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# AN HISTORICAL REVIEW OF THE STATUS OF THE GAME AND FUR-BEARING MAMMALS OF THE SAN BERNARDINO VALLEY AND MOUNTAINS

by


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( A California non-profit Corporation)

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# AN HISTORICAL REVIEW OF THE STATUS OF THE GAME AND FUR-BEARING MAMMALS OF THE SAN BERNARDINO VALLEY AND MOUNTAINS

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This paper is assembled from review of the historical and scientific literature and from interviews with early-family members. Recent information has been obtained from United States Forest Service and State Fish and Game personnel.

My interest in this subject harks back to my boyhood when my father recalled the killing of the last grizzly bear in Swarthout Canyon in the '90's. Later, when starting medical practice in Redlands, I made a house call on E.M. Van Deventer, then in his 90's, who told me of shooting antelope at Cabazon when working as a teamster, in his teens. He also had tales of cowboying on Mt. San Jacinto and encountering grizzlies attracted by jerky being dried in their cow camp. Occasional boyhood reports of bighorn sheep seen on Mt. San Gorgonio also piqued my interest.

Areas of particular concern in my research for this paper were: 1) status of those native species that have successfully adapted to man's land usage and presence, 2) reasons for extermination of those that could not adapt, 3) planned introduction of non-native species, e.g. beaver and Black Bear, 4) establishment of feral populations of domestic or caged animals, e.g. burro and opossum.

The San Bernardino Valley and Mountains extend from an elevation of about 1200 feet on the valley floor to 11,499

feet on Mt. San Gorgonio, embracing several life zones. This includes Lower Sonoran (desert) elements in the Santa Ana River flood plain, then Upper Sonoran (chaparral), Transition (Yellow Pine, Black Oak), and the Boreal Zones (Lodgepole, Limber Pine, and above timber line). With such varied habitat and abundant vegetation, mammals were numerous and of wide variety. The mountainous areas under consideration generally correspond to the San Bernardino National Forest, including the eastern San Gabriel Range, but excluding the San Jacinto Range.

The major historical periods of the valley, and the associated changes in the valley as wildlife habitat, will be briefly summarized with emphasis on a few key historical dates to keep in mind for orientation. The first major change from the valley's natural state occurred during the Mission Period, starting when the San Gabriel Mission was established in 1810 and its Asistencia in Redlands was established in 1819. This period terminated with the secularization of church property in 1834. During this Mission period, increasingly large herds of cattle and horses roamed the valley. Farming began in a very small way, particularly with the Redlands Mill Creek Zanja in 1820.

During this period there was considerable destruction of native perennial bunch grasses and palatable forbs, which were replaced by hardier European annuals more resistant to grazing. These were brought in with the livestock in their hair and feed, or with seed grain, straw

packing, etc. These exotics would include our presently familiar grasses such as Red Brome (Bromus rubens), Ripgut Brome (Bromus diandrus), Cheatgrass (Bromus tectorum), foxtail fescues (Festuca), wild barleys (Hordeun), and wild oats (Avena). Some of our most common leafy pasture plants and weeds were introduced during this period, perhaps for sheep forage, including Burr Clover (Medicago polymorpha) and various filarees (Erodium). These agressive European species, well adapted to our Mediterranean climate, are now the dominant annuals in pastures and abundant as weeds in cultivated areas (Crampton: 32). Since the Mission Period was short lived and involved a relatively small area of the entire valley, animal wildlife populations were not seriously affected.

The Rancho Period began in 1838 with the huge Mexican land grants, terminating in 1850 with the Mormon colonization of San Bernardino. During this Rancho Period, the valley was one great livestock range with thousands of cattle and large horse herds. Mexican colonization was attempted, but failed, largely because of marauding Indians. Those changes in the valley floor which began in the Mission Period became widespread. There was beginning pressure on the antelope herds, deer and grizzly bear from competition with livestock and increased hunting, though the mountains still remained quite pristine.

