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CALIFORNIA GRIZZLY

By Tracy I. Storer and Lloyd P. Tevis, Jr.

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"Return from the Bear Hunt." William Hahn, 1892. Scene probably near The Geysers, Sonoma County, California. Oil painting on canvas, 54 1/4 x 88 in. Collection of Miss Rosina Hahn. By permission of M. H. de Young Memorial Museum, San Francisco.



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Preface

In 1860 Theodore H. Hittell published a volume on *James Capen Adams, Mountaineer and Grizzly Bear Hunter of California*. A century has passed since the subject of that book was roaming the mountains and valleys of the state, shooting or trapping bears. It is almost as long since reporter Hittell began to write down the experiences of hunter Adams. Before and after the days of Adams and Hittell a great deal was recorded about the grizzly, in private diaries, in books on California and the West, and in newspapers. A few bits of scientific knowledge were added but the total in this field is small. The present account, ninety-four years after the one by Hittell, is an attempt to bring these scraps of information into a continuity—to describe the bear itself, the manner of life it had in successive contacts with different human contemporaries, the imprint it made on their lives and activities, and its ultimate effect on the civilization that developed in California. Hittell's book recounted the experiences of one man with many bears. The present volume tells of the relations between many bears and a great host of people.

The grizzly—emblem of California—never had and never can have an adequate biography. In the days of the Indians, in the Spanish and Mexican periods, and in the gold rush, this huge beast was common, indeed abundant, over much of the lowlands and foothills of the state, except in the deserts. It was a constant and fearful element in the lives of the Indians; it competed with them for food and, because of its prowess, it became the motif for a certain class of shamans. Through the era of the missions and ranchos the grizzly ravaged the herds of livestock, and men captured it alive for bear-and-bull fights. In the days of '40 and

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New Mexico) and on to the buffalo plains of Texas and Kansas. It is the opinion of Seton (1929: 13) that Coronado "certainly saw many grizzly-bears," but the Spaniard's account merely states that the natives had "many animals—bears, tigers [jaguars?], lions," and so forth, and "the paws of bears." His lieutenant, Pedro de Castañeda, wrote, "There are many bears in this province . . ." (Winship, 1896: 569–570, 518).

Baron Lahontan, who traveled in Canada from 1683 to 1691, listed "reddish bears" from the southern part of that country. "The reddish bears are mischievous creatures," he wrote, "for they fall fiercely on the huntsmen, whereas the black bears fly from them. The former sort are less [abundant?], but more nimble than the latter" (Lahontan, 1703, 1: 234; in Pinkerton, 1812, 13: 350, 351). It is not clear whether he actually saw grizzlies.

Edward Umfreville, who wintered on the Saskatchewan and at Cumberland House of the Hudson's Bay Company in Canada from 1784 to 1787, wrote: "Bears are of three kinds: the Black, the red, and the Grizzle bear" (1790: 167–168). He mentions the savage nature of the "grizzle" and red bears and the number of maimed Indians who had been attacked by them. Samuel Hearne was possibly the first white explorer actually to see grizzlies in Canada. In July, 1771, he "saw the skin of an enormous grizzled bear at the tents of the Esquimaux at the Copper[mine] River" and said that "many of them are said to breed not very remote from that part." Hearne's account, however, was not published until twenty-four years later (1795: 371–372).

Unnoticed by zoölogical writers, however, is another early record, and the first for California, which antedates all except that of Coronado. On a voyage of exploration, Sebastian Vizcaino stopped at the site of Monterey from December 16, 1602, until January 3, 1603. While he was there, bears came down at night to feed on a whale carcass stranded on the beach (Ascension, 1611; see Bancroft, 1884: xxix, 102; Wagner, 1929: 247). (See our chap. 5.) These animals could only have been grizzlies, since black bears were not native there. The reports of the Spanish author had no general circulation, however; those of the Canadian explorers in the eighteenth century were the first to announce grizzlies to the world at large.

II *The Record of Grizzlies in California*

PREHISTORIC TIMES

In the eons of prehistoric time the form and character of the area now known as California changed again and again. As the land was successively elevated and eroded in diverse patterns the sea sometimes was pushed out to the west and at other times penetrated the coastal region. Not until late in Tertiary time—yesterday in the long calendar of earth history—did the central Pacific Coast of North America begin to assume its modern conformation. The Pleistocene, just before the Recent period in which we live, was a time of repeated glaciations in the highlands; the last glacial scars still burnish granite masses in the Sierra Nevada, and moraines in mountain valleys mark the extent of the ice. The fossil record of California's Pleistocene testifies that many of the present-day mammals and birds then inhabited the lowlands, along with others now extinct, such as the giant ground sloth, camel, horse, elephant, mastodon, and the powerful saber-toothed cat.

