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THE COMMON HAWKS AND OWLS OF CALIFORNIA
FROM THE STANDPOINT OF THE RANCHER

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



The "business part" of the barn owl. This is the best gopher trap that has ever been invented.

It is the purpose of this bulletin to point out some of the characters and habits by which the rancher may distinguish his friends from his foes among the common hawks and owls of this state.

Twenty kinds of hawks and as many kinds of owls are known to occur in California. To describe all of these forty forms in detail would confuse rather than help most people. Therefore *groups* of hawks and owls, rather than species, and, further, only those of prime economic importance are dealt with at length in this study. All the photographs are from living individuals.

The people of the state of California spend upwards of \$50,000 each year in trying to control rodent pests. The cost and necessity of this work have increased rather than decreased as the years have gone by, and some persons are beginning to realize that this condition has been brought about in large measure by the killing off of the natural enemies of our two most destructive rodent pests, the California ground squirrel and the pocket gopher. Some of these age-long natural enemies of the ground squirrel and gopher are: hawks, eagles, owls, coyotes, badgers, weasels, wildcats, and gopher snakes. In destroying beneficial species of hawks and owls, the rancher is often unwittingly "losing dollars trying to save cents." Unlike strychnine, these birds do not endanger human life, and, better than traps, they are set all the time. In any case, it costs little to let them go about their business of catching gophers and squirrels in their natural way.

Hawks and owls have all too often been considered bird outlaws, and bounties have been placed on their heads. The feeling against these birds as a class is due to the depredations of a few harmful species. The fact is that the large majority of our hawks and owls are decidedly beneficial. Through indiscriminate shooting the innocent many suffer with the guilty few. Farmers and ranchers who are wise seek to distinguish between the beneficial and harmful species and to protect the beneficial ones.

Four groups of hawks are commonly met with in California and are here treated in order of estimated economic importance. The various species of each group have certain habits and characters in common. The groups with their identifying features are as follows:

1. Soaring, "squirrel" hawks, including rough-leg or "chap" hawks—*beneficial*.
2. Round-winged, long-tailed, "aeroplane" bird hawks—*harmful*.
3. Marsh or meadow haunting hawks—*beneficial*.
4. Long-winged chasers, falcons, "bullet" hawks—*some harmful, others beneficial*.

The "soaring" hawks, including the rough-leg or "chap" hawks (so-called because their legs are feathered clear down to the toes), are represented by five species: western red-tail, Swainson, red-bellied, and ferruginous and American rough-leg. All are *large* hawks, have a length of 18 to 25 inches from bill to tip of tail, and weigh from 1½ to 3¼ pounds. In the soaring hawks, during flight, the length (bill to tail) is less than half, about 42 per cent, of the spread of the wings. These large soaring hawks are all decidedly beneficial and

should never be shot on mere suspicion. Furthermore, they are all protected by law. Investigation has shown that much of the catching of chickens and game birds, often credited to them, is really done by the true bird hawks. The western red-tail, wrongly called "hen hawk," is the best known representative of the soaring hawk group. This hawk is resident in the valleys, oak-covered foothills, and lower mountain ranges throughout the state. Birds of this group of beneficial hawks are often seen soaring in broad circles over cultivated fields. While thus soaring they may be told by their broad, not pointed, wings, slow flight and by the *spread* tail, which is *short* and semicircular in outline (see fig. 1).



Fig. 1.—Red-tailed hawk soaring. In flight this and other beneficial hawks may be told by the short fan-shaped tail and the short body, the distance from bill to end of tail being less than 50 per cent of the total spread of the wings.

The soaring hawks are notably noisy and habitually select *exposed perches*, such as telephone poles or the dead tops of large trees. Also, these large hawks usually choose commanding situations for their nest sites; hence they are the conspicuous hawks "potted" by the thoughtless hunter. Their bulky nests, composed of interlaced sticks, firmly saddled in the upper crotches of some large oak or sycamore, are characteristic features of the landscape along our river valleys and foothills.

