair Seals

Phoca richardii geronimensis Allen

California Harbor Seal

Original description—*Phoca richardii geronimensis* Allen, Bull. Am. Mus. Nat. Hist., 16, December 12, 1902:493, 495, 496.

Type locality—San Geronimo Island, Lower California, Mexico.

Synonyms—*Phoca pealei*; *Phoca richardii*; *Phoca vitulina*; Spotted Seal; Leopard Seal; Harbor Seal; San Geronimo Harbor Seal.

Range—Seacoast, islands, and bays, from Mexican boundary to Oregon line. More or less common in San Francisco Bay, where an extensive rookery once existed near Alviso (Bonnot, Calif. Div. Fish and Game, Fish Bull. No. 14, 1928:16, 58).

Mirounga angustirostris (Gill)

Northern Elephant Seal

Original description—*Macrorhinus angustirostris* Gill, Proc. Chicago Acad. Sci., 1, 1866: 33–34.

Type locality—Saint Bartholomew's Bay [lat. 27° 40'], Lower California, Mexico.

Synonyms—Elephant Seal; Sea-elephant.

Range—Formerly north along seacoast as far as Point Reyes, Marin County (Scammon, Proc. Acad. Nat. Sci. Phila., 1869:61); occurred in numbers at Santa Barbara Island as late as 1852 (Scammon, Marine Mammals, 1874:118), and even to present day stragglers occasionally appear north of Mexican line. For example, in August, 1925, an individual was reported as seen in a rookery of sea lions at San Miguel Island (bulletin of Santa Barbara Museum of Natural History for September, 1926:7); another, a "gigantic male," seen March 27, 1927, half a mile offshore at Santa Barbara Island (J. R. Pemberton, in letter of June 2, 1930); and one "killed by fishermen in September, 1929," off San Diego (Townsend, Bull. New York Zool. Soc., 33, 1930:31; Huey, Jour. Mammalogy, 11, 1930:229). Present metropolis lies around certain islands off western side of Lower California where apparently increasing.

Order PRIMATES Men, Apes, Monkeys, etc.

FAMILY HOMINIDAE Men

Homo sapiens sapiens Linnaeus

Caucasian

Original description—[*Homo*] *sapiens* Linnaeus, Systema Naturae, ed. 10, 1, 1758:20.

Type locality—Upsala, Sweden (*vide* Miller, U. S. Nat. Mus. Bull., 123, 1924:172).

Synonyms—White Man; Yankee; American; European; Englishman; German; Italian; Spaniard; etc.

Status—Non-native, but now thoroughly established and spreading and increasing, chiefly by immigration, at an amazing rate. First came, as voluntary pioneers, in year 1769, settling in a few coastal localities. Increased but slowly until about 1850 when great numbers arrived from many parts of the world. Disposition aggressive and tendencies destructive, especially of natural habitats, as result of which much of native mammal life, including the endemic race of man (*H. s. americanus*), has been reduced; indeed, some species and subspecies have already disappeared as a result directly or indirectly of the white man's activities. Altitudinally, *H. s. sapiens* ranges from 250 feet below sea level (as around Salton Sea) up to over 14,000 feet above sea level (on highest peaks, sporadically in summer). Thrives best in Upper Sonoran and Transition life-zones. There are seeming indications that this subspecies does not do so well where populations have become settled for long in the Lower Austral life-zone.

Homo sapiens americanus Linnaeus**American Indian**

Original description—[*Homo sapiens*] *americano* Linnaeus, Systema Naturae, ed. 10, 1, 1758:20.

Type locality—Eastern North America.

Synonyms—Red Man; Redskin; Native; Savage; Amerind, etc.

Status—The native race of *Homo sapiens*. Formerly, up to about 1850, numerous and widely distributed, but with many local variants—"cultures" and tribes. Now gone in many parts of former range and reduced everywhere; indeed, approaching extinction, as result of a losing competition with the aggressive and more resourceful, alien *H. s. sapiens*.

Homo sapiens asiaticus Linnaeus**Mongolian**

Original description—[*Homo sapiens*] *asiaticus* Linnaeus, Systema Naturae, ed. 10, 1, 1758:21.

Type locality—Asia.

Synonyms—Chinese; Japanese; etc.

Status—Non-native; now established in moderate numbers by voluntary invasion, but began to arrive only long after the first Caucasians.

Homo sapiens afer Linnaeus**Negro**

Original description—[*Homo sapiens*] *afer* Linnaeus, Systema Naturae, ed. 10, 1, 1758:22.

Type locality—Africa.

Synonyms—Black Man; Colored Man; etc.

Status—Originally introduced forcibly by Caucasian into eastern North America; thence spread westward voluntarily, becoming well established of late years in certain southern and west-central parts of this State. Seems to thrive best in the warmer life-zones.

Order RODENTIA Rodents**FAMILY SCIURIDAE Common Squirrels, Chipmunks, etc.*****Marmota flaviventer flaviventer* (Audubon and Bachman)****Yellow-bellied Marmot**

Original description—*Arctomys flaviventer* Audubon and Bachman, Proc. Acad. Nat. Sci. Phila., October, 1841:99-100.

Type locality—"Mountains between Texas and California"; fixed as Mount Hood, Oregon (Howell, N. Am. Fauna, No. 37, 1915:39).

Synonyms—*Marmota flaviventris*, part; *Arctomys caligata* [?]; Yellow-bellied Woodchuck, part; Ground-hog, part; Woodchuck, part.

Range—Northern Sierra Nevada from vicinity of Lake Tahoe northward, and thence north to Oregon line in eastern Siskiyou and Modoc counties; recorded definitely north to Penoyar, Siskiyou County, and Steele Swamp and Shields Creek (Warner Mountains), Modoc County, and south to Glen Alpine Springs, Eldorado County (Mus. Vert. Zool.). Altitudinally, extends from 4100 feet (at Steele Swamp) up at least to 8000 feet (near Lassen Peak). Life-zones, Transition (even down into Upper Sonoran in Modoc region) and Canadian. Inhabits broken rock outcrops and neighboring meadows, and open parts of forest floors where logs and stumps afford at least partial protection for burrows.

Marmota flaviventer sierrae A. H. Howell

Southern Sierra Nevada Marmot

Original description—*Marmota flaviventris sierrae* Howell, N. Am. Fauna, No. 37, April 7, 1915:43, pl. 4, fig. 4.

Type locality—Head of Kern River, 9300 feet altitude, in Tulare County, near Mount Whitney, California.

Synonyms—*Arctomys monax*; *Marmota flaviventris*, part; Yellow-bellied Marmot, part; Yellow-bellied Woodchuck, part; Sierra Marmot; Woodchuck, part; Ground-hog, part.

Range—Southern Sierra Nevada, north to include Yosemite section; recorded south as far as Cannell Meadow, Tulare County, and at north intergrades with race *M. f. flaviventer* in the region of Tuolumne and Alpine counties (Mus. Vert. Zool.). Extends altitudinally from 7300 feet (at Silver Lake, Mono County) to 12,000 feet (in Army Pass, Inyo County). Life-zones, Canadian to Alpine-Arctic. Lives in edges of meadows where rocks or logs provide protection supplementing that afforded by burrows.

Marmota flaviventer fortirostris Grinnell

White Mountains Marmot

Original description—*Marmota flaviventer fortirostris* Grinnell, Univ. Calif. Publ. Zool., 21, November 7, 1921:242-243, fig. 5.

Type locality—McAfee Meadow, 11,800 feet, White Mountains, Mono County, California.

Synonyms—*Marmota flaviventris parvula*; Nevada Marmot; Woodchuck, part.

Range—Higher parts of White Mountains, in Mono and Inyo counties; recorded from near White Mountain Peak south to near Blanco Mountain (Mus. Vert. Zool.). Altitudes of known occurrence, from 9300 feet up to 12,500 feet. Life-zones, Transition to Alpine-Arctic. Have home precincts within mounds of large-sized rocks resulting from breaking up of outcrops.

Citellus beecheyi beecheyi (Richardson)

Beechey Ground Squirrel

Original description—*Arctomys (Spermophilus) beecheyi* Richardson, Fauna Boreali-Americana, 1, 1829:170, pl. 12B.

Type locality—"Neighborhood of San Francisco and Monterey, in California." Hereby restricted to Monterey, Monterey County, because the collector of the type, surgeon Alexander Collie, of the "Blossom," is known to have had most opportunity, while at that place, actually to preserve specimens.

Synonyms—*Spermophilus beecheyi*, part; *Sciurus californicus* [?, of Lesson, 1847]; *Spermophilus grammurus beecheyi*, part; *Citellus variegatus*; *Citellus variegatus beecheyi*; *Citellus grammurus beecheyi*; *Otospermophilus beecheyi*; *Otospermophilus grammurus beecheyi*; *Citellus beecheyi nudipes*; California Ground Squirrel; Beechey's Marmot; Beechey Spermophile; Digger Squirrel, part.

Range—In general, greater part of southern and west-central California, north from Mexican line to San Francisco, and west of desert divides. In detail: Northward limits marked by Golden Gate, San Francisco Bay, Carquinez Strait, Suisun Bay, by the Sacramento River to Marysville Buttes, and by a line thence northwestwardly through Feather River country to southern Lassen County (Merriam, U. S. Dept. Agric., Bur. Biol. Surv. Circ., 76, 1910:2-3). South from this last point, covers both slopes of Sierra Nevada (below about 7000-foot contour) to Yosemite region, but thence south, to Tulare County, only western slope. Along eastern border of range, from Tulare County south to Riverside County, race *beecheyi* grades into race *fisheri*; mid-line of this belt of intergradation swings west so as to exclude the arid southern end of San Joaquin Valley (Bakersfield region) and, in southern California, runs so as to leave to eastward, Tehachapi, Tejon, San Bernardino, and San Jacinto mountains (Grinnell and Dixon, Bull. Calif. Comm. Hort.,

7, 1918 [1919]:603). Altitudinal range, sea level to 8200 feet (as near Merced Lake, Yosemite National Park). Most abundant in Upper Sonoran life-zone, but plentiful also in Lower Sonoran and Transition; extends sparingly and locally, on Sierra Nevada, up nearly through Canadian. Inhabits a variety of territory, including dry open plains, grain fields, grassy hillsides, rocky slopes either gentle or steep, and sparse woods; most numerous in open situations, and avoids altogether dense chaparral, thick forest, and marshy ground.

Citellus beecheyi fisheri (Merriam)

Fisher Ground Squirrel

Original description—*Spermophilus beecheyi fisheri* Merriam, Proc. Biol. Soc. Wash., 8, December 28, 1893:133-134.

Type locality—"Kern Valley, . . . 25 miles above [= east of] Kernville" [that is, valley of South Fork of Kern River 3 miles above Onyx], Kern County, California (see A. B. Howell, Jour. Mammalogy, 4, 1923:266).

Synonyms—*Spermophilus beecheyi*, part; *Spermophilus grammurus fisheri*; *Citellus variegatus fisheri*; *Citellus grammurus fisheri*; *Otospermophilus beecheyi fisheri*; *Otospermophilus grammurus fisheri*; *Spermophilus grammurus beecheyi*, part; *Citellus beecheyi parvulus* A. H. Howell, Jour. Mammalogy, 12, May 14, 1931:160 (type from Shepherd Canyon, Argus Mountains, Inyo County, California); Fisher Spermophile; Digger Squirrel, part.

Range—Roughly, western borderlands of Mohave Desert, north into Inyo region and south as far as northwestern arm of Colorado Desert. More in detail, western side of Owens Valley including adjacent east slope of Sierra Nevada north to vicinity of Mammoth, Mono County; east from southern end of Owens Lake through Coso, Argus, and northern section of Panamint mountains; extreme southern Sierra Nevada, including drainage basin of Kern River; southern end of San Joaquin Valley (south of Tulare Lake), and Carrizo Plain country, southeastern San Luis Obispo County; Tehachapi, Tejon, San Bernardino, San Jacinto, and Santa Rosa mountains, and desert borders immediately adjacent (Grinnell and Dixon, Bull. Calif. Hort. Comm., 7, 1918 [1919]:637). Altitudinal range, 250 feet (in southern Tulare County) to 10,500 feet (on San Jacinto Peak). Life-zones, Lower Sonoran to Canadian, but metropolis in Upper Sonoran. Frequents chiefly open, or semi-open, ground—plains, bare hills, sparsely wooded slopes, and rock-strewn mountain sides.

Citellus beecheyi nesioticus Elliot

Catalina Island Ground Squirrel

Original description—*Citellus nesioticus* Elliot, Field Columb. Mus., zool. ser., 3, March, 1904:263-264.

Type locality—[Near Avalon], Santa Catalina Island, Los Angeles County, California.

Synonyms—*Spermophilus beecheyi*, part; *Otospermophilus nesioticus*; Island Spermophile.

Range—Santa Catalina Island, from near sea level well up toward summits of higher hills. Life-zone, Upper Sonoran. Inhabits grassy hillsides, and slopes clothed sparsely with chaparral and patches of cactus.

Citellus douglasii (Richardson)

Douglas Ground Squirrel

Original description—*Arctomys? (Spermophilus?) Douglasii* Richardson, Fauna Boreali-Americana, 1, 1829:172.

Type locality—Probably somewhere in southern Oregon. The type was "a hunter's skin," "from the banks of the Columbia" River.

Synonyms—*Citellus variegatus douglasii*; *Spermophilus grammurus douglasii*; *Spermophilus douglasii*; *Citellus beecheyi douglasii*; *Spermophilus grammurus beecheyi*, part;

Citellus grammurus douglasii; *Otospermophilus grammurus douglasii*; Douglas Spermophile; Digger Squirrel, part.

Range—Northwestern section of State, north from San Francisco Bay, Carquinez Strait, and Suisun Bay to Oregon line; west of lower Sacramento River, and north of a diagonal line from just north of Marysville Buttes northeastward to Nevada boundary near southern limit of Modoc County. At south, not known, as yet, to reach Golden Gate; formerly stopped about at a line joining Point Reyes Station and Petaluma, thence extending nearly or quite to Benicia and to southern end of range of hills west of Vacaville; of recent years (to 1931) has spread south in Marin County west of San Rafael to the very shore of San Francisco Bay (Mailliard, Jour. Mammalogy, 13, 1932:73). The ranges of *douglasii* and *beecheyi* do not, so far as known, anywhere quite meet (Merriam, U. S. Dept. Agric., Bur. Biol. Surv. Circ., 76, 1910:3; Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:644-645). Altitudinal range, near sea level to 6800 feet (on Scott Mountains, Siskiyou County). Life-zones, Upper Sonoran and Transition; extends into Lower Sonoran along western side of Sacramento Valley. Inhabits chiefly hilly country, such as is characterized by clearings or by glades on slopes among scattered oaks or pines; locally invades bottomlands of stream courses, but avoids heavy chaparral and thick woods.

Citellus grammurus grammurus (Say)

Rock Squirrel

Original description—*S[ciurus]. grammurus* Say, in Long's Exped. Rocky Mts., 2, 1823:72.

Type locality—Purgatory River, near mouth of Chacuaco Creek, Las Animas County, Colorado (*vide* Cary, N. Am. Fauna, No. 33, 1911:87).

Synonyms—*Citellus grammurus*; *Citellus variegatus grammurus*; Plateau Ground Squirrel; Rocky Mountain Ground Squirrel; Colorado Rock Squirrel.

Range—Providence Mountains, in eastern San Bernardino County. Specimens reported from 5000 to 5500 feet altitude (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:651). Life-zone, Upper Sonoran. Also reported from "the canyons of the Colorado River" . . . "on the east side of the Mohave Desert" (Merriam, U. S. Dept. Agric., Bur. Biol. Surv. Circ., 76, 1910:2).

Citellus oregonus (Merriam)

Oregon Ground Squirrel

Original description—*Spermophilus oregonus* Merriam, Proc. Biol. Soc. Wash., 12, March 24, 1898:69.

Type locality—Swan Lake Valley, Klamath Basin, Klamath County, Oregon.

Synonyms—*Citellus beldingi*, part; *Spermophilus richardsoni*; Oregon Spermophile; Bull Dog; Prairie Dog, part; Gopher, part; Bobby; Sand Rat; Short-tail; Woodchuck, part; Belding Ground Squirrel, part; Picket-pin, part.

Range—Northeastern corner of State, including eastern Siskiyou County, Modoc County, most of Lassen County, and northern part of Plumas County. More in detail, west from Nevada line to vicinity of Goose Nest Mountain, in central Siskiyou County, and to vicinity of Wilson Lake, in extreme eastern Tehama County, a little to southwest of Lassen Peak; south from Oregon line to last-named locality and to valley of Susan Creek, in Lassen County (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:652; Mus. Vert. Zool). Altitudinal range, 3300 to 9000 feet. Life-zones, Upper Sonoran and Transition; enters Canadian in places, as on Warner Mountains and near Lassen Peak. Inhabits chiefly mountain meadows, and borders of meadowlands in valleys; rarely leaves open grassland.

Citellus beldingi (Merriam)

Belding Ground Squirrel

Original description—*Spermophilus beldingi* Merriam, Ann. New York Acad. Sci., 4, December 28, 1888:317–320.

Type locality—Donner [= Summit], Placer County, California.

Synonyms—*Spermophilus elegans*; *Colobotis beldingi*; Belding Spermophile; Bob-tailed Spermophile; Prairie Dog, part; Picket-pin, part.

Range—Higher parts of central Sierra Nevada; recorded from vicinity of Independence Lake, Nevada County, southeast to McGee Creek, in Long Valley, Mono County (Mus. Vert. Zool.), and to Coyote Flat and McMurry Meadow, west of Big Pine, in Inyo County (Garlough, Jour. Mammalogy, 5, 1924:68). Altitudinal range, 6500 feet (on western shore of Mono Lake) up to 11,800 feet (on Mount Conness). Life-zone, chiefly Hudsonian; but extends down through Canadian and even well into Transition on eastern slope of Sierra Nevada (as in Long Valley). Restricted, as a rule, to damp meadowlands; but where abundant, invades dry grassy slopes and more or less brushy stream sides.

Citellus mollis stephensi (Merriam)

Stephens Soft-haired Ground Squirrel

Original description—*Spermophilus mollis stephensi* Merriam, Proc. Biol. Soc. Wash., 12, March 24, 1898:69–70.

Type locality—Queen Station, near head of Owens Valley [just across the California line], in Mineral County [formerly a part of Esmeralda County], Nevada.

Synonyms—Stephens Spermophile; Picket-pin, part; Stephens Ground Squirrel.

Range—Within this State, very restricted; namely, arid valleys of Mono County, from southeastern shore of Mono Lake east to extreme head of Owens Valley in vicinity of Benton Station, and south to near Watterson Canyon on east side of Owens River in Long Valley; and, in eastern Lassen County, from Karlo, 21 miles northeast of Susanville, south to near south end of Honey Lake (Mus. Vert. Zool.). Altitudinal range, 4100 to 7300 feet. Life-zone, chiefly Upper Sonoran. Inhabits unwooded, sagebrush-covered flats.

Citellus mohavensis (Merriam)

Mohave Ground Squirrel

Original description—*Spermophilus mohavensis* Merriam, N. Am. Fauna, No. 2, October 30, 1889:15.

Type locality—Mohave River, California; more exactly, near Rabbit Springs, about 15 miles east of Mohave River at [opposite] Hesperia, in San Bernardino County (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:667).

Synonyms—*Citellus tereticaudus mohavensis*; Mohave Desert Spermophile; Mohave Desert Ground Squirrel, part.

Range—Western parts of Mohave Desert, from near Haiwee (10 miles south of Owens Lake), Inyo County, south to near Palmdale, northern Los Angeles County, and thence east to Oro Grande (Mus. Vert. Zool.) and Rabbit Springs, San Bernardino County. Altitudinal range, 2300 to 4000 feet. Life-zone, Lower Sonoran. Inhabits sandy or gravelly desert floor sparsely grown to such xerophilous shrubbery as sand burr and creosote bush.

Citellus tereticaudus tereticaudus (Baird)**Yuma Round-tailed Ground Squirrel**

Original description—*Spermophilus tereticaudus* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 315–316.

Type locality—Old Fort Yuma, Imperial County, California.

Synonyms—*Xerospermophilus tereticaudus*; *Citellus tereticaudus mohavensis*, part; Round-tailed Spermophile; Yuma Ground Squirrel; Mohave Desert Ground Squirrel, part.

Range—In general, lowermost parts of Colorado and Mohave deserts. In detail: west from vicinity of old Fort Yuma across Imperial Valley to La Puerta (in extreme eastern San Diego County); north in Imperial Valley to southern end of Salton Sea, and along Colorado River nearly or quite to Nevada boundary; westward from vicinity of Needles and Blythe, in Colorado Valley, at least to Kramer, in west-central San Bernardino County (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:669). Altitudinal range, — 200 to 2800 feet. Life-zone, Lower Sonoran. Inhabits, as a rule, areas of wind-driven sand, with here and there creosote bushes, mesquites, or saltbushes. Distribution, discontinuous.

Citellus tereticaudus eremonomus Elliot**Death Valley Round-tailed Ground Squirrel**

Original description—*Citellus eremonomus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:243.

Type locality—Furnace Creek [Ranch], Death Valley, Inyo County, California.

Synonym—Death Valley Spermophile.

Range—Floor of Death Valley, Inyo County. So far, known only from near vicinity of Furnace Creek Ranch, — 240 to — 175 feet altitude (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:672). Life-zone, Lower Sonoran. Inhabits mesquite belt, especially where sand dunes are present also.

Citellus tereticaudus chlorus Elliot**Palm Springs Round-tailed Ground Squirrel**

Original description—*Citellus chlorus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:242.

Type locality—Palm Springs, Riverside County, California.

Synonym—Pale Spermophile.

Range—Northwestern arm of Colorado Desert, in Riverside County. Recorded from vicinity of Mecca, at northwestern end of Salton Sea, northwest to Palm Springs and Whitewater Station (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:674). Altitudinal range, — 200 to 1130 feet. Life-zone, Lower Sonoran. Inhabits sandy desert floor, usually where grown scatteringly to mesquites or creosote bushes.

Callospermophilus chrysodeirus chrysodeirus (Merriam)**Sierra Golden-mantled Ground Squirrel**

Original description—*Tamias chrysodeirus* Merriam, N. Am. Fauna, No. 4, October 8, 1890:19–20.

Type locality—Fort Klamath [mountains near], Klamath County, Oregon.

Synonyms—*Callospermophilus chrysodeirus trinitatis* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:126 (type from Trinity Mountains, east of Hoopa Valley, northwestern California); *Callospermophilus chrysodeirus mitratus* A. H. Howell, Jour. Mammalogy, 12, May 14, 1931:161 (type from South Yolla Bolly Mountain [in Tehama County ?], California); *Citellus chrysodeirus*, part; *Spermophilus chrysodeirus*, part; *Spermophilus lateralis*; *Callospermophilus lateralis*; *Callospermophilus lateralis chrysodeirus*; *Citellus chrysodeirus trinitatis*; *Tamias lateralis*, part; Gilded Squirrel; Gilded Ground Squirrel;

Sierra Mantled Ground Squirrel; Copper-headed Ground Squirrel; Copperhead; Yellow-headed Chipmunk, part; Golden Chipmunk; Side-stripe Ground Squirrel; Bummer; Trinity Ground Squirrel.

Range—Higher parts of Sierra Nevada (south to Cannell Meadow, in extreme southern Tulare County) north through Mount Lassen and Mount Shasta country nearly to Oregon line; west from Mount Shasta through Trinity, Scott, and Salmon mountains to extreme eastern Humboldt County (Merriam, *loc. cit.*); also Siskiyou Mountains, along Oregon border of western Siskiyou County, and mountain mass lying south of Trinities, in vicinity of Yolla Bolly Mountain (where Humboldt, Tehama, and Mendocino counties come together); and also Warner Mountains, in eastern Modoc County (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:676-677). Altitudinally, ranges from 4500 feet (in Trinity Mountains) up to 11,800 feet (in Mount Whitney region). Life-zones, chiefly Canadian and Hudsonian; extends down into Transition, locally, east of Sierran divide. Inhabits a variety of situations, namely, forest floors, areas of scattering chaparral, margins of mountain meadows, and steep rocky slopes, even above timberline.

***Callospermophilus chrysodeirus perpallidus* Grinnell**

Inyo Golden-mantled Ground Squirrel

Original description—*Callospermophilus chrysodeirus perpallidus* Grinnell, Univ. Calif. Publ. Zool., 17, April 25, 1918:429.

Type locality—10,300 feet altitude, near Big Prospector Meadow, White Mountains, Mono County, California.

Synonyms—*Spermophilus chrysodeirus*, part; *Callospermophilus chrysodeirus*, part; *Citellus chrysodeirus*, part; Sierra Golden-mantled Ground Squirrel, part; Inyo Mantled Ground Squirrel; Yellow-headed Chipmunk, part.

Range—Higher parts of White and Inyo mountains, in Mono and Inyo counties. Recorded south to a point in Inyo Mountains due east of Lone Pine (Elliot, Field Columb. Mus., zool. ser., 3, 1904:288). At north, occurs also in mountain mass lying between White Mountains and Sierra Nevada, in vicinity of which *perpallidus* intergrades with *chrysodeirus*; northernmost station, Mono Craters, Mono County (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:682). Altitudinal range, 7000 to 11,600 feet (near White Mountain Peak). Life-zones, Transition to Hudsonian; extends down into Upper Sonoran, locally. Inhabits forested or sparsely brushy territory from upper edge of piñon belt up to treeless area grown to grass or dwarfed sagebrush; partial to rocky slopes adjoining grassland.

***Callospermophilus chrysodeirus bernardinus* (Merriam)**

San Bernardino Golden-mantled Ground Squirrel

Original description—*Spermophilus (Callospermophilus) bernardinus* Merriam, Science, n. s., 8, December 2, 1898:782.

Type locality—San Bernardino Peak, San Bernardino County, California.

Synonyms—*Spermophilus chrysodeirus brevicaudus* Merriam, Proc. Biol. Soc. Wash., 8, December 28, 1893:134 (type from San Bernardino Peak, San Bernardino Mountains, California) [name pre-occupied]; *Citellus chrysodeirus bernardinus*; *Callospermophilus bernardinus*; *Tamias chrysodeirus brevicaudus*; *Tamias lateralis*, part; San Bernardino Ground Squirrel; San Bernardino Spermophile; San Bernardino Yellow-headed Chipmunk; San Bernardino Mantled Ground Squirrel.

Range—Higher parts of San Bernardino Mountains. Altitudinal range, 6700 feet (at Bear Lake) to 11,485 feet (on summit of San Gorgonio Peak). Life-zones, Canadian and Hudsonian; reaches down onto Transition slopes locally. Inhabits forest floors and slopes clothed sparsely with chaparral (manzanita, chinquapin, and deer brush); especially plentiful where rocks and logs afford shelter.

Ammospermophilus leucurus leucurus* Merriam*Desert Antelope Ground Squirrel**

Original description—*Tamias leucurus* Merriam, N. Am. Fauna, No. 2, October 30, 1889:19–21.

Type locality—San Gorgonio Pass [east of Banning], Riverside County, California.

Synonyms—*Citellus leucurus vinnulus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:241 (type from Keeler, Inyo County, California); *Citellus leucurus*; *Citellus harrisi*; *Spermophilus leucurus*; *Tamias harrisi*; *Spermophilus harrisi*; *Citellus vinnulus*; *Ammospermophilus leucurus vinnulus*; Antelope Ground Squirrel; Antelope Chipmunk, part; Antelope Squirrel; Harris Chipmunk; White-tailed Spermophile; Charming Spermophile; Ammo.

Range—Mohave and Colorado desert regions, north almost continuously from Mexican boundary line into Inyo region, and thence, interruptedly, along or near Nevada boundary nearly to Oregon line. Recorded north through Owens Valley to Benton, Mono County; re-enters State again, still farther north, in Lassen County (specimens in Mus. Vert. Zool. from Ball's Cañon, 15 miles northeast of Susanville), and in Modoc County (eastern side of Surprise Valley: Mailliard, Proc. Calif. Acad. Sci., ser. 4, 16, 1927:347); west from Colorado River to high on sides of mountains forming western limits of the deserts, in some places "spilling over" onto Pacific slope—for example, through Walker and Kelso passes, in Kern County, down valley of South Fork of Kern River to as far at least as Weldon; extends through San Gorgonio Pass, Riverside County, to beyond Cabezon. Westernmost record station, Fairmont, in northern Los Angeles County. In southern California, there are at least two outlying colonies on Pacific side of desert divides, namely, in San Jacinto Valley, Riverside County, and in Lytle Creek wash, near San Bernardino (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]: 688–689). Altitudinal range, — 250 feet (in Death Valley) up to 8500 feet (in Inyo Mountains). Life-zone, chiefly Lower Sonoran, but extends locally clear through Upper Sonoran and even enters Transition (as at north base of Sugarloaf, 7500 feet altitude, in San Bernardino Mountains). Thrives in wide variety of associations, just so aridity mark the general environment—mesquite-crowned sand dunes, gravelly flats or slopes in creosote bush belt, tree-yucca belt, sagebrush territory, piñon belt, and even rock slides.

Ammospermophilus nelsoni nelsoni* (Merriam)*Nelson Antelope Ground Squirrel**

Original description—*Spermophilus nelsoni* Merriam, Proc. Biol. Soc. Wash., 8, December 28, 1893:129–130.

Type locality—Tipton, Tulare County, California.

Synonyms—*Citellus nelsoni*; Nelson Spermophile; Nelson Ground Squirrel, part; Antelope Chipmunk, part.

Range—Floor of southern end of San Joaquin Valley (chiefly south of Tulare Lake), and adjacent arid hills and isolated valleys immediately to westward. Recorded from vicinity of Bakersfield (8 miles northeast) and Poso, in central Kern County, west to Carrizo Plain and Cuyama Valley, in southeastern San Luis Obispo County; north to Huron, Fresno County, and Tipton, Tulare County; south to mouth of San Emigdio Creek, in southwestern Kern County (Taylor, Univ. Calif. Publ. Zool., 17, 1916:17–18; Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:696). Altitudinal range, 250 to 2200 feet. Life-zone, Lower Sonoran. Inhabits arid, grassy or sparsely brushy plains and hillsides, especially in saltbush belt.

***Ammospermophilus nelsoni amplus* Taylor**

Los Baños Antelope Ground Squirrel

Original description—*Ammospermophilus nelsoni amplus* Taylor, Univ. Calif. Publ. Zool., 17, October 3, 1916:15-17.

Type locality—"Twenty miles south of Los Baños, Merced County," California; better stated, near mouth of Little Panoche Creek, western Fresno County.

Synonyms—*Ammospermophilus nelsoni*, part; Nelson Ground Squirrel, part; Antelope Chipmunk, part; Los Baños Antelope Chipmunk.

Range—West side of central San Joaquin Valley, from southwestern Merced County in vicinity of Los Baños southeast to Hayes Station (B. M. 502) on lower Panoche Creek and to vicinity of Mendota, in western Fresno County (Grinnell and Dixon, Bull. Calif. Comm. Hort., 7, 1918 [1919]:703). Altitudinal range, 175 to 800 feet. Life-zone, Lower Sonoran. Inhabits dry open valley floor, and adjacent arid foothills; affects grassy or sparsely brushy ground, particularly in saltbush belt.

***Eutamias alpinus* (Merriam)**

Alpine Chipmunk

Original description—*Tamias alpinus* Merriam, Proc. Biol. Soc. Wash., 8, December 28, 1893:137-138.

Type locality—Big Cottonwood Meadows, 10,000 feet altitude, Sierra Nevada, Inyo County, California.

Synonyms—*Tamias minimus alpinus*; *Eutamias minimus alpinus*.

Range—High Sierra Nevada, from Mount Conness, Tuolumne County (Howell, N. Am. Fauna, No. 52, 1929:35), south to Olancha Peak, Tulare County (Mus. Vert. Zool.). Altitudinal range, 7600 feet (Horse Corral Meadows, Fresno County) up to 12,600 feet (Mount Gould, Fresno County). Life-zone, characteristically Hudsonian, but also, locally, Alpine-Arctic. Lives chiefly among rocks and "down" timber; essentially terrestrial.

***Eutamias minimus pictus* (Allen)**

Sagebrush Chipmunk

Original description—*Tamias minimus pictus* Allen, Bull. Am. Mus. Nat. Hist., 3, June, 1890:115.

Type locality—Kelton, Boxelder County, Utah.

Synonyms—*Tamias pictus*; *Eutamias pictus*; Great Basin Chipmunk; Painted Chipmunk.

Range—Great Basin territory in northeastern portion of State; extends from Oregon line south along east side of Sierra Nevada as far as Monache Meadows and Olancha Peak, Tulare County, and farther east to Mazourka Cañon, Inyo Mountains, Inyo County; west, at north, from Nevada line to Mount Hebron, Siskiyou County, and Eagle Lake, Lassen County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:40). Altitudinal range, 4500 feet (near Alturas, Modoc County) up to 10,500 feet (Big Prospector Meadow, White Mountains, Mono County). Life-zone, chiefly Upper Sonoran, but also Transition and even Canadian locally, provided right habitat be present. Lives very restrictedly in sagebrush.

***Eutamias amoenus amoenus* (Allen)**

Klamath Chipmunk

Original description—*Tamias amoenus* Allen, Bull. Am. Mus. Nat. Hist., 3, June, 1890:90.

Type locality—Fort Klamath, Klamath County, Oregon.

Synonyms—*Tamias quadrivittatus*, part; *Tamias asiaticus quadrivittatus*; *Eutamias amoenus ochraceus*, part; Ochraceous Chipmunk, part; Sacramento Chipmunk, part.

Range—Mountainous parts of northern California entirely east of humid coast belt; west, at north, from the Warner Mountains, Modoc County, through Mount Shasta

region to Salmon Mountains in extreme southwestern Siskiyou County; south from Trinity Mountains as far as vicinity of South Yolla Bolly Mountain in southwestern Tehama County, and from Oregon line north of Mount Shasta into northern Sierra Nevada at least as far as Webber Lake, Sierra County (where begins to pass into subspecies *monoensis*) (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:63). Altitudinal range, 3600 feet (near Sisson, Siskiyou County) up to 8700 feet (on Warren Peak, Warner Mountains, Modoc County). Life-zone, characteristically Canadian, but Transition also, in considerable measure. Inhabits chaparral, both of a pure type and where broken or mixed with trees; almost altogether terrestrial, with retreats among rocks or in logs.

***Eutamias amoenus ochraceus* A. H. Howell**

Ochraceous Chipmunk

Original description—*Eutamias amoenus ochraceus* Howell, Jour. Mammalogy, 6, February 9, 1925:54.

Type locality—Studhorse Cañon, 6500 feet altitude, Siskiyou Mountains, Siskiyou County, California.

Range—Higher parts of Siskiyou Mountains, adjacent to Oregon line in western Siskiyou County. Altitudes of known occurrence, around 6000 feet. Life-zones, Canadian and Transition (*vide* Howell, *loc. cit.*).

***Eutamias amoenus monoensis* Grinnell and Storer**

Mono Chipmunk

Original description—*Eutamias amoenus monoensis* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:3-4.

Type locality—Warren Fork of Leevining Creek, 9200 feet altitude, Mono County, California.

Synonyms—*Tamias amoenus*, part; *Tamias quadrivittatus*, part; *Eutamias amoenus*, part; Klamath Chipmunk, part.

Range—Central Sierra Nevada, chiefly on eastward slope; south at least from Independence Lake, Nevada County, to vicinity of Mammoth Pass, Mono County; west to Cisco, Placer County, and east to Mono Craters, Mono County. Altitudinal range, 5500 feet (near Woodfords, Alpine County) up to 9400 feet (Tioga Road, east side of Tioga Pass, Mono County) (Mus. Vert. Zool.). Life-zone, chiefly Canadian. Inhabits brushy and rocky terrain; typically a ground dweller, but ascends small trees, such as mountain mahogany, to a limited extent.

***Eutamias panamintinus panamintinus* (Merriam)**

Panamint Chipmunk

Original description—*Tamias panamintinus* Merriam, Proc. Biol. Soc. Wash., 8, December 28, 1893:134-135.

Type locality—"Johnson Canyon" [more exactly, near lower edge of pifon belt at about 5000 feet altitude, in vicinity of Hungry Bill's Ranch as shown on U. S. G. S. Ballarat Quadrangle, edition of March, 1913], Panamint Mountains, Inyo County, California.

Range—That portion of California lying east of high southern Sierra Nevada; more specifically, eastern base of Sierra from Casa Diablo Hot Springs and Benton, Mono County, south to cañon west of Olancho, Inyo County, and also mountain ranges as follows: White, Inyo, Panamint, Coso, and Providence, lying in Mono, Inyo, and northeastern San Bernardino counties (Mus. Vert. Zool.; A. H. Howell, N. Am. Fauna, No. 52, 1929:79; A. B. Howell, Jour. Mammalogy, 5, 1924:34). Altitudes of known occurrence, 5500 feet (on Carroll Creek, south of Lone Pine) to 9500 feet (on Inyo Mountains at head of Mazourka Cañon). Life-zone, typically Upper Sonoran, but also Transition locally. Lives in pifon belt where, though primarily terrestrial, freely climbing the small trees.

Eutamias quadrivittatus inyoensis Merriam

Inyo Chipmunk

Original description—*Eutamias speciosus inyoensis* Merriam, Proc. Biol. Soc. Wash., 11, July 1, 1897:202, 208.

Type locality—White Mountains [southern end, at about 9000 feet altitude, near head of Black Canyon of U. S. G. S. Bishop Quadrangle, edition of May, 1913], Inyo County, California.

Synonyms—*Tamias callipeplus inyoensis*; *Tamias speciosus inyoensis*.

Range—Chiefly eastern slopes of high southern Sierra Nevada from vicinity of Mammoth Pass, Mono County, south to Little Cottonwood Creek, Inyo County; west to Bullfrog Lake, Fresno County; also higher parts of White [and Inyo?] mountains south to head of Black Cañon (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:84-86). Altitudinal range, 7500 feet (Little Onion Valley, west of Independence, Inyo County) up to 11,000 feet (at Cottonwood Lakes, southeast of Mount Whitney, Inyo County). Life-zone, chiefly Canadian, but also Hudsonian locally. Inhabits forested terrain, living among logs and stumps of forest floor and regularly tree-climbing.

Eutamias quadrivittatus frater (Allen)

Tahoe Chipmunk

Original description—*Tamias frater* Allen, Bull. Am. Mus. Nat. Hist., 3, June, 1890:88.

Type locality—Donner [= Summit], Placer County, California.

Synonyms—*Tamias quadrivittatus*, part; *Eutamias frater*; *Eutamias speciosus frater*; Sierra Nevada Chipmunk.

Range—Higher northern and central Sierra Nevada, both slopes, from near neighborhood of Lassen Peak, Shasta County, and Eagle Lake, Lassen County, south to vicinity of Mammoth Pass, Mono County, and Huntington Lake, Fresno County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:87). Intergradation between *frater* and the two subspecies *inyoensis* and *sequoiensis* takes place in vicinity of Mammoth Pass and to southwestward. Altitudinal range, 5200 feet (near Mineral, Tehama County) up to 10,700 feet (in head of Lyell Cañon, Yosemite Park). Life-zone, chiefly Canadian but also Hudsonian. Inhabits coniferous forest, usually of broken or interrupted type where access is had to adjacent open slopes or chaparral; distinctly arboreal in predilections, for a chipmunk.

Eutamias quadrivittatus sequoiensis A. H. Howell

Sequoia Chipmunk

Original description—*Eutamias speciosus sequoiensis* Howell, Jour. Mammalogy, 3, August 4, 1922:180.

Type locality—Mineral King, 7300 feet altitude, east fork of Kaweah River, Tulare County, California.

Synonyms—*Eutamias speciosus*, part; *Eutamias speciosus callipeplus*, part; San Bernardino Chipmunk, part; Mount Pinos Chipmunk, part.

Range—Upper western slope of southern Sierra Nevada, from northern parts of Fresno County, in upper San Joaquin River drainage, southeast to Taylor Meadow, in extreme southeastern Tulare County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:89). Altitudes of known occurrence extend from 5000 feet (in cañon of Kings River, Fresno County) up to 11,000 feet (on Whitney Creek, Tulare County). Life-zone, mainly Canadian, but also Hudsonian and, locally, upper part of Transition. Inhabits coniferous forests, both in solid stands and where interrupted by tracts of chaparral; freely tree-climbing.

Eutamias quadrivittatus callipeplus (Merriam)**Mount Pinos Chipmunk**

Original description—*Tamias callipeplus* Merriam, Proc. Biol. Soc. Wash., 8, December 28, 1893:136.

Type locality—Summit of Mount Pinos, 8800 feet altitude, Ventura County, California.

Synonyms—*Eutamias callipeplus*; *Eutamias speciosus callipeplus*.