A cavalcade of monster beasts sought out this land, occupied it for a time, then faded away or was rapidly extinguished by man. Among the northern creatures were the bears, well adapted to survive the cold climate. Even these retreated before the ice that finally covered the center of the continent. An early California bear was a short-faced brute (*Tremarctotherium*) like the spectacled bear still living in the northern Andes. His remains were found in the caves of Shasta County . . . Bones of a large short-faced bear were [present but] scarce in the tar pits of Rancho La Brea, and remains of a huge

one were found in Alameda County in the Irvington early Pleistocene. (Camp, 1952 : 64.)

None of the fossil bears is definitely known to be ancestral to any of the modern species in North America; they are mentioned here merely to show that bears of one kind or another have been part of the California fauna for up to a million years—the estimated duration of the Pleistocene.

Somewhere during the counterplay of natural forces and climates that pushed forests and other vegetation first south and then north with the alternate ice ages and interglacial periods, the climbing black bear and the essentially terrestrial grizzly came to inhabit the California landscape. Paleontology gives no clear indication of how these two kinds arrived here. In all probability grizzlies were present in western North America before races of men migrated across the North Pacific land bridge in the vicinity of Bering Sea and invaded the Americas.

MODERN TIMES

In the Recent period, there were grizzlies from northern Alaska and the Barren Grounds of Canada south to the western Great Plains, down the Rockies to beyond the Mexican boundary, and south to southern California or slightly beyond (p. 3).

The role of grizzlies in primeval California is unknown. None of the early naturalists attempted to describe the "balance of nature" that had existed in this region before the advent of white men with firearms. The grizzlies were big and, from all evidence, exceptionally abundant. In the scheme of animal classification the grizzly and other bears are technically "carnivores." Actually they are omnivorous, eating any sort of animal food from ants and rodents to whale carrion and also a wide diversity of plant materials.

The undisturbed California landscape of the lowlands was tenanted by elk, antelope, and deer; by ground squirrels, pocket gophers, hares, and rabbits; by many kinds of ground-dwelling birds, including an abundance of waterfowl in the extensive marshy areas; and by salmon and other fishes in streams and ponds. The ocean beaches, at times, had carcasses of whales, seals, and sea lions. The grizzlies probably did not kill any of

the larger hoofed mammals, as a rule, although they very likely ate maimed or diseased individuals and may have expropriated some slain by the more agile mountain lions. Injured and sick waterfowl could be had in the marshlands.

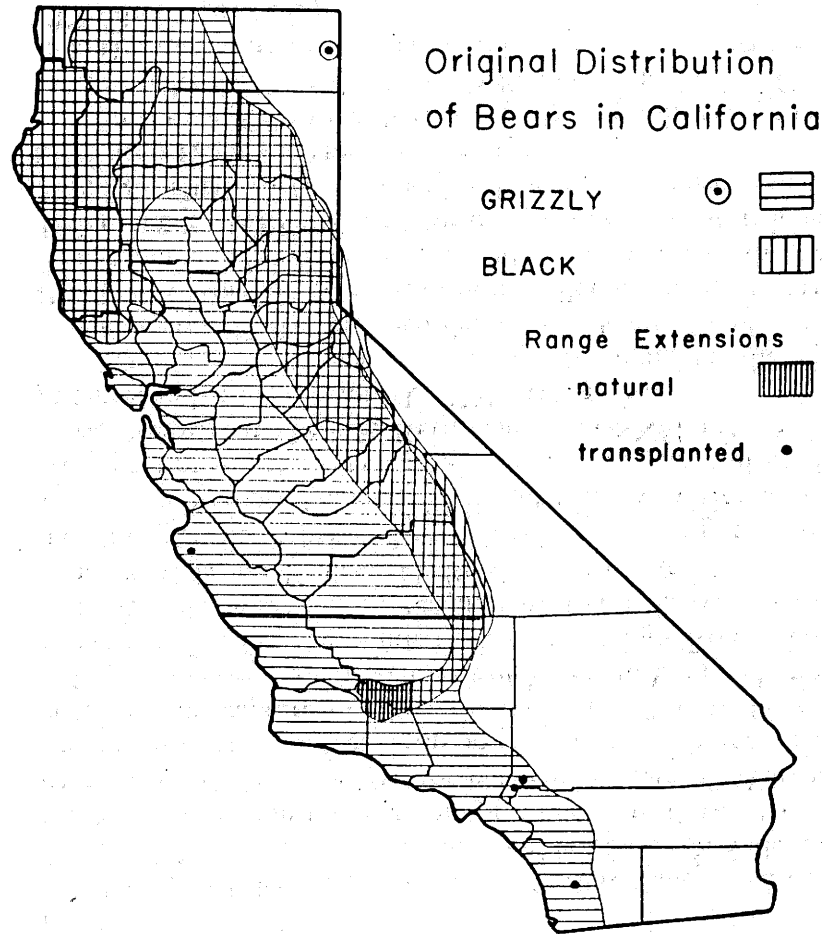
The flora included many bulbous plants, clovers, and grasses. Several of the foothill shrubs produced berries in season—the elderberry, manzanita, blackberry, and others. The many species of oaks yielded acorns, sometimes abundantly and over a period of several months. All these plants and animals and others unmentioned were food for the grizzlies.