The Mormon Period from 1850 to 1857 began major farming efforts and the start of significant timber-cutting in the moun-

tains. From this time on, there was widespread homesteading and farming, with diversion of the mountain streams for irrigation. The last major campaign against the livestock-stealing Indians was in 1867, bringing peace and security to the valley, with rapid increase in the human population.

The last major era in settling and cultivating the valley occurred with the building of the Bear Valley Dam by Frank Brown in 1883-1884. The dramatic expansion of citrus orchards followed, particularly in the Redlands-Crafton area. By this time the habitat was destroyed on most of the valley floor and those adjacent arable slopes to which water could be flowed. The canyons and mountains to their farthest extremities were feeling the heavy hand of man, if not with settlement, at least with lumbering, grazing, trapping and agressive hunting. Those mammals which have survived, have more or less come to terms with civilization.

By far, the most exciting and remarkable native mammal was the California Grizzly Bear. This huge and bold bear was very common in both our foothills and mountains, and often foraged out into the valley. Since the California Grizzly is of so much historical interest and is now extinct, a brief historical review of the grizzly in California generally is appropriate to this paper and will add perspective to our local lore. The history of early California is replete with bear stories. An entire large book is devoted to man's encounters with the California

Grizzly from prehistoric to modern times, The California Grizzly by Storer and Tevis. Much of the following is from this source. This bear had no natural enemies, being at the top of the food chain. In this regard a recent article in Outdoor California magazine is entitled, "Grizzlies Ruled California Before Human Settlement" (Clark:1). The grizzly so captured the imagination that it was made the symbol of California when independence from Mexico was proclaimed in 1846, and still appears on our state flag. The "bull" and "bear" of the stock exchange have their origin with the California Grizzly. In these once popular fights, a Spanish bull was pitted against a wild grizzly lassoed by vaqueros. As the bears had no natural enemies, numbers were controlled by food supply. During the Mission and Spanish Rancho Period, cattle were raised mainly for hides and tallow. One hundred thousand cattle were said to have been slaughtered for this purpose in the year 1840. The carcases provided an abundant food supply and it is thought the bear population peaked at this time. They were, of course, capable of killing the live cattle as well. The large number of bear is attested to by the fact that one hunter killed 45 in the year 1837 near San Luis Obispo, and 200 in his life time. They were first killed by the early trappers and miners for food. Later, they were killed increasingly for stock depredations and sport. They were little threat to people unless wounded, when they would often hide in dense cover and attack when discovered. In

spite of many detailed accounts of hunters mutilated or killed in this manner, there is only one recorded instance of human flesh being eaten.

The best know local Grizzly Bear story relates to the naming of Bear Valley in our mountains in 1845 by Don Benito Wilson of the Jurupa Rancho near Colton, later mayor of Los Angeles, a state senator, and grandfather of General George Patton. While on an expedition pursuing marauding Indians across the mountains, he camped at a mountain valley, "where the lake (doubtless Baldwin Lake) and the swamp seemed alive with bear. Twenty-two men lassoed 11 bear, and on the return of the party, the feat was repeated, making 22 killed in this vicinity," and their hides were brought back to San Bernardino (Ingersol: 100).

Other famous bear stories include that of Christobal Slover, trapper and friend of Kit Carson, who settled in 1842 on the Colton cement mountain which bears his name. Slover married a woman from the nearby New Mexican Agua Mansa Village and settled down to pursue his passion of hunting Grizzly Bear. As an old man, on his last hunt, he went up to the left fork of Cajon Pass near the summit. He fired upon a large grizzly at short range, which attacked him with fatal results. "The scalp was torn from his head, his legs and one arm was broken, the whole body bruised and torn" (Ingersol: 369). He was carried home on a litter but died on the way. Another Slover Mountain story relates that about 1864, some Mexicans on top of this mountain spot-

ted a bear in a clearing to the north. It was lassoed, tied on a sled pulled by two yoke of oxen and brought to Colton where a bear and bull fight was held (Storer and Tevis).