Range—Restricted to Mount Pinos, on boundary between Ventura and Kern counties. Altitudinal range, 8000 feet (on north slopes) to 8800 feet (Mus. Vert. Zool.). Life-zones, Canadian and upper edge of Transition. Inhabits the open type of coniferous forest present on Mount Pinos; freely tree-climbing.

Eutamias quadrivittatus speciosus (Allen)**San Bernardino Chipmunk**

Original description—*Tamias speciosus* (Merriam, MS) Allen, Bull. Am. Mus. Nat. Hist., 3, June, 1890:86.

Type locality—San Bernardino Mountains [head of Whitewater Creek, 7500 feet altitude], San Bernardino County, California.

Synonyms—*Tamias asiaticus speciosus*; *Eutamias speciosus*, part.

Range—Much interrupted, comprising higher parts of four separate mountain masses, namely: Piute Mountains, Kern County; San Gabriel Mountains, eastern Los Angeles and western San Bernardino counties; San Bernardino Mountains, San Bernardino County; and San Jacinto Mountains, Riverside County (Howell, N. Am. Fauna, No. 52, 1929:90; Mus. Vert. Zool.). The Piute Mountains "colony" is stated (Howell, *loc. cit.*) to be intermediate in characters between *sequoiensis* of the near-by main Sierra Nevada and *speciosus* of the more southern mountain masses. Altitudes of known occurrence extend from 6500 feet (on Santa Ana River, San Bernardino Mountains) up to 10,000 feet (on San Jacinto Peak). Life-zones, Canadian and upper edge of Transition. Lives in open type of forest, especially where mixed with chaparral; distinctly arboreal in predilections.

Eutamias townsendii ochrogenys Merriam**Redwoods Chipmunk**

Original description—*Eutamias townsendii ochrogenys* Merriam, Proc. Biol. Soc. Wash., 11, July 1, 1897:195, 206, 207.

Type locality—Mendocino, Mendocino County, California.

Synonyms—*Tamias townsendii*, part; *Tamias asiaticus townsendii*, part; *Tamias townsendii ochrogenys*.

Range—Narrow humid northwest coast strip south from Oregon line to Freestone, Sonoma County; interiorly as far as Gasquet, Del Norte County, Fair Oaks and Cuddeback, Humboldt County, and Willitts, Mendocino County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:113). Altitudinal range, close to sea level (at many known points) up at least to 2300 feet (near Sherwood, Mendocino County). Life-zone, chiefly Transition. Inhabits, most characteristically, heavy undergrowths at margins of redwood forests.

Eutamias townsendii siskiyou A. H. Howell**Siskiyou Chipmunk**

Original description—*Eutamias townsendii siskiyou* Howell, Jour. Mammalogy, 3, August 4, 1922:180-181.

Type locality—6000 feet altitude, near summit of White Mountain, Siskiyou Mountains, Siskiyou County, California.

Range—Metropolis of it, in Siskiyou Mountains adjacent to Oregon line, in north-western Siskiyou County, from Preston Peak east to White Mountain. Recorded also

from Salmon Mountains (Trinity or southwestern Siskiyou County?) and from upper Van Duzen River, 12 miles east of Bridgeville (Howell, N. Am. Fauna, No. 52, 1929: 113-114); status of these colonies somewhat in doubt; intergradation of *siskiyou* with *townsendii* indicated. Altitudes of occurrence in Siskiyou Mountains, all apparently high, 6000 to 7000 feet. Life-zone, Canadian.

***Eutamias senex* (Allen)**

Allen Chipmunk

Original description—*Tamias senex* Allen, Bull. Am. Mus. Nat. Hist., 3, June, 1890:83.

Type locality—Summit of Donner Pass [7100 feet altitude], Placer County, California.

Synonyms—*Eutamias townsendii senex*; *Eutamias quadrimaculatus senex*; *Tamias asiaticus townsendi*, part; *Tamias townsendi*, part; *Eutamias townsendii sonomae*, part; Gray Chipmunk; Large Mountain Chipmunk; Sonoma Chipmunk, part.

Range—Higher mountains of northern California, west from Warner Mountains, Modoc County, through Mount Shasta and Trinity Mountain regions as far as Salmon Mountains (head of Grizzly Creek, Trinity County); south from Trinity Mountains as far as vicinity of South Yolla Bolly Mountain in southwestern Tehama County, and from near Oregon line north of Mount Shasta through Sierra Nevada as far as Shaver Lake, 5300 feet, Fresno County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929: 114-117). Seeming intergradation of *senex* with *siskiyou* is reported by Howell (*loc. cit.*); but the case for subspecific reduction of *senex* is not clear. Altitudes of known occurrence vary from 3300 feet (at Greenville, Plumas County) up to 9000 feet (on trail to Cloud's Rest, Yosemite National Park). Life-zone, prevalently Canadian, but also, locally, upper Transition. Lives in thickets and about logs on open forest floors and chaparral slopes; not a tree-climber.

***Eutamias sonomae* Grinnell**

Sonoma Chipmunk

Original description—*Eutamias sonomae* Grinnell, Univ. Calif. Publ. Zool., 12, January 20, 1915:321-325, fig. 1.

Type locality—One mile west of Guerneville, Sonoma County, California.

Synonyms—*Eutamias hindsi*, part; *Eutamias townsendii sonomae*; Marin Chipmunk, part; Hinds Chipmunk, part.

Range—Inner northern Coast Ranges and intervening valleys at least from Kuns, Trinity County, and east side of South Yolla Bolly Mountain, southwestern Tehama County, south to Freestone, Sonoma County, and near Vacaville, Solano County (Mus. Vert. Zool.). In his Revision, Howell (N. Am. Fauna, No. 52, 1929:117-119) gives localities farther north and northeast, but the present writer does not agree in the determination as *sonomae* of at least part of the pertinent specimens, such as he has seen, nor can he concur in considering *sonomae* a subspecies of *townsendii*. Altitudinal range of *sonomae*, 300 feet (near Freestone) up to 5500 feet (near Castle Peak, Mendocino County). Life-zones, Upper Sonoran and lower part of Transition. Inhabits chiefly heavy chaparral, though locally invades margins of forest.

***Eutamias alleni* A. H. Howell**

Marin Chipmunk

Original description—*Eutamias townsendii alleni* Howell, Jour. Mammalogy, 3, August 4, 1922:181.

Type locality—Inverness, Marin County, California.

Synonyms—*Tamias hindsi*; *Tamias asiaticus hindsi*; *Eutamias hindsi*; *Tamias townsendii hindsi*, part; *Eutamias townsendii alleni*; *Tamias townsendi*, part; Hinds Chipmunk, part; Redwood Chipmunk, part.

Range—Entirely within the county of Marin, from vicinity of Inverness, on Point Reyes peninsula, southeast through Mount Tamalpais country to vicinity of Muir Woods, and to northern environs of San Rafael (Mus. Vert. Zool.). Ranges altitudinally from sea level (as at Tomales Bay) well up onto slopes of Mount Tamalpais. Life-zones, Transition and, locally, Upper Sonoran. Lives in heavy chaparral.

***Eutamias quadrimaculatus* (Gray)**

Long-eared Chipmunk

Original description—*Tamias quadrimaculatus* Gray, Ann. and Mag. Nat. Hist., ser. 3, 20, December, 1867:435-436.

Type locality—Near [east of] Michigan Bluff, Placer County, California.

Synonyms—*Tamias macrorhabdotes* Merriam, Proc. Biol. Soc. Wash., 3, January 27, 1886:25-28 (type from Sierra Nevada Mountains, central California: more exactly, Blue Cañon, Placer County); *Eutamias macrorhabdotes*; *Tamias quadrivittatus*, part; *Tamias asiaticus macrorhabdotes*.

Range—Middle slopes of northern Sierra Nevada, from Greenville, Plumas County, south to Fish Camp, near Mariposa Big Trees, Mariposa County, and east to Woodfords, Alpine County (Howell, N. Am. Fauna, No. 52, 1929:121-123; Mus. Vert. Zool.). Extends altitudinally from 3200 feet (near Quincy, Plumas County) up to 7500 feet (near Silver Lake, Amador County). Life-zones, upper Transition and lower Canadian. Lives about brush patches and logs, usually in open forest or broken chaparral; seldom goes up into trees and then to a height of only a few feet above ground.

***Eutamias merriami merriami* (Allen)**

Merriam Chipmunk

Original description—*Tamias asiaticus merriami* Allen, Bull. Am. Mus. Nat. Hist., 2, October 21, 1889:176-178.

Type locality—San Bernardino Mountains ["due north of San Bernardino" at 4500 feet altitude], San Bernardino County, California.

Synonyms—*Tamias merriami*; *Tamias quadrivittatus*, part; *Tamias asiaticus quadrivittatus*; *Eutamias merriami mariposae* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:4-5 (type from El Portal, 2000 feet altitude, Mariposa County, California); Mariposa Chipmunk.

Range—Middle or upper slopes of mountains of southern California, from close to Mexican line [Jacumba, etc.] in San Diego County northwest to head of Carmel River and vicinity of Santa Lucia Peak, Monterey County, and Bear Valley, San Benito County [where begins to intergrade with subspecies *pricei*]; east to Tehachapi Peak, Kern County, and at south to Barker's Reservoir, near Desert Queen Mine, "60 miles northeast of Banning," in San Bernardino County [apparently a colony out on the Mohave Desert]; also on lower slopes (both sides) of southern Sierra Nevada—on west side from Coulterville, Mariposa County, southeast to East Fork of Kaweah River; on east side, at least in Little Onion and Onion valleys, 7500-8500 feet, Inyo County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:123-126). Altitudes of known occurrence in southern California extend from 750 feet (Matilija) up to 9000 feet (in San Jacinto Mountains); on west flank of Sierra Nevada from 700 feet (on lower Merced River) up to 5500 feet (on north fork of San Joaquin River). Life-zone, characteristically Upper Sonoran, but often enters lower part of Transition and even, locally, occurs quite through Transition Zone. A typically chaparral-inhabiting chipmunk, though often with metropolis in or about sequestered trees or logs, as in the digger pine belt. On desert slopes, characteristic of the piñon belt.

Eutamias merriami pricei (Allen)

Santa Cruz Chipmunk

Original description—*Tamias pricei* Allen, Bull. Am. Mus. Nat. Hist., 7, November 8, 1895:333-335.

Type locality—Portola, San Mateo County, California.

Synonyms—*Tamias townsendii*, part; *Tamias townsendi pricei*; *Tamias townsendi hindsi*, part; *Eutamias merriami*, part; *Eutamias hindsi pricei*; Price Chipmunk.

Range—Santa Cruz district of west-central California, from Sierra Morena, in San Mateo County, south to extreme northern Monterey County and northwestern San Benito County; recorded east to Arroyo Quito, Santa Clara County, but not east of San Francisco Bay nor in Mount Hamilton range (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:127-128). Altitudinal range, near sea level (as at Santa Cruz) up to at least 2700 feet (as on Black Mountain, Santa Clara County). Life-zone, chiefly Transition, locally Upper Sonoran. Inhabits heavy chaparral and margins of forest.

Eutamias merriami kernensis Grinnell and Storer

Kern Basin Chipmunk

Original description—*Eutamias merriami kernensis* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:5-6.

Type locality—Fay Creek, 4100 feet altitude, 6 miles north of Weldon, Kern County, California.

Synonyms—*Eutamias merriami*, part; Merriam Chipmunk, part.

Range—Chiefly upper watershed of Kern River in eastern Kern County; recorded definitely north to Jordan Hot Springs, Tulare County, and south to Havilah, Kern County; east to Walker Pass (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 52, 1929:128-129). Altitudinally, extends from 2000 feet (as on Kern River below Bodfish) up to 7000 feet (as on Kiavah Mountain). Life-zones, Upper Sonoran and Transition. Inhabits chaparral and brushy floor of open forest.

Sciurus douglasi molli-pilosus Audubon and Bachman

Redwoods Chickaree

Original description—*Sciurus molli-pilosus* Audubon and Bachman, Proc. Acad. Nat. Sci. Phila., 1, October, 1841:102.

Type locality—"Northern parts of California." [Most probably somewhere in Oregon.]

Synonyms—*Sciurus hudsonicus orarius* Bangs, Proc. Biol. Soc. Wash., 11, December 30, 1897:281, 282 (type from Philo, Mendocino County, California); *Sciurus douglasi*, part; *Sciurus bottae* [?, of Lesson, 1830]; *Sciurus douglasi orarius*; *Sciurus hudsonius douglasi*, part; Soft-furred Chickaree; Soft-haired Squirrel; Douglas Squirrel, part; Red Squirrel, part; Chickaree, part.

Range—Northwest humid coast belt, from Oregon line in Delnorte County south as far as Freestone, Sonoma County; east to South Fork Mountain, Trinity County, and Sherwood, Mendocino County (Allen, Bull. Am. Mus. Nat. Hist., 10, 1898:276; Mus. Vert. Zool.). [The repeated record from "Petaluma" is thought to be faulty.] Known altitudes of occurrence extend from close to sea level (as at Gualala, Mendocino County) up to 5500 feet (on South Fork Mountain). Life-zones, Canadian and Transition. Inhabits broken or mixed woods and margins of heavy redwood forest.

Sciurus douglasii albolimbatus Allen

Sierra Nevada Chickaree

Original description—*Sciurus douglasii albolimbatus* Allen, Bull. Am. Mus. Nat. Hist., 10, November 10, 1898:452-453.

Type locality—Blue Canyon, Placer County, California.

Synonyms—*Sciurus hudsonius californicus* Allen, Bull. Am. Mus. Nat. Hist., 3, November 14, 1890:165-166 (type from Blue Canyon, Placer County, California) [name preoccupied]; *Sciurus albolimbatus*; *Sciurus douglasii californicus*; *Sciurus fremonti*; *Sciurus douglasii*, part; *Sciurus hudsonius douglasii*, part; *Sciurus hudsonius fremonti*; California Chickaree; Sierra Chickaree; Douglas Squirrel, part; Red Squirrel, part; Chickaree, part.

Range—Entire Sierra Nevada north from Taylor Meadow (near Kern County line), Tulare County, and north through Lassen and Shasta regions to Oregon line; east at north to Warner Mountains, Modoc County, and west through Siskiyou and Trinity mountains; thence south through higher, inner Coast Ranges to Sanhedrin Mountain, Mendocino County, and Snow Mountain, Colusa County (Allen, Bull. Am. Mus. Nat. Hist., 10, 1898:280; Mus. Vert. Zool.). Altitudes of definitely recorded occurrence extend from 3000 feet (on top of Inskip Hill, Tehama County) up to 11,000 feet (at Cottonwood Lakes, Sierra Nevada, Inyo County). Life-zones, Canadian and Hudsonian; sporadically, or locally, occurs in Transition. Inhabits all sorts of forest.

NOTE—The Mearns Chickaree (*Sciurus douglasii mearnsi* Townsend), of northern Lower California, has been reported from the Laguna and Cuyamaca mountains, a few miles north of the Mexican line in San Diego County (Mearns, U. S. Nat. Mus. Bull., 56, 1907:264). No actual specimens are known to be extant, by which to verify this report.

Sciurus griseus griseus Ord

California Gray Squirrel

Original description—*Sciurus griseus* Ord, Journal de Physique, de Chimie, d'Hist. Nat. et des Arts, 87, 1818:152.

Type locality—The Dalles, Columbia River, Wasco County, Oregon (*Ado* Miller, U. S. Nat. Mus. Bull., 79, 1912:332).

Synonyms—*Sciurus heermanni* LeConte, Proc. Acad. Nat. Sci. Phila., 6, September, 1852:149 (type from California, probably central Sierran foothills in vicinity of Calaveras River, Calaveras County, California); *Sciurus fossor*, part; *Sciurus griseus nigripes*, part; *Sciurus leporinus*, part; Columbia Gray Squirrel; Gray Squirrel, part; Western Gray Squirrel; Tree Squirrel, part.

Range—Throughout Sierra Nevada and that portion of coast district north of San Francisco Bay; recorded north from Greenhorn Mountains and Kiavah Mountain, in Kern County, through Lassen and Shasta regions to Oregon line; thence westerly and south, west of Sacramento Valley and chiefly east of redwood belt, to Mount Tamalpais and vicinity, in Marin County, and near Vacaville, Solano County (Mus. Vert. Zool.). Recorded altitudes of occurrence extend from within a hundred feet of sea level (as near Inverness, Marin County) up to 7750 feet (on Jackass Meadow, Tulare County). Life-zones, Transition and Upper Sonoran; rarely enters Canadian. Inhabits open forest, or mixed forest and chaparral, usually where oaks as well as conifers are present.

Sciurus griseus anthonyi Mearns

Anthony Gray Squirrel

Original description—*Sciurus fessor anthonyi* Mearns, Proc. U. S. Nat. Mus., 20, 1898 [= March 5, 1897]:501-502.

Type locality—Campbell's ranch, Laguna Mountains, Eastern San Diego County, California.

Synonyms—*Sciurus fessor nigripes*, part; *Sciurus leporinus*, part; *Sciurus fessor*, part; *Sciurus griseus*, part; Gray Squirrel, part; Tree Squirrel, part; Black-footed Gray Squirrel, part.

Range—Mountains of southern California west of deserts, from near Mexican boundary northwest to vicinity of Mount Pinos, Ventura County (Mus. Vert. Zool.). Altitudes of record extend from 750 feet (at Oak Knoll near Pasadena) up to 9000 feet (in Round Valley, San Jacinto Mountains). Life-zone, mainly Transition; but populations live locally in Upper Sonoran and Canadian. Inhabits characteristically an open type of woods where conifers are mixed with golden oak or black oak; in places, tracts purely of live oak.

Sciurus griseus nigripes Bryant

Black-footed Gray Squirrel

Original description—*Sciurus fessor nigripes* Bryant, Proc. Calif. Acad. Sci., ser. 2, 2, June 20, 1889:25-26.

Type locality—San Mateo County, California [probably vicinity of Woodside].

Synonyms—*Sciurus fessor*, part; *Sciurus leporinus*, part; *Sciurus griseus*, part; Gray Squirrel, part; Tree Squirrel, part.

Range—Coast belt south of San Francisco Bay, from north-central San Mateo County south to extreme northwestern San Luis Obispo County; extends east in Santa Clara County to Mount Hamilton range (Scott Creek, etc.), but apparently absent from Mount Diablo and mountains east of Salinas Valley (Mus. Vert. Zool.). Altitudinally, extends from near sea level (near Santa Cruz) up to at least 3000 feet (as on Chalk Peak, Monterey County). Life-zones, Transition and Upper Sonoran. Inhabits woods, usually where golden oaks are present in addition to conifers.

Glaucomys sabrinus fuliginosus (Rhoads)

Cascade Flying Squirrel

Original description—*Sciuropterus alpinus fuliginosus* Rhoads, Proc. Acad. Nat. Sci. Phila., July 19, 1897:321.

Type locality—Cascade Mountains near Martin Station, 8000 feet altitude, Kittitas County, Washington.

Synonyms—*Sciuropterus volans fuliginosus*; Dusky Flying Squirrel, part.

Range—Enters California only along Oregon line in Siskiyou Mountains (west to Preston Peak), in western Siskiyou County (Howell, N. Am. Fauna, No. 44, 1918:47-48). Life-zone, thought to be exclusively Canadian.

Glaucomys sabrinus stephensi (Merriam)

Mendocino Flying Squirrel

Original description—*Sciuropterus oregonensis stephensi* Merriam, Proc. Biol. Soc. Wash., 13, June 13, 1900:151.

Type locality—Sherwood, Mendocino County, California.

Synonyms—*Sciuropterus alpinus stephensi*; *Sciuropterus stephensi*; *Pteromys oregonensis*, part; *Sciuropterus alpinus oregonensis*; California Coast Flying Squirrel; Stephens Flying Squirrel; Bachman Flying Squirrel; Oregon Flying Squirrel.

Range—Northwest coast belt, at least from Eureka and Blocksburg, Humboldt County, and Cecilville, Siskiyou County, south to Sherwood and Dos Rios, Mendocino County (Howell, N. Am. Fauna, No. 44, 1918:57-58; Mus. Vert. Zool.). Altitudes of capture extend from near sea level (at Eureka) up to 2300 feet (near Sherwood). Life-zone, Transition. Inhabits forest where either redwood or Douglas spruce predominates.

Glaucomys sabrinus flaviventris A. H. Howell

Trinity Flying Squirrel

Original description—*Glaucomys sabrinus flaviventris* Howell, Proc. Biol. Soc. Wash., 28, May 27, 1915:112-113.

Type locality—Head of Bear Creek, 6400 feet altitude, Trinity County, California.

Synonyms—*Sciuropterus alpinus klamathensis*; Klamath Flying Squirrel; Yellow-bellied Flying Squirrel.

Range—Scott, Salmon, and Trinity mountains, in Trinity and Siskiyou counties; and also (not typical but intergradient toward a race in Oregon) on Warner Mountains, Modoc County (L. Kellogg, Univ. Calif. Publ. Zool., 12, 1916:375; Howell, N. Am. Fauna, No. 44, 1918:54-55; Mus. Vert. Zool.). It is probably this form also that occurs on Mount Shasta (Merriam, N. Am. Fauna, No. 18, 1899:92). Altitudes of occurrence extend from 5400 feet (at Castle Lake, Siskiyou County) up to 7300 feet (at head of Parker Creek, Warner Mountains). Life-zone, characteristically Canadian. In Trinity region, inhabits forests where red fir predominates.

Glaucomys sabrinus lascivus (Bangs)

Sierra Nevada Flying Squirrel

Original description—*Sciuropterus alpinus lascivus* Bangs, Proc. New England Zool. Club, 1, July 31, 1899:69.

Type locality—Tallac, Eldorado County, California.

Synonyms—*Pteromys oregonensis*, part; *Sciuropterus volucella hudsonius*; *Sciuropterus alpinus fuliginosus*, part; *Sciuropterus alpinus californicus*, part; Cascade Mountain Flying Squirrel; Dusky Flying Squirrel, part; Frisky Flying Squirrel; California Flying Squirrel, part; Sierra Flying Squirrel.

Range—Sierra Nevada, north to old Fort Crook, Shasta County, and south to Sherman Creek, Sequoia National Park, Tulare County (Howell, N. Am. Fauna, No. 44, 1918:55-56; Mus. Vert. Zool.). Altitudinally has been found from 3000 feet (at Dudley, on Smith Creek, Mariposa County) up to 8100 feet (near Porcupine Flat, Yosemite National Park). Life-zones, Transition and Canadian. Lives as a rule in woods where either black oak or red fir is a dominant tree.

Glaucomys sabrinus californicus (Rhoads)

San Bernardino Flying Squirrel

Original description—*Sciuropterus alpinus californicus* Rhoads, Proc. Acad. Nat. Sci. Phila., July 19, 1897:323-324.

Type locality—San Bernardino Mountains, San Bernardino County, California; more exactly, Squirrel Inn, 5200 feet altitude (Howell, N. Am. Fauna, No. 44, 1918:56).

Synonyms—*Sciuropterus californicus*; *Sciuropterus volans californicus*; California Flying Squirrel, part; Sierra Madre Flying Squirrel.

Range—San Bernardino and San Jacinto mountains, in San Bernardino and Riverside counties (Grinnell, Univ. Calif. Publ. Zool., 5, 1908:138; Grinnell and Swarth, *ibid.*, 10, 1913:328; Howell, *op. cit.*:57; Sumner, Jour. Mammalogy, 8, 1927:314-316; Mus. Vert. Zool.). Altitudes of capture extend from 5200 feet (at type locality, as above) up to at least 7500 feet (at and near Bluff Lake, San Bernardino Mountains). Life-zone, Transition. Inhabits woods where black oaks or white firs are conspicuously present.

FAMILY GEOMYIDAE Pocket Gophers

Thomomys townsendii relictus Grinnell

Honey Lake Pocket Gopher

Original description—*Thomomys relictus* Grinnell, Univ. Calif. Publ. Zool., 30, August 18, 1926:2-6, pl. 1, fig. b.

Type locality—Valley of Susan River two miles south [or southeast] of Susanville, Lassen County, California.

Synonyms—*Thomomys perpallidus canus*; Gray Pocket Gopher.

Range—Bed of Honey Lake Valley, Lassen County, where exists in fine-grained, alluvial, and more or less alkaline soil in borderlands of Honey Lake proper (Wendel, Amedee, etc.) and thence up Susan River as far as Susanville (Mus. Vert. Zool.). Altitudes of known occurrence, 3900 to 4200 feet. Life-zone, Upper Sonoran.

Thomomys bottae bottae (Eydoux and Gervais)

California Coast Pocket Gopher

Original description—*Oryzomys (Saccophorus) bottae* Eydoux and Gervais, Mag. de Zool., 6, 1836:23-24, pl. 21 (fig. 4).

Type locality—Coast of California: Monterey (see Baird, Pac. R. R. Rept., 8, 1857, Mammals:391).

Synonyms—*Thomomys talpoides bulbivorus*, part; *Thomomys bulbivorus*, part; *Thomomys umbrinus*, part; *Thomomys talpoides*; California Gopher, part; California Pocket Gopher; Botta Pocket Gopher.

Range—A relatively narrow strip along seacoast south from San Francisco Bay region to San Diego. Recorded definitely north to Freestone, Sonoma County, and east in San Francisco Bay region through Contra Costa and Alameda counties as far as Tracy, San Joaquin County (Bailey, N. Am. Fauna, No. 39, 1915:45-46; Mus. Vert. Zool.). Extends altitudinally from near sea level up to at least 3000 feet (as on Chalk Peak, southern Monterey County). Life-zone, chiefly Upper Sonoran, extending into Transition close to seacoast in northern part of its range. Inhabits many sorts of ground short of that which is heaviest adobe, is rock filled, or is permanently saturated.

Thomomys bottae minor Bailey

Mendocino Pocket Gopher

Original description—*Thomomys bottae minor* Bailey, Proc. Biol. Soc. Wash., 27, July 10, 1914:116.

Type locality—Fort Bragg, Mendocino County, California.

Range—Narrow northwest coastal strip south from vicinity of Cape Mendocino, Humboldt County, to vicinity of Cazadero, Sonoma County (Bailey, N. Am. Fauna, No. 39, 1915:51); interiormost station, Guerneville, Sonoma County (Mus. Vert. Zool.). Altitudinally extends from sea level up to 500 feet—not higher so far as yet known. Life-zone, Transition. Inhabits chiefly open, flat, sandy or gravelly ground within a few miles of the seashore.

Thomomys bottae laticeps Baird

Humboldt Bay Pocket Gopher

Original description—*Thomomys laticeps* Baird, Proc. Acad. Nat. Sci. Phila., 7, April, 1855:335.

Type locality—Humboldt Bay, Humboldt County, California.

Synonyms—*Thomomys bottae*, part; Broad-headed Gopher; Broad-headed Pocket Gopher.

Range—Narrow northwest coastal strip, extending from Oregon line, in Delnorte County, south to Rio Dell, on Eel River, Humboldt County (Bailey, N. Am. Fauna, No. 39, 1915:47;

Jewett, Jour. Mammalogy, 10, 1929:80; Mus. Vert. Zool.); extends inland from seacoast a few miles up larger river valleys. Altitudes of known occurrence, all below 300 feet. Life-zone, Transition. Inhabits chiefly open, flat, sandy or alluvial ground on west side of outermost Coast Ranges.

Thomomys bottae leucodon Merriam

White-toothed Pocket Gopher

Original description—*Thomomys leucodon* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:215.

Type locality—Grants Pass, Josephine County, Oregon.

Synonyms—*Thomomys leucodon navus*, part; *Thomomys borealis* (?), part; Red Bluff Pocket Gopher, part.

Range—An extensive, though much broken, area in northern California, chiefly west of Sierran divide and east of narrow humid coast strip; south from Oregon line in Shasta Valley through inner Coast Ranges to Fairfield, Solano County, and along lower western slopes of Sierra Nevada to Placerville, Eldorado County; west at north to Cuddeback (Carlotta), Humboldt County, and east, up Pit River valley, as far as Pit River Forest Service Station, Modoc County (Mailliard, Proc. Calif. Acad. Sci., ser. 4, 16, 1927:349), and through Feather River gap to near Susanville, Lassen County (Bailey, N. Am. Fauna, No. 39, 1915:47-49; Mus. Vert. Zool.). Altitudes of capture extend from near sea level (as at Fairfield) up to 4500 feet (as near Mount Sanhedrin, Mendocino County). Life-zone, chiefly Upper Sonoran, but locally Transition also. Inhabits many sorts of ground, mostly gravelly and on open or brushy levels, or on slopes of gentle declivity.

NOTE—I have examined [December 11, 1931] two of the three specimens recorded by Bailey from Susanville (in Biol. Surv. coll.); they certainly fall within the limits of the variable race *leucodon* and apparently mark a population of it within the Great Basin drainage.

Thomomys bottae navus Merriam

Red Bluff Pocket Gopher

Original description—*Thomomys leucodon navus* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:112.

Type locality—Red Bluff, Tehama County, California.

Synonyms—*Thomomys bottae*, part; Active Pocket Gopher; Red Pocket Gopher.

Range—Floor of Sacramento Valley and immediately adjacent foothills, from Battle Creek, Tehama County, south as far as Tracy Lake, San Joaquin County (Bailey, N. Am. Fauna, No. 39, 1915:49-50; Mus. Vert. Zool.). Altitudes of occurrence extend from near sea level (as at Davis, Yolo County) up to 1500 feet (at Mokelumne Hill, Calaveras County). Inhabits chiefly alluvial valley soils, though also gravelly ground where extending into hill country.

Thomomys bottae mewa Merriam

Digger Pine Pocket Gopher

Original description—*Thomomys mewa* Merriam, Proc. Biol. Soc. Wash., 21, June 9, 1908:146.

Type locality—Raymond, Madera County, California.

Range—Digger pine belt along western base of Sierra Nevada, from Chinese, Tuolumne County, south to vicinity of Kernville, Kern County (Bailey, N. Am. Fauna, No. 39, 1915:50; Mus. Vert. Zool.). Altitudes of capture extend from 300 feet (as at Lagrange, Stanislaus County) up to 5300 feet (at Shaver Ranger Station, Fresno County). Life-zone, characteristically Upper Sonoran, but the subspecies invades Transition locally. For most part, lives in gravelly or rocky ground on open or sparsely wooded slopes.

Thomomys bottae pascalis Merriam**Fresno Pocket Gopher**

Original description—*Thomomys angularis pascalis* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:111.

Type locality—Fresno, San Joaquin Valley, California.

Synonyms—*Thomomys bulbivorus*, part; *Thomomys umbrinus*, part; *Thomomys fulvus*, part; California Gopher, part; Grazing Pocket Gopher.

Range—East side and whole southern (upper) end of floor of San Joaquin Valley (excepting bed of Buena Vista Lake), from vicinity of Stockton, San Joaquin County, south to neighborhood of Bakersfield, Kern County, and thence west as far as Cuyama Valley, San Luis Obispo County; also, less typically, on mountains around head of San Joaquin Valley—Tehachapi to Tejon Pass and San Emigdio Cañon (Bailey, N. Am. Fauna, No. 39, 1915:54 [part]). Altitudes represented by identified specimens extend from near sea level (as around Stockton) up to 5500 feet (on north flank of Mount Pinos, Ventura County). Life-zone as regards floor of San Joaquin Valley, Lower Sonoran; but Upper Sonoran is extensively occupied around southern rim of that valley. Such wide range of ground as to soil and vegetation is inhabited that it has not been found possible to draw up a generally applicable statement.

Thomomys bottae angularis Merriam**Los Baños Pocket Gopher**

Original description—*Thomomys angularis* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:214.

Type locality—Los Baños, Merced County, California.

Synonyms—*Thomomys angularis angularis*; San Joaquin Pocket Gopher; Angular Pocket Gopher.

Range—Chiefly west side of floor of San Joaquin Valley, south from vicinity of Tracy (8 miles south), San Joaquin County, to Coalinga, Fresno County; also, less typically, parts of Santa Clara, San Juan, and Salinas valleys, Santa Clara to San Luis Obispo counties (Bailey, N. Am. Fauna, No. 39, 1915:53). Altitudinally occurs from below 100 feet up to 1500 feet (at San Benito, San Benito County). Life-zone, mainly Lower Sonoran, but also Upper Sonoran in certain valleys among the Coast Ranges. Lives chiefly in fine-grained valley soils, of level open terrain.

Thomomys bottae ingens Grinnell**Buena Vista Lake Pocket Gopher**

Original description—*Thomomys bottae ingens* Grinnell, Univ. Calif. Publ. Zool., 38, September 20, 1932:405–406, pl. 7.

Type locality—East side levee, 290 feet altitude (2 miles due west of Millux, as shown on U. S. G. S. "Buena Vista Lake Quadrangle"), Buena Vista Lake, Kern County, California.

Synonyms—*Thomomys bottae pascalis*, part; Fresno Pocket Gopher, part.

Range—Bed of Buena Vista Lake "sink," Kern County; as far as now known, only east of its deepest place. Altitudes of capture, below 300 feet. Life-zone, Lower Sonoran. Inhabits ground of rich and fine-textured soil where now for most part diked and irrigated; formerly, doubtless, lands immediately bordering Buena Vista and Kern lakes.

Thomomys bottae diaboli Grinnell

Diablo Pocket Gopher

Original description—*Thomomys diaboli* Grinnell, Univ. Calif. Publ. Zool., 12, November 21, 1914:313.

Type locality—Sweeney's Ranch [near Sweeney Hill], 22 miles [by road] southwest of Los Baños, Merced County, California.

Range—The Diablo Range (or innermost series of Coast Ranges), from west side of Mount Diablo, Contra Costa County, at 1750 feet altitude, south to divide at 3000 feet altitude west of McKittrick, Kern County (Mus. Vert. Zool.). Life-zone, Upper Sonoran. Inhabits dry, gravelly or rocky hillsides, either open or where sparsely clothed with juniper or with a straggling type of chaparral.

Thomomys bottae infrapallidus Grinnell

Carrizo Plain Pocket Gopher

Original description—*Thomomys infrapallidus* Grinnell, Univ. Calif. Publ. Zool., 12, November 21, 1914:314.

Type locality—Seven miles southeast of Simmler, Carrizo Plain, San Luis Obispo County, California.

Range—Carrizo Plain, San Luis Obispo County. Altitudes of known stations of occurrence, 1900 to 2000 feet. Life-zone, Lower Sonoran. Lives in fine-grained alkaline soil of level open ground.

Thomomys bottae pallescens Rhoads

Grapeland Pocket Gopher

Original description—*Thomomys bottae pallescens* Rhoads, Proc. Acad. Nat. Sci. Phila., "June" [= February 21], 1895:36.

Type locality—Grapeland, San Bernardino County, California.

Synonyms—*Thomomys bulbivorus*, part; *Thomomys talpoides bulbivorus*, part; *Thomomys umbrinus*, part; *Thomomys talpoides umbrinus*, part; Southern Pocket Gopher; San Diego Pocket Gopher.

Range—Pacific slopes of Los Angeles, San Bernardino, and Riverside counties, but more than 10 miles inland from the seacoast, from vicinity of San Fernando southeast to San Bernardino and Riverside; also, in less typical form, up cañons and through passes of Sierra Liebre and San Gabriel Mountains to southern edge of Mohave Desert (Bailey, N. Am. Fauna, No. 39, 1915:55; Mus. Vert. Zool.). Altitudinal range, from 300 feet (near Los Angeles) to at least 3800 feet (near Cajon Pass). Life-zones, Lower Sonoran and (locally) Upper Sonoran. Found living in all sorts of ground short of heavy adobe and very rocky land, both hilly and where quite level.

Thomomys bottae neglectus Bailey

San Gabriel Mountain Pocket Gopher

Original description—*Thomomys neglectus* Bailey, Proc. Biol. Soc. Wash., 27, July 10, 1914:117.

Type locality—Bear Flat Meadows, 6400 feet altitude, San Antonio Peak, San Gabriel Mountains, San Bernardino County, California.

Synonyms—*Thomomys bottae pascalis*, part; Fresno Pocket Gopher, part; San Gabriel Pocket Gopher.

Range—Higher parts of San Gabriel Mountains, chiefly within Los Angeles County, from vicinity of type locality, as above, west to Boquet Canyon; also on mountains of which Mount Pinos, Ventura County, is highest point (see Burt, Jour. Mammalogy, 13, 1932:370). Altitudes of capture extend from 3500 to 8500 feet. Life-zones, Transition and high Upper Sonoran. Inhabits open forest floors, slopes devoid of heavy chaparral, and mountain meadows.

Thomomys bottae nigricans Rhoads**Tawny Pocket Gopher**

Original description—*Thomomys fulvus nigricans* Rhoads, Proc. Acad. Nat. Sci. Phila., "June" [= February 21], 1895:36.

Type locality—Witch Creek, San Diego County, California.

Synonyms—*Thomomys umbrinus*, part; *Thomomys fulvus*, part; *Thomomys nigricans*; *Thomomys bottae pallescens*, part; Dark-colored Gopher; Stephens Pocket Gopher; Blackish Pocket Gopher; Southern Pocket Gopher, part.

Range—San Diegan district, interiorly from seacoast and yet almost altogether on western drainage slope, from Mexican line north to west base of San Jacinto Mountains, at Schains Ranch; east to Santa Rosa Mountains and Jacumba, west to Escondido and, at Mexican line, mouth of Tia Juana River. (See Bailey, N. Am. Fauna, No. 39, 1915:57.) Extends altitudinally from near sea level up to 7500 feet (on Santa Rosa Peak). Life-zone, largely Upper Sonoran, but invades Transition locally. Inhabits open ground of wide range of soil texture.

Thomomys bottae puertae Grinnell**La Puerta Pocket Gopher**

Original description—*Thomomys nigricans puertae* Grinnell, Univ. Calif. Publ. Zool., 12, November 21, 1914:315.

Type locality—Mason's Ranch, La Puerta Valley, eastern San Diego County, California.

Range—La Puerta and San Felipe valleys, on desert side of Cuyamaca Mountain divide, in eastern San Diego County. (See Bailey, N. Am. Fauna, No. 39, 1915:58-59; Mus. Vert. Zool.) Altitudes of known occurrence, 1900 to 2500 feet. Life-zone, Lower Sonoran. Found in sandy, cultivated land, and in gravelly soil of surrounding slopes; creosote bush (*Larrea*) is most conspicuous native plant in neighborhood.

Thomomys jacinteus Grinnell and Swarth**San Jacinto Mountain Pocket Gopher**

Original description—*Thomomys jacinteus* Grinnell and Swarth, Proc. Calif. Acad. Sci., ser. 4, 4, December 30, 1914:153-159.

Type locality—Round Valley, 9000 feet altitude, San Jacinto Mountains, Riverside County, California.

Synonyms—*Thomomys altivallis*, part; San Bernardino Mountain Pocket Gopher, part.

Range—Higher parts of San Jacinto Mountains, Riverside County, extending from 8000 feet altitude in Tahquitz Valley up to 10,200 feet, near the summit of San Jacinto Peak. (See Bailey, N. Am. Fauna, No. 39, 1915:66-67.) Life-zones, high Transition and Canadian. Found chiefly in rich-soiled mountain meadows.

Thomomys cabezonae Merriam**Cabazon Pocket Gopher**

Original description—*Thomomys cabezonae* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:110.

Type locality—Cabazon, San Gorgonio Pass, Riverside County, California.

Range—San Gorgonio Pass and adjacent foothills, Riverside County; recorded east to Whitewater, west to Banning, and south to Schains Ranch, on lower western slope of San Jacinto Mountains (Bailey, N. Am. Fauna, No. 39, 1915:77). Altitudes of known occurrence, 1100 to 4900 feet (Mus. Vert. Zool.). Life-zone, chiefly Upper Sonoran, but Lower Sonoran is also occupied toward east end of San Gorgonio Pass. Inhabits sandy and gravelly ground where grown to vegetation of sufficient amount and proper kinds.

Thomomys altivallis Rhoads

San Bernardino Mountain Pocket Gopher

Original description—*Thomomys altivallis* Rhoads, Proc. Acad. Nat. Sci. Phila., "June" [= February 21], 1895:34–35.

Type locality—San Bernardino Mountains, 5000 feet altitude, San Bernardino County, California.

Synonyms—Rhoads Pocket Gopher; San Bernardino Gopher.

Range—Upper parts of San Bernardino Mountains, San Bernardino County; represented by specimens taken at localities from Doble south to Dry Lake, and west to Fawnskin Valley and Seven Oaks (Mus. Vert. Zool.). Altitudes of verified occurrence, 5000 to 9000 feet. Life-zone, chiefly Transition, but also includes Canadian locally. Inhabits mainly moist mountain meadowlands (see Grinnell, Univ. Calif. Publ. Zool., 5, 1908:150).