We think that the grizzly must have been a dominant element in the original native biota of California—it was usually avoided by the Indians, and because of its size, prowess, and temperament it could preempt any available food before other large mammals. Its adaptability in diet was not exceeded by that of any other local mammal and was paralleled by few. It was a big, resourceful beast. The energy needs of this active mammal weighing up to a thousand pounds or more were obviously great. Its numbers multiplied by its average daily metabolic requirement must have made the grizzly an outstanding factor in the total food consumption by mammals.

Before the invasion of California by white men there was space for plenty of grizzlies along with the rather sparse population of Indians (133,000 estimated by Kroeber, 1925 : 882). Both bears and Indians occupied the land, though they killed one another. With establishment of the mission herds, some of the bears found it easier to kill the cattle and other livestock than to hunt wild food. Early American travelers had some contact with the big animals, but with the gold rush the battle between man and bear became intense. Bear meat was food, and bear rugs served for beds. What was more important, however, miners and early farmers could not tolerate so large a carnivore, peaceful though it apparently was when not surprised or injured. Because of the size, temperament, and numbers of the grizzly, the settlers found the bear a prime element of concern in their use of the California valleys and hills for farms, homes, and communities. Bears wandered into the outskirts of the new settlements, even to Mission Dolores in San Francisco in 1850. They were a hazard

Record of Grizzlies in California

to the travels and daily activities of the miners; they killed livestock and disturbed peaceful farmers; and for big game hunters they provided plenty of surprise and excitement—and also injury and death. The improving quality of rifles and other weapons gave the whites an ever-increasing advantage.



Original distribution of grizzly and black bears in California, together with range extension and transplants of black bear.

ORIGINAL DISTRIBUTION

Most of California was formerly the domain of grizzlies. They probably ranged continuously from Oregon southward;

Record of Grizzlies in California

but records of any in the vicinity of the Oregon-California boundary are lacking, and none has been found for Del Norte County. There were "great numbers" in the Coast Range between the Russian and Eel rivers, on the "Bald Hills" between Humboldt Bay and Klamath River, and in the mountains between that river and the Trinity (Suckley and Gibbs, 1860 : 119-120). In Humboldt County, besides those in the Bald Hills (Wistar, 1937 : 83) there were some in the Mattole Valley (Grinnell *et al.*, 1937 : 70) and in other places between those localities. For Siskiyou County there are records at Fort Jones in Scott Valley (Anon., 1949 : 211; Wistar, 1937 : 262) and on Goose Nest Mountain about twenty miles north of Mount Shasta (Merriam, 1899 : 107). Some early travelers made no mention of grizzlies until they were near the Sacramento River: John Work noted them at Cow Creek (near what is now Anderson, Shasta County) in 1832 (Maloney, 1943 : 209), and P. B. Reading saw one at the junction of Pit River and the Sacramento in 1843 (O'Brien, 1951 : 135).

Newberry (1857 : 48) encountered some grizzly sign daily while crossing in 1855 from the Pit River drainage to Klamath Lake. The single mention of the grizzly in Modoc County is that of Symons (1878 : 1538); he wrote that at the head of Pine Creek in the Warner Mountains "grizzly bears and bear signs were seen" in mid-August, 1877. About Shingletown and McCumber's Flat, northeast of Fort Reading (which was five miles northeast of Anderson, Shasta County), and around the base of Lassen's Butte (now Lassen Peak) they were very numerous in 1855 (Newberry, 1857 : 47-48). There are records of an encounter with one near Susanville (Fairfield, 1916 : 237); of a man killed by a grizzly near the head of Sierra Valley in December, 1874 (N 85); and another killed at Independence Lake, Nevada County, in the same month (N 84). A large grizzly was killed just west of Donner Summit, Nevada County, on August 23, 1849 (Wistar, 1937 : 115), and another by a member of the Donner party in 1846 in the same region (Thornton, 1855, 2 : 124-125). Still another author (McCauley, 1910 : 5) mentions grizzlies as numerous "in a little valley near the summit of the Sierras in 1850." Grizzly Adams (Hittell, 1860 : 295) encoun-

tered one in 1854 on the east slope "as soon as we camped under the Sierra" (presumably near the eastern end of the Sonora Pass road).