There is still one more legendary bear story that must be included. In May of 1860, while placer mining near Baldwin Lake, Bill Holcomb was searching for bear meat. He shot two bear and decided to return and prospect the area, which subsequently came to bear his name. Upon returning, he wounded another grizzly. While tracking it by blood stains, he passed over a promising quartz ledge. This proved to be a rich find and started a new era in the mining history of the west (Drake:14). The Holcomb Valley gold mining settlement, named Belleville, became the largest town in San Bernardino County and missed by two votes becoming the county seat in 1861 (Drake:16).

By the turn of the century, the California grizzly was largely exterminated. There are many tales of the last bear in our mountains and I have collected three so far. My father told me of hearing about the killing of the last bear in Swarthout Canyon, on the desert side of the mountains near Wrightwood, probably in the 90's. Stillman Berry of Redlands recalls reading in the newspaper in his youth about the last bear being killed in Lytle Creek, probably also in the 90's. Leon Atwood, of Oak Glen, recalls one of his boyhood companions telling of his father, Charlie Fick, the Forest Ranger, killing the last bear near

Pine Bench in 1906. Probably the last preserved specimen from Southern California was taken in 1908 in San Onofre canyon in the Santa Ana Mountains of northern San Diego County. The last verifiable record for the California grizzly anywhere, i.e., the site of its extinction, was in Tulare County in 1922 (Grinnel, Dixon, Linsdale: 93).

The Black Bear, a smaller cousin of the grizzly, is native to the mountains of central and northern California. While there are a number of pioneer accounts of Black Bear encounters in the San Bernardino Mountains, there are no remains or any scientific proof of their existence here until introduction in 1933. Since a large male Black Bear approximates in size a female or young grizzly, confusion is not surprising. The absence of Black Bear was probably due to the abundance of grizzlies, since they are not normally found together.

Presumably for reasons of sport and wild life enhancement, the California Fish and Game released 27 Black Bear from Yosemite into the San Bernardino National Forest in 1933; 11 at Crystal Lake in the San Gabriels, 6 at Big Bear, and 10 in upper Santa Ana Canyon. They have prospered and are now widespread throughout the mountains, though seldom seen because of nocturnal habits and shy nature. They avoid areas of much human activity, but there have been some bear-garbage conflict and apple orchard predation. According to Loe, about 5 are legally killed annually by bow or rifle hunters. The bear are run in the

Big Bear area by hunters training bear dogs, but not many are killed because of the limited numbers. These hunters more often go to Northern California for their actual hunting (Loe).

The local Black Bear population has been extensively studied for several years by a group of graduate students from California State Polytechnic University at Pomona. Thirty six bear were trapped and 9 were fitted with radio telemetry collars for ground and airplane surveilance. These studies were done in the Mill Creek, Oak Glen and Banning Canyon areas, where they found an average of 1 bear per square mile. The estimated population for the San Bernardino National Forest was 260 (Novick). Analysis of droppings (scats) showed they are very largely vegetarians with Coffee Berry, acorns, Chokecherry, grass and manzanita berries the principal food items. Garbage and apples appeared mainly when the natural food supply was short (Boyer). The Black Bear has found an enduring niche in our mountains in much the same area as was inhabited by the extinct California Grizzly.

Perhaps the most spectacular of our remaining big game mammals is the Nelson Bighorn Sheep. Though once more numerous in the inland and desert ranges of California, it is a shy animal living in precipitous terrain and, then as now, not often seen. However, since they are very desirable as table fare, they were at times decimated by the early miners and market hunters. They suffered also from

diseases from domestic sheep and cattle and competition with feral burros at desert waterholes. In 1883, fearing extinction, California passed a law granting complete protection, and it is still in force. However, there was little implementation of the law for many years. For example, in 1895, 50 sheep were killed by miners at Mt. Baden Powell in our San Gabriel mountains (Holl and Bleich). In historic times, there always were some sheep in the remote areas near each of our local mountain peaks, San Antonio (Baldy), San Gorgonio (Grayback) and San Jacinto. An intensive study of the San Gabriel mountain herd was completed in 1983 by Holl and Bleich of the United States Forest Service. This yielded much fascinating information of numbers, seasonal migration, herd dynamics, etc. Fairly accurate population counts are obtained by helicopter during the winter months when the sheep flock-up at lower elevations in less precipitous canyons. There is presently a stable population of about 700 sheep, which use most of the major San Gabriel peaks in summer and the tributaries of San Antonio and Lytle Creeks in the winter. This range is thought to have reached its maximum carrying capacity and the present population probably equals the estimated number of 120 years ago. It is suggested that 20 trophy rams yearly could prudently be harvested and that 10 rams are currently poached yearly from this herd.