Thomomys alpinus alpinus Merriam

Mount Whitney Pocket Gopher

Original description—*Thomomys alpinus* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:216.

Type locality—[Big] Cottonwood Meadows, 10,000 feet altitude, 8 miles southeast of Mount Whitney, in Inyo County, California.

Synonym—Alpine Pocket Gopher.

Range—Southern high Sierra Nevada, from Sirretta Meadows, Tulare County (toward Kern County line), north at least to Whitney Creek at 10,650 feet; west to Jordan Hot Springs, Tulare County, and east to Olancha Peak (Mus. Vert. Zool.). Life-zones, almost altogether Canadian and Hudsonian. Altitudes of occurrence, 6000 to 11,000 feet. Inhabits chiefly borderlands of mountain meadows where soil texture varies from that of almost pure gravel to heavy sod.

Thomomys alpinus awahnee Merriam

Yosemite Pocket Gopher

Original description—*Thomomys alpinus awahnee* Merriam, Proc. Biol. Soc. Wash., 21, June 9, 1908:146–147.

Type locality—Yosemite Valley [4000 feet, near old Sentinel Hotel], Mariposa County, California.

Range—Western middle flanks of Sierra Nevada, from Sequoia, Tuolumne County, south to Cannell and Taylor meadows, Tulare County; thence interruptedly even to Tehachapi Peak, Kern County (Bailey, N. Am. Fauna, No. 39, 1915:64–65). Altitudes of occurrence, 3500 to 8000 feet. Life-zone, chiefly Transition. Lives chiefly in richer cañon-bottom and meadow-margin types of soil.

Thomomys perpallidus perpallidus Merriam

Palm Springs Pocket Gopher

Original description—*Thomomys talpoides perpallidus* Merriam, Science, 8, December 24, 1886:588.

Type locality—Palm Springs [formerly Agua Caliente], Riverside County, California (see Stephens, Calif. Mammals, 1906:138).

Synonyms—*Thomomys fulvus perpallidus*; Pallid Pocket Gopher, part; Pale-colored Gopher; Pale Pocket Gopher.

Range—Northwestern end of Colorado Desert, in Riverside County; recorded from Whitewater southeast to west side of Salton Sea (Bailey, N. Am. Fauna, No. 39, 1915:

69). Stations of occurrence extend from a little below sea level up to 1150 feet (toward San Gorgonio Pass), chiefly along northeast bases of San Jacinto and Santa Rosa mountains. Life-zone, Lower Sonoran. Occurs in fine-textured soil chiefly at or near mouths of cañons carrying streams, or about seepages elsewhere (see Grinnell, Univ. Calif. Chronicle, 28, 1926:255-256).

***Thomomys perpallidus albatus* Grinnell**

Imperial Valley Pocket Gopher

Original description—*Thomomys albatus* Grinnell, Univ. Calif. Publ. Zool., 10, June 7, 1912:172-173.

Type locality—California side of lower Colorado River at old Hanlon Ranch, near Pilot Knob, Imperial County.

Synonyms—*Thomomys fulvus*, part; *Thomomys perpallidus*, part; *Thomomys bottae albatus*; White Pocket Gopher; Pallid Pocket Gopher, part.

Range—West-side bottomlands of Colorado River below Yuma, and Imperial Valley, in Imperial County; recorded west from near Pilot Knob to lower course of Carrizo Creek and to Salt Creek near southwestern edge of Salton Sea (Mus. Vert. Zool.). Area of occurrence almost altogether below sea level; this race now spread practically wherever irrigation canals and ditches have carried waters of Colorado. Inhabits fine-grained "delta" soil, especially where salt-grass furnishes permanent food-supply (see Grinnell, Univ. Calif. Chronicle, 28, 1926:256).

***Thomomys perpallidus mohavensis* Grinnell**

Mohave Pocket Gopher

Original description—*Thomomys perpallidus mohavensis* Grinnell, Univ. Calif. Publ. Zool., 17, April 25, 1918:427-428.

Type locality—Mohave River bottom, 2700 feet altitude, near Victorville, San Bernardino County, California.

Synonyms—*Thomomys umbrinus*, part; *Thomomys perpallidus perpes*, part; *Thomomys aureus perpes*, part; *Thomomys bottae mohavensis*; Lone Pine Pocket Gopher, part; Mohave Desert Gopher; Mohave River Pocket Gopher.

Range—Discontinuous across Mohave Desert: vicinity of Mohave River, at least from Victorville down to Barstow; along southern rim of Mohave Desert, from Cushenbury Springs, San Bernardino County, west to Llano, Los Angeles County (Mus. Vert. Zool.). Altitudes of known occurrence, 2200 to 6000 feet. Life-zone, Lower Sonoran. Inhabits ground of fine-textured soil where also of sufficiently permanent moisture content to support perennial herbage (see Grinnell, Univ. Calif. Chronicle, 28, 1926:254 ff.).

***Thomomys perpallidus amargosae* Grinnell**

Amargosa Pocket Gopher

Original description—*Thomomys perpallidus amargosae* Grinnell, Univ. Calif. Publ. Zool., 21, November 7, 1921:239-240, fig. 3.

Type locality—Shoshone, 1560 feet, on Amargosa "River," Inyo County, California.

Synonyms—*Thomomys perpallidus aureus*; Yellow Pocket Gopher.

Range—Valley of Amargosa "River" (which leads into Death Valley), Inyo County. Altitudes of known occurrence, 1500 to 1600 feet. Life-zone, Lower Sonoran. Inhabits moist, fine-textured soil in near vicinity of permanent springs.

Thomomys perpallidus perpes Merriam

Lone Pine Pocket Gopher

Original description—*Thomomys aureus perpes* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:111.

Type locality—Lone Pine, Owens Valley, Inyo County, California.

Range—Almost continuous along eastern base of southern Sierra Nevada, from Lone Pine Creek (likely also north of there), Inyo County, south past Olancha and Little Lake to vicinities of Freeman and Rosamond, Kern County; west through Walker and Kelso passes into South Fork Valley (of the Kern River) as far as Isabella (Mus. Vert. Zool.; Los Angeles Mus.). [Bailey's (N. Am. Fauna, No. 39, 1915:72-73) concept of *perpes* proves to have been composite; in absence of opportunity of examining all his material, it is not possible to allot all his localities to the species and subspecies now recognized.] Altitudes of verified occurrence, 2500 to 5000 feet. Life-zone, chiefly Lower Sonoran, but including Upper Sonoran on slopes adjacent to Lower Sonoran parts of range. Inhabits sandy or gravelly, ordinarily quite dry soil, not only on alluvial or riparian flats but often on slopes of considerable steepness.

Thomomys perpallidus melanotis Grinnell

White Mountains Pocket Gopher

Original description—*Thomomys melanotis* Grinnell, Univ. Calif. Publ. Zool., 17, April 25, 1918:425-426.

Type locality—10,500 feet altitude on Big Prospector Meadow, White Mountains, Mono County, California.

Synonyms—*Thomomys aureus perpes*, part; *Thomomys perpallidus perpes*, part; Lone Pine Pocket Gopher, part.

Range—White Mountains and adjacent upper portion of Owens Valley, from vicinity of Big Prospector Meadow and Benton in Mono County, south to Independence, Inyo County. Intergradation with *perpes* thought to take place south of latter point (see Grinnell, Univ. Calif. Publ. Zool., 30, 1926:179). Altitudinal range, 3900 to 10,500 feet. Zonal range remarkably wide, Lower Sonoran to Canadian. Inhabits ground of varying nature, permanently moist to dry, but as a rule where fine textured and grown to grasses.

Thomomys operarius Merriam

Owens Lake Pocket Gopher

Original description—*Thomomys operarius* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:215-216.

Type locality—Keeler, Owens Lake, Inyo County, California.

Synonyms—Owens Valley Pocket Gopher; Working Pocket Gopher.

Range—Vicinity of permanent springs and seepages along east side of Owens Lake, Inyo County; all specimens examined came from near neighborhood of Keeler, 3600 feet altitude. Inhabits alkaline, sandy soil (much of it aeolian in mode of accumulation) where salt-grass (*Distichlis*) is the dominant plant (see Grinnell, Univ. Calif. Chronicle, 28, 1926:257).

Thomomys scapterus Elliot

Panamint Pocket Gopher

Original description—*Thomomys scapterus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:248-249.

Type locality—"Hannopee" [= Hanaupah] Canyon ["7500 feet," near lower edge of piñons], Panamint Mountains, Inyo County, California.

Synonyms—*Thomomys perpallidus perpes*, part; Lone Pine Pocket Gopher, part; Digger Pocket Gopher.

Range—Panamint Mountains, Inyo County; specimens examined from Johnson Canyon north to Cottonwood Canyon and Jackass Spring, and west as far as near Lee Mine, 12 miles north of Darwin (Mus. Vert. Zool.). Altitudes of verified occurrence, 5200 to 9500 feet. Life-zone, chiefly Upper Sonoran, extending up into Transition and down into Lower Sonoran only locally. Inhabits ordinarily dry ground, sandy or often coarsely gravelly and even stony.

Thomomys argusensis Huey

Argus Mountains Pocket Gopher

Original description—*Thomomys argusensis* Huey, Trans. San Diego Soc. Nat. Hist., 7, December 19, 1931:43-46.

Type locality—Junction Ranch, Argus Mountains, Inyo County, California.

Range—The Argus Mountains, Inyo County, whence known from two closely adjacent localities (Huey, *loc. cit.*). Altitude of type locality, 5725 feet.

Thomomys oreococcus Burt

Greenwater Pocket Gopher

Original description—*Thomomys oreococcus* Burt, Trans. San Diego Soc. Nat. Hist., 7, July 28, 1932:154-155.

Type locality—Greenwater, 4300 feet altitude [in Black Mountains, 8 miles southwest of Ryan], Inyo County, California.

Range—Known so far only from type locality, as above.

Thomomys providentialis Grinnell

Providence Mountains Pocket Gopher

Original description—*Thomomys providentialis* Grinnell, Univ. Calif. Publ. Zool., 38, October 17, 1931:1-10, pls. 1, 2.

Type locality—Purdy, 4500 feet altitude, 6 miles southeast of New York Mountain, Providence Range, San Bernardino County, California.

Synonyms—*Thomomys perpallidus perpes*, part; Lone Pine Pocket Gopher, part.

Range—So far as known, only vicinity of Providence Mountains, in eastern San Bernardino County. One other definite locality in this general area, besides the type locality as above, is known: pumping station at 3000 feet altitude, 3 miles north of Leastalk (Grinnell, *loc. cit.*). Life-zone, Lower Sonoran—in an upper phase of this zone. Inhabits ground of rather fine texture but of no notably high moisture content.

Thomomys quadratus quadratus Merriam

Dalles Pocket Gopher

Original description—*Thomomys quadratus* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:214-215.

Type locality—The Dalles, Wasco County, Oregon.

Range—Modoc region of northeastern California, west to Macdoel, Siskiyou County, south to near Susanville, Lassen County (Bailey, N. Am. Fauna, No. 39, 1915:115; Mus. Vert. Zool.). Altitudinally, extends from 4200 feet (near Susanville) up to at least 8700 feet (Warren Peak) on the Warner Mountains. Life-zones, Upper Sonoran, Transition, and Canadian. Inhabits dry, open ground of varying soil types, but perhaps most frequently an extremely rocky upland terrain where it is a marvel that the animals can find their way subterraneously at all.

Thomomys quadratus fisheri Merriam**Fisher Pocket Gopher**

Original description—*Thomomys fuscus fisheri* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:111-112.

Type locality—Beckwith, Sierra Valley, Plumas County, California.

Synonym—*Thomomys douglasi fisheri*.

Range—Enters eastern borders of California at several points, from Plumas County south to Mono County; southernmost stations, Casa Diablo and Convict Creek, Mono County; some other stations: Woodfords, Alpine County, and Leevining Creek, Mono County (Bailey, N. Am. Fauna, No. 39, 1915:116; Mus. Vert. Zool.). Altitudinal range (known instances), 5000 to 9200 feet. Life-zones, Upper Sonoran and Transition. Inhabits usually dry, coarse-grained soil, sometimes steep and rocky, but also sometimes meadowy.

Thomomys monticola monticola Allen**Sierra Nevada Pocket Gopher**

Original description—*Thomomys monticola* Allen, Bull. Am. Mus. Nat. Hist., 5, April 28, 1893:48.

Type locality—Mount Tallac, at 7500 feet altitude, Eldorado County, California.

Synonyms—*Thomomys borealis*, part; *Thomomys monticola pinetorum* Merriam, N. Am. Fauna, No. 16, October 28, 1899:97 (type from Sisson, Siskiyou County); California Mountain Pocket Gopher; Mountain Pocket Gopher; Pine Woods Gopher; Yellow Pine Pocket Gopher; Pine Pocket Gopher.

Range—Higher parts of northern Sierra Nevada, from Huntington Lake, Fresno County, north to Butte Creek, northeast of Mount Shasta, Siskiyou County (Mus. Vert. Zool.). Altitudes of definitely known occurrence extend from 3600 feet (near Sisson, Siskiyou County) up to at least 10,350 feet (at Vogelsang Lake, Yosemite National Park). Life-zones, Canadian and Hudsonian, entering Transition here and there, locally. Lives in edges of mountain meadows where soil is rich and moist, as well as in gravelly and even rocky ground of dry slopes.

Thomomys monticola premaxillaris Grinnell**Yolla Bolly Pocket Gopher**

Original description—*Thomomys monticola premaxillaris* Grinnell, Univ. Calif. Publ. Zool., 12, November 21, 1914:312.

Type locality—Two miles south of South Yolla Bolly Mountain, 7500 feet altitude, in Tehama County, California.

Synonyms—*Thomomys monticola pinetorum*, part; Yellow Pine Pocket Gopher, part.

Range—On, and in vicinity of, Yolla Bolly Mountain, in Trinity and Tehama counties (Mus. Vert. Zool.). Altitudes of capture extend from 4400 feet (at divide 12 miles north of North Yolla Bolly) up to 7600 feet (on Mount Linn). Life-zones, Canadian and Transition. Lives in gravelly ground on open forest floors and about margins of mountain meadows.

Thomomys monticola mazama Merriam**Mazama Pocket Gopher**

Original description—*Thomomys mazama* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:214.

Type locality—Anna Creek, 6000 feet altitude, Crater Lake, Mount Mazama, Klamath County, Oregon.

Synonyms—*Thomomys monticola pinetorum*, part; Trinity Pocket Gopher.

Range—Higher parts of Siskiyou, Scott, Salmon, and Trinity mountains, from Oregon line, in Siskiyou County, south to head of Grizzly Creek, Trinity County (Bailey, N. Am. Fauna, No. 39, 1915:123-124; Mus. Vert. Zool.). Altitudes of capture vary from 4500 to 7000 feet. Life-zones, Canadian and Hudsonian; reaches down into Transition locally. Lives on open mountain slopes in soil of coarse texture, and also in edges of meadowlands.

FAMILY HETEROMYIDAE Pocket Mice, Kangaroo Rats, etc.

Perognathus longimembris longimembris (Coues)

Tejon Pocket Mouse

Original description—*O[agnosis]*. *longimembris* Coues, Proc. Acad. Nat. Sci. Phila., August 31, 1875:305.

Type locality—Old Fort Tejon, Cañada de las Uvas, Kern County, California.

Synonyms—*Cricetodipus parvus*; *Perognathus parvus*, part; *Perognathus elibatus* Elliot, Field. Columb. Mus., zool. ser., 3, December, 1903:252 (type from Lockwood Valley, 5500 feet altitude, near Mount Pinos, Ventura County, California); *Perognathus pericalles* Elliot, Field. Columb. Mus., zool. ser., 3, December, 1903:252-253 (type from Keeler, Owens Lake, Inyo County, California); *Perognathus panamintinus*, part; *Perognathus inornatus*, part; *Perognathus panamintinus bangsi*, part; *Perognathus panamintinus brevinasus*, part; San Joaquin Pocket Mouse, part; Mount Pinos Pocket Mouse; Bangs Pocket Mouse, part; Panamint Pocket Mouse, part; Short-nosed Pocket Mouse, part; Beautiful Pocket Mouse.

Range—Mountains in near vicinity of Fort Tejon, in Kern and Ventura counties, and thence east and north over Mohave Desert, to Walker Pass region (west to Onyx, Kern County), to Owens Valley, Inyo County (north to Laws), to vicinity of Providence Mountains and Lavic, San Bernardino County; and southeast through San Gorgonio Pass region, in Riverside County, along western rim of Colorado Desert as far as La Puerta Valley, in eastern San Diego County; also, possibly, northwest sparingly through San Joaquin and Sacramento valleys to Marysville Buttes, Sutter County (Osgood, Proc. Biol. Soc. Wash., 31, 1918:95-96; Mus. Vert. Zool.). Altitudes of capture extend from close to 100 feet (as at Lodi, San Joaquin County) up to 6000 feet (toward Kearsarge Pass, west of Independence, Inyo County). Life-zones, Upper and Lower Sonoran. Inhabits open dry ground, usually of fine texture, and sandy.

Perognathus longimembris nevadensis Merriam

Nevada Pocket Mouse

Original description—*Perognathus nevadensis* Merriam, Proc. Acad. Nat. Sci. Phila., [September 27,] 1894:264.

Type locality—Halleck, East Humboldt Valley [, Elko County], Nevada.

Synonyms—*Perognathus panamintinus bangsi*, part; Bangs Pocket Mouse, part.

Range—Great Basin territory along eastern border of State: south, interruptedly, from near Eagleville, Modoc County (Mailliard, Jour. Mammalogy, 6, 1925:58), to vicinity of Benton and of Oasis, in Mono County (Mus. Vert. Zool.). Intergradation toward *P. l. longimembris* takes place south through upper part of Owens Valley, Inyo County. Altitudinal range, 4750 feet (as near Eagleville) to at least 5600 feet (near Benton). Life-zone, Upper Sonoran. Inhabits levelish ground, with fine-grained though firm texture of soil.

Perognathus longimembris panamintinus Merriam**Panamint Pocket Mouse**

Original description—*Perognathus longimembris panamintinus* Merriam, Proc. Acad. Nat. Sci. Phila., [September 27,] 1894:265.

Type locality—"Perognathus Flat, altitude 5200 feet, near Emigrant Gap" [= near B. M. 4899, 2 miles northwest of Harrisburg, on U. S. G. S. Ballarat Quadrangle, edition of March, 1913], Panamint Mountains, Inyo County, California.

Synonym—*Perognathus panamintinus panamintinus*.

Range—Panamint Mountains, in Inyo County, west at least to near Darwin (Osgood, N. Am. Fauna, No. 18, 1900:28-29; Mus. Vert. Zool.). Altitudes of capture extend from 4000 feet (in Wild Rose Canyon) up to 6300 feet (near Jackass Spring). Life-zone, Upper Sonoran chiefly. Inhabits hard-packed, fine-grained soil among bushes.

Perognathus longimembris bangsi Mearns**Bangs Pocket Mouse**

Original description—*Perognathus longimembris bangsi* Mearns, Bull. Am. Mus. Nat. Hist., 10, August 31, 1898:300.

Type locality—Palm Springs, 450 feet, Colorado Desert, Riverside County, California.

Synonyms—*Perognathus panamintinus arenicola* Stephens, Proc. Biol. Soc. Wash., 13, June 13, 1900:153 (type from San Felipe Narrows [900 feet altitude], near border of Colorado Desert, eastern San Diego County, California); *Perognathus panamintinus bangsi*; *Perognathus longimembris arenicola*; Sand-dwelling Pocket Mouse; Sand Pocket Mouse.

Range—Lower parts of Colorado Desert north along western margin of it from Mexican line in San Diego County to near Whitewater, Riverside County (Huey, Trans. San Diego Soc. Nat. Hist., 5, 1928:88; Mus. Vert. Zool.). Stations of capture extend from near sea level up to 1100 feet (at Whitewater). Life-zone, Lower Sonoran. Inhabits finely sandy ground.

Perognathus longimembris brevinasus Osgood**Short-nosed Pocket Mouse**

Original description—*Perognathus panamintinus brevinasus* Osgood, N. Am. Fauna, No. 18, September 20, 1900:30.

Type locality—San Bernardino [about 2 miles east of present city center], San Bernardino County, California.

Synonyms—*Perognathus parvus*, part; *Perognathus longimembris*, part; *Perognathus brevinasus*.

Range—Interior portion of San Diegan district, from Mexican line (near Jacumba) northwest to San Fernando, Los Angeles County (Osgood, *op. cit.*:31; Mus. Vert. Zool.). Altitudes of occurrence extend from 550 feet (at Burbank, Los Angeles County) up at least to 3100 feet (near Jacumba, San Diego County). Life-zones, high Lower Sonoran and low Upper Sonoran. Inhabits open ground of finely sandy composition.

Perognathus longimembris cantwelli von Bloeker**Cantwell Pocket Mouse**

Synonyms—*Perognathus parvus*, part; *Perognathus panamintinus brevinasus*, part; *Perognathus pacificus*, part; Pacific Pocket Mouse, part; Short-nosed Pocket Mouse, part.

Type locality—Hyperion, Los Angeles County, California.

Synonyms—*Perognathus parvus*, part; *Perognathus panamintinus brevinasus*, part; *Perognathus pacificus*, part; Pacific Pocket Mouse, part; Short-nosed Pocket Mouse, part.

Range—Narrow coastal strip in Los Angeles County, from Palisades del Rey south to Wilmington (von Bloeker, *loc. cit.*). Altitudes of capture all within a few hundred feet of sea level. Life-zone, Upper Sonoran. Inhabits sand-covered mesas and sandy washes close to seacoast.

***Perognathus longimembris pacificus* Mearns**

Pacific Pocket Mouse

Original description—*Perognathus pacificus* Mearns, Bull. Am. Mus. Nat. Hist., 10, August 31, 1898:299.

Type locality—Mexican boundary monument no. 258, shore of Pacific Ocean, near Tia Juana, San Diego County, California.

Synonyms—*Perognathus panamintinus brevinasus*, part; Short-nosed Pocket Mouse, part; San Diego Pocket Mouse.

Range—A narrow sea-facing strip of territory northwest from near mouth Tia Juana River, in extreme southwestern corner of San Diego County, to near San Juan Capistrano Point, Orange County (von Bloeker, Proc. Biol. Soc. Wash., 45, 1932:129; Mus. Vert. Zool.). All known localities of capture are below 100 feet altitude. Life-zone, Upper Sonoran. Inhabits open, weedy fields where ground is alluvial and of finely sandy consistency.

***Perognathus longimembris bombycinus* Osgood**

Yuma Pocket Mouse

Original description—*Perognathus bombycinus* Osgood, Proc. Biol. Soc. Wash., 20, February 23, 1907:19-20.

Type locality—Yuma, Yuma County, Arizona.

Range—In California, known only from vicinity of Pilot Knob, in southeastern Imperial County (Grinnell, Univ. Calif. Publ. Zool., 12, 1914:243; Huey, Trans. San Diego Soc. Nat. Hist., 5, 1928:88). Altitudes of capture are below 200 feet. Life-zone, Lower Sonoran. Inhabits tracts of fine-grained aeolian sand.

***Perognathus inornatus inornatus* Merriam**

San Joaquin Pocket Mouse

Original description—*Perognathus inornatus* Merriam, N. Am. Fauna, No. 1, October 25, 1889:15.

Type locality—Fresno, Fresno County, California.

Synonym—*Perognathus longimembris*, part.

Range—San Joaquin and Sacramento valleys, from Weldon and Rose Station, Kern County, northwest to Sites, Colusa County, and Marysville Buttes, Sutter County (Osgood, Proc. Biol. Soc. Wash., 31, 1918:95; Mus. Vert. Zool.). Altitudes of capture extend from 50 feet (at Lodi, San Joaquin County) up to 3350 feet (in Walker Basin, Kern County). Life-zones, Lower and Upper Sonoran. Inhabits dry, open, grassy or weedy ground, of fine-textured, usually sandy soil.

***Perognathus inornatus neglectus* Taylor**

McKittrick Pocket Mouse

Original description—*Perognathus longimembris neglectus* Taylor, Univ. Calif. Publ. Zool., 10, May 21, 1912:155.

Type locality—McKittrick, Kern County, California.

Range—West side of southern San Joaquin Valley, in vicinity of McKittrick, Kern County, and on Carrizo Plain, San Luis Obispo County (Mus. Vert. Zool.). Altitudes of capture extend from 1100 feet (near McKittrick) up to 2600 feet (at Santiago Spring, edge of Carrizo Plain). Life-zone, Lower Sonoran. Inhabits dry, open, grassy or weedy ground.

Perognathus parvus mollipilosus Coues

Coues Pocket Mouse

Original description—*P[erognathus]. mollipilosus* Coues, Proc. Acad. Nat. Sci. Phila., August 31, 1875:296.

Type locality—Fort Crook [about 2 miles northeast of Burgettville], Shasta County, California.

Synonyms—*Perognathus monticola*; *Perognathus monticola mollipilosus*; *Perognathus parvus olivaceus*, part; Mountain Pocket Mouse; Great Basin Pocket Mouse, part.

Range—Modoc region of northeastern corner of State, from Warner Mountains and Surprise Valley, Modoc County, west to Mount Shasta and vicinity, in Siskiyou County, and south from Oregon line to Vinton, Plumas County (Osgood, N. Am. Fauna, No. 18, 1900:37; Mus. Vert. Zool.). Altitudes of capture extend from 4000 feet (at Amedee, Lassen County) up to 7800 feet (at head of Panther Creek, Mount Shasta). Life-zones, Upper Sonoran and Transition; on Mount Shasta, extends up to "subalpine" (Merriam, N. Am. Fauna, No. 16, 1899:98). Inhabits flats and slopes clothed with chaparral, usually of type with sagebrush dominating.

Perognathus parvus olivaceus Merriam

Great Basin Pocket Mouse

Original description—*Perognathus olivaceus* Merriam, N. Am. Fauna, No. 1, October 25, 1889:15-16.

Type locality—Kelton, Boxelder County, Utah.

Synonym—*Perognathus monticola olivaceus*.

Range—Extreme eastern margin of State, in Great Basin territory, from Woodfords, Alpine County, south along east base of Sierra Nevada as far at least as Little Onion Valley, west of Independence, Inyo County (Mus. Vert. Zool.). Altitudinally, extends from 5100 feet (at Fredericksburg, Alpine County) up to 8000 feet (at Walker Lake, Mono County). Life-zones, Upper Sonoran and Transition. Inhabits slopes and flats clothed more or less heavily with sagebrush.

Perognathus parvus magruderensis Osgood

Mount Magruder Pocket Mouse

Original description—*Perognathus parvus magruderensis* Osgood, N. Am. Fauna, No. 18, September 20, 1900:38.

Type locality—Mount Magruder, 8000 feet altitude, Esmeralda County, Nevada.

Synonym—*Perognathus monticola magruderensis*.

Ranges—Mountains of Inyo region, from the White Mountains, Mono County, south to the Panamint and Coso mountains, Inyo County (Osgood, *loc. cit.*; Mus. Vert. Zool.). Definitely known altitudes of capture extend from 6100 feet (near Lee Pump, northern portion of Panamint Mountains) up to 8300 feet (on Indian Creek, east slope White Mountains). Life-zones, Upper Sonoran and Transition. Inhabits slopes clothed with sagebrush.

NOTE—There is some doubt, not yet fully sounded out, that *P. p. magruderensis* is really separable from *P. p. olivaceus*, at least in the sense that the latter name has been applied to the species as occurring within the boundaries of California.

Perognathus xanthonotus Grinnell**Walker Pass Pocket Mouse**

Original description—*Perognathus xanthonotus* Grinnell, Proc. Biol. Soc. Wash., 25, July 31, 1912:127-128.

Type locality—Freeman Canyon, 4900 feet altitude, east slope of Walker Pass, Kern County, California.

Range—Low portion of southern Sierra Nevada in vicinity of Walker Pass, Kern County (Mus. Vert. Zool.). Stations of capture extend from 4600 to 5300 feet. Life-zones, Upper Sonoran and high Lower Sonoran. Inhabits slopes clothed scatteringly with chaparral, including some sagebrush, and mostly where a kind of bunch grass grows.

Perognathus alticolus inexpectatus Huey**Mount Pinos Pocket Mouse**

Original description—*Perognathus alticola inexpectatus* Huey, Proc. Biol. Soc. Wash., 39, December 27, 1926:121-122.

Type locality—Fourteen miles west of Lebec, Kern County, California, at 6000 feet altitude [near head of Cuddy Valley].

Range—Known only from type locality as above, where found on "grassy flats among scattered yellow pines." Life-zone, Transition.

Perognathus alticolus alticolus Rhoads**White-eared Pocket Mouse**

Original description—*Perognathus alticolus* Rhoads, Proc. Acad. Nat. Sci. Phila., "December, 1893" [= January 27, 1894]:412.

Type locality—Squirrel Inn [5500 feet, near Little Bear Valley], San Bernardino Mountains, San Bernardino County, California.

Synonyms—*Perognathus alticola*; *Perognathus alticola alticola*.

Range—Western part of San Bernardino Mountains, San Bernardino County; all stations of capture are in near vicinity of Strawberry Peak (Stephens, Calif. Mammals, 1906: 166; Huey, Proc. Biol. Soc. Wash., 39, 1926:122). Altitudes extend from 5400 to 5750 feet. Life-zone, Transition. Inhabits dry floor of open pine forest where bracken grows.

Perognathus formosus formosus Merriam**Utah Long-tailed Pocket Mouse**

Original description—*Perognathus formosus* Merriam, N. Am. Fauna, No. 1, October 25, 1889:17-18.

Type locality—St. George, Washington County, Utah.

Synonyms—*Perognathus formosus mesembrinus*, part; Long-tailed Pocket Mouse, part.

Range—Inyo and Mohave Desert regions: north to Silver Canyon, in White Mountains east of Laws, Inyo County; south to Pilot Knob, Imperial County; and west from west side of Colorado River Valley to Cushenberry Springs (north base of San Bernardino Mountains, San Bernardino County) and to Warren Station, near Mohave, Kern County (Mus. Vert. Zool.). Altitudinally occurs from — 280 feet (at margin of lowest part of Death Valley) up to 8000 feet (in Hanaupah Canyon, Panamint Mountains). Life-zone, chiefly Lower Sonoran, but extends into Upper Sonoran locally where closely adjacent to Lower Sonoran. Inhabits rough terrain, often closely walled-in cañons, where ground is gravelly or even rocky.

Perognathus formosus mesembrinus* Elliot*Southwestern Long-tailed Pocket Mouse**

Original description—*Perognathus mesembrinus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:251.

Type locality—Palm Springs, Riverside County, California.

Synonyms—*Perognathus formosus*, part; Long-tailed Pocket Mouse, part; Southern Pocket Mouse.

Range—Western rim of Colorado Desert, north from near Mexican line in Imperial County to near Palm Springs, Riverside County (Nelson and Goldman, Proc. Biol. Soc. Wash., 42, 1929:104; Mus. Vert. Zool.). Altitudes of capture extend from 450 feet (near Palm Springs) up to 2300 feet (in La Puerta Valley, eastern San Diego County). Life-zone, Lower Sonoran. Inhabits gravelly or stony mesas at mouths of cañons.

Perognathus baileyi hueyi* Nelson and Goldman*Huey Pocket Mouse**

Original description—*Perognathus baileyi hueyi* Nelson and Goldman, Proc. Biol. Soc. Wash., 42, March 25, 1929:106.

Type locality—San Felipe, northeastern Lower California, Mexico.

Synonyms—*Perognathus baileyi*; Bailey Pocket Mouse.

Range—In California, occupies desert slopes of Coast Ranges in eastern San Diego County, north from Mountain Spring near Mexican line, where specimens (in Mus. Vert. Zool.) were first taken by Frank Stephens, March 24, 1909, to San Felipe Narrows (von Bloeker, Jr., Jour. Mammalogy, 13, 1932:279). Altitudes of known occurrence extend from 900 feet (at San Felipe Narrows) up to about 2500 feet (at Mountain Spring). Life-zone, chiefly Upper Sonoran—in low arid phase of this zone. Appears to live mostly on rocky, more or less steeply sloping terrain.

NOTE—There is also a record of this species for Bard, Imperial County (von Bloeker, *loc. cit.*), but the subspecies represented has not been determined.

Perognathus penicillatus penicillatus* Woodhouse*Arizona Desert Pocket Mouse**

Original description—*Perognathus penicillatus* [*sic*] Woodhouse, Proc. Acad. Nat. Sci. Phila., 6, December, 1852:200–201.

Type locality—Somewhere near San Francisco Mountain, Arizona, possibly Little Colorado Desert (see Osgood, N. Am. Fauna, No. 18, 1900:45).

Synonyms—*Perognathus penicillatus angustirostris*, part; Tuft-tailed Pocket Mouse; Colorado Desert Pocket Mouse, part; Desert Pocket Mouse, part.

Range—In California, eastern portion of Mohave Desert: south along Colorado River from Needles to near Potholes (Grinnell, Univ. Calif. Publ. Zool., 12, 1914:245–248; Mus. Vert. Zool.). Altitudes of recorded capture, all below 500 feet. Life-zone, Lower Sonoran. Inhabits open, finely sandy, river bottomlands, desert washes, and margins of alkali playas.

Perognathus penicillatus angustirostris* Osgood*Colorado Desert Pocket Mouse**

Original description—*Perognathus penicillatus angustirostris* Osgood, N. Am. Fauna, No. 18, September 20, 1900:47.

Type locality—Carrizo Creek, western edge of Colorado Desert, Imperial County, California.

Synonyms—*Perognathus penicillatus*, part; Desert Pocket Mouse, part; Slender-nosed Pocket Mouse; California Desert Pocket Mouse.

Range—Colorado Desert: east from valley of Colorado River at Fort Yuma and Pilot Knob, Imperial County, to Vallecito and La Puerta Valley, in eastern San Diego County; north from Mexican line as far as Cabezon, Riverside County (Mus. Vert. Zool.). Altitudes of capture extend from below sea level (at several localities around margin of Salton Sea) up as high as 2300 feet (in La Puerta Valley). Life-zone, Lower Sonoran. Inhabits chiefly open, sandy desert floors.

***Perognathus penicillatus stephensi* Merriam**

Stephens Desert Pocket Mouse

Original description—*Perognathus stephensi* Merriam, Proc. Acad. Nat. Sci. Phila., [September 27,] 1894:267.

Type locality—[“Edge of a little mesa” near Triangle Spring, — 13 feet, in] Mesquite Valley, [that is,] northwest arm of Death Valley, Inyo County, California.

Synonyms—*Perognathus penicillatus*, part; Desert Pocket Mouse, part; Stephens Pocket Mouse, part.

Range—Central and western portions of Mohave Desert, from Death Valley, Inyo County, south to Victorville, San Bernardino County, and to near Peck’s Butte, north-eastern Los Angeles County (Mus. Vert. Zool.). Altitudes of capture extend from near sea level (at the type locality) up to 2700 feet (at Victorville). Life-zone, Lower Sonoran. Inhabits open, sandy desert floors.

***Perognathus fallax fallax* Merriam**

San Diego Short-eared Pocket Mouse

Original description—*Perognathus fallax* Merriam, N. Am. Fauna, No. 1, October 25, 1889:19-20.

Type locality—Reche Canyon [1250 feet], 3 miles southeast of Colton, San Bernardino County, California (*vide* Osgood, N. Am. Fauna, No. 18, 1900:55).

Synonyms—Short-eared California Pocket Mouse, part; Short-eared Pocket Mouse, part.

Range—Southwestern portion of southern California, almost exclusively on Pacific drainage; from Mexican line (Tia Juana east to Jacumba) northwest to vicinity of Riverside and San Bernardino; specimens from Banning, 2500 feet, Riverside County, indicate intergradation through San Geronio Pass with *P. f. pallidus* (Mus. Vert. Zool.). Altitudes of capture extend from near sea level (as at mouth of Tia Juana River and near San Onofre, San Diego County) up to 3100 feet (near Jacumba, San Diego County). Life-zones, Lower Sonoran and Upper Sonoran. Inhabits open, sandy land, usually weed-grown.

***Perognathus fallax pallidus* Mearns**

Pallid Short-eared Pocket Mouse

Original description—*Perognathus fallax pallidus* Mearns, Proc. Biol. Soc. Wash., 14, August 9, 1901:135-136.

Type locality—Mountain Spring [about 2500 feet], east slope of Coast Range near Mexican boundary, in extreme western Imperial County, California.

Synonyms—*Perognathus fallax*, part; Short-eared California Pocket Mouse, part; Short-eared Pocket Mouse, part; Pallid Pocket Mouse.

Range—Western rim of Colorado Desert and southern margin of Mohave Desert: from Mexican line (near Mountain Spring) north along northeast slopes of main mountain divides to Cabezon, Riverside County; and at north of main San Bernardino Mountains, from Cactus Flat to Oro Grande and east to Twenty-nine Palms, San Bernardino County (Mus. Vert. Zool.). Altitudes of capture extend from 450 feet (at Palm Springs, Riverside County) up to 3500 feet (near Dos Palms Spring, Santa Rosa Mountains, Riverside

County) and 6000 feet (on Cactus Flat, north slope of San Bernardino Mountains). Life-zones, chiefly Lower Sonoran; occurs up into lower edge of Upper Sonoran locally. Inhabits tracts of open, sandy ground, often where nearly or quite surrounded by rocky slopes.

***Perognathus californicus californicus* Merriam**

Central California Pocket Mouse

Original description—*Perognathus californicus* Merriam, N. Am. Fauna, No. 1, October 25, 1889:26.

Type locality—Berkeley, Alameda County, California; more exactly, "a little swale in the hillside a few yards north of the main entrance of the [present] Stadium" (*vide* T. S. Palmer, in letter of February 22, 1932).

Synonyms—*Perognathus armatus* Merriam, *op. cit.*:27 (type from Mount Diablo, Contra Costa County, California); California Pocket Mouse, part.

Range—Coast region of west-central California, south of Golden Gate and Strait of Carquinez; south from Redwood City, San Mateo County, and Walnut Creek and Mount Diablo, Contra Costa County, to Bear Valley, San Benito County, and Morro, San Luis Obispo County (Mus. Vert. Zool.). Altitudes of capture extend from near sea level (as at Seaside, Monterey County) up to 3000 feet (on Chalk Peak, Monterey County). Life-zone, Upper Sonoran. Inhabits slopes clothed rather lightly with chaparral.

***Perognathus californicus dispar* Osgood**

Allen California Pocket Mouse

Original description—*Perognathus californicus dispar* Osgood, N. Am. Fauna, No. 18, September 20, 1900:58–59.

Type locality—Carpinteria, Santa Barbara County, California.

Synonyms—*Perognathus californicus*, part; California Pocket Mouse, part; Allen Pocket Mouse.

Range—Coastal slopes of Santa Barbara, Ventura, and Los Angeles counties; also lower, western slopes of Sierra Nevada, from Dunlap, Fresno County, northwest to Auburn, Placer County (Osgood, *loc. cit.*; Mus. Vert. Zool.). Altitudinal range, from near sea level (near Carpinteria) up to 5300 feet (at Hume, Fresno County). Life-zones, Upper Sonoran and (in Sierra Nevada locally) Transition. Inhabits slopes clothed with chaparral.

***Perognathus californicus ochrus* Osgood**

Kern California Pocket Mouse

Original description—*Perognathus californicus ochrus* Osgood, Proc. Biol. Soc. Wash., 17, June 9, 1904:128.

Type locality—Santiago Springs [= Sandiego Joe's of U. S. G. S. "McKittrick" sheet], 16 miles southwest of McKittrick, Kern County, California.

Synonyms—*Perognathus californicus dispar*, part; Allen Pocket Mouse, part; Kern County Pocket Mouse; Yellow Pocket Mouse.

Range—Mountains and foothills around southern rim of San Joaquin Valley; northwest to Sweeney's Ranch, southwestern Merced County; west to Peachtree Valley, eastern Monterey County, and Cuyama Valley, northern Santa Barbara County; south to Cuddy Canyon, northern Ventura County; and east through Tehachapi and Walker Pass territory and into southern Sierra Nevada as far as Jordan Hot Springs, Tulare County (Mus. Vert. Zool.; Osgood, *loc. cit.*). Altitudes of capture extend from 600 feet (at Wheeler Ridge, Kern County) up to 7000 feet (at Taylor Meadow, Tulare County). Life-zone, chiefly Upper Sonoran; but enters Lower Sonoran locally, and extends up through Transition in Kern River country. Inhabits, as a rule, chaparral-clothed slopes.

Perognathus californicus bernardinus Benson

San Bernardino Mountain Pocket Mouse

Original description—*Perognathus californicus bernardinus* Benson, Univ. Calif. Publ. Zool., 32, September 6, 1930:449–450.