No records have been found for Owens Valley, and none for the highest eastern parts of the southern Sierra Nevada. For the Yosemite region the easternmost records are those of Crescent Lake, Madera County, some ten miles east of Wawona "about 1895" at 8,500-foot elevation (Grinnell and Storer, 1924: 70), and the capture of "Ben Franklin" in 1854 by Grizzly Adams in an area vaguely southeast of Yosemite Valley (Hittell, 1860: 207 ff.). On the South Fork of the Kings River, about 7,500 feet above sea level, a female with two cubs was seen on June 28, 1864, by William H. Brewer (Farquhar, 1930: 523). The last specimen taken and the last substantiated sight records were from Sequoia National Park and vicinity. Grizzlies also were present in the lower altitudes at the southern end of the Sierra Nevada—at Havilah, Kern County (USNM 15671), for instance, and at Fort Tejon (USNM 3536-3538).

In southern California, grizzlies ranged seemingly to the edge of the deserts. They were recorded on the desert side of Cajon Pass (McAllister, 1919: 172), in Bear Valley in the San Bernardino Mountains (Wilson, in Cleland, 1929: 383), in the San Jacinto range (Grinnell and Swarth, 1913: 375), at Palomar Mountain (Bell, 1930: 108), and in Pine and Cuyamaca valleys, San Diego County (Abbott, 1935: 151).

For Lower California there is a single report, in 1828, about seventy miles south of the Mexican Boundary near Santa Catarina Mission in the Sierra Juarez; this was in Pattie's narrative (Thwaites, 1905: 221).

West of the limits indicated, grizzlies inhabited all the coast ranges and valleys but with decreasing numbers in the denser forest areas of the extreme northwest; they lived on the plains and in the hills and mountains of southern California; they were in most parts of the Sacramento and San Joaquin valleys and on the western slopes of the Sierra Nevada. They were numerous at the lower altitudes but some ranged up to the crest and slightly beyond.

Both black bears (*Euarctos americanus*) and grizzlies were

native to California, and under original conditions their ranges overlapped in some degree. There are a few early remarks about the scarcity or absence of black bears where grizzlies held sway. Newberry (1857: 49) wrote that the black bear extended its range from Oregon "into California only near the coast. Near Fort Jones [Siskiyou County] it has occasionally been killed, but south of that point it is replaced by the grizzly." Brewer (Farquhar, 1930: 523), however, met the two species together high on the Kings River in 1864. It may be that the black bear has spread—certainly it has become abundant—since its larger relative disappeared.

The original range of the black bear in California, so far as known (p. 18), was from the Oregon line south in the Coast Range to Bodega, Sonoma County, and in the Cascade-Sierra Nevada from Siskiyou County southward through the Tehachapi Mountains to Tejon Ranch (Grinnell, 1933: 96). There were and are no records of naturally occurring black bears for the coast ranges and counties south of the Golden Gate or for southern California. This situation means that during early days any mention of "bear" south of the limits indicated pertained to grizzlies, whether so specified or not.

Originally the region west of Tejon Ranch, Kern County, had only grizzlies; but as these were exterminated black bears spread into parts of Santa Barbara County and even into San Luis Obispo County (Grinnell *et al.*, 1937: 104-105, fig. 24).¹

ECOLOGICAL DISTRIBUTION

Grizzlies in early California were highly adaptable to their various environments, and this adaptability may have been a major factor in their attaining a high level of population. Over the relatively large area they then occupied, the climatic cycle, the physical terrain, the places available for shelter, the plant cover

¹ More recently, black bears have been planted in places where the species was not native. In 1933, some trapped on the floor of Yosemite Valley were released in southern California, as follows: Crystal Lake, Los Angeles County, 11; Bear Lake, 6, and Santa Ana Canyon, 10, both in San Bernardino County (Burghdoff, 1935: 83-84). One or two also were released in San Diego County (Abbott, 1935: 149-151) about 1917-1919, and one was killed there in 1934. A few were released in Monterey County near the Big Sur some years ago but subsequently were killed out.

(fig. 5), and the various animals usable as food were of widely differing kinds.