According to Loe, the San Gorgonio herd, also inventoried by helicopter, is about 80. They summer on the

south and east face of San Gorgonio peak and winter in the tributaries of Whitewater Canyon. Their numbers are thought to be limited by their winter range which has become too brushy due to vigorous fire protection policies of the Forest Service. A different subspecies, the Peninsula Bighorn, is found in the nearby San Jacinto-Santa Rose Mountains. It is a more desert animal and lives at lower elevations, mostly outside of the National Forest.

With the designation of the Cucamonga Wilderness Area in the Lytle Creek Drainage, the San Gabriel Wilderness Area on the west fork of the San Gabriel River and the San Gorgonio Wilderness area, much of the local key sheep range is protected. The remainder is well supervised by the United States Forest Service. The future of our San Bernardino and San Gabriel Mountains herds appears secure. Selective harvesting of old rams is desirable in herd dynamics for genetic reasons and the San Gabriel herd could well stand this type of management. Arizona and Nevada have annual drawings and auctions for a few permits, with 25 to 50 applicants for every permit, raising large sums for game management purposes.

It is surprising to most people to hear that Prong-horned Antelope once roamed where Redlands now stands and that they were abundant on the plains to our south were March Air Force Base was built. I have uncovered several accounts of their occurrence hereabouts in pioneer times. In the early years of my medical practice in Redlands, I

made a house call on Eugene Van Deventer, about age 90, as previously mentioned. I noticed a muzzle loading rifle standing in the corner. With my interest in wildlife, I questioned him about game he had killed with it. He recalled that in the 1870's, while a teenager driving a 14 mule freight wagon from Spadra California to Prescott, Arizona, he had hunted antelope at Cabazon. He was later married to Sarah Cox, who was the daughter of Silas Cox, "Daniel Boone of the West." In Cox's autobiography with that title, I found further reference to antelope in our vicinity. "From 1852 to 1857, I spent a good deal of time riding over the country looking after (our) cattle. Occasionally, I would go into the mountains with some old pioneer deer hunters as a chore boy. Deer and bear--were plentiful. We packed up and went over the mountains--to hunt antelope, as they were plentiful on the desert side. We made our camp at the old Burcham Ranch (presently the Las Flores Ranch). We only stayed in camp a few days, until the boys had all the (antelope) meat they wanted. We had enough to pack up all the horses, and we walked (them) home" (Cox:3).

Another local antelope story relates to Redlands and the pioneer Cram family. In 1852, John Cram with "6 stalwart sons" arrived from Texas by wagon train. In 1854, they lived at the Assistencia where they started a furniture factory. Subsequently John and sons Lewis and Henry homesteaded in East Highland (Ingersol). James Cram, son

of Lewis, remembers being told of the antelope whose flashing white rumps could be seen across the wash on the Redlands bluff when they would turn and run. Barbara Cram Riordan, our County Supervisor, is the great, great granddaughter of the pioneer John Cram who saw the antelope. That story of Jim Cram's was told to me by his friend Edmund D. Patterson, Jr., of Redlands.