Type locality—Two miles east of Strawberry Peak, at 5750 feet altitude, San Bernardino Mountains, San Bernardino County, California.

Synonyms—*Perognathus californicus*, part; *Perognathus californicus dispar*, part; *Perognathus californicus femoralis*, part; California Pocket Mouse, part; Allen Pocket Mouse, part; Dulzura Pocket Mouse, part.

Range—San Bernardino and San Jacinto mountains, in eastern Los Angeles, San Bernardino, and Riverside counties, chiefly or altogether on their Pacific-side drainages (Benson, *loc. cit.*). Altitudinally extends from 2500 feet (in Devil Cañon, San Bernardino Mountains) up as high as 6860 feet (at Big Pine, Swartout Valley, Los Angeles County). Life-zones, Upper Sonoran and Transition—the latter only in its lower portion. Inhabits slopes clothed with chaparral.

Perognathus californicus femoralis Allen

Dulzura Pocket Mouse

Original description—*Perognathus femoralis* Allen, Bull. Am. Mus. Nat. Hist., 3, June 30, 1891:281.

Type locality—Dulzura, San Diego County, California.

Synonyms—*Perognathus californicus dispar*, part; Great California Pocket Mouse; Dark Pocket Mouse.

Range—Mountains of San Diegan district, altogether within San Diego County; from Mexican line north and east to Warner Pass and Banner (Mus. Vert. Zool.). Known altitudes of capture extend from 700 feet (at Twin Oaks) up to 5000 feet (on north side of North Peak, Cuyamaca Mountains). Life-zone, Upper Sonoran—with some invasion of Transition locally. Inhabits slopes clothed with chaparral.

Perognathus spinatus spinatus Merriam

Needles Spiny Pocket Mouse

Original description—*Perognathus spinatus* Merriam, N. Am. Fauna, No. 1, October 25, 1889:21.

Type locality—California side of the Colorado River, 25 miles below The Needles, San Bernardino County.

Synonym—Spiny Pocket Mouse, part.

Range—Bough, hilly country along California side of Colorado River valley, from vicinity of The Needles, in San Bernardino County, south to Pilot Knob, Imperial County; westernmost station, Horn Mine, east base Turtle Mountains, San Bernardino County (Mus. Vert. Zool.). Altitudes of capture extend from 200 feet (at base of Pilot Knob) up at least to 1000 feet (at Horn Mine). Life-zone, Lower Sonoran. Inhabits rough-surfaced mesas and rocky hill slopes amid far-scattered xerophilous shrubbery.

Perognathus spinatus rufescens Huey

Western Spiny Pocket Mouse

Original description—*Perognathus spinatus rufescens* Huey, Trans. San Diego Soc. Nat. Hist., 6, December 24, 1930:231–232.

Type locality—Mouth of Palm Canyon, Borego Valley, [northeastern] San Diego County, California.

Synonyms—*Perognathus spinatus*, part; *Perognathus spinatus spinatus*, part; Spiny Pocket Mouse, part.

Range—Lower eastern slopes of mountains along west side of Colorado Desert, from near Mountain Spring, extreme eastern San Diego County, north to vicinity of Palm Springs, Riverside County (Mus. Vert. Zool.). Altitudes of capture extend from 450 feet (near Palm Springs) up to 3000 feet (near Dos Palomos Spring, Santa Rosa Mountains). Life-zone, Lower Sonoran. Inhabits rough terrain, where narrow washes make down from rocky hill slopes.

***Dipodomys heermanni californicus* Merriam**

Northern California Kangaroo Rat

Original description—*Dipodomys californicus* Merriam, N. Am. Fauna, No. 4, October 8, 1890:49.

Type locality—Ukiah, Mendocino County, California; more exactly, "the west edge of the main road running south from Ukiah and about a mile south of [the then center of] town" (*vide* T. S. Palmer, in letter of February 22, 1932).

Synonyms—*Dipodomys phillipii* [or *phillipsii*], part; *Dipodomys californicus pallidulus* Bangs, Proc. New England Zool. Club, 1, July 31, 1899:65-66 (type from Sites, Colusa County, California); *Dipodomys californicus californicus*; *Dipodomys californicus trinitatis* L. Kellogg, Univ. Calif. Publ. Zool., 12, January 27, 1916:366-368 (type from Helena, Trinity County, California); California Pocket Rat; Trinity Kangaroo Rat; Paler Kangaroo Rat.

Range—Northwestern California, chiefly east of humid coast belt and altogether west of lower Sacramento River; south to Nicasio, Marin County, and Vacaville, Solano County; north to Hornbrook, Siskiyou County; and east at north to east side of Tule Lake, Modoc County, and Petes Valley, Lassen County (Mus. Vert. Zool.; Grinnell, Univ. Calif. Publ. Zool., 24, 1922:41). Altitudinal range, 200 to 4500 feet. Life-zone, Upper Sonoran and lower Transition. Inhabits tracts of well drained grassland and also ground of loose texture clothed with an interrupted or open type of chaparral.

***Dipodomys heermanni eximius* Grinnell**

Lesser California Kangaroo Rat

Original description—*Dipodomys californicus eximius* Grinnell, Proc. Biol. Soc. Wash., 32, December 31, 1919:205.

Type locality—Marysville Buttes at 300 feet altitude, 3 miles northwest of Sutter, Sutter County, California.

Synonyms—*Dipodomys californicus*, part; California Kangaroo Rat, part.

Range—Slopes of Marysville Buttes, in center of Sacramento Valley (Grinnell and Linsdale, Univ. Calif. Publ. Zool., 30, 1929:454). Altitudinal range, 300 feet to probably well up toward summits of the Buttes. Life-zone, chiefly Upper Sonoran. Inhabits dry, gravelly grassland and slopes clothed with an open stand of chaparral.

***Dipodomys heermanni saxatilis* Grinnell and Linsdale**

Stony-ground Kangaroo Rat

Original description—*Dipodomys heermanni saxatilis* Grinnell and Linsdale, Univ. Calif. Publ. Zool., 30, June 15, 1929:453.

Type locality—Edge of mesa at 700 feet altitude on north side of Paine's Creek near Dale's, Tehama County, California.

Synonyms—*Dipodomys californicus eximius*, part; *Dipodomys heermanni eximius*, part; Lesser California Kangaroo Rat, part.

Range—Eastern side of Sacramento Valley, on rising ground, from a little south of Battle Creek, Tehama County, south nearly to South Fork of American River, in Eldorado County (Grinnell and Linsdale, *op. cit.*:455). Altitudinal range, 300 to 1200 feet. Life-zones, Lower and Upper Sonoran. Inhabits well drained, gravelly, and often very stony ground, either entirely open or clothed sparsely with shrubs and trees.

Dipodomys heermanni heermanni LeConte

Heermann Kangaroo Rat

Original description—*D[ipodomys]*. *Heermanni* LeConte, Proc. Acad. Nat. Sci. Phila., 6, January, 1853:224.

Type locality—Sierra Nevada, California; more exactly, vicinity of Calaveras River, in foothill district, Calaveras County (see Grinnell, Univ. Calif. Publ. Zool., 24, 1922:46).

Synonyms—*Perodipus streatori* Merriam, Proc. Biol. Soc. Wash., 9, July 21, 1894:113-114 (type from Carbondale, Amador County, California); *Cricetodipus streatori*; *Perodipus streatori streatori*, part; Streater Pocket Rat; Streater Kangaroo Rat.

Range—Lower west slope of central Sierra Nevada; recorded from Carbondale, Amador County, south to Coulterville, Mariposa County (Grinnell, *op. cit.*:47). Altitudinal range, 500 to 3200 feet. Life-zone, Upper Sonoran; enters lower edge of Transition locally. Inhabits loose-textured ground amid scattering chaparral and sparse mixed woods and brush.

Dipodomys heermanni tularensis (Merriam)

Tulare Kangaroo Rat

Original description—*Perodipus agilis tularensis* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:143.

Type locality—Alila (= Earlimart), Tulare County, California.

Synonyms—*Dipodomys philippii*, part; *Dipodomys agilis*, part; *Perodipus agilis streatori*, part; *Dipodomys tularensis*.

Range—Chiefly floor of San Joaquin Valley; extends north on eastern side of this valley to vicinity of Raymond, Madera County, on western side to near Tracy, San Joaquin County; southeastward to vicinity of Bakersfield and Buena Vista Lake, Kern County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:48-49). Altitudinal range, 120 to 3000 feet. Life-zone, mostly Lower Sonoran, but reaches into Upper Sonoran along Temblor Mountains west of McKittrick, and on lower west slope of Sierra Nevada in Fresno County (Grinnell, *loc. cit.*). Inhabits ordinarily dry, grassy plains, and partly open, gravelly ground on hillsides clothed sparsely with chaparral.

Dipodomys heermanni dixonii (Grinnell)

Merced Kangaroo Rat

Original description—*Perodipus dixonii* Grinnell, Univ. Calif. Publ. Zool., 21, March 29, 1919:45.

Type locality—Delhi, near Merced River, in Merced County, California.

Range—Floor of lower (northern) end of San Joaquin Valley on eastern side of San Joaquin River, in Stanislaus and Merced counties; recorded from Delhi east to Merced Falls (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:51). Altitudinal range, below 500 feet. Life-zone, Lower Sonoran. Inhabits dry prairie grassland and open sandy ground.

Dipodomys heermanni berkeleyensis Grinnell

Berkeley Kangaroo Rat

Original description—*Dipodomys berkeleyensis* Grinnell, Proc. Biol. Soc. Wash., 32, December 31, 1919:204.

Type locality—Top of hill at head of Dwight Way, Berkeley, Alameda County, California.

Range—Presumably the hilly territory lying east from San Francisco Bay to Mount Diablo; definitely known so far only from vicinity of Berkeley, where found on open grassy hilltops (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:52). Life-zone, Upper Sonoran.

Dipodomys heermanni goldmani (Merriam)

Salinas Kangaroo Rat

Original description—*Perodipus goldmani* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:143.

Type locality—Salinas, "mouth of Salinas Valley," Monterey County, California.

Synonyms—*Dipodomys phillipii*, part; *Dipodomys agilis*, part; *Dipodomys goldmani*; Goldman Kangaroo Rat.

Range—Lower (northern) end of Salinas Valley and adjacent smaller valleys and hill-slopes, from sand-dune area on Monterey Bay just south of mouth of Salinas River, southeast to vicinity of Soledad; recorded east to Bear Valley, in vicinity of Cook Post Office, San Benito County, and thence north to San Jose, Santa Clara County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:54). Altitudinal range, sea level up to about 1300 feet. Life-zone, Upper Sonoran. Inhabits dry, gravelly grassland, both on valley floors and on hill-sides; also sandy areas clothed with scattering brush.

Dipodomys heermanni jolonensis Grinnell

Jolon Kangaroo Rat

Original description—*Dipodomys jolonensis* Grinnell, Proc. Biol. Soc. Wash., 32, December 31, 1919:203-204.

Type locality—Valley floor one mile southwest of Jolon, Monterey County, California.

Range—Upper (southern) end of Salinas Valley and tributary valleys, from vicinity of King City and Peachtree, in Monterey County, south to Creston, in San Luis Obispo County; west to Jolon (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:56). Altitudinal range, 400 to 1500 feet. Life-zone, chiefly Lower Sonoran. Inhabits dry, open, sandy valley floors, with sparse low vegetation.

Dipodomys heermanni swarthi (Grinnell)

Carrizo Plain Kangaroo Rat

Original description—*Perodipus swarthi* Grinnell, Univ. Calif. Publ. Zool., 21, March 29, 1919:44.

Type locality—Seven miles southeast of Simmler, Carrizo Plain, San Luis Obispo County, California.

Synonyms—*Perodipus agilis tularensis*, part; *Dipodomys swarthi*; Tulare Kangaroo Rat, part.

Range—Carrizo and Cuyama plains, in southeastern San Luis Obispo County and extreme northern Santa Barbara County; also southwestern border of San Joaquin Valley, in vicinity of McKittrick and San Emigdio, Kern County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:57). Altitudinal range, 300 to 2000 feet. Life-zone, Lower Sonoran. Inhabits level or gently sloping, loose-textured ground, of desert dryness and bearing sparse low vegetation, often scattering bushes of *Atriplex polycarpa*.

Dipodomys morroensis (Merriam)

Morro Bay Kangaroo Rat

Original description—*Perodipus morroensis* Merriam, Proc. Biol. Soc. Wash., 20, July 22, 1907:78-79.

Type locality—Morro [4 miles south of], San Luis Obispo County, California.

Synonym—*Perodipus streatori simulans*, part.

Range—Immediate vicinity of Morro Bay (south side only, so far as known), San Luis Obispo County. Altitudinal range, below 250 feet. Life-zone, Upper Sonoran. Inhabits sandy ground amid scattering chaparral.

Dipodomys mohavensis (Grinnell)

Mohave Kangaroo Rat

Original description—*Perodipus mohavensis* Grinnell, Univ. Calif. Publ. Zool., 17, April 25, 1918:428.

Type locality—3275 feet altitude, half mile east of railway station of Warren (about 5 miles north of Mohave), Kern County, California.

Synonyms—*Dipodomys phillipsi* [or *Philippii*], part; *Perodipus agilis streatori*, part; *Perodipus streatori*, part; *Perodipus panamintinus*, part; Panamint Kangaroo Rat, part; Streater Kangaroo Rat, part.

Range—Mohave Desert region: north into lower end of Owens Valley as far as vicinity of Lone Pine; south to Hesperia, San Bernardino County; east to Purdy, near New York Mountains, San Bernardino County; and west to Fairmont, northern Los Angeles County, and over Walker and Kelso passes into Kern River basin as far as Isabella, Kern County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:61-62). Altitudinal range, 2500 to 5500 feet. Life-zone, Lower Sonoran in its upper portion. Inhabits chiefly level, sandy or gravelly ground amid scattering desert shrubbery; particularly characteristic of tree-yucca belt.

Dipodomys leucogenys (Grinnell)

Pale-faced Kangaroo Rat

Original description—*Perodipus leucogenys* Grinnell, Univ. Calif. Publ. Zool., 21, March 29, 1919:46.

Type locality—Pellisier Ranch, 5600 feet altitude, 5 miles north of Benton Station, Mono County, California.

Range—Territory lying immediately southeast of Mono Lake and in head of Owens Valley; recorded from Dry Creek, near Mono Lake, Mono County, east to Nevada line, and south along west side of Owens Valley as far as vicinity of Independence, Inyo County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:63). Altitudinal range, 3900 to 7300 feet. Life-zone, Upper Sonoran and, at the north, Transition. Inhabits chiefly level, gravelly or sandy ground in the sagebrush belt; occurs locally amid piñon or even Jeffrey pine, where these grow in company with sagebrush.

Dipodomys panamintinus (Merriam)

Panamint Kangaroo Rat

Original description—*Perodipus panamintinus* Merriam, Proc. Biol. Soc. Wash., 9, June 21, 1894:114.

Type locality—Panamint Mountains, California, on "head of Willow Creek." On U. S. G. S. map, Ballarat Quadrangle, edition of March, 1913, this is probably at about 6200 feet altitude, some 3 miles northeast of Jackass Spring (in Inyo County about 20 miles due east of Keeler).

Synonyms—*Cricetodipus panamintinus*; Panamint Pocket Rat.

Range—Higher parts of northern section of Panamint Mountains, Inyo County; area of habitat, about 6 by 8 miles, in vicinity of Jackass Spring (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:65). Altitudinal range, 6000 to 7000 feet. Life-zone, Upper Sonoran and Lower edge of Transition. Inhabits rolling, gravelly ground amid sagebrush and piñon.

Dipodomys stephensi (Merriam)**Stephens Kangaroo Rat**

Original description—*Perodipus stephensi* Merriam, Proc. Biol. Soc. Wash., 20, July 22, 1907:78.

Type locality—San Jacinto Valley, Riverside County, California; more exactly, a little west of present town of Winchester, toward Menifee (see Grinnell, Univ. Calif. Publ. Zool., 24, 1922:67).

Range—San Jacinto Valley and vicinity, in western Riverside County and extreme southern San Bernardino County; recorded from Beche Cañon (4 miles southeast of Colton) southwest to Temescal, and east to near San Jacinto (Grinnell, *loc. cit.*). Altitudinal range, 1100 to 1600 feet. Life-zone, chiefly Lower Sonoran. Inhabits dry, open or sparsely brushy, sandy or gravelly ground.

Dipodomys ingens (Merriam)**Giant Kangaroo Rat**

Original description—*Perodipus ingens* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:141-142.

Type locality—Painted Rock, "20" [= 12] miles southeast of Simmler, Carrizo Plain, San Luis Obispo County, California.

Synonyms—Big Pocket Rat; Carrizo Plain Kangaroo Rat, part; Great Kangaroo Rat.

Range—Western margin of San Joaquin Valley, and, to southeastward, Carrizo Plain and Cuyama Valley. Occurs from near mouth of Laguna Seca Creek, in western Merced County, southeast to near Buena Vista Lake, southern Kern County; southwest to south side of Cuyama Valley, in extreme northern Santa Barbara County (Grinnell, Jour. Mammalogy, 13, 1932:305 ft.; Mus. Vert. Zool.). Altitudinal range, 400 to 2500 feet. Life-zone, Lower Sonoran. Inhabits dry, open ground, usually level or gently sloping and composed of fine sandy loam; either wholly grassy or with scattering growth of small bushes.

Dipodomys merriami merriami Mearns**Merriam Kangaroo Rat**

Original description—*Dipodomys merriami* Mearns, Bull. Am. Mus. Nat. Hist., 2, February 21, 1890:290.

Type locality—New River [in Maricopa County, north of Phoenix], Arizona.

Synonyms—*Dipodomys philippii*, part; *Dipodomys merriami nitratus* Merriam, Proc. Biol. Soc. Wash., 9, June 21, 1894:112 (type from Keeler, east side of Owens Lake, Inyo County, California); *Dipodomys merriami mortivallis* Elliot, Field Columb. Mus., Zool. ser., 3, December, 1903:250 (type from Furnace Creek [Ranch], Death Valley, Inyo County, California); *Dipodomys merriami kernensis* Merriam, Proc. Biol. Soc. Wash., 20, July 22, 1907:77-78 (type from Onyx, in valley of South Fork of Kern River, west of Walker Pass, Kern County, California); *Dipodomys merriami simiolus*, part; *Dipodomys merriami nevadensis*; Keeler Kangaroo Rat; Death Valley Kangaroo Rat; Kern Valley Kangaroo Rat; Nevada Kangaroo Rat; Allied Kangaroo Rat, part.

Range—In general, Mohave Desert region. Recorded from Nevada line and Colorado River west to Weldon, in valley of South Fork of Kern River, Kern County, and to 7 miles west of Mohave; north, in Owens Valley, to Independence, Inyo County; south to road towards Blythe, 53 miles east of Mecca, and, along Colorado River, to Blythe, in Riverside County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:79). Altitudinal range, — 200 to 7000 feet. Life-zone, Lower Sonoran. Inhabits nearly all sorts of ground, but found in greatest numbers on level, sandy or gravelly desert floor, grown scattering to shrubby vegetation.

Dipodomys merriami similis Rhoads**Allied Kangaroo Rat**

Original description—*Dipodomys similis* Rhoads, Proc. Acad. Nat. Sci. Phila., 1893, January, 1894:410-411.

Type locality—Agua Caliente [= Palm Springs], Riverside County, California.

Synonyms—*Dipodomys agilis*, part (†); *Dipodomys phillipsi*, part; *Dipodomys merriami*, part; *Dipodomys similis* Rhoads, Proc. Acad. Nat. Sci. Phila., 1893, January, 1894:411 (type from Whitewater, Riverside County, California); *Dipodomys merriami similis*; *Dipodomys merriami arenivagus*; *Dipodomys merriami merriami*, part; Merriam Kangaroo Rat, part; San Felipe Kangaroo Rat.

Range—In general, Colorado Desert region. Recorded north from Mexican line to Cabezon, in San Geronimo Pass, Riverside County; west as far as La Puerta and Vallecito, in eastern San Diego County; east to Colorado River north as far as vicinity of Palo Verde (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:81). Altitudinal range, — 180 to 3500 feet. Life-zone, Lower Sonoran. Inhabits chiefly loose, sandy or gravelly ground of desert floors, with sparse vegetation.

Dipodomys merriami parvus Rhoads**San Bernardino Kangaroo Rat**

Original description—*Dipodomys parvus* Rhoads, Am. Naturalist, 23, January, 1894:70.

Type locality—"San Bernardino" [really Reche Cañon, 1250 feet altitude, 3 miles southeast of Colton], San Bernardino County, California.

Synonyms—San Bernardino Pocket Rat; Small Kangaroo Rat.

Range—San Bernardino and San Jacinto valleys, in San Bernardino and Riverside counties; northernmost recorded station, Cajon Wash; southernmost, Vallevista (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:82). Altitudinal range, 1000 to 1800 feet. Life-zone, Lower Sonoran. Inhabits dry washes, of gravelly or sandy soil and sparse, shrubby vegetation.

Dipodomys nitratoides nitratoides Merriam**Tipton Kangaroo Rat**

Original description—*Dipodomys merriami nitratoides* Merriam, Proc. Biol. Soc. Wash., 9, June 21, 1894:112-113.

Type locality—Tipton, San Joaquin Valley, Tulare County, California.

Synonyms—Tulare Pocket Rat; Similar Kangaroo Rat.

Range—Floor of southeastern side and end of (upper) San Joaquin Valley, from 15 miles south of Corcoran, Kings County, south to Caliente Wash, Kern County; west to north side of Buena Vista Lake (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:84; Mus. Vert. Zool.). Altitudinal range, 230 to 600 feet. Life-zone, Lower Sonoran. Inhabits arid, often strongly alkaline, plains sparsely clothed with grass and, in places, saltbush.

Dipodomys nitratoides exilis Merriam**Fresno Kangaroo Rat**

Original description—*Dipodomys merriami exilis* Merriam, Proc. Biol. Soc. Wash., 9, June 21, 1894:113.

Type locality—Fresno [4 miles north of railroad station, along Southern Pacific right of way—*sic* C. P. Streater], San Joaquin Valley, California.

Synonyms—Least Pocket Rat; Slender Kangaroo Rat.

Range—Known only from a small portion of east side of San Joaquin Valley north of Tulare Lake, in vicinity of Fresno; believed now to be extinct as result of close cultivation of land. Altitude of Fresno district, about 300 feet. Life-zone, Lower Sonoran. Inhabited open grassy land, of loose soil.

Dipodomys nitratoïdes brevinasus Grinnell

Short-nosed Kangaroo Rat

Original description—*Dipodomys merriami brevinasus* Grinnell, Jour. Mammalogy, 1, August 24, 1920:179.

Type locality—Hayes Station, near B. M. 503 [= 502 of U. S. G. S. "Panoche" quadrangle], 19 miles southwest of Mendota, [near mouth of Panoche Creek cañon,] Fresno County, California.

Synonyms—*Dipodomys merriami nitratoïdes*, part; Tipton Kangaroo Rat, part.

Range—Arid western side of San Joaquin Valley, from near mouth of Panoche Creek and near Mendota, in western Fresno County, south to near mouth of San Emigdio Creek, in southwestern Kern County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:86). Altitudinal range, 175 to 600 feet. Life-zone, Lower Sonoran. Inhabits ordinarily dry ground of finely sandy texture and often where grown to sparse, shrubby vegetation, particularly the salt-bush, *Atriplex polycarpa*.

Dipodomys ordii columbianus (Merriam)

Columbia Kangaroo Rat

Original description—*Perodipus ordii columbianus* Merriam, Proc. Biol. Soc. Wash., 9, June 21, 1894:115.

Type locality—Umatilla, Plains of Columbia, eastern Oregon.

Synonym—*Perodipus columbianus*.

Range—Portions of Great Basin area entering northeastern California. Known localities of occurrence: east of Eagleville, in Surprise Valley, Modoc County (Mailliard, Jour. Mammalogy, 6, 1925:57); eastern end of Madeline Plains and Petes Valley, Lassen County (Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:507); vicinity of Vinton, in Sierra Valley, Plumas County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:71); and near Woodfords, Alpine County (Mus. Vert. Zool.). Altitudinal range, 4500 to 5600 feet. Life-zone, Upper Sonoran. Inhabits ordinarily dry, soft, levelish ground in sagebrush belt.

Dipodomys ordii monoensis (Grinnell)

Mono Kangaroo Rat

Original description—*Perodipus monoensis* Grinnell, Univ. Calif. Publ. Zool., 21, March 29, 1919:46-47.

Type locality—Pellisier Ranch, 5600 feet altitude, 5 miles north of Benton Station, Mono County, California.

Range—Extreme head of Owens Valley, in Mono County; recorded from Taylor Ranch north to Pellisier Ranch (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:72). Altitudinal range, 5300 to 5640 feet. Life-zone, Upper Sonoran. Inhabits level ground, of loose texture, grown to sagebrush.

Dipodomys agilis agilis Gambel

Gambel Kangaroo Rat

Original description—*Dipodomys agilis* Gambel, Proc. Acad. Nat. Sci. Phila., 4, August, 1848:77-78.

Type locality—"The Pueblo de los Angeles, Upper California," that is, Los Angeles, Los Angeles County.

Synonyms—*D[ipodomys]. Wagneri* LeConte, Proc. Acad. Nat. Sci. Phila., 1853:224 (no type locality designated, but probably vicinity of Los Angeles, California); *Dipodomys phillippi* (or *phillipsii*), part; *Dipodops agilis*; *Cricetodipus agilis*, part; *Perodipus agilis*, part; *Perodipus agilis agilis*, part; Gambel Pocket Rat, part; Nimble Kangaroo Rat, part.

Range—Chiefly Pacific slope of southern California, from northern Santa Barbara County (Schoolhouse Cañon) southeast through Ventura, Los Angeles, and Orange counties into western San Bernardino and Riverside counties (to include San Bernardino and San Jacinto mountains); easternmost record-station, Kenworthy, in San Jacinto Mountains (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:91-92). Altitudinal range, close to sea level up to 7500 feet. Life-zone, chiefly Upper Sonoran; but extends locally up into Transition and down into Lower Sonoran. Inhabits as a rule gravelly or sandy ground clothed with an open type of chaparral; lives, in places, on sandy flats without any bushes, sometimes in open washes; affects more or less steep hill or mountain slopes as well as level ground.

Dipodomys agilis simulans (Merriam)

Dulzura Kangaroo Rat

Original description—*Perodipus streatori simulans* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:144.

Type locality—Dulzura, San Diego County, California.

Synonyms—*Dipodomys agilis*, part; *Perodipus agilis*, part; *Dipodomys californicus*, part; *Perodipus simulans simulans*; *Perodipus agilis agilis*, part; Gambel Kangaroo Rat, part; California Kangaroo Rat, part; Nimble Kangaroo Rat, part.

Range—Pacific slope of San Diego County; recorded from Mexican line north to Bon-sall; easternmost station, Santa Ysabel (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:94). Altitudinal range, near sea level up to 3000 feet. Life-zone, mainly Upper Sonoran; extends locally down into Lower Sonoran. Inhabits chiefly gravelly or sandy ground on slopes clothed with chaparral; but also found in rather open washes.

Dipodomys agilis cabezonae (Merriam)

Cabazon Kangaroo Rat

Original description—*Perodipus cabezonae* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:144.

Type locality—Cabazon, San Geronio Pass, Riverside County, California.

Synonyms—*Perodipus agilis*, part; *Perodipus agilis agilis*, part; Gambel Kangaroo Rat, part; Nimble Kangaroo Rat, part.

Range—Desert slopes of coastal mountains of southern California, from Cabazon and east slope of San Jacinto mountains, in Riverside County, south through eastern San Diego County to Mexican line in vicinity of Jacumba and Mountain Spring (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:96). Altitudinal range, 1700 to 3500 feet. Life-zone, chiefly Upper Sonoran; extends locally down into Lower Sonoran. Inhabits loose-textured soil on slopes or levels sparsely clothed with brush.

Dipodomys agilis perplexus (Merriam)

Walker Basin Kangaroo Rat

Original description—*Perodipus perplexus* Merriam, Proc. Biol. Soc. Wash., 20, July 22, 1907:79.

Type locality—Walker Basin [3400 feet altitude], Kern County, California.

Synonyms—*Dipodomys phillipsi*, part (?); *Dipodomys agilis*, part; *Perodipus agilis*, part; *Perodipus streatori*, part (?); Nimble Kangaroo Rat, part.

Range—Mountain ranges and included valleys around southern end of San Joaquin Valley; recorded from Trout Creek (toward head of South Fork of Kern River), Tulare County, southwest through Tehachapi and Tejon country to head of Piru Creek, Ventura County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:97). Altitudinal range, 2400 to 6500 feet. Life-zone, Upper Sonoran. Inhabits gravelly slopes clothed with chaparral.

Dipodomys venustus venustus (Merriam)**Santa Cruz Kangaroo Rat**

Original description—*Perodipus venustus* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:142.

Type locality—Santa Cruz, Santa Cruz County, California.

Synonyms—*Dipodomys phillipsii*, part; *Dipodomys agilis*, part (†); *Dipodomys californicus*, part; *Dipodomys venustus*; Santa Cruz Pocket Rat; Graceful Kangaroo Rat.

Range—Chiefly Santa Cruz Mountains; in other words, area lying between San Francisco and Monterey Bay; but also east to Mount Hamilton, Santa Clara County, and south-east to Fremont Peak, in northern end of Gabilan Range, Monterey County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:99). Altitudinal range, near sea level up to 4000 feet. Life-zone, chiefly Upper Sonoran; enters Transition locally. Inhabits slopes clothed more or less heavily with chaparral; a close associate of *Neotoma fuscipes annectens*.

Dipodomys venustus sanctiluciae Grinnell**Santa Lucia Mountain Kangaroo Rat**

Original description—*Dipodomys sanctiluciae* Grinnell, Proc. Biol. Soc. Wash., 32, December 31, 1919:204–205.

Type locality—Hillside, clothed with chaparral and digger pine, one mile southwest of Jolon, Monterey County, California.

Synonym—*Perodipus venustus*, part.

Range—Santa Lucia Mountain region; in other words, mountainous area lying between Monterey Bay and San Luis Obispo, and between Salinas Valley and seacoast (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:100–101). Altitudinal range, 900 to 5900 feet. Life-zone, chiefly Upper Sonoran; enters Transition locally. Inhabits slopes clothed with chaparral, or with a mixture of chaparral and oaks or digger pine; a close associate of *Neotoma fuscipes macrotis*.

Dipodomys elephantinus (Grinnell)**Elephant-eared Kangaroo Rat**

Original description—*Perodipus elephantinus* Grinnell, Univ. Calif. Publ. Zool., 21, March 29, 1919:43.

Type locality—1300 feet altitude, one mile north of Cook Post Office, Bear Valley, San Benito County, California.

Range—Southern portion of Gabilan Range (in vicinity of Pinnacles), in San Benito and eastern Monterey counties. Altitude of occurrence, so far as yet known, about 1300 feet (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:102). Life-zone, Upper Sonoran. Inhabits slopes more or less heavily clothed with chaparral.

Dipodomys microps microps (Merriam)**Small-faced Kangaroo Rat**

Original description—*Perodipus microps* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:145.

Type locality—Lone Pine, Owens Valley, Inyo County, California.

Synonyms—*Perodipus panamintinus*, part; *Perodipus microps microps*; *Dipodomys microps*; Inyo Pocket Rat.

Range—Owens Valley, from near Benton, Mono County, south to Olancho, Inyo County; also vicinity of Victorville, on Mohave Desert, San Bernardino County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:103). Altitudinal range, 2700 to 7700 feet. Life-zone, Lower Sonoran; reaches into Upper Sonoran, locally. Inhabits dry sandy ground, sparsely grown to desert shrubbery such as saltbush.

Dipodomys microps levipes (Merriam)

Light-footed Kangaroo Rat

Original description—*Perodipus microps levipes* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:145.

Type locality—"Perognathus Flat, Emigrant Gap" [= near B. M. 4899, 2 miles northwest of Harrisburg, on U. S. G. S. Ballarat Quadrangle, edition of March, 1913], Panamint Mountains, Inyo County, California.

Synonyms—*Perodipus panamintinus*, part; *Perodipus levipes*; *Dipodomys levipes*.

Range—Portions of Inyo County lying east from Owens Lake to Nevada line; westernmost station, Olancho; southernmost, Darwin (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:106). Altitudinal range, 3600 to 5300 feet. Life-zone, Lower Sonoran, chiefly in its upper portion. Inhabits gravelly ground grown rather profusely to desert brush plants, such as *Tetradymia spinosa* and *Mendora spinescens*; numerous in parts of tree-yucca belt.

Dipodomys deserti deserti Stephens

Big Desert Kangaroo Rat

Original description—*Dipodomys deserti* Stephens, Am. Naturalist, 21, January, 1887: 42, pl. 5.

Type locality—Mohave River [bottom at "upper crossing" on old road from Cajon Pass to Rabbit Springs, "three or four miles" from, and opposite], Hesperia, San Bernardino County, California.

Synonyms—*Dipodomys deserti helleri* Elliot, Field Columb. Mus., Zool. ser., 3, December, 1903:249 (type from Keeler, Inyo County, California); Desert Pocket Rat; Heller Kangaroo Rat; Desert Kangaroo Rat.

Range—Colorado and Mohave desert regions, north from Mexican line to Death Valley and Owens Valley (on east side to Alvord, Inyo County); west from Colorado River across Mohave Desert at least to vicinity of Hesperia, San Bernardino County, and across Colorado Desert to Whitewater, Riverside County, and Borego Spring, eastern San Diego County (Grinnell, Univ. Calif. Publ. Zool., 24, 1922:109-110). Altitudinal range, — 200 to 3900 feet. Life-zone, Lower Sonoran. Inhabits level desert floors where there are accumulations of wind-driven sand and sparse shrubby vegetation; distribution discontinuous.

Microdipodops megacephalus oregonus Merriam

Oregon Kangaroo Mouse

Original description—*Microdipodops megacephalus oregonus* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:127.

Type locality—Lake Alvord, Alvord Desert, eastern Oregon.

Range—In California, only in extreme eastern parts of Modoc and Lassen counties, from east of Eagleville, in Surprise Valley (Mailliard, Jour. Mammalogy, 6, 1925:57), south to east end of Madeline Plains north of Observation Peak (Mus. Vert. Zool.). Altitudes of known occurrence, 4700 to 5300 feet. Life-zone, Upper Sonoran. Inhabits, as a rule, areas of wind-accumulated sand clothed with bushes of sagebrush and rabbit brush.

Microdipodops megacephalus dickeyi Goldman

Dickey Kangaroo Mouse

Original description—*Microdipodops megacephalus dickeyi* Goldman, Proc. Biol. Soc. Wash., 40, September 26, 1927:115.

Type locality—Three miles southeast of Oasis, 5150 feet altitude, Mono County, California.

Range—Valleys lying east of White Mountains, namely, within California, Fish Lake Valley and Deep Spring Valley, in Mono and Inyo counties (Goldman, *loc. cit.*, and Mus. Vert. Zool.). Altitudes of capture, 5100 to 5300 feet. Life-zone, Upper Sonoran. Occurs on areas of fine sand.

Microdipodops californicus Merriam

Sierra Valley Kangaroo Mouse

Original description—*Microdipodops californicus* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:128.

Type locality—Sierra Valley, near Vinton, Plumas County, California.

Synonym—California Dwarf Pocket Rat.

Range—Sierra Valley, Plumas County, whence known only from vicinity of type locality, as above. Altitude, 5000 feet. Life-zone, Upper Sonoran. Found on sandy ground amid sagebrush.

Microdipodops polionotus Grinnell

Mono Kangaroo Mouse

Original description—*Microdipodops polionotus* Grinnell, Univ. Calif. Publ. Zool., 12, April 15, 1914:302-304.

Type locality—McKeever's Ranch, 5200 feet altitude, 2 miles south of Benton Station, Mono County, California.

Synonym—Mono Dwarf Pocket Rat.

Range—Mono Lake basin and extreme head of Owens Valley, in Mono County; southeast from south side of Mono Lake (Grinnell and Storer, *Animal Life in the Yosemite*, 1924:149) to vicinity of Benton and Benton Station (*Mus. Vert. Zool.*); west to Taylor Valley (von Bloeker, *Jour. Mammalogy*, 12, 1931:431). Altitudes of capture vary from 5200 to 7000 feet. Life-zones, Upper Sonoran and dilute Transition. Inhabits dry, loose, finely sandy ground, usually amid sagebrush.

FAMILY CASTORIDAE Beavers

Castor canadensis subauratus Taylor

Golden Beaver

Original description—*Castor subauratus* Taylor, Univ. Calif. Publ. Zool., 10, May 21, 1912:167.

Type locality—San Joaquin River at Grayson, Stanislaus County, California.

Synonyms—*Castor fiber*, part; *Castor canadensis*, part; *Castor canadensis pacificus*, part; *Castor americanus*; *Castor pacificus*; American Beaver, part; Pacific Beaver, part; California Beaver; Beaver, part.

Range—Lower courses of San Joaquin and Sacramento rivers, and lower portions of larger tributaries of these main rivers, from Tulare Lake (formerly), Kings County, and from Kings River, near Sanger (formerly) and at Mendota, in Fresno County, north to Sacramento River and Butte Creek, north of Marysville Buttes, and at one time to McCloud and upper Sacramento rivers, in Shasta County. Altitudinal range, altogether below 1000 feet; this race never, so far as known, followed streams up into Sierra Nevada. Life-zones, Lower and Upper Sonoran.

Castor canadensis shastensis Taylor

Shasta Beaver

Original description—*Castor subauratus shastensis* Taylor, Univ. Calif. Publ. Zool., 12, March 20, 1916:433-435.

Type locality—Cassel [= Hat Creek], near the Pit River, in Shasta County, California.

Synonyms—*Castor canadensis*, part; *Castor canadensis pacificus*, part; American Beaver, part; Pacific Beaver, part; Beaver, part.

Range—Pit River basin in northeastern corner of State; recorded from Pit River, above Narrows, north to Willow Creek and Steele Meadow, near Clear Lake, and east

to Lassen Creek, east of Goose Lake, and to North Fork of Pit River above Alturas—these localities being in Modoc County (MSS in Mus. Vert. Zool.). Vertical range, 3000 feet (on Pit River in Shasta County) up to between 6000 and 7000 feet (on Lassen Creek, west slope of Warner Mountains). Life-zone, chiefly Upper Sonoran.

***Castor canadensis frondator* Mearns**

Sonora Beaver

Original description—*Castor canadensis frondator* Mearns, Proc. U. S. Nat. Mus., 20, March 5, 1897:502-503.

Type locality—San Pedro River [tributary to Gila River, Arizona], near United States boundary, Sonora, Mexico.

Synonyms—*Castor canadensis*, part; *Castor fiber*, part; *Castor canadensis repentinus* (f); Broad-tailed Beaver; Colorado River Beaver; Beaver, part.

Range—Colorado River from Nevada line near Needles, San Bernardino County, to Mexican line, below Fort Yuma, Imperial County. Originally and recurrently numerous along those parts of this river's course where willow and cottonwood grow abundantly. Altitudes of existence, all below 500 feet above sea level. Life-zone, Lower Sonoran. Since 1911, beavers have invaded Imperial Valley north of Mexican line, following Alamo River and larger distributary canals from Colorado River (see Dixon, Jour. Mammalogy, 3, 1922:140).

FAMILY CRICETIDAE Certain Rats and Mice

***Onychomys leucogaster brevicaudus* Merriam**

Short-tailed Grasshopper Mouse

Original description—*Onychomys leucogaster brevicaudus* Merriam, N. Am. Fauna, No. 5, July 30, 1891:52.

Type locality—Blackfoot, Bingham County, Idaho.

Range—Extreme eastern border of State, within edge of Great Basin; recorded from Amedee, Lassen County, south to Benton and Long Valley, Mono County (Mus. Vert. Zool.; Hollister, Proc. U. S. Nat. Mus., 47, 1914:443). Altitudes of known occurrence vary from 4000 feet (at Amedee near Honey Lake) up to 6900 feet (at Farrington Ranch near Mono Lake). Life-zone, characteristically Upper Sonoran, but also Transition locally. Inhabits levelish ground beneath sagebrush.

***Onychomys leucogaster fuscogriseus* Anthony**

Gray Grasshopper Mouse

Original description—*Onychomys leucogaster fuscogriseus* Anthony, Bull. Am. Mus. Nat. Hist., 32, March 7, 1913:11-12.

Type locality—Ironsides, 4000 feet altitude, Malheur County, Oregon.

Synonyms—*Onychomys leucogaster brevicaudus*, part; Short-tailed Grasshopper Mouse, part; Gray Scorpion Mouse; Brown Grasshopper Mouse.