In the northwestern part of the state where winters were mild but rainy and there was much dense forest, grizzlies were commonest along the river bottoms and in the sparsely forested oak-prairie regions. Those living to the northeast—on the “Modoc Plateau” beyond the summits of the Cascade Range and the Sierra Nevada—were exposed to a rigorous continental type of climate during the winter; but there were lava caves in which they could take shelter, and they ate berries and fruits of wild shrubs and trees.

Grizzlies in the Great Central Valley inhabited the dense growths of trees, vines, and cattails that bordered lowland rivers and creeks before white men cleared and reclaimed such areas for agriculture. These thickets were nurtured by the silt of overflow waters, and there were extensive marshes and many ponds resulting from spring freshets and from the work of beavers. The bears pastured on wild grasses and clovers during the spring and ate acorns from valley oaks in the autumn. Fish and other aquatic animals were available. Some bears dug their own dens in the valley flats, though some may have deserted the flatlands in summer to live in adjacent hills.

Throughout the foothill region the “elfin forest” or chaparral of many shrubby plant species clothed the slopes with a dense cover sometimes up to twelve feet in height (fig. 6). Beneath the interlocking branches, the grizzlies had trails and escape or resting places. The manzanita and some other chaparral plants afforded seasonal crops of berries, and on adjacent slopes several species of oaks provided acorns.

For the higher mountains there is little or nothing recorded in regard to the habitats used. We know that grizzlies lived there, because some were shot in summer and some when the mountains were blanketed with snow. We infer that dens among rocks or under large trees were more commonly available—and some were dug—to serve for sleeping, hibernation, and the rearing of cubs. Food supplies, on the whole, were less prolific. Meadows afforded grasses, clovers, bulbs, and roots; some shrubs of montane chaparral yielded berries; there were oaks at middle altitudes; and

there was a fair supply of small rodents for the bears to eat.

In southern California, chaparral was widespread, but river-bottom environments were more restricted. Some grassy pasturage was to be had in both lowland and upland valleys. The absence of grizzlies on the southeastern deserts was obviously due to the lack of food for such large animals. No mammal bigger than a coyote could make a living there. The desert, for the most part, has no hoofed mammals and has no supplies of grass, clover, roots, or acorns such as grizzlies ate elsewhere.

Along the entire coast, grizzlies within forage distance of the ocean could rely on the more or less continuous supply of marine animals washed ashore, and could supplement or vary their diet with acorns or berries from the adjacent hills.

The black bear, although omnivorous in diet, seems less catholic in other environmental needs than its bigger relative. At present it is mainly an inhabitant of the coniferous forest region at middle elevations in the Sierra Nevada; it has been recorded at 1,200 to 8,500 feet. In the northern Coast Ranges it similarly lives amid evergreen trees but at lower altitudes. As Newberry (1857: 47) said, “he is the bear of the forest, while the grizzly is the bear of the ‘chaparral.’”

POPULATION

Since no California Indian ever kept a diary or made any numerical record of animals, there is no means of knowing the grizzly population during primeval days. The first hints come in diaries of the Spanish explorers. In September, 1769, near the site of San Luis Obispo, the Portolá expedition saw “troops of bears” and found the land plowed up where the animals had been grubbing for roots (Teggart, 1911: 59–61). In subsequent years the Spaniards met bears singly or in groups and, as we have indicated elsewhere (see our chap. 5), there is evidence to show that grizzly numbers were substantially augmented by the food supply afforded in the livestock of the mission herds. During the second quarter of the nineteenth century when several exploring parties visited the California coast and as Americans began to enter and settle, the bear population was large.

Ludovik Choris, who was with the 1816 Kotzebue party at

San Francisco, said "bears are very plentiful" (Garnett, 1913: 15). In January, 1827, Duhaut-Cilly wrote that "bears are very common in the environs; and without going farther than five or six leagues from San Francisco, they are often seen in herds" (Carter, 1929: 145). George C. Yount was among the first American pioneers in California, arriving in February, 1831. Of grizzlies in the Napa Valley (where the town Yountville carries his name) he said: "they were every where—upon the plains, in the valleys, and on the mountains . . . so that I have often killed as many as five or six in one day, and it was not unusual to see fifty or sixty within the twenty-four hours" (Day, 1859: 1). When Don Agustín Janssens rode between San Marcos and Santa Ynez in 1834 he said, "All the way we saw bears, for it was winter and . . . the acorns were dropping" (Ellison and Price, 1953: 25). John Bidwell, in the Sacramento Valley in 1841, saw sixteen in one drove and said that "grizzly bear were almost an hourly sight, in the vicinity of the streams, and it was not uncommon to see thirty to forty a day" (Bidwell, 1897: 75-76, 73). Even in Humboldt County, where much land is forested and unfavorable to the species, there is early mention of nine seen in one place, and again of "40 bears in sight at once from a high point in the Mattole country," where a great extent of open land could be seen; all or most of these presumably were grizzlies, since black bears then were uncommon (Grinnell *et al.*, 1937: 69, 70).