There are a number of interesting antelope stories from areas outside of our valley, but nearby. Stillman Berry of Redlands, who rarely failed to have a story in things relating to natural history, became acquainted with Hall McAllister, a neighbor, who was an authority on game animals. He had come to Colton on occasion in the 1880's, and he recalled, as related by Dr. Berry, the sport hunting of antelope between San Timoteo Canyon and Perris, where they occurred by the hundreds. Amazingly, in my Grizzly Bear research for this paper, I came across a reference to Hall McAllister in the 1919 California Fish and Game magazine which, among other things, described antelope just south of Riverside in 1885, and also mentions shooting one where the town of Hemet now stands (McAllister:172). Leon Atwood, whose Grandfather George was the major pioneer grain rancher in Yucaipa in 1884 (Brown:700) recalls his grandfather's mention of herds of antelope on the San Jacinto and Perris plains at that time.

The last remnants of the Southern California antelope herds were recorded at Randsburg on the Mojave Desert in

San Bernardino County in 1925 and Antelope Valley in northern Los Angeles County in 1932 (Grinnel 1933: 209). There is a verbal report of Edmund Jaegar sighting antelope on the Chuckwalla Bench south east of Desert Center in the early 1940's (Blong).

The native deer of our mountains, a variety of Mule Deer, was abundant by all accounts in pioneer times. Due to excessive hunting, their numbers became greatly reduced. When Joseph Grinnell was studying the animal life for the classic Biota of the San Bernardino Mountains, from 1905 to 1907, he spent several weeks each summer in the upper Santa Ana Canyon and transected the mountains from Mentone to Cushenberry Springs, on the desert. He saw no more than half a dozen deer each year and suggested that they might be driven to extinction. However, with regulated hunting and Mountain Lion control, they recovered and the population peaked in the 1950's. Subsequently, numbers have declined to a relatively low level, particularly after the severe drought of 1961. (Blong) The deer herd is presently estimated to be 3,000 to 4,000 with an annual harvest of about 300 (Loe). This decline is attributed to a number of factors including dry weather cycles, lack of seasonal burn of heavy chapparal from fire control measures resulting in little young, nutritious plant growth, loss of fawning meadows and winter range to land development and disturbance from off-road vehicles, and a burgeoning coyote population preying on fawns. Forest Service biologists are

trying to alleviate these problems but are handicapped by the multiple use policy of the Forest Service.

The Mountain Lion or cougar was a common resident of our mountains and foothills in pioneer days and a small population still persists. The lion is a solitary and secretive big cat, weighing up to 165 pounds and 8 feet in length. It has been hunted since the first settlements because of livestock predation and, later, concern for deer predation. The Missions once offered a bounty of one bull for each lion. The state paid bounties from 1907 to 1963 as well as hiring salaried hunters and trappers. During this period more than 12,500 lions were killed in California (Clark:5). An idea of their former abundance locally can be obtained from Carl Hert of Colton's book Trapping The Big Cats. He states that he collected 109 bounties between about 1914 and 1944 in the San Bernardino and adjacent portion of the San Gabriel Mountains. The lions were killed chiefly in Bear and Alder Creeks of the upper Santa Ana Canyon, Sawpit Canyon near Lake Arrowhead, and the San Sevaine-Lytle Creek area. He killed 9 lions in Bear Creek, presumably in one year. Unfortunately, his book appears to be written from the reminiscing of an old man rather than from field notes. He states repeatedly of his passion for eliminating lions for the sake of the deer, though encouraged by the liberal bounty system. Combined California State and county bounties ranged to as much as $95 for males and $150 for females, at a time that dollars

were worth several times their present value.

The California Mountain Lion manages to maintain a small but stable population of perhaps 20 to 30 individuals in the San Bernardino National Forest (Loe). It has not been trapped here by the government since 1959 except rare special permits for stock depredation, and protected since 1969. Numbers tend to fluctuate with the deer population, its principal food supply, which in our mountains has been depressed in the past two decades. In a wide-ranging animal of low density population, genetic and other reproductive problems may develop. Interestingly, the four and six lane, fenced freeways through Cajon and San Gorgonio passes may be contributing to such a problem of isolating a small population (Loe). In central California there has been a considerable increase in the lion population since protection and a regulated hunting program is being considered for that area. (Clark:5)

The Wolverine is an animal unknown to most of us. This large fur-bearing carnivore, weighing about 30 pounds, resembles a small bear and lives in the high mountain forests. According to the scientific literature, it is not supposed to have ever been recorded south of the Sierra Nevadas. Nevertheless, it is mentioned in the stories of the local pioneers. Jim Erwin, who came to Big Bear in 1884, describes killing a wolverine on Eagle Mountain south of Bear Valley and bringing home the pelt. (Drake:66) A recent United States Forest Service archaeologist position

statement says, "By 1846--trappers moved into Bear Valley to take--wolverine," but no reference is given (Curriden). It is probable a small population here was exterminated and no pelts or other remains preserved for scientific identification.