Range—Valleys of extreme northeastern portion of State; recorded west to Picard, near Lower Klamath Lake, Siskiyou County, and south to Box Springs, on Madeline Plains, at north base Observation Peak, Lassen County (Hollister, Proc. U. S. Nat. Mus., 47, 1914:444; Mus. Vert. Zool.). Altitudes of capture extend from 4150 feet (near Tule Lake) up to 5300 feet (on Madeline Plains). Life-zone, Upper Sonoran. Inhabits ground grown to sagebrush.

***Onychomys torridus pulcher* Elliot**

Desert Grasshopper Mouse

Original description—*Onychomys pulcher* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:243-244.

Type locality—Morongo Pass, east end of San Bernardino Mountains, San Bernardino County, California.

Synonyms—*Onychomys torridus perpallidus*; *Onychomys torridus longicaudus*, part; Arizona Grasshopper Mouse, part.

Range—Colorado and Mohave deserts; west from Colorado River to Palm Springs and Cabezon, Riverside County, Fairmont, in Antelope Valley, northern Los Angeles County, and over Walker Pass to Onyx, Kern County; north to Purdy and Granite Springs, San Bernardino County, and Little Lake, Inyo County (Mus. Vert. Zool.; Hollister, Proc. U. S. Nat. Mus., 47, 1914:461). Altitudes of known occurrence extend from about 500 feet (near Needles, San Bernardino County) up to 4900 feet (near Walker Pass, Kern County). Life-zone, chiefly Lower Sonoran; reaches into Upper Sonoran locally. Inhabits chiefly levelish desert floors, of loose soil and with shrubby vegetation.

***Onychomys torridus longicaudus* Merriam**

Long-tailed Grasshopper Mouse

Original description—*Onychomys longicaudus* Merriam, N. Am. Fauna, No. 2, October 30, 1889:2.

Type locality—St. George, Washington County, Utah.

Synonyms—*Onychomys torridus*, part; Arizona Grasshopper Mouse, part.

Range—Valleys east of high southern Sierra Nevada, in Mono and Inyo counties; recorded from Benton, Mono County, southeast to Maturango Springs and Resting Springs, Inyo County (Hollister, Proc. U. S. Nat. Mus., 47, 1914:465; Mus. Vert. Zool.). Altitudinal range, from — 178 feet (at Furnace Creek Ranch, Death Valley) up to 6200 feet (3 miles east of Jackass Spring, in north end of Panamint Mountains). Life-zones, Lower and (locally) Upper Sonoran. Inhabits sandy or gravelly ground where sparsely brushy.

***Onychomys torridus clarus* Hollister**

Owens Lake Grasshopper Mouse

Original description—*Onychomys torridus clarus* Hollister, Proc. Biol. Soc. Wash., 26, December 20, 1913:215.

Type locality—Keeler, Inyo County, California.

Synonyms—*Onychomys pulcher*, part; *Onychomys torridus*, part.

Range—Near vicinity of Owens Lake, Inyo County; recorded north to near Lone Pine, south to Hot Springs Valley near Coso Mountains, and west to neighborhood of Olancho (Hollister, Proc. U. S. Nat. Mus., 47, 1914:466; Mus. Vert. Zool.). Altitudes of capture range close about 3600 feet, this being the level of Owens Lake. Life-zone, Lower Sonoran. Inhabits chiefly sand dunes.

***Onychomys torridus tularensis* Merriam**

Tulare Grasshopper Mouse

Original description—*Onychomys torridus tularensis* Merriam, Proc. Biol. Soc. Wash., 17, June 9, 1904:123.

Type locality—Bakersfield, Kern County, California.

Synonyms—*Onychomys longicaudus tularensis*; San Joaquin Grasshopper Mouse.

Range—Southern (upper) end of San Joaquin Valley; recorded east to Weldon, on South Fork of Kern River, Kern County, west to Carrizo Plain, San Luis Obispo County, north to Little Panoche Creek, in San Benito County, and south to Caliente Creek Wash, Kern County (Hollister, Proc. U. S. Nat. Mus., 47, 1914:466-467; Mus. Vert. Zool.).

Altitudes of capture extend from 500 feet (on Panoche Creek, Fresno County) up to 5000 feet (in Kelso Valley, in northeastern Kern County). Life-zone, chiefly Lower Sonoran. Inhabits levelish, sandy ground, where sparsely clothed with bushes.

***Onychomys torridus ramona* Rhoads**

Ramona Grasshopper Mouse

Original description—*Onychomys ramona* Rhoads, Am. Naturalist, 27, September, 1893:833-834.

Type locality—San Bernardino Valley [more exactly, Reche Cañon, 1250 feet, 4 miles southeast of Colton], San Bernardino County, California.

Synonym—San Bernardino Grasshopper Mouse.

Range—San Diegan district, chiefly on its Pacific slope, from Mexican line northwest as far as San Fernando, Los Angeles County; recorded east to Valle Vista, in San Jacinto Valley, Riverside County, and to La Puerta Valley and Jacumba, San Diego County (Hollister, Proc. U. S. Nat. Mus., 47, 1914:469; Mus. Vert. Zool.). Altitudes of known occurrence extend from near sea level (as at mouth of Tia Juana River) up to 3000 feet (near Banner, San Diego County). Life-zones, Lower Sonoran and (locally) Upper Sonoran. Inhabits flat, sandy, valley floors.

***Reithrodontomys megalotis megalotis* (Baird)**

Desert Harvest Mouse

Original description—*Reithrodon megalotis* Baird, Pac. R. R. Rept., 8, 1857, Mammals:451.

Type locality—Between Janos, Chihuahua, and San Luis Springs, Grant County, New Mexico.

Synonyms—*Reithrodontomys megalotis*; *Reithrodontomys megalotis deserti*; *Rhithrodontomys megalotis*; *Rhithrodontomys longicaudus pallidus*, part; *Reithrodontomys megalotis klamathensis*, part; Big-eared Harvest Mouse; Pallid Harvest Mouse, part; Klamath Harvest Mouse, part.

Range—In general, Colorado and Mohave desert and Great Basin areas. Recorded north, east of Sierra Nevada, as far as Goose Lake, near Sugar Hill, in eastern Modoc County; west at south, from valley of Colorado River, to Mecca, Riverside County, to Victorville, San Bernardino County, to Tehachapi, Kern County, and through Walker Pass region as far as Bodfish, on Kern River, Kern County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 36, 1914:29). Altitudes of capture extend from 250 feet below sea level (at Eagle Borax Works, in Death Valley, Inyo County) up to 7500 feet above sea level (as at Little Onion Valley, east flank of Sierra Nevada west of Independence, Inyo County); exceptionally to 11,500 feet (at McAfee Meadow, White Mountains, Mono County). Life-zones, characteristically Lower and Upper Sonoran; occurs rarely up to Hudsonian. Found only within reach of permanent water; inhabits meadowlands, grassy places along streams, and tracts of salt grass, cane, and rushes.

***Reithrodontomys megalotis longicaudus* (Baird)**

Long-tailed Harvest Mouse

Original description—*Reithrodon longicauda* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 451-452.

Type locality—Petaluma [probably upland near], Sonoma County, California.

Synonyms—*Reithrodontomys pallidus* Rhoads, Am. Naturalist, 27, September, 1893:835 (type from Santa Ysabel [=Witch Creek], San Diego County, California); *Reithrodontomys klamathensis* Merriam, N. Am. Fauna, No. 16, October 28, 1899:93 (type from Big Spring [=Mayten], Shasta Valley, Siskiyou County, California); *Reithrodontomys megalotis klamathensis*, part; *Rhithrodontomys longicauda*; *Rhithrodontomys longicaudus pallidus*, part; *Rhithrodontomys klamathensis*; *Ochetodon longicauda*; *Reithrodontomys*

longicauda; *Reithrodontomys longicauda pallidus*; Sonoma Harvest Mouse; California Harvest Mouse; Klamath Harvest Mouse, part; Pallid Harvest Mouse, part.

Range—In general, greater portion of California west of Sierran divides, from Mexican boundary north through San Diegan district, and thence through both coast belt and San Joaquin and Sacramento valleys, as far as Trinidad, Humboldt County, and Scott River Valley and Shasta Valley, Siskiyou County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 36, 1914:34). Some easternmost stations of occurrence beginning at north: Battle Creek Meadows, Tehama County; Carbondale, Amador County; El Portal, Mariposa County; Dunlap, Fresno County; Bakersfield, Kern County; Devil's Cañon, San Bernardino Mountains, San Bernardino County; Hemet Lake, San Jacinto Mountains, Riverside County; Vallecito and Mountain Spring, San Diego County. Specimens from last five localities are intergradient toward *E. m. megalotis*. Altitudes of capture extend from close to sea level (at many points along Pacific seacoast north to Humboldt Bay) up to 6000 feet (as in Strawberry Valley, San Jacinto Mountains). Life-zone, characteristically Upper Sonoran; but Lower Sonoran occupied also southeastwardly, and Transition invaded extensively, especially in northwest humid coast belt. Inhabits, as a rule, open, marshy or at least moist ground grown to grass and low annual herbage; however, also found on shaded grassy slopes high on hillsides, away from water.

***Reithrodontomys megalotis limicola* von Bloeker**

Southern Marsh Harvest Mouse

Original description—*Reithrodontomys megalotis limicola* von Bloeker, Proc. Biol. Soc. Wash., 45, September 9, 1932:133-134.

Type locality—Playa del Rey, Los Angeles County, California.

Range—Coastal marshes of southern California, from Point Mugu, Ventura County, southeast to Anaheim Bay, Orange County. Altitudes of occurrence, at or near sea level. Lives in salt marshes, such as are characterized by growths of pickle-weed (*Salicornia*).

***Reithrodontomys megalotis nigrescens* A. H. Howell**

Dusky Harvest Mouse

Original description—*Reithrodontomys megalotis nigrescens* Howell, N. Am. Fauna, No. 36, June 5, 1914:32-33.

Type locality—Payette, Payette County, Idaho.

Synonyms—*Reithrodontomys megalotis klamathensis*, part; Klamath Harvest Mouse, part.

Range—Barely entering extreme northeastern corner of State, on Modoc lava beds; recorded so far in California only from Montague and Brownell, in Siskiyou County, and Bieber, in extreme northwestern Lassen County (Howell, *loc. cit.*; Mus. Vert. Zool.). Altitudes of occurrence, all between 4100 and 4400 feet. Life-zone, Upper Sonoran where verging into Transition. Inhabits margins of meadowlands.

***Reithrodontomys catalinae* Elliot**

Catalina Island Harvest Mouse

Original description—*Reithrodontomys catalinae* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:246.

Type locality—Santa Catalina Island [near Avalon], Santa Barbara Islands, Los Angeles County, California.

Synonyms—*Reithrodontomys megalotis catalinae*; *Rhithrodontomys catalinae*; Catalina Harvest Mouse.

Range—Santa Catalina Island, Santa Barbara group (Howell, N. Am. Fauna, No. 36, 1914:40-41; Mus. Vert. Zool.). So far as known, all specimens taken have been trapped within 700 feet of sea level. Life-zone, Upper Sonoran. Lives on grassy ground, often on hillsides where overgrown with clumps of brush and cactus.

***Reithrodontomys halicoetes* Dixon**

Petaluma Marsh Harvest Mouse

Original description—*Reithrodontomys halicoetes* Dixon, Univ. Calif. Publ. Zool., 5, August 14, 1909:271-273.

Type locality—Salt marsh 3 miles south of Petaluma, Sonoma County, California.

Synonyms—*Reithrodontomys raviventris halicoetes*; Salt Marsh Harvest Mouse, part; Tidal Marsh Harvest Mouse.

Range—Chiefly tidal marshes on north side of San Francisco and Suisun bays, from vicinity of Petaluma, Sonoma County, east to Grizzly Island, Solano County; occurs also as far up Sacramento River as Grand Island, 2 miles north of Knight's Landing, Yolo County, and on south side of Suisun Bay east to near Brentwood, Contra Costa County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 36, 1914:43). All known localities of capture are below 50 feet altitude. Life-zone, Upper Sonoran. Inhabits marshlands—salt or brackish, in only one locality quite fresh.

***Reithrodontomys raviventris* Dixon**

Red-bellied Harvest Mouse

Original description—*Reithrodontomys raviventris* Dixon, Proc. Biol. Soc. Wash., 21, October 20, 1908:197-198.

Type locality—[Salt marsh near] Redwood City, San Mateo County, California.

Synonyms—*Reithrodontomys raviventris raviventris*; Salt Marsh Harvest Mouse, part.

Range—Salt marshes bordering south arm of San Francisco Bay, from Redwood City, San Mateo County, around to Melrose Marsh and near Berkeley, Alameda County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 36, 1914:42). Has not been found more than a few feet above high-tide level. Life-zone, Upper Sonoran. Lives mainly in mixed growths of salt grass, salicornia, and grindelia, thus above reach of ordinary tides.

***Peromyscus crinitus crinitus* (Merriam)**

Idaho Cañon Mouse

Original description—*Hesperomys crinitus* Merriam, N. Am. Fauna, No. 5, July 30, 1891:53-54.

Type locality—Shoshone Falls, Snake River, Lincoln County, Idaho.

Range—Extreme northeastern margin of State, in eastern Modoc, Lassen, Alpine, and northern Mono counties; westernmost stations of capture, 10 miles southwest of Alturas, and Susanville; southernmost station, Coleville, Mono County (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:231). Vertically, extends from 4000 feet (near Amadee, Lassen County), up to 5700 feet (near Fredonyer Peak, Lassen County). Life-zone, characteristically Upper Sonoran. Lives about rock outcrops, usually amid growths of sagebrush.

***Peromyscus crinitus stephensi* Mearns**

Stephens Cañon Mouse

Original description—*Peromyscus stephensi* Mearns, Proc. U. S. Nat. Mus., 19, July 30, 1897:721.

Type locality—Lowest water on wagon road in cañon at eastern base of Coast Range, near Mexican boundary, San Diego County [= 3 miles east of Mountain Spring, in Imperial County], California.

Synonyms—*Peromyscus petraeus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:244 (type from Lone Pine, Inyo County, California); *Peromyscus crinitus*, part; *Peromyscus eremicus stephensi*; Palm Desert Mouse; Stephens Mouse.

Range—In general, mountainous parts of Colorado and Mohave deserts and north through Inyo region. Recorded north from Pilot Knob, near Mexican line in Imperial

County, to vicinity of Benton, Mono County; and west from western margin of valley of Colorado River to lower east slope of Coast Ranges in western Imperial County, to northeast base of San Jacinto Mountains, Riverside County, to north side of San Bernardino Mountains, San Bernardino County, and through Walker Pass, Kern County, as far at least as Onyx (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:233, 234). Altitudinally, extends at least from 450 feet (as near Palm Springs, Riverside County) up to 8250 feet (at Roberts Ranch, Wyman Creek, White Mountains, Inyo County). Life-zone, mainly Lower Sonoran; invades Upper Sonoran locally. Inhabits rough, rocky, even precipitous terrain where there is only sparse, dry-loving vegetation. (See, for habitat description, F. B. Sumner, Jour. Mammalogy, 2, 1921:82 ff.)

***Peromyscus californicus californicus* (Gambel)**

Parasitic White-footed Mouse

Original description—*Mus californicus* Gambel, Proc. Acad. Nat. Sci. Phila., 4, August, 1848:78.

Type locality—Monterey, Monterey County, California.

Synonyms—*Hesperomys californicus*, part; *Sitomys californicus*, part; *Peromyscus californicus*, part; *Hesperomys parasiticus*; Parasitic Mouse; California Mouse.

Range—Coast region south from San Francisco Bay to and into Ventura County (near the sea); also lower west slope of Sierra Nevada from Mariposa County (El Portal, etc.) south to Tulare County (Three Rivers) (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:237). Recorded northwest throughout Coast Ranges west of San Joaquin Valley to and through San Mateo, Alameda, and Contra Costa counties, but not north of Golden Gate or Carquinez Strait. Altitudinally, extends from near sea level (as near Seaside, Monterey County) up to 4000 feet (on Mount Hamilton, Santa Clara County). Life-zone, Upper Sonoran and, in Santa Cruz district, Transition. Lives typically on hillsides overgrown with oaks and (or) heavy chaparral, very often in close association with dusky-footed wood rats.

***Peromyscus californicus insignis* Rhoads**

Southern Parasitic Mouse

Original description—*Peromyscus insignis* Rhoads, Proc. Acad. Nat. Sci. Phila., March [= February 21], 1895:33.

Type locality—Dulzura, San Diego County, California.

Synonyms—*Hesperomys californicus*, part; *Peromyscus californicus*, part; *Sitomys californicus*, part; Chamisal Mouse; Sachem or Chief Mouse.

Range—Southern coast district from Mexican line northwest into Ventura County (where intergrades with *P. c. californicus*) and thence east through Tehachapi Mountain region at least to Kern River, below Bodfish, Kern County; east, at south, to Mountain Spring, on eastern boundary of San Diego County, and to Kenworthy, in San Jacinto Mountains, Riverside County (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:238). Vertically, extends from near sea level (as near San Onofre, San Diego County) up to, exceptionally, 8000 feet (in Tahquitz Valley, San Jacinto Mountains). Life-zone, characteristically Upper Sonoran, but extensions of range occur locally up into Transition and down into Lower Sonoran. Inhabits slopes clothed with chaparral, most especially where shaded and mixed with live oaks.

***Peromyscus eremicus eremicus* (Baird)**

Desert White-footed Mouse

Original description—*Hesperomys eremicus* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 479-480.

Type locality—Fort Yuma, Imperial County, California.

Synonyms—*Sitomys eremicus*; *Hesperomys leucopus eremicus*; Desert Mouse; Hermit Mouse; Western Desert Mouse.

Range—In general, Colorado Desert and eastern portion of Mohave Desert; recorded north from Mexican line in Imperial and extreme eastern San Diego counties (Colorado River at Pilot Knob east to Jacumba [where intermediate toward *P. e. fraterculus*]) to north end of Death Valley, Inyo County; west from valley of Colorado River to Victorville and Oro Grande, San Bernardino County, and to Banning, Riverside County (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:242). Altitudinally, extends from 250 feet below sea level (at Eagle Borax Works, Death Valley) up to 3500 feet (on north-east flank of Santa Rosa Mountains, Riverside County). Life-zone, Lower Sonoran. Inhabits, for most part, sandy floors of deserts and desert washes where scatteringly grown to xerophilous shrubbery.

***Peromyscus eremicus fraterculus* (Miller)**

Dulzura White-footed Mouse

Original description—*Vesperimus fraterculus* Miller, Am. Naturalist, 26, March, 1892: 261-263.

Type locality—Dulzura, San Diego County, California.

Synonyms—*Sitomys herroni* Rhoads, Am. Naturalist, 27, September, 1893:832-833 (type from San Bernardino Valley [=Reche Cañon at 1250 feet altitude], San Bernardino County, California); *Sitomys herroni nigellus* Rhoads, Proc. Acad. Nat. Sci. Phila., October 23, 1894:257 (type from west Cajon Pass [=Sycamore Flat, 2000 feet altitude], San Bernardino County, California); *Sitomys fraterculus*; *Hesperomys Sonoriensis*, part; *Peromyscus eremicus herroni*; *Peromyscus herroni*; *Peromyscus herroni nigellus*; *Peromyscus fraterculus*; Dulzura Mouse; Herron Mouse; Related White-footed Mouse; San Diego Desert Mouse; Herron Field Mouse; Dark Field Mouse.

Range—San Diegoan district, northwest from Mexican line, entirely west of higher mountains, as far as Nordhoff, Ventura County (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:244). Easternmost stations, Campo, San Diego County, and Redlands, San Bernardino County. Vertically, ranges from close to sea level (as at mouth of Tia Juana River, San Diego County) up to at least 3000 feet (as at Santa Ysabel, San Diego County). Life-zones, Lower and (locally) Upper Sonoran. Inhabits sandy ground, often along or on washes, where grown sparsely to shrubby vegetation.

***Peromyscus maniculatus rubidus* Osgood**

Redwoods White-footed Mouse

Original description—*Peromyscus oreas rubidus* Osgood, Proc. Biol. Soc. Wash., 14, December 12, 1901:193.

Type locality—Mendocino City, Mendocino County, California.

Synonyms—*Peromyscus gambeli*, part; *Peromyscus texensis gambeli*; *Hesperomys leucopus*, part; *Hesperomys gambelii*, part; *Peromyscus austerus*; Mendocino Mouse; Reddish Mouse.

Range—Narrow humid northwest coast belt, from Oregon line in Delnorte County south to Golden Gate, in Marin County; also locally in the redwood belt south of San Francisco Bay from Woodside, San Mateo County, south as far as Sur, Monterey County; but these southward populations are intermediate in characters toward *P. m. gambelii*. Some eastward stations at north: Hoopa Valley, Humboldt County, Canyon Creek, Trinity County, and Ukiah, Mendocino County (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909: 66). Vertically, extends from sea level (as at Samoa, Humboldt County) up, doubtless, to highest points within general range of the race. Life-zones, Transition and Canadian. Inhabits almost all the sorts of ground upon which any terrestrial rodent is found.

NOTE—For an exceedingly valuable, genetic, distributional, and evolutionary study of the subspecies of *Peromyscus maniculatus*, chiefly as occurring in California, see F. B. Sumner, in *Bibliographia Genetica* (The Hague, Martinus Nijhoff, 9, 1932:1-106 [of reprint], 24 figs. in text).

Peromyscus maniculatus gambelii (Baird)

Gambel White-footed Mouse

Original description—*Hesperomys gambelii* Baird, Pac. R. R. Rept., 8, 1857, Mammals:464.

Type locality—Monterey, Monterey County, California (see Allen, Bull. Am. Mus. Nat. Hist., 5, 1893:190).

Synonyms—*Peromyscus gambeli*, part; *Mus leucopus*; *Peromyscus sonoriensis gambelii*; *Peromyscus texanus gambelii*; *Sitomys americanus gambeli*; *Peromyscus texanus medius*; *Hesperomys sonoriensis*, part; *Sitomys americanus sonoriensis*; *Peromyscus texensis gambeli*; *Hesperomys leucopus sonoriensis*; *Hesperomys leucopus*; *Sitomys gambeli*; *Peromyscus sonoriensis medius*; Gambel Mouse; Field Mouse; Deer Mouse; Wood Mouse.

Range—Over greater portion of State, from Oregon line east of narrow humid coast belt, to Mexican line west of Colorado Desert (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:67); in other words, California *except* narrow humid coast belt north of San Francisco Bay, and southeastern deserts and their margining mountains. Vertically, ranges from sea level up, in known instances, to 10,200 feet (as on Mount Hoffmann, Mariposa County). Life-zones, Lower Sonoran to Hudsonian; thus practically no zonal restriction. Includes within its general range about all sorts of ground that any terrestrial mammal inhabits. The most abundant and at same time widespread single mammal of the State.

Peromyscus maniculatus sonoriensis (LeConte)

Sonora White-footed Mouse

Original description—*Hesperomys sonoriensis* LeConte, Proc. Acad. Nat. Sci. Phila., 6, October, 1853:413.

Type locality—Santa Cruz, Sonora, Mexico.

Synonyms—*Hesperomys leucopus deserticolus* Mearns, Bull. Am. Mus. Nat. Hist., 2, February 21, 1890:285-287 (type from Mohave River, 12 miles below Hesperia, San Bernardino County, California); *Sitomys insolatus* Rhoads, Proc. Acad. Nat. Sci. Phila., October, 1894:256 (type from Oro Grande, Mohave River, San Bernardino County, California); *Peromyscus texensis thurberi*; *Peromyscus sonoriensis*; *Peromyscus sonoriensis deserticola*; *Peromyscus insolatus*; *Peromyscus leucopus deserticola*; *Peromyscus texanus deserticola*; *Peromyscus texanus sonoriensis*; *Peromyscus thurberi*; *Peromyscus gambeli*, part; Desert Deer Mouse; Desert White-footed Mouse; Thurber Field Mouse; Sunny Mouse.

Range—In general, Colorado and Mohave deserts, and adjacent mountain ranges to westward, and north through Inyo region and along eastern boundary of State to Lassen County. Extends westward from valley of Colorado River to western slopes of inner Coast Ranges in western San Diego County, and to and including San Jacinto Mountains and most of San Bernardino Mountain area; northwest across Tehachapi country to Mount Pinos, Ventura County, over into southern rim of San Joaquin Valley and as far as Carrizo Plain, in western Kern County; and north over high southern Sierra Nevada (Osgood, N. Am. Fauna, No. 28, 1909:92, 93; Mus. Vert. Zool.). The majority of these westward-lying populations show intermediate characters between *P. m. sonoriensis* and *P. m. gambelii*; curiously, the middle line of the belt of intergradation between these two races lies more or less west of not only the western edge of the desert proper but well beyond the topographic divides between the "Great Basin" and "Pacific" districts. Altitudes of verified occurrence extend from 200 feet below sea level (in Death Valley, Inyo County) up at least to 11,600 feet (on White Mountains, Mono County)—a greater vertical span than is occupied by any other single mammalian subspecies in California! Life-zones, lowest Lower Sonoran to Arctic-Alpine; in other words, no zonal restriction is shown by this rodent. Dwells upon all the kinds of ground that any terrestrial rodent inhabits, in respect of both terrain and vegetation, save that it is absent on driest, most barren parts of desert floors.

Peromyscus maniculatus streatori Nelson and Goldman

San Miguel Island White-footed Mouse

Original description—*Peromyscus maniculatus streatori* Nelson and Goldman, Jour. Wash. Acad. Sci., 21, December 19, 1931:531.

Type locality—San Miguel Island, Santa Barbara County, California.

Synonyms—*Peromyscus maniculatus clementis*, part; San Clemente White-footed Mouse, part; San Miguel Island Mouse.

Range—San Miguel and Santa Rosa islands, of Santa Barbara group (Mus. Vert. Zool.).

Peromyscus maniculatus santacruzæ Nelson and Goldman

Santa Cruz Island White-footed Mouse

Original description—*Peromyscus maniculatus santacruzæ* Nelson and Goldman, Jour. Wash. Acad. Sci., 21, December 19, 1931:532.

Type locality—Santa Cruz Island, Santa Barbara County, California.

Synonyms—*Peromyscus maniculatus catalinae*, part; Catalina Island White-footed Mouse, part; Santa Cruz Island Mouse.

Range—Santa Cruz Island (Mus. Vert. Zool.). Probably also the adjacent Ana Capa Island, where white-footed mice are known to occur. Lives under widest range of conditions afforded on these islands, even including sea beach down to tidewater.

Peromyscus maniculatus elusus Nelson and Goldman

Santa Barbara Island White-footed Mouse

Original description—*Peromyscus maniculatus elusus* Nelson and Goldman, Jour. Wash. Acad. Sci., 21, December 19, 1931:533-534.

Type locality—Santa Barbara Island, Los Angeles County, California.

Synonyms—*Hesperomys Gambelii*, part; *Peromyscus texanus clementis*, part; *Peromyscus maniculatus clementis*, part; San Clemente Mouse, part; San Clemente White-footed Mouse, part; Santa Barbara Island Mouse.

Range—Santa Barbara Island of Santa Barbara group.

Peromyscus maniculatus catalinae Elliot

Catalina Island White-footed Mouse

Original description—*Peromyscus catalinae* Elliot, Field Columb. Mus., zool. ser., 3, April, 1903:160.

Type locality—[Near Avalon on] Santa Catalina Island, Los Angeles County, California.

Range—Santa Catalina Island, Santa Barbara group (Mus. Vert. Zool.); Osgood, N. Am. Fauna, No. 28, 1909:97 [in part]. Found everywhere, so far as known, that trapping has been done. Lives under a wide range of conditions, including beach lines down to tidewater.

Peromyscus maniculatus clementis Mearns

San Clemente Island White-footed Mouse

Original description—*Peromyscus texanus clementis* Mearns, Proc. U. S. Nat. Mus., 18, March 25, 1896:446-447.

Type locality—San Clemente Island [more exactly, Pyramid Cove, southeast end], Los Angeles County, California.

Synonyms—*Peromyscus clementis*; *Peromyscus sonoriensis clementis*; *Peromyscus texensis clementis*, part; San Clemente Mouse, part.

Range—San Clemente Island, of Santa Barbara group (Osgood, N. Am. Fauna, No. 28, 1909:96 [in part]; Mus. Vert. Zool.). Occurs practically everywhere that trapping has been carried on, including beach lines down to tidewater.

Peromyscus maniculatus exterus Nelson and Goldman

San Nicolas Island White-footed Mouse

Original description—*Peromyscus maniculatus exterus* Nelson and Goldman, Jour. Wash. Acad. Sci., 21, December 19, 1931:532-533.

Type locality—San Nicolas Island, Ventura County, California.

Synonyms—*Peromyscus texanus clementis*, part; *Peromyscus maniculatus clementis*, part; San Clemente Mouse, part; San Clemente White-footed Mouse, part; San Nicolas Island Mouse.

Range—San Nicolas Island, outermost of Santa Barbara group.

Peromyscus boylii boylii (Baird)

Boyle White-footed Mouse

Original description—*Hesperomys boylii* Baird, Proc. Acad. Nat. Sci. Phila., 7, April, 1855:335-336.

Type locality—Middle Fork American River, Eldorado County, California; near Auburn (see Osgood, N. Am. Fauna, No. 28, 1909:142).

Synonyms—*Sitomys robustus* Allen, Bull. Am. Mus. Nat. Hist., 5, December 16, 1893: 335 (type from Lakeport, Lake County, California); *Peromyscus boylii robustus*; *Peromyscus robustus*; *Sitomys boylii*; *Peromyscus boylii*, part; Long-tailed Mouse; Boyle Mouse; Boyle Field Mouse; Boyle Deer Mouse; California Brush Mouse; Robust Field Mouse.

Range—Chiefly western flank of Sierra Nevada, from Kings River Cañon and Dunlap, Fresno County, north to vicinity of Mount Shasta, thence west to Trinity Mountain region and south along inner Coast Ranges nearly to San Francisco Bay. Southernmost station north of San Francisco Bay, 3 miles west of Vacaville, Solano County; northernmost station, Beswick, Siskiyou County; easternmost at north, Susanville, Lassen County; westernmost toward north, Helena, Trinity County (Mus. Vert. Zool.; Osgood, *op. cit.*:142 ff.). Vertically, ranges from 200 feet (4 miles southeast of Chico, Butte County) up to 8100 feet (on Porcupine Flat, Mariposa County). Life-zones, Upper Sonoran and Transition; rarely enters Canadian. Inhabits wooded or brushy slopes, usually not far from water or at least seepages; perhaps commonest on cañon walls shaded by golden oaks.

Peromyscus boylii rowleyi (Allen)

Rowley White-footed Mouse

Original description—*Sitomys rowleyi* Allen, Bull. Am. Mus. Nat. Hist., 5, April 28, 1893:76.

Type locality—Noland Ranch, San Juan River, San Juan County, Utah (*vide* Osgood, N. Am. Fauna, No. 28, 1909:145).

Synonyms—*Sitomys major* Rhoads, Am. Naturalist, 27, September, 1893:831-832 (type from Squirrel Inn, San Bernardino Mountains, San Bernardino County, California); *Peromyscus parasiticus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:244 (type from Lone Pine, Inyo County, California); *Hesperomys astecus*; *Peromyscus boylii*, part; *Peromyscus major*; Parasite Mouse; Squirrel Inn Mouse.

Range—In general, mountains of southern half of State. Recorded northwest from Mexican line (east to Mountain Spring, extreme eastern San Diego County) through Coast Ranges to and through Monterey County (as far as Seaside); east around southern end of San Joaquin Valley (that is, through Tehachapi Mountain region) to southern Sierra Nevada; north on west flank of Sierra Nevada at least to Kaweah River, Tulare County, and along east side to Onion Valley, near Independence, Inyo

County; also on certain mountain ranges southeast of Owens Valley: northern portion of Panamint Mountains, Inyo County, and Providence Mountains, eastern San Bernardino County (Mus. Vert. Zool.; Osgood, *op. cit.*:146, 147). Vertically, ranges from close to sea level (as near Piedras Blancas, San Luis Obispo County) up to 7750 feet (at Jackass Meadow, Tulare County), and exceptionally to 10,650 feet (on Whitney Creek, Tulare County). Life-zones, characteristically Upper Sonoran and Transition; occasionally found in Canadian, and once in Hudsonian. Lives on wooded or brushy slopes, especially in vicinity of oaks, and usually (in arid territory always) within reach of water.

Peromyscus truei truei (Shufeldt)

True White-footed Mouse

Original description—*Hesperomys truei* Shufeldt, Proc. U. S. Nat. Mus., 8, September 14, 1885:407-408.

Type locality—Fort Wingate, McKinley County, New Mexico.

Synonyms—*Peromyscus lasius* Elliot, Field Columb. Mus., zool. ser., 3, March 8, 1904: 265 (type from Hannopee [=Hanaupah] Canyon ["7500 feet" near lower edge of piñons, at uppermost water where sheep come down to drink], Panamint Mountains, Inyo County, California); *Peromyscus montipinoris* Elliot, *ibid.*:264 (type from Lockwood Valley, near Mount Pinos, Ventura County, California); *Peromyscus truei*, part; Big-eared Mouse; Mount Pinos Mouse; Woolly Mouse.

Range—Mountains along eastern border of State, chiefly east of main Sierra Nevada, but also, at south, west across extreme southern Sierra Nevada to vicinity of Mount Pinos, Ventura County, and to Carrizo Plain, San Luis Obispo County; recorded north to near Fredonyer Peak, Lassen County, and southeast to Providence Mountains, eastern San Bernardino County (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:169). Vertically, extends from 2000 feet (on Kern River, 12 miles below Bodfish, Kern County) up to 9300 feet (near Telescope Peak, Panamint Mountains), and exceptionally to 10,650 feet (on Whitney Creek, Tulare County). Life-zone, typically Upper Sonoran, but individuals are found up through higher zones where closely adjacent to Upper Sonoran. Lives on dry slopes where clothed with sparse shrubby vegetation and often with juniper, piñon, or scrub oak.

Peromyscus truei gilberti (Allen)

Gilbert White-footed Mouse

Original description—*Sitomys gilberti* Allen, Bull. Am. Mus. Nat. Hist., 5, August 18, 1893:188.

Type locality—Bear Valley, San Benito County, California.

Synonyms—*Peromyscus dyselius* Elliot, Field Columb. Mus., zool. ser., 1, March, 1898: 207-208 (type from Portola, San Mateo County, California); *Peromyscus boylii*, part; *Peromyscus gilberti*; *Peromyscus californicus*, part; Blackish Field Mouse.

Range—In general, mountains of northern two-thirds of State; south from Oregon line interiorly from humid coast belt and west of "Great Basin," along west flank of Sierra Nevada to Tulare County (where intergrades with *P. t. truei*) and along inner Coast Ranges chiefly, to Marin and Solano counties, and in coast belt south from San Francisco Bay to Santa Barbara County (where intergradation to southeastward with *P. t. truei* takes place) (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:171). Altitudinally, extends from near sea level (as at Seaside, Monterey County) up to 5900 feet (on Santa Lucia Peak, Monterey County). Life-zones, Upper Sonoran and, locally, Transition.

Peromyscus truei martirensis (Allen)

San Pedro Mártir White-footed Mouse

Original description—*Sitomys martirensis* Allen, Bull. Am. Mus. Nat. Hist., 5, August 18, 1893:187.

Type locality—San Pedro Mártir Mountains, at 7000 feet altitude, Lower California, Mexico.

Synonyms—*Peromyscus truei*, part; *Peromyscus martirensis*; San Pedro Martir Big-eared Mouse; Martir White-footed Mouse.

Range—Mountains of extreme southern California; north from near Mexican line (Laguna Mountains) to and through San Jacinto and San Bernardino mountains (Mus. Vert. Zool.; Osgood, N. Am. Fauna, No. 28, 1909:172). Vertically, extends from 3000 feet (near Dos Palms Spring, Santa Rosa Mountains, Riverside County) up to 7500 feet (as at Saragossa Springs, San Bernardino Mountains, San Bernardino County). Life-zones, Upper Sonoran and Transition. Inhabits dry slopes clothed with scrub oak or an open type of chaparral.

Sigmodon hispidus eremicus Mearns

Western Cotton Rat

Original description—*Sigmodon hispidus eremicus* Mearns, Proc. U. S. Nat. Mus., 20, March 5, 1897:504–505.

Type locality—Cienaga Well, 30 miles south of Mexican boundary on east bank of Colorado River, in Sonora, Mexico.

Synonyms—*Sigmodon hispidus*; Western Desert Cotton Rat.

Range—Valley of lower Colorado River, in Imperial County, south from near Palo Verde to near Pilot Knob (Grinnell, Univ. Calif. Publ. Zool., 12, 1914:230 ff.). Also, of recent years, has followed irrigation canals north from Colorado delta across Mexican boundary into Imperial Valley (Dixon, Jour. Mammalogy, 3, 1922:139). Altitudes of known occurrence are all below 300 feet above sea level. Life-zone, Lower Sonoran. Inhabits tracts of sedge, rushes, or cane close to edges of permanent streams or sloughs.

Neotoma albigula venusta True

Colorado Valley Wood Rat

Original description—*Neotoma venusta* True, Proc. U. S. Nat. Mus., 17, June 27, 1894:354.

Type locality—Carrizo Creek, western Imperial County, California.

Synonyms—*Neotoma cumulator* Mearns, Proc. U. S. Nat. Mus., 20, March 5, 1897:503 (type from Fort Yuma, Imperial County, California); *Neotoma desertorum grandis* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:247 (type said to have come from Cameron Lake, near Tehachapi, Kern County, California; but this is doubtful); *Neotoma albigula*; *Neotoma mexicana*, part; *Neotoma grandis*; Mesquite Brush Rat; Colorado River Wood Rat; Western Desert Wood Rat; Collector Wood Rat; Cameron Lake Wood Rat; Bush Rat, part.

Range—Bed of Colorado Desert, from Mexican line northwest at least to Mecca, Riverside County, west to Carrizo Creek, in extreme eastern San Diego County, and north along Colorado River at least to near Riverside Mountain, northeastern Riverside County (Goldman, N. Am. Fauna, No. 31, 1910:34; Mus. Vert. Zool.). Altitudes of verified occurrence extend from 200 feet below sea level (near Mecca) up to not more than 350 feet above sea level. Life-zone, Lower Sonoran. Closely associated with growths of mesquite and screwbean.

***Neotoma lepida lepida* Thomas**

Desert Wood Rat

Original description—*Neotoma lepida* Thomas, Ann. and Mag. Nat. Hist., ser. 6, 12, September, 1893:235.

Type locality—"Utah": Somewhere on "Simpson's route between Camp Floyd (a few miles west of Utah Lake), Utah, and Carson City, Nevada" (*Adæ* Goldman, Jour. Mammalogy, 13, 1932:61).

Synonyms—*Neotoma desertorum* Merriam, Proc. Biol. Soc. Wash., 9, July 2, 1894:125-126 (type from Furnace Creek [Ranch], Death Valley, Inyo County, California); *Neotoma bella* Bangs, Proc. New England Zool. Club, 1, July 31, 1899:66-67 (type from Palm Springs, Riverside County, California); *Neotoma mexicana*, part; *Neotoma floridana* [?]; *Neotoma floridana mexicana*; *Neotoma intermedia bella*; *Neotoma intermedia desertorum*; Desert Brush Rat; Hermit Wood Rat; Pretty Wood Rat; Death Valley Wood Rat; Beautiful Wood Rat.

Range—In general, Colorado and Mohave deserts; north from Mexican line through Inyo region to head of Owens Valley (near Benton) in Mono County, and west from Arizona and Nevada lines to north base of San Jacinto Mountains (near Whitewater), in Riverside County, to Antelope Valley (near Fairmont), in northern Los Angeles County, and into Walker Pass, in Kern County (Goldman, N. Am. Fauna, No. 31, 1910:78; Mus. Vert. Zool.). Vertical range, from 250 feet below sea level (in Death Valley) up to 8000 feet altitude (as at head of Black Cañon, White Mountains, Inyo County). Life-zone, mainly Lower Sonoran; extends up through Upper Sonoran where near-by to Lower Sonoran. Inhabits both desert floors and rocky sides of mountains, dwelling in and on ground at bases of bushes and clumps of cactus and yucca, as also in crannies of talus slopes or of broken rock outcrops.

***Neotoma lepida nevadensis* Taylor**

Nevada Wood Rat

Original description—*Neotoma nevadensis* Taylor, Univ. Calif. Publ. Zool., 5, February 12, 1910:289-296, pls. 27-29.

Type locality—Virgin Valley, 4800 feet altitude, Humboldt County, Nevada.

Synonyms—*Neotoma desertorum*, part; *Neotoma intermedia desertorum*, part; *Neotoma intermedia nevadensis*; Desert Wood Rat, part.