Two men counted "eighteen grizzlies in one afternoon in the fall . . . under the oaks eating acorns" in Cholame Valley, San Luis Obispo County, about 1840 (*ibid.*, p. 88). Several writers commented on their numbers at Fort Tejon in Kern County. John Xántus wrote from there on June 5, 1857, to Spencer F. Baird, Secretary of the Smithsonian Institution: "We have here grizlys in great abundance, they are really a nuisance, you cannot walk out half a mile, without meeting some of them, and as they just now have their clubs [cubs], they are extremely ferocious so, I was already twice driven on a tree, and close by to the fort" (Madden, 1949: 83).

Benjamin D. Wilson, later the first mayor of Los Angeles, led a punitive expedition against the Mohave Indians in July or August, 1845. He took twenty-two vaqueros into the San Ber-

nardino Mountains and found a valley where many bears were eating clover. In pairs his men roped eleven grizzlies, and a few days later they repeated the performance. "The whole Lake and swamp seemed alive with bear." He therefore named the area Bear Valley. (Cleland, 1929: 383, 387.) Ramón Ortega, *mayordomo* of Rancho Sespe, asserted that he once counted a hundred of these huge bears between Mission San Buenaventura and the ranch! (Cleland, 1940: 105).

In some favorable places grizzlies persisted in numbers and kept their gregarious habits long after California became a state. Groups of ten or twelve were seen on the beach at the Little Sur River in Monterey County in 1870 (Isobel Meadows, in Anne B. Fisher notes). Nine were seen in the head of Matilija Valley, Ventura County, on a day in September, 1882 (N 93); and during June, 1885, in the foothills southwest of Bakersfield fourteen were in sight at one place (Seton, 1929: 20).

Further attest to the numbers of grizzlies is found in the reports of some early hunters. On June 30, 1823, a Mexican officer and ten soldiers killed 10 bears in Suisun Valley (Anon., 1860a: 115; Hittell, 1885, 1: 497). John Work and a hunting party in the Sacramento Valley killed 45 between November, 1832, and May, 1833 (Maloney, 1943). In the area now San Luis Obispo County, George Nidever (1937: 49-51, 53) killed 45 and injured others during 1837; he estimated having slain upwards of 200 in his early years in the state. William Gordon of Yolo County killed nearly 50 in one year in the 1840's (Gilbert, 1879: 31); and Colin Preston, in the central coast region during the same period is said to have killed about 200 in a single year (Anon., 1857: 819). When Frémont (1887: 571) was in the Salinas Valley in September, 1846, he and his thirty-five men came on a large number of grizzlies in the oaks and on the ground; the party killed 12 and others escaped. Two years later, in the San Luis Obispo Valley, he reported killing 12 in one thicket (Frémont and Emory, 1849: 27). Three hunters in the Tejon Pass region in 1854 are said to have killed 150 bears in less than a year (N 28).

A numerical estimate of the California grizzly population was once attempted by Joseph Grinnell (1938: 75). Assuming

one bear per "20 square miles of suitable territory" and one-third of the state occupied in that density, he offered a figure of 2,595 adults for the period preceding 1830; but he had examined very few of the sources we have consulted. The weight of evidence, from the examples cited above and others not mentioned, leads us to believe that the grizzly population was perhaps closer to 10,000. Many people met grizzlies in groups, large numbers of the bears were killed, and there were conspicuous well-worn grizzly trails in both streamside thickets and foothill chaparral—the grizzlies *were* abundant.

We infer that a graph of California grizzly population would have shown a long plateau through the centuries with minor ups and downs, then a rise in numbers—particularly in the coastal regions adjacent to the missions where cattle were abundant—that reached a peak about the time of the American occupation. This was followed by a quick descent—a half century or less of small numbers and spotty occurrence—to the base line; extinction.

LAST RECORDS

The decline in numbers and final extinction of the California grizzly have left a faded trail in the literature, most of it too dim to be read with accuracy. In a few localities, the year in which the last bear was killed—and sometimes the precise date—is known (see Appendix B); but in many other places the last reported killing may have been some years before the grizzly actually became extinct. Isolated males and lone females too old or without mates may have lived on to die from natural causes.