There are a number of small, usually carnivorous, mammals often referred to collectively as fur-bearers, which are trapped for their pelts. In our valley and mountains, this includes the Coyote, Gray Fox, Bobcat, Raccoon, Ringtailed Cat, skunk, beaver and Gray Squirrel. Only the Coyote, Gray Fox, Raccoon and Bobcat are commercially trapped locally. In the San Bernardino Mountains, 10 to 20 trappers make substantial income, their activity fluctuating with the price of pelts. (Loe) In the Oak Glen area, Bob Bise trapped during the 1984-85 season (an average season) 130 Coyotes, 33 Bobcats, 25 Gray Foxes and 11 Racoons. Some idea of the former abundance of these fur-bearers can be seen from Carl Hert's statement that in the early 1940's he won a prize from the Funston Fur Company for the most pelts trapped in a two week period with 56 pelts, predominantly Coyote and Gray Fox. Bise observed that these animals have increased considerably since the California Department of Fish and Game discontinued their systematic trapping program to control predation of domestic and game animals in 1958. The coyote in particular has proliferated. The fur-bearing animals are widespread throughout the chaparral-covered hills and

forests and sporadic trapping does not endanger their survival.

The Coyote is widespread throughout California, there being valley, mountain, and desert races. They are most numerous in the inland valleys and foothills, such as our valley, where they find an abundance of rodents and wild berries. However, their diet is extremely varied and often runs afoul of man's interest by stealing poultry and killing sheep, goats, dogs, cats and fawns. They may also be harmful to melon patches and even vineyards. In spite of a century of persecution by livestock interests with trapping and poisoning, trapping for pelts, and generally being shot on sight, they have flourished. In the last decade there seems to have developed a bolder breed that has learned to live more intimately with man, even in residential areas. One will see, not infrequently, coyotes inside the city limits of Redlands in the citrus groves or in the Sunset Drive residential area. In suburban Los Angeles, much publicity was given to one that attacked a child. At our house in Running Springs, we now see Coyotes casually trotting along in broad daylight a few hundred feet away. I believe, like the wild and wary crow of my boyhood days, which now boldly stalks the streets of Redlands, the canny coyote has learned to live a suburban existence and to overcome his native shyness and fear of man.

The graceful little Gray Fox, with its russet collar, is also learning to live with man and may be seen in the hillside residential areas such as south Redlands, as well as in the chaparral.

There is another small fox which doubtless once occurred in our valley, the Long-eared Kit Fox. Since it lived in burrows on the open valley floor, its habitat was soon destroyed with the cultivation of the valley. It is now extinct, with the last recorded specimen from Moreno Valley in 1903 (Grinnel, 1937: 407). A similar race of kit fox still exists on the Mojave Desert.

The Wildcat, commonly called Bobcat because of his stubby tail, is the most widespread carnivore in California, ranging from sea level to 11,000 feet, from the humid forests of the northwest to the deserts of the southeast. Since it often is active in daylight, it is occasionally observed in wild areas. A few years ago, I found two Bobcat kittens in their den just off southeast Sunset Drive in Redlands, their mother pacing about, growling and yowling. Bobcats are extensively trapped for their pelts, and are also run by hounds for sport. In Moreno Valley, I encountered a group of such hunters with their hounds and with a victim in their pickup. They said that they spared the mature females for perpetuation of their sport. The Bobcat is a resilient animal and their future appears secure where natural habitat remains.