Range—Known within California only from extreme eastern Lassen County, where recorded from Amedee, on east side of Honey Lake (Goldman, N. Am. Fauna, No. 31, 1910:78), and from Petes Valley, 12 miles northeast of Susanville (Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:515). Altitudes of occurrence, 4000 to 4500 feet. Life-zone, Upper Sonoran. Lives amid broken lava rocks, where sparse xerophilous vegetation is accessible.

***Neotoma lepida gilva* Rhoads**

Banning Wood Rat

Original description—*Neotoma intermedia gilva* Rhoads, Am. Naturalist, 28, January, 1894:70.

Type locality—Banning, Riverside County, California.

Synonyms—*Neotoma desertorum sola* Merriam, Proc. Biol. Soc. Wash., 9, July 2, 1894:126 (type from San Emigdio, Kern County, California); *Neotoma intermedia*, part; Yellow Wood Rat; Yellow Brush Rat; Kern Brush Rat; Solitary Wood Rat; Intermediate Wood Rat, part.

Range—Occurs irregularly along eastern edge of main range of *N. l. intermedia*, where conditions become more arid, approaching those on the deserts proper. Recorded from Stan-

ley, western Fresno County, southeast, mostly along east-facing slopes of innermost Coast Ranges, to Mexican line, as near Mountain Spring, extreme eastern San Diego County; east from Mount Pinos, Ventura County, through Tehachapi region to valley of South Fork of Kern River, in Kern County (Mus. Vert. Zool.; Goldman, N. Am. Fauna, No. 31, 1910:45, 46). *N. l. gilva* thus consists of a series of populations intergradient between *N. l. intermedia* of immediate coast belt and *N. l. lepida* of Colorado and Mohave deserts (see Grinnell and Swarth, Univ. Calif. Publ. Zool., 10, 1913:336 ff.). Altitudes of verified occurrence extend from 600 feet (at Wheeler Ridge, Kern County) up to 8500 feet (on Mount Pinos). Life-zones, Lower and Upper Sonoran, entering Transition where closely adjacent to Upper Sonoran. Inhabits dry, sandy or rocky ground, sometimes quite open, but usually where sparsely overgrown with shrubby vegetation or cactus; especially prone to dwell among rocks.

***Neotoma lepida intermedia* Rhoads**

Intermediate Wood Rat

Original description—*Neotoma intermedia* Rhoads, Am. Naturalist, 28, January, 1894: 69-70.

Type locality—Dulzura, San Diego County, California.

Synonyms—*Neotoma californica* Price, Proc. Calif. Acad. Sci., ser. 2, 4, May 9, 1894: 154-156, pl. 11 (type from Bear Valley, San Benito County, California); *Neotoma mexicana*, part; *Neotoma intermedia intermedia*; Rhoads Wood Rat; Dulzura White-footed Wood Rat; Intermediate Brush Rat.

Range—In general, southern coast region of State. Recorded northwest from Mexican line to and through Monterey and San Benito counties, and mostly on drainage slope immediately toward west; northernmost station, Mount Hamilton, Santa Clara County (Price, loc. cit.); easternmost station at north, Sweeney's Hill, Merced County (Grinnell, MS); easternmost station at south, Julian, San Diego County (Mus. Vert. Zool.). Also recorded along western foothills of extreme southern Sierra Nevada, in Tulare County, north to near Porterville (Goldman, N. Am. Fauna, No. 31, 1910:44). Altitudinally, extends from close to sea level up to at least 5000 feet. Life-zone, prevalently Upper Sonoran; exists in Lower Sonoran locally. Lives in a sparse, xerophilous type of chaparral, frequently inclusive of cactus, especially where on sandy ground, or along broken rock outcrops, or on banks of flood-cut gullies.

***Neotoma fuscipes fuscipes* Baird**

Dusky-footed Wood Rat

Original description—*Neotoma fuscipes* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 495-496.

Type locality—Petaluma, Sonoma County, California.

Synonyms—*Neotoma splendens* True, Proc. U. S. Nat. Mus., 17, June 27, 1894:353 (type from Marin County [now restricted to Nicasio], California); *Neotoma fuscipes streatori*, part; *Neotoma fuscipes monochroua*; Northern Dusky-footed Brush Rat; Dusky-footed Brush Rat.

Range—Northwestern portion of State, north of San Francisco Bay and west and north of Sacramento Valley. Recorded southward from close to Oregon line throughout Coast-Range region to and through Marin, Sonoma, Napa, and western Solano counties; eastward at north through Siskiyou and Shasta counties and as far as Haydenhill, Lassen County (Goldman, N. Am. Fauna, No. 31, 1910:87-89; Mus. Vert. Zool.). Altitudinally, extends from near sea level (as at Trinidad, Humboldt County) up to at least to 4500 feet (as near Sanhedrin Mountain, Mendocino County). Life-zones, Upper Sonoran and Transition. Inhabits heavy chaparral and the floors of deciduous or mixed woods.

Neotoma fuscipes streatori* Merriam*Streator Wood Rat**

Original description—*Neotoma fuscipes streatori* Merriam, Proc. Biol. Soc. Wash., 9, July 2, 1894:124.

Type locality—Carbondale, Amador County, California.

Synonyms—*Neotoma fuscipes*, part; Wood Rat, part; Streator Brush Rat.

Range—Lower west slope of Sierra Nevada, from Tehama County (north to Manton) south to near Porterville, Tulare County (Mus. Vert. Zool.; Goldman, N. Am. Fauna, No. 31, 1910:89, 90). Vertically, ranges from 200 feet (as on Butte Creek, 4 miles south-east of Chico) up to 4600 feet (at Blue Canyon, Placer County). Life-zone, chiefly Upper Sonoran, but extending into Transition locally. Lives in chaparral, in thickets along streams, and on floors of deciduous or mixed woods.

Neotoma fuscipes annectens* Elliot*Portola Wood Rat**

Original description—*Neotoma fuscipes annectens* Elliot, Field Columb. Mus., zool. ser., 1, March, 1898:201-202.

Type locality—Portola, San Mateo County, California.

Synonyms—*Neotoma fuscipes affinis* Elliot, Field Columb. Mus., zool. ser., 1, March, 1898:202-203 (type from Alum Rock Park, Santa Clara County, California); *Neotoma fuscipes*, part; Wood Rat, part; Allied Wood Rat; Related Wood Rat.

Range—Coast region south from Golden Gate, San Francisco Bay and Carquines Strait to Monterey Bay; thence interiorly and southerly along inner Coast Ranges as far as near Carrizo Plain, San Luis Obispo County; east at north to include Mount Diablo and Mount Hamilton ranges (Goldman, N. Am. Fauna, No. 31, 1910:90, 91; Mus. Vert. Zool.). Vertically, ranges from close to sea level up at least to 3700 feet (as on Mount Diablo). Life-zone, mainly Upper Sonoran; Transition also, in the Santa Cruz Mountains. Inhabits heavy chaparral and thickets along streams.

Neotoma fuscipes simplex* True*Tejon Wood Rat**

Original description—*Neotoma macrotis simplex* True, Proc. U. S. Nat. Mus., 17, June 27, 1894:354.

Type locality—Fort Tejon, Kern County, California.

Synonyms—*Neotoma fuscipes dispar* Merriam, Proc. Biol. Soc. Wash., 9, July 2, 1894:124, 125 (type from Lone Pine, Inyo County, California); *Neotoma fuscipes*, part; Fort Tejon Wood Rat; Bush Rat, part; Pale Brush Rat; Xantus Brush Rat; Dissimilar Wood Rat.

Range—Eastern and southeastern basal slopes of southern Sierra Nevada, in Inyo and Kern counties, thence west through Tehachapi region to vicinity of Tejon Pass and San Emigdio Creek, Kern County (Goldman, N. Am. Fauna, No. 31, 1910:91, 92; Mus. Vert. Zool.). Recorded north along west side of Owens Valley, Inyo County, to near Independence, and west around southern end of San Joaquin Valley to Santiago Springs, western Kern County. Vertically, ranges from close to 300 feet (on north side of Buena Vista Lake) up to 7000 feet (on Kiavah Mountain, south of Walker Pass, Kern County). Life-zone, chiefly Upper Sonoran, though entering Lower Sonoran and Transition, each, locally. Inhabits chaparral, both heavy and scattering.

Neotoma fuscipes mohavensis* Elliot*Mohave Wood Rat**

Original description—*Neotoma fuscipes mohavensis* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:246.

Type locality—Oro Grande, on Mohave River, San Bernardino County, California.

Synonyms—*Neotoma fuscipes macrotis*, part; *Neotoma mohavensis*; Mohave Desert Wood Rat.

Range—San Jacinto and San Bernardino mountains, including adjacent foothills on desert side, and from latter mountains down along Mohave River onto Mohave Desert at least as far as Oro Grande, San Bernardino County; also west along southern margin of Mohave Desert at least as far as Fairmont, northern Los Angeles County, and Mohave, Kern County; southernmost station, Garnet Queen Mine, Santa Rosa Mountains, Riverside County (Mus. Vert. Zool.; Goldman, N. Am. Fauna, No. 31, 1910:93). This race thus occupies somewhat more than a desert marginal belt interiorly from the range of *N. f. macrotis*. Vertically, ranges from 1700 feet (as near Cabezon, Riverside County) up to 7500 feet (as on south side of Sugarloaf, San Bernardino Mountains). Life-zone predominantly Upper Sonoran; but enters also Lower Sonoran and Transition. Inhabits chaparral, even where in very scattering clumps, and also stream-side thickets.

Neotoma fuscipes macrotis* Thomas*San Diego Wood Rat**

Original description—*Neotoma macrotis* Thomas, Ann. and Mag. Nat. Hist., ser. 6, 12, September, 1893:234-235.

Type locality—San Diego, San Diego County, California.

Synonyms—*Neotoma fuscipes cnemophila* Elliot, Field Columb. Mus., zool. ser., 3, March, 1904:267-268 (type from Lockwood Valley, near Mount Pinos, Ventura County, California); *Neotoma fuscipes*, part; *Neotoma onemophila*; *Neotoma mexicana*, part; Southern Brush Rat; Long-eared Wood Rat; Large-eared Wood Rat; Mount Pinos Wood Rat; Bush Rat, part.

Range—In general, San Diegan district; northwest from Mexican line (west from Campo), including southern drainage of San Gabriel Mountains, through mountains of Ventura and Santa Barbara counties, and through Monterey County (chiefly west of Salinas Valley) as far as Seaside and Salinas (Goldman, N. Am. Fauna, No. 31, 1910:93, 94; Mus. Vert. Zool.). Altitudinally, extends from near sea level (as at Morro, San Luis Obispo County) up at least to 6400 feet (as at Bear Flat, near head of San Antonio Canyon, San Gabriel Mountains, in western San Bernardino County). Life-zone, mainly Upper Sonoran; enters Lower Sonoran and Transition, each, locally. Inhabits heavy chaparral, as a rule, but also lives along brushy stream courses and in thickets on floors of dry washes or arroyos.

Neotoma cinerea cinerea* (Ord)*Gray Bushy-tailed Wood Rat**

Original description—*Mus cinereus* Ord, Guthrie's Geog., 2nd Am. ed., 2, 1815:292.

Type locality—Great Falls, Cascade County, Montana (*vide* Goldman, N. Am. Fauna, No. 31, 1910:95).

Synonyms—*Teonoma cinerea acraia* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:247-248 (type really from Jordan Hot Springs, near Kern River, Sierra Nevada, Tulare County, California—*vide* E. Heller in conversation); *Teonoma cinerea*; *Teonoma acraea*; *Neotoma cinerea*, part; Ash-colored Rat, part; Mountain Bushy-tailed Wood Rat.

Range—Central and southern Sierra Nevada from Independence Lake, Nevada County, south as far as Jackass Meadow (near Kern County line), Tulare County; also White, Inyo, and Panamint mountains, Mono and Inyo counties; southeasternmost station, near Telescope Peak, Panamint Mountains (Dixon, Univ. Calif. Publ. Zool., 21, 1919:54). Vertical range, 5000 feet (in Kings River Canyon, Fresno County) up, ex-

ceptionally, to 13,090 feet (on summit of Mount Lyell, Tuolumne County). Life-zones, Canadian and Hudsonian; reaches in places up through Arctic-Alpine and, especially on mountains of Inyo region, down into Transition. Inhabits log-strewn floors of upper timber belts, and, elsewhere, rock taluses and broken rock outcrops.

***Neotoma cinerea occidentalis* Baird**

Western Bushy-tailed Wood Rat

Original description—*Neotoma occidentalis* Baird, Proc. Acad. Nat. Sci. Phila., 7, 1855:335.

Type locality—Shoalwater Bay, Pacific County, Washington.

Synonyms—*Teonoma cinerea occidentalis*; *Neotoma cinerea*, part; Ash-colored Rat, part.

Range—Higher mountains of northern end of State; west to Doctor Rock [Peak], Delnorte County, and South Fork Mountain, Humboldt County; east to Warner Mountains, Modoc County, and Box Springs, Lassen County; south along inner Coast Ranges as far as mountains near Elk Creek, Glenn County, and along Sierra Nevada through Plumas County (Mus. Vert. Zool.; Dixon, Univ. Calif. Publ. Zool., 21, 1919:56). Ranges vertically from 3600 feet (at Sisson [now Mount Shasta City], Siskiyou County) up to 9000 feet (on Mount Shasta). Life-zones, Canadian and Hudsonian; occurs locally, toward Nevada line, down into Upper Sonoran. Inhabits, characteristically, broken rock outcrops and talus slopes, whether these be located in forest belts or where vegetation is low and sparse.

***Phenacomys intermedius intermedius* Merriam**

Rocky Mountain Lemming Mouse

Original description—*Phenacomys intermedius* Merriam, N. Am. Fauna, No. 2, October 30, 1889:32.

Type locality—About 20 miles north-northwest of Kamloops, at 5500 feet altitude, British Columbia.

Synonyms—*Phenacomys orophilus*, part; Mountain Lemming Mouse, part; Rocky Mountain *Phenacomys*.

Range—In California known only with definiteness from Mount Shasta; three specimens obtained there by Walter K. Fisher, August 7, 10, and 12, 1898, in heather meadows along the upper part of Squaw Creek (Merriam, N. Am. Fauna, No. 16, 1899:95); altitude of capture evidently about 8000 feet, and life-zone, Hudsonian. Another specimen has been recorded, from "Fort Crook," Shasta County (A. B. Howell, N. Am. Fauna, No. 48, 1926:19). This proves to be no. $\frac{4172}{37350}$ U. S. Nat. Mus. [examined by me October 29, 1929], taken by John Feilner, May 19, 1860; the chances are that it, too, was really obtained on slopes of Mount Shasta, rather than in more immediate neighborhood of Fort Crook, where Feilner was stationed.

***Phenacomys intermedius celsus* A. B. Howell**

Sierra Nevada Lemming Mouse

Original description—*Phenacomys intermedius celsus* Howell, Proc. Biol. Soc. Wash., 36, May 1, 1923:158.

Type locality—Muir Meadow at 9300 feet, Tuolumne Meadows, Yosemite National Park, California.

Synonyms—*Phenacomys orophilus*, part; Mountain Lemming Mouse, part; Sierran *Phenacomys*.

Range—High central Sierra Nevada, from Pyramid Peak, Eldorado County (Elliot, Field Columb. Mus., zool. ser., 1, 1898:204) south at least to Humphrey's Basin, Fresno County (Mus. Vert. Zool.). Altitudes of definitely known stations of capture extend from 7700 to 10,800 feet. Life-zone, chiefly Hudsonian. Inhabits meadows and patches of heather.

Phenacomys albipes Merriam**Pacific Coast Lemming Mouse**

Original description—*Phenacomys albipes* Merriam, Proc. Biol. Soc. Wash., 14, July 19, 1901:125-126.

Type locality—Redwoods near Arcata, Humboldt County, California.

Synonyms—*Phenacomys (Arborimus) albipes*; Coast Phenacomys; White-footed Lemming Mouse.

Range—Extreme northwest coast belt. Known from but three places, all in Humboldt County: type locality, as above; 3 miles north of Orick (A. B. Howell, Jour. Mammalogy, 1, November, 1920:242); and Trinidad (A. B. Howell, Jour. Mammalogy, 9, May, 1928:153). Stations of known occurrence all within a few hundred feet of sea level; life-zone, Canadian or Transition. Found in vicinity of little streams in heavy forest.

Phenacomys longicaudus True**Red Tree Mouse**

Original description—*Phenacomys longicaudus* True, Proc. U. S. Nat. Mus., 13, 1890:303-304.

Type locality—Marshfield, Coos County, Oregon.

Synonyms—*Phenacomys (Arborimus) longicaudus*; Long-tailed Lemming Mouse; Arboreal Lemming Mouse.

Range—Northwestern portion of State, south from near Oregon line to vicinity of Monte Rio and Camp Meeker in Sonoma County; interiorly to Bridgeville, Humboldt County, and South Fork Mountain, Trinity County (Mus. Vert. Zool.; Stone, Proc. Acad. Nat. Sci. Phila., 1904:578; Taylor, Proc. Calif. Acad. Sci., ser. 4, 5, 1915:136-137; A. B. Howell, N. Am. Fauna, No. 48, 1926:32, 40; Benson and Borell, Jour. Mammalogy, 12, 1931:226). Record stations vary in altitude from close to sea level up to 2400 feet (as at Lierly's ranch, near Mount Sanhedrin, Mendocino County), and even to 3000 feet (on west slope of South Fork Mountain). Life-zone, Transition. Lives chiefly, if not altogether, in Douglas spruce and grand fir, rarely visiting ground; apparently does not enter dense redwood forest.

Clethrionomys masama masama (Merriam)**Mazama Red-backed Mouse**

Original description—*Evotomys masama* Merriam, Proc. Biol. Soc. Wash., 11, April 21, 1897:71-72.

Type locality—Crater Lake, 7000 feet altitude, Klamath County, Oregon.

Synonyms—*Evotomys obscurus*, part; Mountain Evotomys; Crater Lake Red-backed Mouse; Dusky Red-backed Mouse, part.

Range—Extreme northern Sierra Nevada and northward: Mount Shasta, Siskiyou County (Merriam, N. Am. Fauna, No. 16, 1899:95); Carberry Ranch, near Montgomery Creek, Shasta County (Bailey, Proc. Biol. Soc. Wash., 11, 1897:133 [under *obscurus*]); vicinity of Lassen Peak, in Tehama County (Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:522); and near Quincy, Plumas County (Mailliard, Proc. Calif. Acad. Sci., ser. 4, 13, 1923:32). Altitudes of known occurrence, as above, extend from 3500 feet to 7700 feet. Life-zones, Transition and Canadian. Inhabits forest floors where fairly moist and strewn with logs.

NOTE—The three specimens (in Biol. Surv. coll.) from Carberry Ranch were forwarded and examined by me December 12, 1931. These, together with three specimens at hand from the vicinity of Lassen Peak, show some differences from topotypes of *masama* but not enough, in my estimation, to warrant separate naming, especially in view of similar amounts of variation within the range of *obscurus* as here delimited.

Olethronomys masama obscurus* (Merriam)*Dusky Red-backed Mouse**

Original description—*Evotomys obscurus* Merriam, Proc. Biol. Soc. Wash., 11, April 21, 1897:72.

Type locality—Prospect, about 2600 feet altitude, upper Rogue River Valley, Jackson County, Oregon.

Range—Northwestern, interior, mountainous portion of State immediately east of humid coast belt, and south from Trinity Mountains to vicinity of Yolla Bolly Mountain. Record stations are: Jackson and Castle lakes, Siskiyou County (L. Kellogg, Univ. Calif. Publ. Zool., 12, 1916:362); South Fork Mountain near Blake Lookout, eastern Humboldt County (Grinnell MS, Mus. Vert. Zool.); divide 12 miles north of North Yolla Bolly Mountain, Trinity County (Linsdale MS, Mus. Vert. Zool.); 2 miles south of South Yolla Bolly Mountain, western Tehama County (W. P. Taylor MS, Mus. Vert. Zool.). Altitudes of occurrence, as above, extend from 4400 feet up to 7500 feet. Life-zones, Transition and Canadian. Apparently lives rather exclusively on floors of dense forests of fir.

NOTE—Review of the material in the Museum of Vertebrate Zoology together with certain specimens from the Biological Survey collection leads me to treat *masama* and *obscurus* as subspecies of one species. Intergradation through individual variation is clear. There is also indication, though not final proof, that *californicus* intergrades with *obscurus*.

Olethronomys californicus* (Merriam)*California Red-backed Mouse**

Original description—*Evotomys californicus* Merriam, N. Am. Fauna, No. 4, October 8, 1890:26.

Type locality—Eureka, Humboldt County, California.

Range—Humid northwest coast belt, chiefly in or near redwood forests, south from near Oregon line to Sonoma County. Southernmost record station, 7 miles west of Cazadero; interior station, near Fair Oaks, Humboldt County, and Willits, Mendocino County (Mus. Vert. Zool.). Occurs from near sea level (as at Gualala) up to 2300 feet (near Sherwood, Mendocino County). Life-zones, Transition and Canadian. Lives on log-strewn forest floors.

Microtus montanus montanus* (Peale)*Peale Meadow Mouse**

Original description—*Arvicola montana* Peale, U. S. Exploring Exped., 8, 1848:44-45.

Type locality—Headwaters of Sacramento River, near Mount Shasta, California (*vide* Bailey, N. Am. Fauna, No. 17, 1900:27); later restricted to Sisson [now Mount Shasta City], 3600 feet altitude, Siskiyou County (see Kellogg, *infra cit.*).

Synonyms—*Arvicola longirostris* Baird, Pac. R. R. Rept., 8, 1857, Mammals:530, 531 (type from upper Pit River, California); *Arvicola riparius*; *Microtus longirostris*; *Microtus montanus*, part; Peale Vole, part; Peale Meadow Vole, part.

Range—Siskiyou region of extreme north-central portion of State, south from Oregon line to Fort Crook [near Burgettville], Shasta County, west to Stud Horse Canyon, Siskiyou Mountains, Siskiyou County, and east to east side of Tule Lake, Modoc County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1922:259). Altitudinal range, 2700 feet up to 6500 feet. Life-zones, Transition and Canadian. Lives ordinarily in wet meadows.

Microtus montanus yosemite Grinnell

Yosemite Meadow Mouse

Original description—*Microtus montanus yosemite* Grinnell, Proc. Biol. Soc. Wash., 27, October 31, 1914:207-208.

Type locality—Yosemite Valley, 4000 feet altitude (close to old Yosemite village), Mariposa County, California.

Synonyms—*Arvicola montana*, part; *Microtus montanus*, part; *Microtus dutcheri*, part; Peale Meadow Mouse, part; Peale Vole, part; Peale Meadow Vole, part.

Range—Central and northern Sierra Nevada and northeast through Modoc region to Oregon and Nevada lines. Recorded from Goose Lake, Modoc County, south to head of San Joaquin River, in Fresno County; west at north to vicinity of Cassel, Shasta County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1922:264). Altitudes of capture extend from 3000 feet (at Cassel) up to 10,350 feet (at Vogelsang Lake, Yosemite National Park). Life-zones, Transition to Hudsonian. Inhabits, restrictedly, wet meadows.

Microtus montanus dutcheri Bailey

Mount Whitney Meadow Mouse

Original description—*Microtus dutcheri* Bailey, Proc. Biol. Soc. Wash., 12, April 30, 1898:85.

Type locality—Big Cottonwood Meadows, 10,100 feet altitude, Inyo County, California.

Synonyms—Dutcher Vole; Dutcher Meadow Vole; Dutcher Meadow Mouse.

Range—High southern Sierra Nevada, in vicinity of Mount Whitney. Recorded south to Jackass Meadow, Tulare County, north to Whitney Creek, Tulare County, and east to Little Cottonwood Creek, Inyo County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1922:268). Vertical range, 6700 feet (at Jordan Hot Springs, Tulare County) to 11,100 feet (at Cottonwood Lakes, Inyo County). Life-zones, Canadian and Hudsonian. Lives in wet meadows.

Microtus californicus californicus (Peale)

West-central California Meadow Mouse

Original description—*Arvicola californica* Peale, U. S. Exploring Exped., 8, 1848:46, pl. 11, fig. 2.

Type locality—Vicinity of San Francisco Bay, California; later restricted to San Francisco Creek, near Palo Alto, Santa Clara County (see Kellogg, *infra cit.*).

Synonyms—*Arvicola trowbridgii* Baird, Pac. R. R. Rept., 8, 1857, Mammals:529 (type from Monterey, California); *Arvicola edax* LeConte, Proc. Acad. Nat. Sci. Phila., 6, October, 1853:405 (type from California somewhere south of San Francisco, probably Monterey); *Arvicola riparius*, part; *Arvicola townsendii*, part; *Arvicola montana*, part; *Microtus californicus*, part; *Microtus montanus*, part; *Microtus edax*, part; California Vole, part; California Meadow Mouse, part; California Meadow Vole, part; Monterey Field-mouse.

Range—Coastal region of west-central California, west of San Joaquin Valley, from south side of San Francisco Bay south into San Luis Obispo County. Recorded from San Francisco and Berkeley south to Pozo, San Luis Obispo County, and east to Sweeney's Ranch, 22 miles southwest of Los Baños, in southwestern Merced County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1918:5; Mus. Vert. Zool.). Altitudinally, extends from sea level (as on the Bay marshes of Alameda County) up at least to 2800 feet (on slopes of Mount Diablo, Contra Costa County). Life-zone, chiefly Upper Sonoran. Inhabits marshy ground, both salt and fresh, wet meadows, and grassy places even on high, ordinarily dry hillsides.

***Microtus californicus constrictus* Bailey**

Cape Mendocino Meadow Mouse

Original description—*Microtus californicus constrictus* Bailey, N. Am. Fauna, No. 17, June 6, 1900:36-37.

Type locality—Cape Mendocino, near Capetown, Humboldt County, California.

Synonyms—*Microtus californicus*, part; Coast Vole, part; Coast Meadow Mouse; Coast Meadow Vole, part.

Range—Northwest humid coast belt, in Mendocino and Humboldt counties. Recorded from Capetown north to Eureka and interiorly to Cuddeback and Fair Oaks (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1918:9). Ranges vertically from sea level up at least to 1000 feet. Life-zone, Transition. Inhabits open meadowlands.

***Microtus californicus eximius* R. Kellogg**

Sanhedrin Meadow Mouse

Original description—*Microtus californicus eximius* R. Kellogg, Univ. Calif. Publ. Zool., 21, December 28, 1918:12-14.

Type locality—Lierly's Ranch, 2340 feet altitude, 4 miles south of Mount Sanhedrin, Mendocino County, California.

Synonyms—*Arvicola riparius*, part; *Microtus californicus*, part; *Microtus edax*, part; California Meadow Mouse, part; California Vole, part.

Range—In general, northwestern California (excepting narrow coastal strip from Cape Mendocino northward). Recorded at south from Olema, Marin County, east to Rumsey, Yolo County; thence north to Scott River and Mayten, in Siskiyou County; east at north across head of Sacramento Valley in vicinity of Red Bluff and Tehama to Manton and Turner's, in Tehama County (R. Kellogg, *supra cit.*; Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:524). Vertical range, from sea level (in western Marin County) up to 7500 feet (on South Yolla Bolly Mountain, in western Tehama County). Life-zones, Lower Sonoran (at Red Bluff) up through Transition (in the Yolla Bolly Mountains). Inhabits wider variety of situations than most microtines, from marshes to dry prairies and but sparsely grassy hillsides.

***Microtus californicus aestuarinus* R. Kellogg**

Tule Meadow Mouse

Original description—*Microtus californicus aestuarinus* R. Kellogg, Univ. Calif. Publ. Zool., 21, December 28, 1918:15-18.

Type locality—Grizzly Island, Suisun Bay, Solano County, California.

Synonyms—*Arvicola montana*, part; *Arvicola riparius*, part; *Microtus californicus*, part; *Microtus edax*, part; California Meadow Mouse, part; Tule Meadow Vole; Tule Vole.

Range—Lower portions of San Joaquin and Sacramento valleys, north from Tulare Lake basin, in Kings County, at least to Chico, Butte County; east to near Galt, in San Joaquin County, and west along north side of San Francisco Bay at least to Petaluma, Sonoma County (R. Kellogg, *loc. cit.*; Mus. Vert. Zool.). Vertical range from sea level up hardly to 500 feet. Life-zones, Lower and Upper Sonoran. Ordinarily inhabits marshes and wet lowland meadows.

Microtus californicus mariposae* R. Kellogg*Mariposa Meadow Mouse**

Original description—*Microtus californicus mariposae* R. Kellogg, Univ. Calif. Publ. Zool., 21, December 28, 1918:19–21.

Type locality—One and three-fourths miles west of El Portal, at 1800 feet altitude, Mariposa County, California.

Synonyms—*Microtus californicus*, part; *Microtus edax*, part; California Meadow Mouse, part.

Range—Western foothill belt of Sierra Nevada, at least from Minkler, Fresno County, north to Dutch Flat, Placer County (R. Kellogg, *loc. cit.*). Vertical range from 200 feet (on San Joaquin River, 10 miles north of Fresno) up to 3800 feet (on Sweetwater Creek, Mariposa County). Life-zones, Upper Sonoran and lower edge of Transition. Inhabits grassy places, not ordinarily very wet, on hillsides and along stream courses.

Microtus californicus vallicola* Bailey*Owens Valley Meadow Mouse**

Original description—*Microtus californicus vallicola* Bailey, Proc. Biol. Soc. Wash., 12, April 30, 1898:89.

Type locality—Lone Pine Creek at 4500 feet, where it cuts through the Alabama Hills, near Lone Pine, Inyo County, California (see A. B. Howell, Jour. Mammalogy, 4, 1923:266).

Synonyms—Valley Vole; Valley Meadow Mouse; Valley Meadow Vole.

Range—Owens Valley (east of southern Sierra Nevada), from Olancha, Inyo County, north to Benton, Mono County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1918:21). Recorded also from head of Willow Creek in north end of Panamint Mountains, Inyo County (Bailey, N. Am. Fauna, No. 17, 1900:36). Vertical range, from 3700 feet up to 5400 feet. Life-zones, Lower and Upper Sonoran. Inhabits permanently marshy or lushly grassy ground.

Microtus californicus scirpensis* Bailey*Amargosa Meadow Mouse**

Original description—*Microtus scirpensis* Bailey, N. Am. Fauna, No. 17, June 6, 1900:38.

Type locality—Amargosa River [spring near Shoshone, 1560 feet altitude], Inyo County, California.

Synonyms—Desert Vole; Desert Meadow Vole; Desert Meadow Mouse.

Range—Known only from small tule marsh at type locality, as above. Life-zone, Lower Sonoran. Probably now extinct (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1918:24–26).

Microtus californicus kernensis* R. Kellogg*Kern River Meadow Mouse**

Original description—*Microtus californicus kernensis* R. Kellogg, Univ. Calif. Publ. Zool., 21, December 28, 1918:26–29.

Type locality—Fay Creek, at 4100 feet altitude, near South Fork of Kern River, Kern County, California.

Synonyms—*Arvicola riparius*, part; *Microtus californicus*, part; *Microtus californicus aestuarinus*, part; *Microtus californicus estuarensis* [*sic*]; California Meadow Mouse, part; Tule Meadow Mouse, part.

Range—Drainage basin of Kern River, from Taylor Meadow, Tulare County, southwest to Buena Vista Lake, San Emigdio Creek, and Fort Tejon, in Kern County (R. Kellogg, *loc. cit.*; Mus. Vert. Zool.). Vertical range, 290 feet up to 7000 feet. Life-zones, Lower Sonoran to Transition. Ordinarily inhabits marshes, meadowlands, and moist, stream-side ground. Has been known to “erupt” and traverse all sorts of terrain;

specifically, in the Buena Vista Lake region in the winter of 1926-1927 (Hall, Univ. Calif. Publ. Zool., 30, 1927:189 ff., and Piper, Monthly Bull., Dept. Agr., State of Calif., 17, 1928:538).

***Microtus californicus mohavensis* R. Kellogg**

Mohave River Meadow Mouse

Original description—*Microtus californicus mohavensis* R. Kellogg, Univ. Calif. Publ. Zool., 21, December 28, 1918:29-31.

Type locality—Victorville, 2700 feet altitude, San Bernardino County, California.

Synonyms—*Microtus californicus*, part; *Microtus californicus valltoola*, part; Owens Valley Meadow Mouse, part.

Range—Moist bottomlands of Mohave River, on Mohave Desert. Recorded from vicinities of Victorville and Oro Grande, in San Bernardino County (R. Kellogg, *loc. cit.*). Known vertical range, 2500 feet up to 2700 feet. Life-zone, Lower Sonoran.

***Microtus californicus sanctidiégi* R. Kellogg**

Southern California Meadow Mouse

Original description—*Microtus californicus sanctidiégi* R. Kellogg, Proc. Biol. Soc. Wash., 35, March 20, 1922:78 (substitute name for *Microtus californicus neglectus* R. Kellogg, Univ. Calif. Publ. Zool., 21, December 28, 1918:31-34).

Type locality—Escondido, 640 feet altitude, San Diego County, California.

Synonyms (other than above)—*Arvicola riparius*, part; *Arvicola edax*, part; *Microtus edax*, part; *Microtus californicus*, part; California Meadow Mouse, part; California Meadow Vole, part.

Range—In general, San Diegan subfaunal district. Recorded from Mountain Spring and mouth of Tia Juana River, in San Diego County, northwest to Gaviota Pass, Santa Barbara County, and north to Bluff Lake, in San Bernardino Mountains (R. Kellogg, *supra cit.*). Vertical range, from near sea level (as at San Diego) up to 9000 feet (in Round Valley, San Jacinto Mountains). Life-zones, Lower Sonoran to Canadian. Lives permanently on stream-side or low-lying ground that is damp and grassy, or even marshy; in rainy years, quickly spreads far and wide wherever grass grows lushly.

***Microtus californicus stephensi* von Bloeker**

Stephens Meadow Mouse

Original description—*Microtus californicus stephensi* von Bloeker, Proc. Biol. Soc. Wash., 45, September 9, 1932:134-135.

Type locality—Playa del Rey, Los Angeles County, California.

Range—Coastal marshes of southern California, from Point Mugu, Ventura County, southeast to Sunset Beach, Orange County. Altitudes of known occurrence, all at or near sea level. Lives in salt marshes, those formerly, if not now, subject to tidal flooding.

***Microtus townsendii* (Bachman)**

Townsend Meadow Mouse

Original description—*Arvicola Townsendii* Bachman, Jour. Acad. Nat. Sci. Phila., 8, 1839:60.

Type locality—Lower Columbia River, near mouth of Willamette, on or near Wappatoo (or Sauvie) Island (*vide* Bailey, N. Am. Fauna, No. 17, June, 1900:46).

Synonyms—*Microtus mordax angusticeps*, part; Northwest Coast Meadow Mouse, part.

Range—In California, recorded only from salt marshes on Humboldt Bay, near Eureka, Humboldt County (Elliot, Field Columb. Mus., zool. ser., 3, 1903:189; A. B. Howell, Jour. Mammalogy, 4, 1923:33-34). "Common about tidewater." Life-zone, Transition.

Microtus mordax mordax (Merriam)

Cantankerous Meadow Mouse

Original description—*Arvicolae (Mynomes) mordax* Merriam, N. Am. Fauna, No. 5, July 30, 1891:61-62, pl. 2, figs. 3, 4.

Type locality—Sawtooth (or Alturas) Lake, east foot of Sawtooth Mountains, Blaine County, Idaho.

Range—Northeastern, "Great Basin," corner of State. Recorded from many localities in Warner Mountains, Modoc County, and thence south to Butte Lake and Fredonyer Peak, Lassen County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1922:284, and Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:526). Altitudes of capture of identified specimens extend from 4800 feet (at Goose Lake Meadows near Sugar Hill) up to 8700 feet (on Warren Peak, Warner Mountains). Life-zones, Transition and Canadian. Lives on permanently moist ground usually at sides of streams or in edges of meadows.

Microtus mordax sierrae R. Kellogg

Sierra Nevada Meadow Mouse

Original description—*Microtus mordax sierrae* R. Kellogg, Univ. Calif. Publ. Zool., 21, April 18, 1922:288-292, text figs. A, B, F-P, pl. 8, figs. 5a-6b.

Type locality—Tuolumne Meadows, 8600 feet altitude, Yosemite National Park, in Tuolumne County, California.

Synonyms—*Microtus mordax*, part; *Microtus mordax mordax*, part; *Microtus mordax latus* [?]; Cantankerous Vole; Cantankerous Meadow Vole; Cantankerous Meadow Mouse, part.

Range—In general, entire length of Sierra Nevada, and northwest to include Trinity Mountain region. Recorded south from Goose Nest Mountain (near Oregon line) and South Fork of Salmon River, in Siskiyou County, to Taylor Meadow, in extreme southern Tulare County (R. Kellogg, *supra cit.*). Also on White Mountains, in Mono and Inyo counties (but here not typical—approaching *M. mordax mordax*). Altitudinally, extends from 2000 feet (as at El Portal, Mariposa County) up to 11,500 feet (at McAfee Meadow, White Mountains). Life-zones, Transition to Hudsonian, inclusive, even entering Arctic-Alpine in places. Lives for most part on banks of swift-flowing streams, but also found well away from water, sometimes on quite dry, though shaded slopes.

Microtus mordax bernardinus Merriam

San Bernardino Meadow Mouse

Original description—*Microtus mordax bernardinus* Merriam, Proc. Biol. Soc. Wash., 21, June 9, 1908:145.

Type locality—Dry Lake, 9050 feet altitude, San Bernardino Mountains, San Bernardino County, California.

Synonym—*Microtus mordax*, part.

Range—Higher parts of San Bernardino Mountains, in San Bernardino County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1922:296). Vertical range, 7500 feet (at Bluff Lake) up to 9050 feet (as above). Life-zones, high Transition and Canadian. Inhabits stream sides and edges of wet mountain meadows.

Microtus mordax angusticeps Bailey

Delnorte Meadow Mouse

Original description—*Microtus angusticeps* Bailey, Proc. Biol. Soc. Wash., 12, April 30, 1898:86.

Type locality—Crescent City, Delnorte County, California.

Synonyms—Coast Vole, part; Coast Meadow Vole, part; Northwest Coast Meadow Mouse; Bailey Meadow Mouse.

Range—Extreme northwest coast belt. Recorded from Crescent City, Delnorte County, south to Mendocino City and Fort Bragg, Mendocino County (R. Kellogg, Univ. Calif. Publ. Zool., 21, 1922:293; Mus. Vert. Zool.). Apparently confined to narrow strip along seacoast, below altitude of 300 feet, where lives along streams beneath heavy overgrowth of trees. Life-zone, Canadian or (and) Transition.

***Microtus oregoni oregoni* (Bachman)**

Oregon Meadow Mouse

Original description—*Arvicola oregoni* Bachman, Jour. Acad. Nat. Sci. Phila., 8, 1839:60-61.

Type locality—Astoria, Clatsop County, Oregon.

Synonyms—Oregon Vole; Oregon Meadow Vole.

Range—Extreme northwest humid coast belt, south from Oregon line to Fort Bragg and Mendocino City, Mendocino County; interiorly to Hoopa Valley and near Fair Oaks, in Humboldt County (Mus. Vert. Zool.; Bailey, N. Am. Fauna, No. 17, 1900:71). Altitudinally, extends from near sea level up to about 1800 feet. Life-zone, Canadian (perhaps Transition, also). Lives in open, grassy places at margins of forest.

***Microtus oregoni adocetus* Merriam**

Yolla Bolly Meadow Mouse

Original description—*Microtus oregoni adocetus* Merriam, Proc. Biol. Soc. Wash., 21, June 9, 1908:145-146.

Type locality—South Yolla Bolly Mountain, California [= 2 miles south of South Yolla Bolly Mountain, at 7500 feet altitude, in western Tehama County—*vide* W. P. Taylor, MS, 1913].

Range—Known so far only from several localities in vicinity of South Yolla Bolly Mountain, in Tehama and Trinity counties, and from near Blake Lookout on South Fork Mountain, in extreme eastern Humboldt County (Mus. Vert. Zool.). Altitudes of capture, 5500 up to 7500 feet. Life-zone, Canadian. Lives in edges of small moist meadows and along willow-lined streamlets.

***Microtus oregoni bairdi* Merriam**

Baird Meadow Mouse

Original description—*Microtus bairdi* Merriam, Proc. Biol. Soc. Wash., 11, April 21, 1897:74-75.

Type locality—Glacier Peak (7800 feet altitude), Crater Lake, Klamath County, Oregon.

Range—Within California, known only from Beswick, Siskiyou County (Taylor, Jour. Mammalogy, 1, 1920:184). This is close to Oregon line; altitude about 3000 feet; life-zone, Transition.