There was active hunting of grizzlies in California before the gold rush, but the greatest reduction in numbers was probably between 1849 and 1870. Hunting then was intensive, both near cities and towns and farther afield; the bears were killed not only for their meat but also to prevent them from injuring the settlers and killing livestock. Besides the many accounts of grizzly hunting in early diaries and other books, we have found reports of forty to fifty encounters between men and bears in newspapers of the years 1851–1860. For the next decade there are fifteen, and for the years 1871–1879 there are sixteen. After 1860, reports are fewer near communities; some pertain to ranchers and

others are of hunting experiences. Exhaustive search of rural newspapers would probably reveal additional articles; but since the Sacramento and San Francisco dailies often reprinted items from country papers, the residue of undiscovered news notes may not be large.

By about 1880, grizzlies in California no longer were in the lowlands they had dominated for centuries; those that had survived inhabited hilly and mountainous areas. In the opinion of Grinnell (1938: 78),

the parts of the State in which grizzlies were able to persist longest were thus those where heavy and continuous chaparral, therefore lack of any grassland, kept out the sheep-herder. These were not, however, necessarily the parts of the State in which the bears were originally most numerous. In general, their last strongholds were in the Santa Ana Mountains, Orange County, the San Gabriel Mountains of northern Los Angeles County, the mountains of Santa Barbara County, and the western flank of the southern Sierra Nevada in Tulare County . . .

The last grizzly in the northern half of California was killed near Hornbrook, Siskiyou County, in 1902 by Gordon Jacobs (Schrader, 1946: 15). In the Yosemite region one was taken on October 21, 1887 (MVZ 27928); Allen Kelley (1903: 120, 123–124) mentions two wounded by members of the Fourth Cavalry serving as guards in the Park about 1891; and the last known specimen there was taken about 1895 (MVZ 31826). In the winters of 1908 to 1911 a big bear was reported living on Bullion Mountain, Mariposa County. It had long claws—the track was said to be "9 by 17 inches (or a little more)"—and it had trails from chaparral to oak groves. Chased by men and dogs, it "left the country" and was not seen again. (Grinnell and Storer, 1924: 70.) According to A. Vela of Jackson, Amador County, a grizzly was killed "on the summit" (toward Carson Pass) about 1902 or 1903, elevation 10,000 feet; the hind-foot track was 13 inches long (reported July 10, 1925, to T. I. Storer).

No grizzly was killed in the Tejon–San Emigdio region of Kern County after 1898, according to W. S. Tevis; the last was shot in May of that year in Salt Creek Canyon near Mount Pinos. In the Cuyama Mountains of northern Santa Barbara County, however, some grizzlies were present—specifically a female and

two cubs—as late as 1912, according to local informants (Grinnell *et al.*, 1937 : 78). In Los Angeles County, “Monarch” (see our chap. 10) was taken in 1889. The San Gabriel Mountains north of Pasadena had grizzlies in the 1890’s. In July, 1895, and July, 1897, Joseph Grinnell saw fresh bear tracks daily near Waterman Mountain and Mount Islip. The bears roamed open-forested country at night, approached camps, and stampeded campers’ burros; but their trails to daytime retreats led into heavy chaparral of Bear Creek in the San Gabriel drainage. (Grinnell *et al.*, 1937 : 83.) The last specimen, a nearly full-grown male was shot by Walter L. Richardson on May 16, 1894, in Big Tujunga Canyon. Both skull and pelt were saved and are now the best-preserved museum example of a California Grizzly (MVZ 46918).

In Riverside County, the last grizzly was killed about 1895 (Grinnell, 1938 : 78); but farther south one was shot during August, 1900 or 1901, in the northwestern tip of San Diego County at the head of San Onofre Canyon in the Santa Ana Mountains (skull, USNM 160155). The last taken in southern California was shot in January, 1908, in Trabuco Canyon in the Santa Ana Mountains, where Orange and San Diego counties meet (skin and skull, USNM 156594). These two were reputedly mates, according to a note on the Trabuco Canyon specimen.

A grizzly was trapped and killed by Cornelius Johnson near Sunland in Tujunga Canyon, Los Angeles County, on October 28, 1916 (MVZ 24408; Grinnell *et al.*, 1937 : 90–92, fig. 22). This was considered the “last grizzly” in southern California; but inquiry by Dr. Elmer Belt of Los Angeles, who was well acquainted with Mr. Johnson, revealed that shortly before this animal was shot a grizzly had escaped from the Griffith Park zoo. The keeper did not publicize the escape, for obvious reasons; but after public excitement over the killing had subsided, he told Mr. Johnson, who in turn informed Dr. Belt (letter, MVZ files, Jan. 10, 1939). The skull does not resemble that of other southern California grizzlies now in museum collections.