The Badger, know for its aggressive behavior, is a large burrowing member of the weasel family. It was formerly common throughout the valley floor. Like the Kit Fox, it often utilized the most arable land and has therefore become rare. It has been sporadically trapped for its fur, depending on the whims of fashion. It is still occasionally found in our foothills.

The little Spotted Skunk, known for its striking appearance and most effective defense mechanism of squirting malodorous scent, is a common carnivore of the chaparral. It has also adapted well to suburban life, often living about old buildings and residences where it finds abundant rodents and insects. It occasionally even enters peoples' houses. In Redlands, it is particularly a problem to Dichondra lawns, where it digs for grubs at night. It is often caught by commercial trappers, but usually discarded as its pelt has little value.

A larger skunk, the Striped Skunk, is also found in our valley. While associating less intimately with man than the Spotted Skunk, it is still most common in agricultural areas. Being a larger animal, it is more suspect of taking poultry and game birds, though this is rarely a problem. Its pelt is commercially valuable and as many as 100,000 have been taken in California in one year (Grinnel, 1933: 355). Nevertheless, the overall skunk population of both species is said to be greater than in pioneer times.

The Gray Squirrel, commonly called tree squirrel to distinguish it from the abundant ground squirrel, is primarily a mountain denizen. Its natural habitat is the Yellow Pine - Black Oak woodland of the mountains. However, extensive planting of similar trees in parks and some residential areas in the valley has resulted in an unnatural lowland suburban population. It can readily be seen in Sylvan and Prospect Parks, and some older residential areas in Redlands. It is sometimes considered a game animal and desirable for eating, though there is presently no open season south of Tulare County in California. Game management people favor a hunting season in unpopulated areas during cycles of abundance to prevent damage to young pine trees, control of disease, and other high density dependent factors. The environmentalists would take issue with this.

There are many colonies of beaver in our mountains since their introduction in 1945. Beaver were historically common in the valleys of central and northern California and also along the Colorado River. Much pioneering of California was done by the beaver trappers, starting with Jedediah Smith in 1825. The beaver were nearly trapped to extinction by 1911, subsequently recovering with protective laws. The mountains of Southern California were never occupied by native beaver. The streams are generally too rapid and rocky in the mountains, and too intermittent in the lowlands for their needs. However, introduction has met with considerable success, though not without problems.

Motivation for the introduction was to: 1) improve trout streams through creation of pools, 2) provide an aesthetic attraction for recreationists, 3) stabilize water run-off and impound sediment near its origin (U.S. Forest Service: 2).

In 1945, 82 Golden Beaver from Merced, California, were released into the San Bernardino National Forest, starting with Lytle Creek in the San Gabriel Range, continuing through the major drainages of the San Bernardino Mountains, and into the San Jacinto Mountains near Idylwild (Huffine). Only those of the San Bernardino Range have survived. They are presently found in Cajon Pass, Mojave River at Las Flores, Lake Arrowhead, Grass Valley Lake, Deep Creek, Holcomb Creek, Bear Creek, upper Santa Ana, and Fish Creek. They feed mainly on willows and cottonwood, and aspen at Fish Creek (Huffine).

Beaver activities often come in conflict with water companies, road departments and recreational developments. Some problems are: erosion of stream banks with the washing out of dams by flood, excessive silting of stream beds, slowing of water flow with increased evaporation from ponds, and destruction of stream-side vegetation by flooding from ponds or cutting for food. The United States Forest Service and the Bear Valley Water Company have agreed that there will be no more than eight dams in the Santa Ana River drainage. For this agreement and some of the other problems above, periodic live trapping is done to

remove excess or undesirable colonies. The most successful colonies have been in Holcomb Creek and Deep Creek, north and west of Big Bear. There are presently an estimated 220 beaver in the San Bernardino Mountains (Huffine). The population varies with the rainfall and related stream conditions.