***Lagurus curtatus curtatus* (Cope)**

Short-tailed Meadow Mouse

Original description—*Arvicola curtata* Cope, Proc. Acad. Nat. Sci. Phila., 1868:2.

Type locality—Pigeon Spring, Mount Magruder, Esmeralda County, Nevada.

Synonyms—*Arvicola austerus curtatus*; *Microtus curtatus*; Short-tailed Vole; Sagebrush Meadow Mouse; Western Prairie Mouse.

Range—East-central border of State, in Mono and Inyo counties. Recorded from Mono Mills near Mono Lake (Grinnell and Storer, Animal Life in the Yosemite, 1924:133) southeast to Inyo Mountains (Bailey, N. Am. Fauna, No. 17, 1900:68). Altitudes of known occurrence extend from 6550 feet (west of Benton) up to 10,500 feet (on Big Prospector Meadow, White Mountains) (specimens in Mus. Vert. Zool.). Life-zone, chiefly Transition. Inhabits dry ground bearing sagebrush of low, flattened, dense form of growth.

Lagurus curtatus artemisiae (Anthony)

Sagebrush Meadow Mouse

Original description—*Microtus (Lagurus) curtatus artemisiae* Anthony, Bull. Am. Mus. Nat. Hist., 32, March 7, 1913:14-15.

Type locality—Ironsides, 4000 feet altitude, Malheur County, Oregon.

Range—Madeline Plains, 6 miles east of Ravendale, Lassen County: one specimen known, taken October 21, 1931, in area where sagebrush and rabbit-brush grew (Orr, Jour. Mammalogy, 13, 1932:167). Altitude, close to 5300 feet; life-zone, Upper Sonoran.

NOTE—Subspecific status as above, not thoroughly established.

Ondatra sibirica mergens (Hollister)

Nevada Muskrat

Original description—*Fiber sibiricus mergens* Hollister, Proc. Biol. Soc. Wash., 23, February 2, 1910:1.

Type locality—Fallon, Churchill County, Nevada.

Synonyms—*Fiber sibiricus*, part; *Fiber sibiricus pallidus*, part; Muskrat, part; Pale Muskrat, part.

Range—Larger streams and fresh-water lakes, tributary to Great Basin, along extreme eastern border of State: Eagle Lake, Willow Creek, Susan River, Honey Lake, and Secret Valley, in Lassen County; Truckee River, a little below Tahoe City, Placer County; Rowlands Marsh, Lake Tahoe, Eldorado County; West Fork Carson River, near Woodfords, Alpine County; West Walker River, near Topaz, Mono County (MSS or specimens in Mus. Vert. Zool.). Altitudes of known occurrence extend from 4000 feet (Susan River at Honey Lake) up to 6200 feet (at Lake Tahoe). Also reported (doubtless introduced) from Buena Vista Lake, Kern County (Dickey, Jour. Mammalogy, 4, 1923:56).

NOTE—While not native anywhere west of Sierra Nevada divide, a number of plantings of muskrats have been made there ("muskrat farms"); for example, in Santa Barbara, Butte, Plumas, Siskiyou, and Shasta counties. The sources of certain of the stocks introduced are said to be "eastern" or "northern"; the subspecies represented are not now known, save in one planting: stock planted at Taylorsville, Plumas County, was brought from Honey Lake, Lassen County, and hence was of subspecies *mergens* (Dixon, Jour. Mammalogy, 10, 1929:359).

Ondatra sibirica bernardi Goldman

Colorado River Muskrat

Original description—*Ondatra sibirica bernardi* Goldman, Proc. Biol. Soc. Wash., 45, June 21, 1932:93-94.

Type locality—Four miles south of Gadsden, Yuma County, Arizona.

Synonyms—*Fiber sibiricus*, part; *Fiber sibiricus pallidus*; Arizona Muskrat; Pallid Muskrat; Pale Muskrat, part; Muskrat, part.

Range—Colorado River and tributary sloughs, from Nevada line in San Bernardino County to Mexican boundary; also, since 1911, irrigation canals throughout Imperial Valley, Imperial County (Mus. Vert. Zool.; Dixon, Jour. Mammalogy, 3, 1922:141 ff.). Altitudes of known occurrence, all below 500 feet. Life-zone, Lower Sonoran.

FAMILY MURIDAE Old-World Rats and Mice

Rattus rattus rattus (Linnaeus)

Black Rat

Original description—[*Mus*] *rattus* Linnaeus, *Systema Naturae*, ed. 10, 1, 1758:61.

Type locality—Upsala, Sweden (*vide* Thomas, *Proc. Zool. Soc. London*, 1911:147).

Synonyms—*Epimys rattus*; *Mus rattus*.

Range—Occurs in relatively small numbers in coastwise cities of State. Definitely recorded from Eureka, from larger cities of San Francisco Bay region, and from San Diego. Not native; was certainly established (in San Diego) prior to 1856 (see Baird, *Pac. R. R. Rept.*, 8, 1857, *Mammals*:440).

Rattus rattus alexandrinus (Geoffroy-Saint-Hilaire and Audouin)

Roof Rat

Original description—*Mus alexandrinus* Geoffroy-Saint-Hilaire and Audouin, *Cat. Mammif. du Mus. Nat. d'Hist. Nat.*, Paris, 1803:192.

Type locality—Alexandria, Egypt.

Synonyms—*Epimys alexandrinus*; *Epimys rattus alexandrinus*; Brown Rat, part; Common Rat, part; House Rat, part; Alexandrine Rat; Plague Rat, part.

Range—Of wide and locally common occurrence at lower elevations, both in cities and towns, and away from buildings along wooded stream courses. Altitudinally, has been found as high as 5200 feet (in a meat house at Kelly's, near Willow Lake, Plumas County). Lives in and about human dwellings, especially on upper floors of them, and also along steep banks of streams where there are trees and tangled growths of such plants as wild grape and clematis. Not native; date of first establishment not known.

Rattus norvegicus norvegicus (Erxleben)

Norway Rat

Original description—[*Mus*] *norvegicus* Erxleben, *Systema Regni Animalis*, 1, 1777: 381-382.

Type locality—Norway.

Synonyms—*Mus decumanus*; *Epimys norvegicus*; Common Rat, part; Brown Rat, part; House Rat, part; Wharf Rat; Sewer Rat; Plague Rat, part.

Range—Almost everywhere in lower, settled portions of State, chiefly in and about towns and cities. Inhabits buildings, especially their basements, wharves, and drains. In San Joaquin and Sacramento valleys, rats have invaded marshy tracts and occur along sloughs far from human habitations; in San Francisco Bay region they live in dikes, rock fills, and levees, and forage over adjacent salt marshes or bay shores. A decidedly aquatic predilection is thus shown. This is most abundant species of non-native mammal outside of house mouse. Date of first arrival and establishment not known, but certainly prior to 1856 when specimens were preserved by Emanuel Samuels from Petaluma (see Baird, *Pac. R. R. Rept.*, 8, 1857, *Mammals*:439).

Mus musculus Linnaeus

House Mouse

Original description—[*Mus*] *musculus* Linnaeus, *Systema Naturae*, ed. 10, 1, 1758:62.

Type locality—Upsala, Sweden (*vide* Thomas, *Proc. Zool. Soc. London*, 1911:147).

Synonyms—*Mus musculus musculus*; Common Mouse.

Range—Practically throughout State in and around human habitations and settlements. In thickest settled valleys occurs widely over both cultivated and uncultivated

land, in weed patches, and in heavy grass; and exceptionally, "outbreaks" occur, carrying the animals far and wide over lowlands, as in Kern County in winter of 1926-1927 (Hall, Univ. Calif. Publ. Zool., 30, 1927:189 ff., and Piper, Monthly Bull., Dept. Agric., State of Calif., 17, 1928:538). An immigrant from Europe, established in California certainly prior to 1856 (see Baird, Pac. R. R. Rept., 8, 1857, Mammals :444), probably long before.

NOTE—Possibly two or more subspecies of *Mus musculus* are represented in our population of "house mice." Thus in west-central California a variant has been noted, of possibly phylogenetic importance (see Dice, Science, n.s., 35, 1912:834-836); but nothing definite so far has been worked out in this regard.

FAMILY APLODONTIIDÆ Mountain Beavers

Aplodontia rufa rufa (Rafinesque)

Brown Mountain Beaver

Original description—*Anisonyx ? rufa* Rafinesque, Am. Monthly Mag. and Crit. Rev., 2, November, 1817:45.

Type locality—Neighborhood of the Columbia River; restricted to Marmot (west slope of Mount Hood), Clackamas County, Oregon (Taylor, Univ. Calif. Publ. Zool., 17, 1918:454-455).

Synonyms—*Aplodontia chryseola* L. Kellogg, Univ. Calif. Publ. Zool., 12, April 15, 1914:295-296 (type from Jackson Lake, Siskiyou County, California); *Aplodontia californica*, part; *Aplodontia major*, part; California Mountain Beaver, part; Sierra Mountain Beaver, part; Brown Aplodontia, part.

Range—South from Oregon line, centrally, throughout Siskiyou and Trinity mountain regions, and thence southwest as far as Rio Dell, Eel River, Humboldt County (Taylor, *op. cit.*:455-456). Vertically, ranges from within 300 feet of sea level (at Rio Dell) up to 6900 feet (on Wildcat Peak, Salmon Mountains, Siskiyou County). Life-zone, chiefly Canadian. Inhabits seepage slopes or stream-side ground overgrown with alder.

Aplodontia rufa californica (Peters)

Sierra Nevada Mountain Beaver

Original description—*H [aplodon]. leporinus* var. *californicus* Peters, Monats. k. preuss. Akad. Wiss. Berlin, 1864:177-179.

Type locality—The Sierra Nevada of California; later restricted to Blue Cañon, Placer County (Taylor, Univ. Calif. Publ. Zool., 17, 1918:474).

Synonyms—*Aplodontia major* Merriam, Ann. New York Acad. Sci., 3, May, 1886:316 (type from Sierra Nevada in Placer County, California); *Haplodon rufus*, part; *Aplodontia leporina*; *Haplodontia major*; *Aplodontia californica*; California Sewellel; California Mountain Beaver, part; Sierra Aplodontia; Sierra Mountain Beaver; Mammoth Mole; Haplodon.

Range—Sierra Nevada, north to Mount Shasta and south as far as Clover Creek, Sequoia National Park, Tulare County (Mus. Vert. Zool.). Altitudinally, extends from 4600 feet (as at Blue Cañon, Placer County) up to 10,000 feet (in head of Lyell Cañon, Tuolumne County). Life-zones, Canadian and Hudsonian. Lives along streams and on seepage slopes where occur growths of such plants as willow, alder, creek dogwood, and azalea.

***Aplodontia rufa humboldtiana* Taylor**

Humboldt Bay Mountain Beaver

Original description—*Aplodontia humboldtiana* Taylor, Proc. Biol. Soc. Wash., 29, February 24, 1916:21–23.

Type locality—Carlotta, Humboldt County, California.

Synonyms—*Aplodontia phaea*, part; *Haplodontia phaea*, part; *Aplodontia rufus*; Humboldt *Aplodontia*.

Range—Extreme northern humid coast belt, from Requa, Del Norte County, south to vicinity of Carlotta, Humboldt County, and interiorly to vicinity of Weitzpek [= Weitch-pee], Humboldt County (Taylor, Univ. Calif. Publ. Zool., 17, 1918:470). Altitudes of occurrence, so far as known, all below 1000 feet. Life-zones, Canadian and Transition. Inhabits slopes in openings among redwoods.

***Aplodontia rufa nigra* Taylor**

Point Arena Mountain Beaver

Original description—*Aplodontia nigra* Taylor, Univ. Calif. Publ. Zool., 12, April 15, 1914:297–300.

Type locality—Point Arena, Mendocino County, California.

Synonym—Point Arena *Aplodontia*.

Range—Known only from neighborhood of type locality, as above, where found within area of approximately 24 square miles, and altogether below altitude of 500 feet. Inhabits wet ravine sides heavily clothed with thimble-berry and associated plants.

***Aplodontia rufa phaea* Merriam**

Point Reyes Mountain Beaver

Original description—*Aplodontia phaea* Merriam, Proc. Biol. Soc. Wash., 13, January 31, 1899:20.

Type locality—"Point Reyes" [probably somewhere near present town of Inverness], Marin County, California.

Synonyms—*Haplodontia phaea*; *Haplodon rufus*, part; Dark Sewellel; Point Reyes *Aplodontia*.

Range—Humid coast belt of Marin County, from 5 miles west of Inverness east to Lagunitas and south to four miles south of Olema; area inhabited, approximately 110 square miles and altogether below 1000 feet altitude (Taylor, Univ. Calif. Publ. Zool., 17, 1918:481). Life-zone, Transition. Inhabits hillside seepage areas overgrown to sword fern and thimble-berry.

FAMILY ZAPODIDAE Jumping Mice

***Zapus trinotatus eureka* A. B. Howell**

Humboldt Bay Jumping Mouse

Original description—*Zapus trinotatus eureka* A. B. Howell, Univ. Calif. Publ. Zool., 21, May 20, 1920:229–230.

Type locality—Fair Oaks [6 miles southwest of], Humboldt County, California.

Synonyms—*Zapus trinotatus*; *Zapus trinotatus trinotatus*; *Zapus orarius*, part; Northwestern Jumping Mouse; Humboldt Jumping Mouse; Coast Jumping Mouse, part.

Range—Northern portion of humid coast belt; south at least from Arcata, Humboldt County, as far as Mendocino City, Mendocino County (A. B. Howell, *loc. cit.*). Stations of definite record lie below 1800 feet altitude. Life-zones, Canadian and Transition. Inhabits springy places at margins of redwood forests.

Zapus orarius Preble

Point Reyes Jumping Mouse

Original description—*Zapus orarius* Preble, N. Am. Fauna, No. 15, August 8, 1899: 29–30.

Type locality—Point Reyes, Marin County, California.

Synonyms—*Zapus pacificus*, part; Coast Jumping Mouse, part.

Range—Bunch grass marshes on uplands of Point Reyes peninsula, Marin County (A. B. Howell, Univ. Calif. Publ. Zool., 21, 1920:231); recorded east to within 2 miles of Inverness. Life-zone, Transition.

Zapus pacificus alleni Elliot

Allen Jumping Mouse

Original description—*Zapus alleni* Elliot, Field Columb. Mus., zool. ser., 1, March, 1898:212–213.

Type locality—Pyramid Peak, in Eldorado County, near Lake Tahoe, California.

Synonyms—*Jaculus hudsonius*; *Zapus hudsonius*; *Zapus pacificus*, part; *Zapus trinotatus alleni*; Pacific Jumping Mouse.

Range—Sierra Nevada, from Jordan Hot Springs and from Sherman Creek (in Sequoia National Park), Tulare County, north to Lassen Peak and Mount Shasta; thence west through Trinity and Salmon mountains, in Trinity and Siskiyou counties; also on South Yolla Bolly Mountain, in Tehama County (Mus. Vert. Zool.). Vertically extends from 3600 feet (near Fyffe, Eldorado County) up to 10,000 feet altitude (head of Lyell Cañon, Tuolumne County). Belongs typically to Canadian and Hudsonian zones, but extends down into Transition locally from near-by Canadian. Lives in edges of wet meadows and in grassy places along streams.

Zapus princeps major Preble

Warner Mountains Jumping Mouse

Original description—*Zapus major* Preble, N. Am. Fauna, No. 15, August 8, 1899:24–25.

Type locality—Warner Mountains, Lake County, Oregon.

Range—Warner Mountains in eastern Modoc County, at least from Lassen Creek south to Eagle Peak (A. B. Howell, Univ. Calif. Publ. Zool., 21, 1920:235; Mus. Vert. Zool.). Altitudes of capture extend from 4800 feet (on Goose Lake Meadows near Davis Creek) up to 8700 feet (on Warren Peak). Life-zones, Canadian and Transition. Inhabits wet meadows and grassy stream borders.

FAMILY ERETHIZONTIDAE American Porcupines

Erethizon epixanthum epixanthum Brandt

Yellow-haired Porcupine

Original description—*Erethizon epixanthus* Brandt, Mém. P'Acad. Imper. Sci. St. Pétersbourg, 1835:390, pls. 1, 9 (figs. 1, 2, 4).

Type locality—California (*vide* Hollister, Canadian Alpine Jour., Special Number, 1912 [= February 17, 1913]:27).

Synonyms—*Erethizon dorsatus epixanthus*; *Erethizon dorsatum*; Western Porcupine.

Range—Mountains of northern portion of State interiorly of humid coast belt and east over Modoc plateau to Nevada line; occurs from Oregon line south, along Sierra Nevada, as far as Sequoia National Park and Whitney Creek, 10,850 feet, in Tulare County (Mus. Vert. Zool.). Reported also as occurring, formerly at least, on San Bernardino Mountains, in San Bernardino County (Stephens, Calif. Mammals, 1906:179). Westernmost definite stations of record at north, Forest House Mountain, 4000 feet, 8 miles west of Yreka, Siskiyou County (Mailliard, Proc. Calif. Acad. Sci., ser. 4, 11, 1921:87), and South Fork Moun-

tain, Humboldt County (Grinnell, MS); thence occurs south, west of Sacramento Valley, to vicinity of North Yolla Bolly Mountain, in Trinity County (Mus. Vert. Zool.). An occurrence in Marin County probably resulted from human agency (Mailliard, Jour. Mammalogy, 12, 1931:169). Vertically, extends from 2700 feet (near Montague, Siskiyou County) up to 11,500 feet, near Sheep Mountain, on White Mountains, Mono County. Life-zones inhabited, Upper Sonoran (in Modoc County) up to Hudsonian (in Mount Whitney region); but metropolis lies in Transition and Canadian. Ordinarily inhabits open forests, often very scattering tree growths, of fir, pine, or juniper; sometimes wanders far out away from trees, as on sagebrush plains of northeastern corner of State.

Order LAGOMORPHA Rabbit-like Mammals

FAMILY OCHOTONIDAE Pikas

Ochotona schisticeps schisticeps (Merriam)

Gray-headed Pika

Original description—*Lagomys schisticeps* Merriam, N. Am. Fauna, No. 2, October 30, 1889:11.

Type locality—Donner [= Summit], Placer County, California.

Synonyms—*Lagomys princeps*; *Ochotona princeps*, part; Gray-headed Cony, part; Sierra Nevada Pika, part.

Range—Northern portion of Sierra Nevada, north from vicinity of Donner Pass, Placer County, to and including Mount Shasta, Siskiyou County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 47, 1924:38). Extends altitudinally from 4800 feet (at Battle Creek Meadows, Tehama County) up at least to 9500 feet on Lassen Peak and to nearly 10,000 feet on Mount Shasta (Merriam, N. Am. Fauna, No. 16, 1899:99). Life-zones, Hudsonian and Canadian. Lives in rock slides and broken rock outcrops.

Ochotona schisticeps taylori Grinnell

Warner Mountains Pika

Original description—*Ochotona taylori* Grinnell, Proc. Biol. Soc. Wash., 25, July 31, 1912:129-130.

Type locality—Warren Peak, 9000 feet altitude, Warner Mountains, Modoc County, California.

Synonyms—*Ochotona schisticeps*, part; Sierra Nevada Pika, part; Taylor Pika; Warner Mountains Cony.

Range—Portions of Modoc plateau of northeastern corner of State; west at north from Warner Mountains, Modoc County, to Goose Nest Mountain, Siskiyou County; south to near Termo, Lassen County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 47, 1924: 39). Altitudinally, extends from 5000 feet (near Eagleville, Modoc County) up to 9000 feet (on Warren Peak, Warner Mountains). Life-zones, Canadian and Transition, reaching down into Upper Sonoran, even, locally. Inhabits rock slides and broken lava outcrops and rim rock.

Ochotona schisticeps muiri Grinnell and Storer

Yosemite Pika

Original description—*Ochotona schisticeps muiri* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:6-7.

Type locality—9300 feet altitude, near Ten Lakes, Yosemite National Park, Tuolumne County, California.

Synonyms—*Lagomys schisticeps*, part; *Ochotona schisticeps*, part; Gray-headed Cony, part; Yosemite Cony.

Range—Central Sierra Nevada from Mount Tallac, Eldorado County, south at least to vicinity of Mammoth Pass, Mono County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 47, 1924:43-44). Altitudes of recorded occurrence extend from 7700 feet up to 12,120 feet (both extremes within Yosemite National Park). Life-zone, chiefly Hudsonian, but locally also Canadian and Arctic-Alpine. Lives in taluses and in moraines of large-sized rocks.

***Ochotona schisticeps albata* Grinnell**

Mount Whitney Pika

Original description—*Ochotona albatu*s Grinnell, Univ. Calif. Publ. Zool., 10, January 31, 1912:125.

Type locality—Cottonwood Lakes, 11,000 feet, Sierra Nevada, Inyo County, California.

Synonyms—*Ochotona schisticeps*, part; *Ochotona princeps*, part; Mount Whitney Cony.

Range—Southern Sierra Nevada south from vicinity of Kearsarge Pass, in Inyo and Fresno counties, to near Mineral King and to Cottonwood Pass (near Whitney Meadows), in Tulare County (Mus. Vert. Zool.; Howell, N. Am. Fauna, No. 47, 1924:45). Altitudes of occurrence extend from 7500 feet (in Little Onion Valley, Inyo County) up to at least 12,000 feet (near Mount Langley). Life-zones, chiefly Arctic-Alpine and Hudsonian; occurs locally in Canadian. Inhabits rock slides and moraines.

***Ochotona schisticeps sheltoni* Grinnell**

White Mountains Pika

Original description—*Ochotona schisticeps sheltoni* Grinnell, Univ. Calif. Publ. Zool., 17, April 25, 1918:429-430.

Type locality—11,000 feet altitude, near Big Prospector Meadow, White Mountains, Mono County, California.

Synonyms—*Ochotona schisticeps*, part; Sierra Nevada Pika, part; White Mountains Cony.

Range—White Mountains, in Mono and Inyo counties. Altitudinally, recorded from 8200 to 13,000 feet (Mus. Vert. Zool.). Life-zones, Transition to Hudsonian. Lives in and about rock slides and broken rock outcrops.

FAMILY LEPORIDAE Hares and Rabbits

***Lepus townsendii townsendii* Bachman**

Western White-tailed Jack Rabbit

Original description—*Lepus townsendii* Bachman, Jour. Acad. Nat. Sci. Phila., 8, pt. 1, 1839:90-94, pl. 2.

Type locality—Fort Walla Walla, near present town of Wallula, Walla Walla County, Washington.

Synonyms—*Lepus campestris*, part; *Lepus campestris townsendii*; Snowshoe Rabbit, part.

Range—Modoc region of northeastern corner of State; recorded west to Steele Meadow, Modoc County, and to vicinity of Fort Crook (near Burgettville), Shasta County; south to Red Rock and vicinity of Eagle Lake, Lassen County (Mus. Vert. Zool.; Nelson, N. Am. Fauna, No. 29, 1909:81, 82). Definite records of capture extend altitudinally from 3500 feet (Fort Crook) up to 6300 feet (on Warner Mountains). Life-zones, Transition and Upper Sonoran. Lives on flat, open terrain sparsely clothed with sagebrush.

Lepus townsendii sierrae Merriam

Sierra Nevada White-tailed Jack Rabbit

Original description—*Lepus campestris sierrae* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:132.

Type locality—Hope Valley, altitude 7800 feet, Alpine County, California.

Synonyms—*Lepus campestris*, part; Snowshoe Rabbit, part; Sierra Prairie Hare; Sierra Hare.

Range—High southern and central Sierra Nevada, extending down to eastern base locally; recorded definitely north to near Tahoe City, Placer County, and south to Mineral King (Fry, Calif. Fish and Game, 10, 1924:172) and Monache Meadows, in Tulare County (Mus. Vert. Zool.). Extends altitudinally from as high as 13,800 feet (on western slope of Mount Langley) down to 5200 feet (in Carson Valley, Alpine County). Life-zones, Arctic-Alpine and Hudsonian, down locally on east side of Sierra to Transition. Inhabits open, level or usually but gently sloping terrain, either sparsely grassy or with scattering growth of small sagebushes.

Lepus washingtonii klamathensis Merriam

Oregon Snowshoe Rabbit

Original description—*Lepus klamathensis* Merriam, N. Am. Fauna, No. 16, October 28, 1899:100.

Type locality—Head of Wood River, near Fort Klamath, Klamath County, Oregon.

Synonyms—*Lepus klamathensis*, part; *Lepus Washingtonii* (?); Klamath Rabbit, part; Snowshoe Rabbit, part.

Range—Higher parts of northern interior of State, from Trinity Mountains east to Warner Mountains. Westernmost known locality, South Fork Salmon River, Siakiyou County; easternmost, Fort Bidwell, Modoc County (Mus. Vert. Zool.; Orr, Jour. Mammalogy, 14, 1933:54). Altitudes of capture extend from 3000 feet (on Rush Creek, Trinity County) up to 6000 feet (near head of Bear Creek, Trinity County). Life-zone, mainly Canadian. Lives in brushy tracts in vicinity of streams or mountain meadows.

Lepus washingtonii tahoensis Orr

Sierra Nevada Snowshoe Rabbit

Original description—*Lepus washingtonii tahoensis* Orr, Jour. Mammalogy, 14, February, 1933:54.

Synonyms—*Lepus americanus*; *Lepus americanus washingtonii*; *Lepus klamathensis*, part; *Lepus washingtonii klamathensis*, part; Klamath Rabbit, part; Snowshoe Rabbit, part.

Range—Northern and central portions of Sierra Nevada; recorded from vicinity of Lassen Peak (Mineral, Tehama County, east to Warner Creek, Lassen County) south to Niagara Creek at 6600 feet, Tuolumne County (Mus. Vert. Zool.; Orr, *loc. cit.*). Altitudinally, known to occur from 4800 feet (near Mineral, as above) up to 7000 feet (Summit, Placer County). Life-zone, chiefly Canadian; enters Transition where immediately adjacent to Canadian. Inhabits open or wooded slopes where these are clothed with brush, such as ceanothus and manzanita of high-zone kinds; also willowy margins of mountain meadows and stream courses.

***Lepus californicus californicus* Gray**

California Jack Rabbit

Original description—*Lepus californica* Gray, Mag. Nat. Hist. (Charlesworth), 1, 1837:586.

Type locality—"St. Antoine," California, that is, probably coastal slope west of Mission of San Antonio, Jolon, Monterey County (*vide* Nelson, N. Am. Fauna, No. 29, 1909:129).

Synonyms—*Lepus campestris*, part; *Lepus californicus vigilax* Dice, Occ. Papers Mus. Zool., Univ. Mich., No. 186, February 11, 1926:11-12 (type from Ball's Ferry, Shasta County, California); California Hare, part; Jack Rabbit, part; Black-tailed Jack Rabbit, part; Sacramento Valley Jack Rabbit.

Range—Almost whole of northern California west of main Cascade and Sierran divides, from Oregon line, south along seacoast to about Point Conception, Santa Barbara County, and along west flank of Sierra Nevada to northern Tulare County; includes whole of Sacramento Valley and south into northern end of San Joaquin Valley as far as Merced and Madera counties. Recorded east at north to Shasta Valley, Siskiyou County, Cassel, Shasta County, and Mineral, Tehama County (Nelson, *supra cit.*:132; Mus. Vert. Zool.). Altitudinally, ranges from sea level (as on Grizzly Island, Solano County) up at least to 5700 feet (on South Fork Mountain, Humboldt County). Life-zone, mainly Upper Sonoran; but also invades Transition extensively, even entering Canadian in north-western corner of State, and occupies Lower Sonoran of Sacramento Valley. Lives mostly on plains and open slopes, but also invades open stands of forest trees and broken chaparral.

***Lepus californicus wallawalla* Merriam**

Washington Jack Rabbit

Original description—*Lepus texianus wallawalla* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:137.

Type locality—Touchet, Plains of Columbia, Walla Walla County, Washington.

Synonyms—*Lepus californicus*, part; Jack Rabbit, part; Black-tailed Jack Rabbit, part.

Range—Plateau region of northeastern corner of State; west from Surprise Valley, on Nevada line, as far as Beswick, Siskiyou County, and Eagle Lake, Lassen County; south from Oregon line as far as Beckwith, Plumas County (Nelson, N. Am. Fauna, No. 29, 1909:133; Mus. Vert. Zool.). Vertical range, from 3000 feet (at Beswick) up to about 6000 feet (in the Warner Mountains). Life-zone, mainly Upper Sonoran; enters Transition in places. Inhabits, characteristically, sagebrush-clothed plains and open slopes.

***Lepus californicus richardsoni* Bachman**

San Joaquin Jack Rabbit

Original description—*Lepus richardsoni* Bachman, Jour. Acad. Nat. Sci. Phila., 8, pt. 1, 1839:88-90.

Type locality—Not known exactly, but probably near Jolon, Monterey County, California (see Merriam, Proc. Biol. Soc. Wash., 17, 1904:136).

Synonyms—*Lepus tularensis* Merriam, Proc. Biol. Soc. Wash., 17, July 14, 1904:136-137 (type from Alila [= Earlimart], Tulare County, California); *Lepus californicus*, part; *Lepus californicus tularensis*; *Lepus texianus tularensis*; *Lepus campestris richardsoni*; Jack Rabbit, part; Black-tailed Jack Rabbit, part; San Joaquin Valley Jack Rabbit; Richardson Hare; Tulare Hare; Richardson Jack Rabbit.

Range—Southern (upper) portion of San Joaquin Valley and surrounding foothills, west to include Carrizo Plain, Cuyama Valley, and upper (southern) two-thirds of Salinas Valley; recorded northwest to Huron, Fresno County, and to Soledad, Monterey County, south to Tehachapi and Tejon passes, Kern County, and west as far as near Chalk Peak, southern Monterey County (Mus. Vert. Zool.; Nelson, N. Am. Fauna, No. 29, 1909:136). Extends altitudinally from below 200 feet (along San Joaquin River in Fresno

County) up to 6500 feet (on slopes of Mount Pinos, in Ventura County near Kern County line). Life-zone, mainly Lower Sonoran, but extends up through Upper Sonoran in places. Inhabits plains and open portions of mountain slopes.

Lepus californicus bennettii Gray

San Diego Jack Rabbit

Original description—*Lepus Bennettii* Gray, Zool. Voyage Sulphur, 1, 1844:35, pl. 14.

Type locality—San Diego, San Diego County, California.

Synonyms—*Lepus californicus*, part; Jack Rabbit, part; Black-tailed Jack Rabbit, part; California Hare, part.

Range—Southern coastal district, west of desert divides, from Mexican line (east from mouth of Tia Juana River to near Jacumba) northwest to near Gaviota Pass, Santa Barbara County (Nelson, N. Am. Fauna, No. 29, 1909:136-137; Mus. Vert. Zool.). Ranges vertically from near sea level up (by report) to 6000 feet on Cuyamaca Mountains. Life-zone, mainly Upper Sonoran; but Lower Sonoran included where there is any of this zone west of desert divides. Inhabits chiefly plains and open terrain in broken chaparral and scattering forest.

Lepus californicus deserticola Mearns

Desert Jack Rabbit

Original description—*Lepus texianus deserticola* Mearns, Proc. U. S. Nat. Mus., 18, June 24, 1896:564.

Type locality—Western edge of Colorado Desert, at east base of Coast Range [near Mexican boundary], in San Diego [now Imperial] County, California.

Synonyms—*Lepus callotis*; *Lepus texianus*; *Lepus californicus*, part; Colorado Desert Jack Rabbit; Jack Rabbit, part; Black-tailed Jack Rabbit, part; Desert Hare.

Range—Colorado and Mohave deserts; north from Mexican line in Imperial County through Inyo region and as far along east side of Sierra Nevada inside Nevada line as Woodfords, Alpine County; west through San Jacinto Mountains as far as Kenworthy on western side, through San Bernardino Mountains to near head of Santa Ana River, over Mohave Desert at least to Fairmont, Los Angeles County, and through mountains around Walker Pass as far as Bodfish, Kern County (Mus. Vert. Zool.). Vertically, extends from 200 feet below sea level (as around Salton Sea and in Death Valley) up to as high as 12,500 feet (near McAfee Meadow, White Mountains, Mono County). Life-zone, characteristically Lower Sonoran; but extends up over near-by arid mountain slopes even to Hudsonian. Inhabits desert floors, and also open mountain sides and clear spaces in chaparral and forest.

Sylvilagus nuttallii nuttallii (Bachman)

Washington Cottontail

Original description—*Lepus nuttallii* Bachman, Jour. Acad. Nat. Sci. Phila., 7, pt. 2, 1837:345-348, pl. 22, fig. 1.

Type locality—Vicinity of the junction of the Snake and Columbia rivers, Washington (Ade Miller, U. S. Nat. Mus. Bull., 128, 1924:469).

Synonyms—*Lepus sylvaticus nuttalli*; *Lepus artemisia*; Cottontail, part; Nuttall Woodhare.

Range—Northeastern corner of State, principally on Modoc plateau: west from Nevada line at north as far as Beswick, Siskiyou County, and Burney, Shasta County; and south from Oregon line on or near Nevada line as far as Rush Creek, on west side of Mono Lake, Mono County (Nelson, N. Am. Fauna, No. 29, 1909:201, 204; Mus. Vert. Zool.). Extends altitudinally from 3000 feet (as at Burney, Shasta County) up to 7800 feet (on Williams Butte, Mono County). Life-zone, chiefly Transition, but also Upper Sonoran. Inhabits stream-side thickets, and also tracts of sagebrush often some miles from water.

Sylvilagus nuttallii grangeri (Allen)

Black Hills Cottontail

Original description—*Lepus sylvaticus grangeri* Allen, Bull. Am. Mus. Nat. Hist., 7, August 21, 1895:264–265.

Type locality—Hill City, Black Hills, Custer County, South Dakota.

Synonyms—*Lepus l[aticinctus]. perplicatus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:255 (type from Hannopee [= Hanaupah] Canyon ["7500 feet," near lower edge of piñons], Panamint Mountains, Inyo County, California); Mixed Cottontail; Cottontail, part.

Range—Mountains along middle eastern border of State, from north end of White Mountains in Mono County, south to Coso Mountains and southern end of Panamint Mountains, in Inyo County (Mus. Vert. Zool.; Nelson, N. Am. Fauna, No. 29, 1909:204, 207). Altitudes of capture extend from 4500 feet (in Silver Cañon, east of Laws) up to 10,500 feet (near Big Prospector Meadow, White Mountains). Life-zones, Upper Sonoran to Canadian. Lives in and near broken rock outcrops, tracts of dense brush, and stream-side thickets, foraging on open ground adjacent.

Sylvilagus audubonii audubonii (Baird)

Sacramento Cottontail

Original description—*Lepus audubonii* Baird, Pac. R. R. Rept., 8, 1857, Mammals: 608–610, pl. 58, fig. 2.

Type locality—San Francisco, San Francisco County, California.

Synonyms—*Lepus sylvaticus auduboni*, part; *Lepus floridanus auduboni*; Sacramento Valley Cottontail; Audubon Cottontail Rabbit; Audubon Cottontail; Cottontail, part; Audubon Wood-hare, part.

Range—Sacramento Valley and San Francisco Bay region; recorded north to vicinity of Red Bluff, Tehama County, south into northern part of San Joaquin Valley as far as Snelling, Merced County, on east side, and Los Baños, Merced County, on west side; south from Golden Gate to near mouth of Salinas River in Monterey County; but not in coast belt north of Golden Gate (Mus. Vert. Zool.; Nelson, N. Am. Fauna, No. 29, 1909:214, 216). Restricted for most part to low-lying level territory; recorded from sea level up, exceptionally, by report, to as high as 4000 feet on west flank of central Sierra Nevada. Lives mostly in, and within forage radius of, stream-side and river-bottom thickets; also on lowland plains clothed more or less scatteringly with bushes.

Sylvilagus audubonii vallicola Nelson

San Joaquin Cottontail

Original description—*Sylvilagus auduboni vallicola* Nelson, Proc. Biol. Soc. Wash., 20, July 22, 1907:82–83.

Type locality—San Emigdio Ranch (25 miles southwest of Bakersfield), Kern County, California.

Synonyms—*Lepus sylvaticus arizonae*, part; Valley Cottontail; Cottontail, part; San Joaquin Valley Cottontail Rabbit.

Range—Central-interior portion of State, in San Joaquin, Salinas, and Cuyama valleys; north in San Joaquin Valley to latitude of Madera County where intergradation with *audubonii* takes place; south to vicinity of Walker and Tejon passes, in Kern County (where intergradation with *arizonae* takes place); west to Jolon, Monterey County (Nelson, N. Am. Fauna, No. 29, 1909:216, 218; Mus. Vert. Zool.). Altitudinally, ranges from 175 feet (near Mendota, Fresno County) up to 4100 feet (on Fay Creek, near Weldon, Kern County). Life-zone, chiefly Lower Sonoran, but entering Upper Sonoran on adjacent slopes. Inhabits mostly riparian brushlands.

***Sylvilagus auduboni sanctidiegi* (Miller)**

San Diego Cottontail

Original description—*Lepus floridanus sanctidiegi* Miller, Proc. Acad. Nat. Sci. Phila., October 5, 1899:389-390.

Type locality—Mexican boundary [near Monument No. 258] at shore of Pacific Ocean, in San Diego County, California.

Synonyms—*Lepus sylvaticus auduboni*, part; *Sylvilagus floridanus sanctidiegi*; *Lepus auduboni*, part; *Lepus sanctidiegi*; *Sylvaticus* [sic] *auduboni sanctidiegi*; Cottontail, part; Audubon Wood-hare, part; San Diego Cottontail Rabbit.

Range—Southern coastal district of State entirely west of desert divides; recorded from Mexican line northwest into Ventura County (to Nordhoff). Most stations of known occurrence are at low levels, below 1000 feet altitude; but locally reaches up, interruptedly, to as high as 5000 feet (as at Seven Oaks, in San Bernardino Mountains). Life-zones, Lower and Upper Sonoran. Lives in and about tracts of brush in open valleys.

***Sylvilagus auduboni arizonae* (Allen)**

Arizona Cottontail

Original description—*Lepus sylvaticus* var. *arizonae* Allen, Monogr. N. Am. Rodentia, 1877:332.

Type locality—Beal Spring, 2 miles from Kingman, Mohave County, Arizona.

Synonyms—*Lepus laticeinotus* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903: 254 (type from Oro Grande, Mohave Desert, San Bernardino County, California); *Lepus* l[aticinotus]. *rustipes* Elliot, op. cit.:254-255 (type from Furnace Creek [Ranch], Death Valley, Inyo County, California); *Lepus auduboni*, part; *Lepus arizonae*; *Sylvaticus* [sic] *auduboni arizonae*; *Lepus auduboni arizonae*; Cottontail, part; Arizona Wood-hare; Broad-banded Cottontail; Russet-footed Cottontail.

Range—Colorado and Mohave deserts; recorded from Mexican line in Imperial County, north through valleys of Inyo County as far as Benton, at head of Owens Valley, in Mono County; west from Colorado River Valley to Palm Springs and Cabazon, Riverside County, to Fairmont, northern Los Angeles County, and through Walker Pass to Onyx, in Kern County (Mus. Vert. Zool.; Nelson, N. Am. Fauna, No. 29, 1909:222, 225). Altitudes of occurrence extend from 200 feet below sea level (around Salton Sea and in Death Valley) up to as high as 6000 feet (on Cactus Flat, north side of San Bernardino Mountains). Life-zone, mainly Lower Sonoran; only enters Upper Sonoran where immediately adjacent to Lower Sonoran. Most numerous in belts of riparian brush, usually not far from water; but occurs also, interruptedly, far out on desert floors, here and there, amid wholly dry-appearing surroundings.

***Sylvilagus bachmani bachmani* (Waterhouse)**

California Brush Rabbit

Original description—*Lepus bachmani* Waterhouse, Proc. Zool. Soc. London, 6, 1838: 103-105.

Type locality—California, probably between Monterey and Santa Barbara; later, fixed as near San Luis Obispo (see Nelson, N. Am. Fauna, No. 29, 1909:247).

Synonyms—*Lepus trowbridgii* Baird, Proc. Acad. Nat. Sci. Phila., April, 1855:333 (type from Monterey, California); *Lepus trowbridgei*, part; *Lepus floridanus bachmani*, part; *Sylvilagus bachmani ubericolor*, part; Brush Rabbit, part; Bachman Brush Hare, part; Bachman Cottontail, part; Redwood Brush Rabbit, part.