The final chapter of the grizzly in California centers in and about Sequoia National Park. In 1920, Raymond J. Palmer, when in the Mount Whitney country near Bench Lake, not far from

Kearsarge Pass, watched a female bear (with a cub) that “seemed to be three times the size of an ordinary black or cinnamon bear” (verbal report, April 24, 1953). On August 7, 1921, eleven visitors at the Giant Forest bear pit reported a large gray bear, with a distinct hump above its shoulders, that was twice the size of adult black bears. When the big one appeared, the black bears ran away (Fry, 1924 : 1). In August, 1922, after several calves had been lost, Jesse B. Agnew shot a bear near his cattle ranch at Horse Corral Meadow, Fresno County, at 7,500 ft. elevation. A tooth was sent to C. H. Merriam, who replied: “This tooth in itself is sufficient to prove beyond doubt that the bear was a Grizzly. It is the lower canine of what appears to be an adult female Grizzly . . .” (Merriam, 1925 : 3). The tooth could not be found at the U. S. National Museum in May, 1953, when one of us inquired about it. The disposition of the skin is in doubt. J. B. Agnew wrote to Joseph Grinnell (letter, MVZ files, Aug. 14, 1928): “I saw the skin of the grizzly I killed over in Korea (Chosen) in 1925 where my nephew has it and there is no question but that it was a grizzly.” But Sumner and Dixon (1953 : 463) reported: “The skin of this bear, somewhat weathered, in 1950 was still nailed to the barn in Horse Corral Meadow.” Mr. Halstead G. White of Berkeley examined the pelt on the barn on June 3, 1954, and obtained for us two claws: one from the right forefoot, the other from the right hind foot. These are clearly claws of a black bear. A cloud thus hangs over the last reported specimen of *Ursus arctos californicus*.

There are, however, a few hints that Agnew’s bear may not have been the last *living* individual, because

During the month of April, 1924, Mr. James B. Small and his road working crew . . . reported on several occasions having seen a large grizzly colored bear in the vicinity of their camp near Moro Rock [Sequoia National Park]. Mr. Small, and some of his men, had previously worked in Yellowstone National Park, where grizzly bear are numerous, and all these men pronounced the bear they saw as a grizzly. They all made mention of the hump the bear had on the top of its shoulders. On October 13, 1924, Mr. Alfred Hengst, a cattleman of Three Rivers, came into very close contact with a huge bear near the head waters of Cliff Creek. Undoubtedly this bear was the same animal . . . “It was the biggest bear I [Hengst] ever saw—bigger than

any cow, and looked as though sprinkled over with snow. I had a close view of the beast which was undoubtedly a grizzly" (Fry, 1924: 1).

In 1949 there were two newspaper stories of persons who had seen bears or tracks of bears thought to be grizzlies. These were in Butte and Siskiyou counties, respectively (Sacramento *Bee*, Aug. 2 and 17, 1949); but no satisfactory substantiating evidence was presented and no specimens were produced.

In summary, the last California grizzly of record to become a museum specimen (USNM 156594) was taken in 1908; but there is evidence that a grizzly was shot in 1922 and that another was seen two years later. The last living captive ("Monarch"; see chap. 10) survived until 1911. Since the Sequoia National Park reports of 1924 none of any presumptive validity have appeared. The native grizzly, once numerous and dominant, is no more.

2 Physical Features of the Grizzly

GENERAL APPEARANCE

Among "carnivorous" mammals, the bears as a group are characterized by their stout form and large size. The head is proportionately small and rather acutely tapered, with less length of snout and greater over-all bulk toward the base of the skull, because of the powerful jaw muscles. The eyes seem rather diminutive for the general size of the animal, and the ears are short. The neck is of moderate length but is large in diameter, because of its thick musculature. The body is heavy, and is wider than deep. The four limbs are of about equal length but are heavy in build and conspicuously tapered, and the feet are large. The tail is so short as scarcely to be visible in ordinary view.

Features that set the grizzly apart from other bears—except the brown bears—are the shoulder hump, the long front claws, the color of pelage, and the structure of the skull and teeth. As compared with the black bear, it has higher shoulders, a longer body, a straighter back, and lesser elevation of the haunches. Its head is narrower, and the snout and jaws are longer and less blunt. (Mills, 1919: 251.)

THE HUMP

Over the shoulders there is a characteristic hump, evident in both young and old grizzlies (figs. 2, 3). The hump results from the size and placement of the muscle mass above the shoulder blades, according to Dr. Robert K. Enders, who has anatomized several Yellowstone grizzlies in recent years (letter, Jan. 11, 1953). There is no pad of gristle in that region as might be