The Virginia Opossum is a common inhabitant of our valley, where ever there is a sylvan environment. It is often seen in the car lights while crossing the street or lying on the street run over by a car. It was introduced into California from southeastern United States at a number of locations, some escaping from cages, others released to be hunted for roast possum. While they are frequently caught by fur trappers, their pelts are of little value and this was not the reason for their introduction. There are recorded introductions in the 1870's but they did not become established until later. They have been present in the Los Angeles area at least since 1906 (Grinnel, 1933: 75). It is now one of our common animals in both residential and agricultural areas, as well as following the forested streams into the foothills. This morning while writing this about opossums, I looked out of the window to see a family of opossums foraging through the shrubbery of my back yard in Redlands!

Feral animals, i.e., domestic or captive species that have gone wild, includes cats, dogs, pigs, burros and opossums. Feral cats and dogs tend to relate to human

activities, are often quite destructive, and are eventually destroyed. Feral pigs have been reported in the oak-forest habitat of the Oak Glen area in recent years. About 15 years ago, I observed rooting areas of pigs there. Bob Bise, resident and trapper in the area, stated that he and another resident, Blackie Wilshire, had each shot a pig damaging their gardens about this time. A few years ago John Balacitos of Banning, a Forest Service employee, saw 14 pigs between Oak Glen and the Pine Bench prison camp. Some of these resembled the Hampshire variety. He also heard unconfirmed reports of wild pigs further east in Cherry Creek, Banning Canyon and in the Whitewater drainage. At the present time, there are no feral pigs known to the above persons or the Forest Service biologists in charge of this area. One might suspect that they have fallen prey to mountain lions and coyotes.

Wild burros have long been established on the Mojave and Colorado Deserts, released or escaped from prospectors. They became established in upper Santa Ana Canyon in the 1950's (Blong). Some are said to have been released in conjunction with the Big Bear annual Pioneer Days burro races. There was a herd of about 12 in the Seven Oaks area, which disappeared from the area after the 1968 fire (Thompson). In more recent years, there has been a herd in the Baldwin Lake - Arrastre Creek area. The Forest Service estimates about 20 semi-tame burros about the Sugar Loaf and Lake Erwin Communities and a similar number of wild burros in

the Baldwin Lake - Arrastre Creek area. Some local residents think there may be twice this many in the general area. Auto kills, semi-wild dogs and probably lions take a considerable toll. However, they appear to be increasing and are considered a potential threat to the native vegetation and herbivorous animals.

In summary, with settling of the San Bernardino Valley and Mountains we have lost the Grizzly Bear, Antelope, Kit Fox, and the Wolverine, if it was ever present. Most species have decreased in numbers due to loss of natural habitat to agricultural, residential and commercial use in the valley and residential and recreational activities in the mountains. A few adaptable species have actually increased, with the changing land usage increasing their food supply, notably the Coyote and skunks. Beaver and Black Bear have been successfully introduced into the mountains, and the Opossum to the valley. One species, the Gray Squirrel, has extended its natural range from the mountain forests to the valley floor, where sufficient shade and ornamental trees have been planted to create a woodland environment. The mammal populations are generally stable, though the deer herd is at a low ebb. Hunting and trapping are sufficiently controlled by the Department of Fish and Game so that they pose no threat to any species. However, these consumptive uses of game and fur-bearers will doubtless decrease, as a changing outdoor ethic places more emphasis on non-consumptive recreational use, such as

wilderness experience, nature study, and photography. Future introduction of non-native mammals appears unlikely, though elk have been suggested for our high mountain forests (Loe). No persistent feral mammal populations have become established, except the burro and Opossum. Forseeable future changes do not indicate further loss of species, but there will be decreasing numbers where habitat is impacted by a burgeoning residential population in the valley, and increased recreational use of the mountain National Forests. The San Bernardino National Forest is the most heavily utilized in the United States due to its proximity to the Los Angeles and Orange County megalopolis. A fifty percent increase in use is anticipated in the next decade (Loe). This will stress many areas of sensitive wildlife habitat. This can best be countered by further wilderness areas with controlled access by permit, such as our San Gorgonio Wilderness, and further restriction of off-road vehicles in National Forests. But basic to improved management policies, is our increasing sense of the value of wildlife and wilderness to our culture and our civilization.

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