Range—Narrow central coast belt from vicinity of Santa Barbara north to Monterey Bay; thence farther north, interiorly of immediate coast belt, to include counties on east side of San Francisco Bay and along inner Coast Ranges to head of Sacramento Valley about which it swings eastward to include westward-draining slopes of Sierra Nevada in

Tehama County; northernmost station of capture, Baird, Shasta County; westernmost at north, Covelo, Mendocino County (Mus. Vert. Zool.). Altitudes of occurrence extend from near sea level up at least to 4400 feet (as near divide 12 miles north of Yolla Bolly Mountain, in Trinity County). Life-zone, characteristically Upper Sonoran; invades Transition locally. Inhabits typical chaparral, also detached patches of brush of various kinds.

Sylvilagus bachmani ubericolor (Miller)

Redwoods Brush Rabbit

Original description—*Lepus bachmani ubericolor* Miller, Proc. Acad. Nat. Sci. Phila., October [September 29], 1899:383-384.

Type locality—Beaverton, Washington County, Oregon.

Synonyms—*Lepus trowbridgei*, part; *Lepus bachmani*, part; *Lepus floridanus bachmani*, part; *Lepus floridanus ubericolor*; *Sylvilagus bachmani*, part; *Lepus sylvaticus auduboni*, part; Brush Rabbit, part; Bachman Brush Hare, part; Bachman Cottontail, part.

Range—Northwestern humid coastal belt, south from Oregon line in Del Norte County to and including Santa Cruz County. In San Francisco Bay region this race is the one occupying area west of south arm of Bay and, north of Bay, westwardly from eastern Sonoma County; occurs east at north, interruptedly, to Hay Fork, Trinity County, and to near Lierly's, Mendocino County (Mus. Vert. Zool.), but metropolis lies within redwood belt. Altitudes of capture extend from near sea level up to 2340 feet (at Lierly's). Life-zone, chiefly Transition, but interiorly Upper Sonoran also is invaded. Inhabits brushlands and margins of forests.

Sylvilagus bachmani cinerascens (Allen)

Ashy Brush Rabbit

Original description—*Lepus cinerascens* Allen, Bull. Am. Mus. Nat. Hist., 3, October 8, 1890:159.

Type locality—San Fernando, Los Angeles County, California.

Synonyms—*Lepus trowbridgei*, part; *Lepus bachmani*, part; *Lepus floridanus bachmani*, part; *Lepus bachmani cinerascens*; *Sylvaticus* [sic] *bachmani cinerascens*; *Sylvilagus bachmani virgulti* Dice, Occ. Papers Mus. Zool., Univ. Mich., No. 166, February 11, 1926: 24-26 (type from Soledad, Monterey County, California); *Sylvilagus bachmani exiguus*; Brush Rabbit, part; California Brush Rabbit, part; Ashy Brush Hare, part; Ash-colored Cottontail; Salinas Valley Brush Rabbit; Lower California Brush Rabbit; San Diego Brush Rabbit.

Range—Southern California west of Colorado and Mohave deserts, from Mexican line in San Diego County northwest along coast at least to Santa Barbara, and along inner valleys and Coast Ranges to Soledad, Monterey County, and to The Pinnacles, San Benito County; also east through mountains around southern end of San Joaquin Valley at least as far as Walker Pass, Kern County (Mus. Vert. Zool.; Nelson, N. Am. Fauna, No. 29, 1909:253). Altitudinally, extends from near sea level up at least to 6800 feet (on Thomas Mountain, Riverside County). Life-zone, Upper Sonoran; invades Lower Sonoran locally where adjacent to Upper Sonoran. Lives in chaparral, usually on sloping ground.

Sylvilagus bachmani mariposae Grinnell and Storer

Mariposa Brush Rabbit

Original description—*Sylvilagus bachmani mariposae* Grinnell and Storer, Univ. Calif. Publ. Zool., 17, August 23, 1916:7-8.

Type locality—McCauley Trail at 4000 feet altitude, near El Portal, Mariposa County, California.

Synonyms—*Sylvilagus bachmani*, part; *Sylvilagus bachmani cinerascens*, part; California Brush Rabbit, part; Blue Rabbit; Ashy Brush Hare, part.

Range—Western flank of Sierra Nevada, at least from Auburn, Placer County, south at least to Badger, Tulare County (Nelson, N. Am. Fauna, No. 29, 1909:247-250 [part]; Mus. Vert. Zool.). Altitudes of known occurrence extend from 500 feet (near Lagrange, Stanislaus County) up to 4000 feet (at type locality, as above). Life-zone, rather strictly Upper Sonoran. Inhabits slopes clothed with chaparral, especially where composed chiefly of chamise.

Sylvilagus idahoensis (Merriam)

Idaho Pigmy Rabbit

Original description—*Lepus idahoensis* Merriam, N. Am. Fauna, No. 5, July 30, 1891: 76-77.

Type locality—Pahsimeroi Valley, Custer County, Idaho.

Synonyms—*Brachylagus idahoensis*; *Lepus trowbridgei*, part; Idaho Hare; Trowbridge Hare, part.

Range—Eastern portion of Modoc plateau region in extreme northeastern corner of State: Goose Lake, Modoc County (Henshaw, Condor, 22, 1920:9), south interruptedly to neighborhoods of Red Rock Post Office and Ravendale, Lassen County (Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:553 ff.). Altitudes of known occurrence extend from 4800 to 5300 feet. Life-zone, Upper Sonoran. Lives on level ground of fine-textured soil, in tracts of tall sagebrush (*Artemisia tridentata*).

Order ARTIODACTYLA Even-toed Mammals

FAMILY CERVIDAE Deer and Elk

Cervus roosevelti Merriam

Roosevelt Elk

Original description—*Cervus roosevelti* Merriam, Proc. Biol. Soc. Wash., 11, December 17, 1897:272-273.

Type locality—Mount Elaine, near Mount Olympus, Olympic Mountains, Clallam County, Washington.

Synonyms—*Cervus canadensis*, part; *Cervus americanus*, part; *Cervus canadensis occidentalis*; *Cervus occidentalis*; Roosevelt Wapiti; Western Wapiti; Olympic Wapiti; Elk, part.

Range—Originally, northwestern portion of State, chiefly in humid coast belt and among inner Coast Ranges immediately to eastward. Occurred abundantly from Oregon line south to north side of Golden Gate and San Francisco Bay, in Marin and Sonoma counties; east at north to vicinity of Mount Shasta (Townsend, Proc. U. S. Nat. Mus., 10, 1887:168; Merriam, N. Am. Fauna, No. 16, 1899:102). Exists of recent years in only small numbers [probably much less than 400 head all told] in Delnorte and northern Humboldt counties (MSS in Mus. Vert. Zool.; Calif. Fish and Game, 14, 1928:251). Altitudinally, extended originally from sea level, as near Point Reyes and elsewhere along open seacoast, up to at least 7000 feet (as in Scott Mountains, Trinity County). Life-zone, chiefly Transition, but Canadian also, locally. Lived for most part in and about openings in forested territory.

NOTE—The Eastern Elk, *Cervus canadensis canadensis* (Erxleben), has been planted in several parts of northern California; for example, near Winthrop, Shasta County, in 1913 (Tillotson, Calif. Fish and Game, 2, 1916:111; Love, Calif. Fish and Game, 16, 1930:82)—whether to be considered really established is not yet evident.

***Cervus nannodes* Merriam**

Dwarf Elk

Original description—*Cervus nannodes* Merriam, Proc. Biol. Soc. Wash., 18, February 2, 1905:24-25.

Type locality—Buttonwillow, Kern County, California.

Synonyms—*Cervus canadensis*, part; *Cervus americanus*, part; California Wapiti; San Joaquin Valley Elk; Tule Elk; California Valley Elk; Valley Elk; Elk, part.

Range—Formerly (prior to year 1860) nearly entire San Joaquin and Sacramento valleys, especially in their lower parts. Occurred north at least to Butte Creek, in Butte County, and south to vicinity of Bakersfield, Kern County; west through southern inner Coast Ranges as far as plains of Cuyama Valley, in San Luis Obispo County and extreme northern Santa Barbara County; also west to near Hernandez, San Benito County, and to south end of San Francisco Bay, in Santa Clara County (MSS in Mus. Vert. Zool.). Exists wild, or in part under fence, now (1933), only in relatively small numbers in western Kern County, between Tulare and Buena Vista lake basins and at times in adjacent hills to westward. In 1932, about 170 individuals remained (Ainsworth, Calif. Fish and Game, 18, 1932:81). Altitudes of known natural occurrence, all below 2500 feet; metropolis was below 500 feet and within Lower Sonoran life-zone, from which more or less seasonal wanderings carried herds up into hilly country, especially that west from Tulare and Buena Vista lake regions. Inhabited mostly marshes and open plains of valley floors.

NOTE—Many transplantings of Dwarf Elk from the remaining "herd" in the Buttonwillow district to other parts of the State have been made, first to Sequoia National Park, Tulare County, in 1904 and 1905, and more recently to Yosemite Valley, to Monterey County, etc. None of these has resulted in establishment under conditions of really wild freedom. The Sequoia animals had entirely disappeared by 1926 (*vide* Walter Fry, MS, March 14, 1932).

***Odocoileus columbianus columbianus* (Richardson)**

Columbian Black-tailed Deer

Original description—*Cervus macrotis* var. *columbiana* Richardson, Fauna Boreali-Americana, 1, 1829:257.

Type locality—Mouth of Columbia River, Oregon or Washington.

Synonyms—? *Cervus Lewisii* Peale, U. S. Exploring Exped., 8, 1848, "p. 39, pl. 9" (type from Feather River [probably within Butte County], California); *Cervus columbianus*, part; *Odocoileus columbianus*, part; *Odontocoelus columbianus*, part; *Cariacus columbianus*, part; Black-tailed Deer, part; California Deer, part; Coast Deer.

Range—Northwestern portion of State: south from Oregon line, in Delnorte and Siakiyou counties, to north side of San Francisco Bay, in Marin, Sonoma, Napa, and western Solano counties; east from seacoast to western margin of Sacramento Valley and at north around head of Sacramento basin to east sides of Mount Shasta and Lassen Peak and southeast at least to lower Feather River region on west flank of northern Sierra Nevada (MSS and specimens in Mus. Vert. Zool.; Hall, Calif. Fish and Game, 13, 1927:239). Altitudinally, extends from sea level up to as high as about 9500 feet (on Mount Shasta). Breeding life-zones, Transition and Canadian; in autumn, males go up on higher mountains to timberline, and there is more or less shifting of entire population down-slope for midwinter season, when individuals reach floor of upper Sacramento Valley as far south at least as Tehama. Formerly (this race?), occurred apparently all year through along lower Sacramento and San Joaquin rivers and tributary larger streams. Some reported still to inhabit Marysville Buttes, in Sutter County, and Sacramento River bottomlands west of Chico, Butte County (for instance, see Bryant, Calif. Fish and Game, 16, 1930:265). In general, most characteristic of brokenly wooded or chaparral-clothed territory.

Odocoileus columbianus scaphiotus Merriam

Southern Black-tailed Deer

Original description—*Odocoileus columbianus scaphiotus* Merriam, Proc. Biol. Soc. Wash., 12, April 30, 1898:101.

Type locality—Laguna Ranch, Gabilan Range, San Benito County, California.

Synonyms—*Cervus columbianus*, part; *Odocoileus columbianus*, part; Columbian Black-tailed Deer, part; Black-tailed Deer, part.

Range—Coast Ranges south from south side of San Francisco Bay (at present day, in San Mateo, Alameda, and Contra Costa counties) to and through Monterey and San Benito counties and into northwestern San Luis Obispo County (MSS in Mus. Vert. Zool.). Altitudes of occurrence, from sea level up over highest mountains in general range of race. Deer (this subspecies?) formerly wandered east in places to San Joaquin River. Life-zones, Transition and Upper Sonoran. Inhabits chiefly openly wooded and chaparral-clothed slopes.

Odocoileus hemionus hemionus (Rafinesque)

Rocky Mountain Mule Deer

Original description—*Cervus hemionus* Rafinesque, Am. Monthly Mag., 1, October, 1817: 436.

Type locality—Sioux River, South Dakota.

Synonyms—*Cariacus macrotis*, part; *Cervus macrotis*, part; *Cervus columbianus*, part; *Cariacus columbianus*, part; *Odocoileus hemionus*, part; *Odontocoelus hemionus*; Black-tailed Deer, part; Mule Deer, part; Mule-tail Deer.

Range—In general, northeastern corner of State and, continuously, main Sierra Nevada south, less typically, at least to Tuolumne County. At north, extends from Nevada line west at least to east base of Mount Shasta, in Siskiyou County, and to east side of Lassen Peak, in Shasta County (where, at least in summer, the ranges of Mule and Black-tailed deers overlap). A seasonal down-mountain migration takes place more or less conspicuously, altogether to eastward north of Feather River gap. Breeding life-zones, Canadian and Transition. Inhabits chiefly terrain that is clothed with chaparral or broken forest.

Odocoileus hemionus inyoensis Cowan

Inyo Mule Deer

Original description—*Odocoileus hemionus inyoensis* Cowan, Proc. Biol. Soc. Wash., 46, April 27, 1933: 69-70.

Type locality—"Kid Mountain" at 11,000 feet altitude, 10 miles west Big Pine, Inyo County, California.

Synonyms—*Odocoileus hemionus*, part; Mule Deer, part.

Range—Eastern slope of southern Sierra Nevada, in Inyo County and, probably, Mono County; east, perhaps in winter only, to include White and Inyo mountains.

NOTE—The characters and ranges of the various races of deer in California have not as yet been worked out satisfactorily. It is not now possible for me to specify the areas of intergradation between the subspecies of the Mule Deer here recognized.

Odocoileus hemionus californicus (Caton)

California Mule Deer

Original description—*Cervus macrotis* var. *californicus* Caton, Am. Naturalist, 10, August, 1876:464.

Type locality—Near Gaviota Pass, 40 miles westward from Santa Barbara, in Santa Barbara County, California.

Synonyms—*Cariacus macrotis*, part; *Odocoileus hemionus*, part; *Cervus columbianus*, part; *Cariacus macrotis californicus*; *Odocoileus hemionus californicus*; Black-tailed Deer, part; California Deer, part; Mule Deer, part; Southern Mule Deer; Coast Mule Deer.

Range—In general terms, mountains of southern California altogether west of western margins of Colorado and Mohave deserts; northwest from near Mexican line in San Diego County to and through Santa Barbara County and into southern San Luis Obispo County; also northeast from Ventura County through Tehachapi and Piute mountains at least to vicinity of Kern River gap (Walker Pass). It is probably this race that occurs north along lower west flank of southern Sierra Nevada. Altitudes of occurrence extend (MSS in Mus. Vert. Zool.) from near sea level (as in Malibu district of extreme western Los Angeles County) up as high as 9800 feet (on San Jacinto Peak). Life-zones, chiefly Upper Sonoran and Transition. Inhabits chaparral and an interrupted type of forest.

Odocoileus hemionus eremicus (Mearns)

Burro Deer

Original description—*Doroelaphus hemionus eremicus* Mearns, Proc. U. S. Nat. Mus., 20, February 11, 1897:470-471.

Type locality—Sierra Seri, near Gulf of California, Sonora, Mexico.

Synonyms—*Cervus macrotis*, part; *Odocoileus hemionus*, part; Desert Mule Deer.

Range—Colorado Desert: north along Colorado River bottomlands and through Choconate and Chuckawalla mountain area, to vicinity of Coxcomb and Granite mountains, in northeastern Riverside County; northwest, formerly, from Mexican line south of Salton Sea through Imperial Valley and at least as far as vicinity of Indio, in central Riverside County (MSS in Mus. Vert. Zool.; McLean, Calif. Fish and Game, 18, 1930:119). Altitudes of occurrence, so far as definitely known, altogether below 1500 feet. Life-zone, Lower Sonoran. Inhabits bottomlands where willow, mesquite, and screwbean grow, and desert washes where ironwood and paloverde are conspicuous members of flora.

Odocoileus virginianus macrourus (Rafinesque)

Western White-tailed Deer

Original description—*Corvus* [= *Cervus*] *macrourus* Rafinesque, Am. Monthly Mag., 1, October, 1817:436.

Type locality—Plains of Kansas River, upper Missouri Valley.

Synonyms—*Cervus leucurus*; *Cariacus virginianus*; *Cariacus leucurus*; *Odocoileus virginianus*; *Odocoileus leucurus*; *Odocoileus americanus macrourus*; White-tailed Deer; Virginia Deer.

Range—According to reports of hunters in earlier years, at one time widespread in Modoc region of northeastern corner of State. However, because of evident confusion in identity of Mule and White-tailed deers in many hunters' minds, it is not now possible with certainty to outline original distribution of latter species. A late definite record is of a buck taken in January, 1922, near Observation Peak, in extreme eastern Lassen County (Dixon, Jour. Mammalogy, 8, 1927:308; Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:574). It is thought by some sportsmen that small bands of true "white-tails" may even now occasionally occur in that district, entering it from across Nevada line. Another and yet more recent, but not quite satisfactory, record is from Topaz, Mono County, in 1930 (McLean, Calif. Fish and Game, 17, 1931:342).

NOTE—On geographic grounds the white-tailed deer of northeastern California might be referred to the lately proposed race *Odocoileus virginianus ochrourus* Bailey (Proc. Biol. Soc. Wash., 45, 1932:43), the type locality of which is Coolin, south end of Priest Lake, Idaho. Unfortunately, there are no Californian specimens known to be now available for making any determination in the matter.

FAMILY ANTILOCAPRIDAE American or Prong-horn Antelopes

Antilocapra americana americana (Ord)

Prong-horn Antelope

Original description—*Antelope Americana* Ord, Guthrie's Geog., Am. ed. 2, 1815: 292, 308.

Type locality—On the plains and highlands of the Missouri River.

Synonyms—*Antilocapra americana peninsularis*; Antelope; Prong-horn; American Pronghorn.

Range—Formerly nearly throughout State south and east of humid coast belt and below or east of main timber belt; chiefly, however, on interior plains and in larger valleys both west and east of desert divides. Occurred westwardly at north to Shasta Valley, Siskiyou County; centrally to open hills of Contra Costa County and to Salinas Valley, Monterey County; and southerly, at least to piedmont or mesa region where Pasadena is now located and to San Jacinto Valley in Riverside County. Within recent years only isolated bands exist: largest of these [of several separate bands there] in Modoc region (eastern Siskiyou, Modoc, and eastern Lassen counties); a small band on west side of San Joaquin Valley in western Fresno County [none definitely reported later than 1928]; a very few on western arm of Mohave Desert (Antelope Valley) in northern Los Angeles County or southern Kern County [7 individuals reported seen in March, 1932: Anderson, Calif. Fish and Game, 18, 1932:258]; a small herd in northwestern San Bernardino County near Randsburg; and a few individuals on west side of Colorado Desert near Mexican line, in eastern San Diego County or western Imperial County (MSS in Mus. Vert. Zool.; Nelson, U. S. Dept. Agr., Dept. Bull. No. 1346, 1925:27; Cheney, Calif. Fish and Game, 15, 1929:175). Altitudes of known occurrence extend from slightly below sea level (in Imperial County) up to 5300 feet (near Poison Lake, Lassen County). Life-zones, Lower and Upper Sonoran; enters Transition locally where not densely or continuously forested and where closely adjacent to Upper Sonoran.

FAMILY BOVIDAE Bison, Sheep, etc.

Bison bison oregonus Bailey

Oregon Bison

Original description—*Bison bison oregonus* Bailey, Proc. Biol. Soc. Wash., 45, April 2, 1932:48.

Type locality—Bed of Malheur Lake, Harney County, Oregon.

Synonyms—*Bison americanus*; *Bison bison bison*; Buffalo; Plains Bison; American Bison.

Range—Formerly, according to testimony of old Indians considered by C. Hart Merriam (Jour. Mammalogy, 7, 1926:211) to be absolutely trustworthy, entered extreme north-eastern corner of State, sporadically or in migration, from north. Such records, obtained by Dr. Merriam, indicate that small herds [probably none later than 1825] traversed open semi-desert valleys of eastern Modoc and Lassen counties, south through Surprise and Alturas valleys to as far as Pine Creek, Eagle Lake, and Honey Lake Valley. However, ascriptions of the buffalo to "Eastern California" by travelers previous to 1845 pertained, at least usually, to eastern Utah or western Wyoming, within the boundaries of Mexican California as then, for a time, understood (Merriam, Jour. Mammalogy, 3, 1922:55). Allen's (Mem. Mus. Comp. Zool., 4, 1876:73, 118-119) supposition that the buffalo once ranged westward "probably to the Sierra Nevada Mountains in California" is not borne out by any historical evidence known to me.

Ovis canadensis californiana Douglas

Lava Beds Bighorn

Original description—*Ovis californianus* Douglas, Zool. Jour., 4, January, 1829:332.

Type locality—Near Mount Adams, Yakima County, Washington (*vide* Allen, Bull. Am. Mus. Nat. Hist., 31, 1912:25).

Synonyms—*Ovis canadensis*, part; *Ovis montana*, part; *Ovis canadensis sierrae*, part; Mountain Sheep, part; Sierra Nevada Bighorn, part.

Range—Originally and mainly, lava beds region of extreme northeastern portion of State, in Siskiyou, Modoc, and Lassen counties; occurred west (not certainly this race) to include neighborhood of Mount Shasta, and to Sheep Rock [=Skukum Rock of recent maps], east side of Scott Valley, and to Siskiyou Mountains, in Siskiyou County (see Merriam, Jour. Mammalogy, 2, 1921:239); also south as far at least as Observation Peak, near Nevada line in eastern Lassen County (Grinnell, Dixon, and Linsdale, Univ. Calif. Publ. Zool., 35, 1930:577). Extinct throughout this range, save perhaps in last-designated locality and there possibly only by recent invasion west from Nevada (and therefore not surely of race *californiana*). Weathered horns and bones have been found from near 10,000 feet altitude on Mount Shasta down to general level of Modoc lava beds, 4000 to 6000 feet. Life-zones inhabited, apparently all the way from Upper Sonoran to Arctic-Alpine. Dwelt in only the roughest, rockiest, open portions of general territory inhabited.

Ovis canadensis sierrae Grinnell

Sierra Nevada Bighorn

Original description—*Ovis cervina sierrae* Grinnell, Univ. Calif. Publ. Zool., 10, May 9, 1912:144–150.

Type locality—East slope Mount Baxter, 11,000 feet altitude, Sierra Nevada, Inyo County, California.

Synonyms—*Ovis canadensis*, part; *Ovis montana*, part; Mountain Sheep, part; Rocky Mountain Bighorn.

Range—High Sierra Nevada, south formerly from vicinity of Sonora Peak, in Alpine County, to southeastern Tulare County; also (probably this race) on upper parts of White Mountains, in Mono County. Now exists only from vicinity of Mammoth Pass, Mono County, south to vicinity of Olancha Peak and the Kaweah Peaks, in Tulare County (specimens and MSS in Mus. Vert. Zool.; Cunningham, Calif. Fish and Game, 3, 1917:184; Ober, Calif. Fish and Game, 17, 1931:32[part]). [See also Bailey, Sierra Club Bull., 17, 1932:135.] Altitudes of occurrence, as attested by finding of weathered horns and fragments of skulls as well as by records of living animals, extend from 7000 feet (near Kennedy Meadows, Tulare County, in winter) up to 13,000 feet (on ridge east of Whitney Pass). Life-zones, chiefly Hudsonian and Arctic-Alpine; there may be a partial down-mountain movement on east flank of Sierra in winter. Inhabits open barren-appearing terrain, both precipitous and rolling or mesa-like.

NOTE—The Mountain Goat (*Oreamnos americanus* [Blainville] = *O. montanus* of authors) was at one time believed to occur along the eastern declivities of the Sierra Nevada (see, especially, Bryant, Zool., 2, 1891:113, under the name *Masama montana*). All such reports are now thought to have been based on the presence of Bighorns.

Ovis canadensis nelsoni Merriam

Desert Bighorn

Original description—*Ovis nelsoni* Merriam, Proc. Biol. Soc. Wash., 11, July 15, 1897:217–218.

Type locality—Grapevine Mountains, on boundary between California and Nevada, just south of latitude 37° ["high limestone ridge forming middle of range, about 5 miles southerly from Grapevine Peak," *vide* E. W. Nelson].

Synonyms—*Ovis canadensis*, part; *Ovis montana*, part; *Ovis cervina nelsoni*; Mountain Sheep, part; Desert Sheep, part; Nelson Bighorn; Nelson Death Valley Sheep.

Range—In general, mountain ranges of Mohave Desert and Inyo regions; north, east of Owens Valley, to lower slopes of White Mountains, in Mono County; south to Chocolate Mountains and vicinity of Picacho, in Imperial County; west to San Bernardino, San Gabriel, and Tejon mountains (formerly); and northwest (formerly) through arid, hilly country west of southern end of San Joaquin Valley to Caliente Hills, San Luis Obispo County (MSS in Mus. Vert. Zool.; Ober, Calif. Fish and Game, 17, 1931:32 [part]). Altitudinally, ranges from within a few hundred feet of sea level (as in Death Valley and along Lower Colorado River) up to 11,000 feet (on south and east faces of San Gorgonio Peak). Life-zones, chiefly Upper and Lower Sonoran; but by present definition of races, extends up to (and permanently resident in) Canadian and even Hudsonian. It must be emphasized, however, that, at the present writing (1931), there has been no proper systematic revision of *Ovis*; and the true status of the representations now or formerly existent in the San Bernardino and San Gabriel mountains, and in the mountains of Ventura County (whence recorded west to head of Sespe River) and thence northwest to San Luis Obispo County, is quite problematic. In all the range here ascribed to *nelsoni*, sheep inhabit, or did inhabit, only most open, arid, rough and barren-looking parts of country.

Ovis canadensis cremnobates Elliot

Lower California Bighorn

Original description—*Ovis cervina cremnobates* Elliot, Field Columb. Mus., zool. ser., 3, December, 1903:239.

Type locality—Matomi, Sierra San Pedro Mártir, Lower California, Mexico.

Synonyms—*Ovis canadensis*, part; *Ovis montana*, part; *Ovis nelsoni*, part; *Ovis canadensis nelsoni*, part; Mountain Sheep, part; Desert Bighorn, part; Desert Sheep, part.

Range—Eastern and northeastern faces of mountains along west side of Colorado Desert, from Mexican line northwest to lower northern slopes of San Jacinto Mountains, in San Gorgonio Pass. So far as known, has never anywhere invaded Pacific drainage of southern California. Altitudes of known occurrence extend from 600 feet (edge of Borego Valley, San Diego County) up to 4000 feet (at head of Deep Canyon, on north side of Santa Rosa Mountains, Riverside County). Life-zones, Upper and Lower Sonoran. Closely restricted to open, rough, relatively barren slopes, often where precipitous.

Order CETACEA Whale-like Mammals

FAMILY BALAENIDAE Right Whales

Eubalaena sieboldii (Gray)

Pacific Right Whale

Original description—*Balaena sieboldii* Gray, Ann. and Mag. Nat. Hist., ser. 3, 14, November, 1864:349.

Type locality—Coast of Japan.

Synonyms—*Balaena japonica*; *Balaena cullamach*; Siebold Baleen Whale; Northwest Whale.

Range—Fairly common, formerly, along coast of California (Seammon, Marine Mammals, 1874:66); has not been reported since about 1885, when found near San Simeon (Starks, Calif. Fish and Game Comm., Fish Bull. No. 6, 1922:27, 35).

FAMILY RHACHIANECTIDAE Gray Whales

Rhachianectes glaucus (Cope)

California Gray Whale

Original description—*Agaphelus glaucus* Cope, Proc. Acad. Nat. Sci. Phila., June, 1868: 159-160.

Type locality—Coast of California: Monterey Bay (see Dall, in Scammon, Marine Mammals, 1874:301).

Synonym—Gray Baleen Whale.

Range—Formerly common in ocean and bays, occurring from November to May (Scammon, Marine Mammals, 1874:22, 23). Now apparently rare. Two seen March 5, 1921, off San Diego (Anthony, Jour. Mammalogy, 2, August, 1921:174). During a period of 3½ years, from 1918 on, five were captured at Moss Landing whaling station on Monterey Bay (Dedrick, Trans. Commonwealth Club [San Francisco], 18, 1923:135; Evermann, Scientific Monthly, 16, 1923:527). One was taken near Crescent City in July, 1926 (Howell and Huey, Jour. Mammalogy, 11, 1930:322). The latest record is of a capture off coast of "California" in 1928 (Kellogg, Jour. Mammalogy, 12, 1931:74-75).

FAMILY BALAENOPTERIDAE Finback Whales

Balaenoptera physalus (Linnaeus)

Common Finback Whale

Original description—[*Balaena*] *physalus* Linnaeus, Systema Naturae, ed. 10, 1, 1758:75.

Type locality—Spitzbergen seas (*vide* Thomas, Proc. Zool. Soc. London, 1911:156).

Synonyms—*Balaenoptera physalis velifera*; *Balaenoptera velifera*; Oregon Finback Whale; Pacific Finback Whale; Finner Whale.

Range—In ocean and bays; once common (Scammon, Marine Mammals, 1874:34-36). Still occurs in numbers; from 1918 to 1922, taken next in order of frequency of capture to Humpback Whale (Starks, Calif. Fish and Game Comm., Fish Bull. No. 6, 1922:29; Evermann, Scientific Monthly, 16, 1923:527). Was being taken in numbers off San Clemente Island in 1929 (Townsend, Bull. New York Zool. Soc., 33, 1930:13). In period from 1926 to 1929, this was the species of whale captured most numerously off coast of California (Kellogg, Jour. Mammalogy, 12, 1931:74-75).

Balaenoptera borealis Lesson

Sei Whale

Original description—*Balaenoptera borealis* Lesson, Compl. Œuvres Buffon, 1, Cétacés, 1828:342, pl. 12.

Type locality—Not specified. By elimination, might be inferred to be Arctic Ocean in vicinity of Spitzbergen; but Miller (U. S. Nat. Mus. Bull., 128, 1924:506) says "Gromitz, Lübeck Bay, Schleswig-Holstein, Germany."

Synonyms—*Sibbaldius borealis*; Sardine Whale; Rudolphi Borqual; Pollack Whale.

Range—One taken at Moss Landing whaling station on Monterey Bay, some time during period from 1918 to 1922 (Starks, Calif. Fish and Game Comm., Fish Bull. No. 6, 1922:29, 31; Evermann, Scientific Monthly, 16, 1923:527). In 1926, 1928, and 1929, a total of 23 were captured at unspecified points off coast of "California" (Kellogg, Jour. Mammalogy, 12, 1931:74-75).

Balaenoptera acuto-rostrata Lacépède

Sharp-headed Finner Whale

Original description—*Balaenoptera acuto-rostrata* Lacépède, Histoire Naturelle des Cétacées, [1804]:xxxvii, 184, pl. 8.

Type locality—Sea near Cherbourg, France.

Synonyms—*Balaenoptera davidsoni*; Pike Whale.

Range—By implication, formerly rather common "from the coast of Mexico to Behring Sea" (Scammon, Marine Mammals, 1874:49). Not reported from Californian waters in recent years (see Starks, Calif. Fish and Game Comm., Fish Bull. No. 6, 1922:33), until 1923, when, on April 17, one was caught by a fisherman off La Jolla, San Diego County (Abbott, Jour. Mammalogy, 11, 1930:240-241).

Sibbaldus musculus (Linnaeus)

Blue Whale

Original description—[*Balaena*] *musculus* Linnaeus, Systema Naturae, ed. 10, 1, 1758:76.

Type locality—Firth of Forth, Scotland (*vide* Thomas, Proc. Zool. Soc. London, 1911: 156).

Synonyms—*Sibbaldius sulfureus*; *Balaenoptera sulfureus*; *Balaenoptera sibbaldii*; *Balaenopterus musculus*; Sulphur-bottom Whale; Blue-back Whale; Pacific Sulphur-bottom Whale.

Range—At all seasons along coast of California; formerly, from May to September, in large numbers close inshore (Scammon, Marine Mammals, 1874:71). Later, of only occasional occurrence (Starks, Calif. Fish and Game Comm., Fish Bull. No. 6, 1922:29); five were taken in the period from 1918 to 1922, from station at Moss Landing on Monterey Bay (Evermann, Scientific Monthly, 16, 1923:527). Apparently, considerable numbers were being taken off San Clemente Island in 1929 (Townsend, Bull. New York Zool. Soc., 33, 1930:13, 17). A total of 191 captures reported from off "California" in 1927-1929 (Kellogg, Jour. Mammalogy, 12, 1931:75).

Megaptera novaeangliae (Borowski)

Humpback Whale

Original description—"Balaena novae angliae Borowski, Gemeinnützige Naturges. des Tierreichs, 2, 1781, pt. 1:21." [Not seen by me.]

Type locality—Coast of New England.

Synonyms—*Megaptera nodosa*; *Megaptera nodosa versabilis*; *Megaptera versabilis*; *Megaptera longimana*; Pacific Humpback Whale; North Pacific Hump-back.

Range—In ocean and bays; Monterey Bay, April to December (Scammon, Marine Mammals, 1874:44). Formerly abundant and still common (Starks, Calif. Fish and Game Comm., Fish Bull. No. 6, 1922:35). From 1918 to 1922, by all odds most frequently captured whale at stations on Monterey Bay and at Trinidad, Humboldt County (Dedrick, Trans. Commonwealth Club [San Francisco], 18, 1923:132-133); also some captured off San Clemente Island in 1929 (Townsend, Bull. New York Zool. Soc., 33, 1930:13). But numbers by latter year, greatly reduced (Kellogg, Jour. Mammalogy, 12, 1931:74-75).

FAMILY PHYSETERIDAE Sperm Whales

Physeter catodon Linnaeus

Sperm Whale

Original description—[*Physeter*] *catodon* Linnaeus, *Systema Naturae*, ed. 10, 1, 1758:76.

Type locality—Kairaton, Orkney Islands (*vide* Thomas, *Proc. Zool. Soc. London*, 1911:157).

Synonyms—*Physeter macrocephalus*; Cachalot.

Range—Formerly common in ocean off whole coast of California (Scammon, *Proc. Acad. Nat. Sci. Phila.*, 1869:61). Still extant, but not common. Latest definite records are of four or five taken from Moss Landing station on Monterey Bay in the period from 1918 to 1922 (Starks, *Calif. Fish and Game Comm.*, *Fish Bull.* No. 6, 1922:16, 35-36; Evermann, *Scientific Monthly*, 16, 1923:527). A capture is recorded for "California" so late as 1926 (Kellogg, *Jour. Mammalogy*, 12, 1931:74).

FAMILY DELPHINIDAE Dolphins, Porpoises, etc.

Delphinus delphis Linnaeus

Common Dolphin

Original description—[*Delphinus*] *delphis* Linnaeus, *Systema Naturae*, ed. 10, 1, 1758:77.

Type locality—North Atlantic Ocean near Europe.

Synonyms—*Delphinus bairdii* Dall, *Proc. Calif. Acad. Sci.*, 5, April, 1873:12-13 (types from Point Arguello, Santa Barbara County, California); Baird Dolphin; Common Porpoise, part; Brown-sided Dolphin (†).

Range—Ocean and bays (Scammon, *Marine Mammals*, 1874:99; True, *U. S. Nat. Mus. Bull.*, 36, 1889:52). Thought to be still numerous, but actual specimens not in reach.

NOTE—Some species of the genus *Prodelphinus* should occur along the coast of California (*vide* R. Kellogg, *in litt.*). Cope (*Proc. Acad. Nat. Sci. Phila.*, 1869:22) records *Delphinus* [= *Prodelphinus*] *styx* Gray from the "California coast" but with some uncertainty.

Tursiops gillii Dall

Cowfish

Original description—*Tursiops gillii* Dall, *Proc. Calif. Acad. Sci.*, 5, April, 1873:13.

Type locality—Monterey, California (*vide* True, *U. S. Nat. Mus. Bull.*, 36, 1889:43).

Synonym—Pacific Bottle-nosed Dolphin.

Range—Ocean and bays (Scammon, *Marine Mammals*, 1874:101).

Lissodelphis borealis (Peale)

Northern Right Whale Porpoise

Original description—*Delphinapterus borealis* Peale, *U. S. Explor. Exped.*, 8, 1848:35.

Type locality—North Pacific Ocean, lat. 46° 6' 50", long. 134° 5' W.

Synonyms—*Leucorhampus borealis*; *Tursio borealis*; *Tursio peronii*; Pacific Right Whale Porpoise.

Range—Ocean from San Diego Bay northward (Scammon, *Marine Mammals*, 1874:101).

Lagenorhynchus obliquidens Gill**Striped Porpoise**

Original description—*Lagenorhynchus obliquidens* Gill, Proc. Acad. Nat. Sci. Phila., September, 1865:177-178.

Type locality—Near San Francisco, California.

Synonyms—Common Porpoise, part; Pacific Striped Dolphin.

Range—Ocean probably inshore (Scammon, Marine Mammals, 1874:98). There is a skull in Mus. Vert. Zool. (no. 51529) picked up on Brighton Beach, Santa Cruz County, and identified as of this species by Dr. Remington Kellogg.

Orcinus rectipinna (Cope)**Pacific Killer**

Original description—*Orca rectipinna* Cope, Proc. Acad. Nat. Sci. Phila., April, 1869:22.

Type locality—Coast of California.

Synonyms—*Orca gladiator*; *Orca ater*; *Orcinus orca*; *Orcinus ater*; Common Killer; Black Killer; Orca; Straight-finned Killer; Atlantic Killer; Killer Whale.

Range—Ocean generally (Scammon, Marine Mammals, 1874:90). Fairly common up to present time. Individuals occasionally enter San Francisco Bay and have been taken as far interiorly as Carquinez Strait, near Benicia, Solano County (Williamson, Bonnot, Calif. Fish and Game, 17, 1931:490-491).

NOTE—I follow Dr. Remington Kellogg in his belief that only one species of Killer occurs in our Pacific waters.

Grampus griseus (Cuvier)**Common Grampus**

Original description—*Delphinus griseus* Cuvier, Ann. Mus. d'Hist. Nat. (Paris), 19, 1812:13-14, pl. 1, fig. 1 (upper fig.).

Type locality—Brest, coast of France.

Synonym—*Grampus stearnsii* Dall, Proc. Calif. Acad. Sci., 5, January, 1873:13 (types from Monterey, California).

Range—Ocean generally (Scammon, Marine Mammals, 1874:103, 300).

Globicephala scammonii (Cope)**Scammon Blackfish**

Original description—*Globiocephalus scammonii* Cope, Proc. Acad. Nat. Sci. Phila., April, 1869:21.

Type locality—"Bay of Bengal"; but really coast of Lower California (*vide* Dall in Scammon, Marine Mammals, 1874:299).

Synonyms—North Pacific Blackfish; Blackfish.

Range—Ocean north from Lower California (Scammon, Marine Mammals, 1874:85-87).

Phocaena phocoena (Linnaeus)

Bay Porpoise

Original description—[*Delphinus*] *phocoena* Linnaeus, *Systema Naturae*, ed. 10, 1, 1758:77.

Type locality—Swedish seas (*vide* Thomas, *Proc. Zool. Soc. London*, 1911:158).

Synonyms—*Phocaena communis*; *Phocaena vomerina*; Common Porpoise, part; Harbor Porpoise.

Range—Ocean and bays, including San Francisco Bay (Scammon, *Marine Mammals*, 1874:95, 97). Perhaps now our most commonly seen cetacean.

Phocoenoides dalli (True)

Dall Porpoise

Original description—*Phocaena Dalli* True, *Proc. U. S. Nat. Mus.*, 8, May 23, 1885:95–98.

Type locality—Near Adakh Island, Aleutian Islands, Alaska.

Range—Known so far only from specimen captured in June, 1925, near Santa Cruz Island. Skeletal parts of this specimen are now in Santa Barbara Museum of Natural History (see bulletin of Santa Barbara Mus. Nat. Hist. for August, 1925:6, and for October, 1925:4), and their identity has been checked by Doctor Remington Kellogg from photographs furnished by Mr. David Banks Rogers.

FAMILY ZIPHIIDAE Beaked Whales

Berardius bairdii Stejneger

Baird Beaked Whale

Original description—*Berardius bairdii* Stejneger, *Proc. U. S. Nat. Mus.*, 6, June 22, 1883:75–76.

Type locality—Stare Gavan, Bering Island, Bering Sea.

Synonyms—Baird Sperm Whale; Bottle-nose; Baird Whale.

Range—Of apparently rare occurrence along northwest coast south as far as Monterey Bay: Centerville Beach near Ferndale, one washed ashore in October, 1904, and Trinidad(?), Humboldt County (True, *U. S. Nat. Mus. Bull.*, 73, 1910:2, 63); Santa Cruz, one washed ashore on beach about June 1, 1925, and Monterey Bay, one captured on October 1, 1920 (Davidson, *Jour. Mammalogy*, 10, 1929:356–358). There is record of a capture at some point on coast of "California" in 1927 (Kellogg, *Jour. Mammalogy*, 12, 1931:75).

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