The writer has examined over one hundred nests of soaring hawks, many of which contained young, yet he has never found one containing the remains of any chicken or game bird. In one valley, twenty-two hawk nests were found within a radius of six miles near San

Onofre, San Diego County. Eleven of these nests were occupied at the time by hawks or owls. The remains of gophers, ground squirrels, meadow mice, young cotton-tail rabbits, and two species of snakes were found in red-tails' nests; ground squirrels (see fig. 2) seemed to be preferred above other articles of diet. As a result of their persistence in catching these rodents the soaring hawks are often aptly called "squirrel" hawks.

The "bird hawks" are represented by three species, the sharp-shinned and Cooper hawks, and goshawk. These are all quiet birds, in marked contrast to the noisy soaring hawks. The first two are common, but the goshawk is fortunately rare in most parts of California. The bird hawks are decidedly harmful and deserve no quarter since they live principally upon song and game birds and poultry. Instead of perching in the open, the bird hawks sneak from tree to tree, hiding in the thick foliage, and capture their prey by stealth, hidden approach, and sudden surprise. The best field identification marks for these harmful bird hawks are the *short rounded wings* and *long narrow tail*, features which give these birds when sailing a decided "aero-plane" outline. In flight, all three species flap their wings rapidly several times, and then sail or "plane" a short distance. Observations, photographs, and measurements show that when hawks are flying about directly overhead those which have short tails and bodies and widespreading wings are of the beneficial kinds, while those with long tails and bodies and *short rounded wings* are of the harmful group. For example, in the Swainson hawk, which is beneficial, the length averages 40 per cent of the spread, while in the Cooper hawk, a harmful species, the length is 60 per cent of the spread. The Cooper hawk, a typical bird hawk, of medium size, 14 to 20 inches in length, is believed to be the worst hawk in California, since it is most destructive to young chickens, the larger song birds, and quail. This species is resident over a large portion of the state. On account of secretive habits and inconspicuous nest a pair of Cooper hawks may raise a brood of young within 200 yards of a farmer's house without his ever discovering the nest, although young chickens may be disappearing daily. A nest of this species found by Mr. J. Grinnell in the Santa Rosa Mountains of southern California, June 27, 1908, contained three young, about one-third grown. The female had been shot two days previously, but the male parent had not only kept the young well fed, but had provided a surplus on the edge of the nest consisting of three flickers, one California jay, and one chipmunk. At Escondido in San Diego County, a male Cooper hawk came daily to the author's ranch and carried off young chickens. The attacks came without

warning and the hawk made his "getaway" so quickly that it was a matter of watching ten days before the depredations were ended with a shotgun. Some innocent red-tail, happening to be within sight or hearing, thus might easily have been blamed for the depredations of the Cooper hawk.



Fig. 2.—The California ground or digger squirrel causes an estimated annual loss of 10 million dollars in this state. Squirrel hawks are one of Nature's most effective checks on these destructive rodents.

The sharp-shinned hawk is a miniature Cooper hawk and is very destructive to the smaller song and insectivorous birds. It is about the size of a sparrow hawk, being from 10 to 14 inches in length and weighing from 4 to 6 ounces. Small as this species is, individuals have been seen to catch, kill, and try to carry off a valley quail weigh-

ing $5\frac{1}{2}$ ounces, or practically as much as the hawk itself. The Cooper and sharp-shinned hawks are not protected by law and may be killed at any time. In most parts of California, the latter is present chiefly or only as a winter visitor.

The western goshawk is the third and largest species of bird hawk, the sharp-shinned being the smallest. This hawk is from 22 to $24\frac{1}{2}$ inches long and weighs 2 pounds, and is therefore large enough to carry off good-sized chickens and grouse. It is, in fact, very destructive. The species has been known to breed in the mountains in the northeastern part of the state, but elsewhere in California it may be considered only a rare winter visitor.



Fig. 3.—A prairie falcon; a long-winged chaser in flight.

The "meadow haunting" hawks have but one common representative in California. This bird, the marsh or "mouse" hawk, appears to be of large size, because of its length, from 20 to 24 inches, combined with long pointed wings. Adult individuals, however, often weigh less than one pound, or about one-half as much as other hawks of the same apparent size. The marsh hawk beats back and forth over meadow and open grassland keeping close to the ground and dipping down now and then to snatch up some small rodent, taken by surprise. In the field this species is easily told by the white rump patch and, at close range, by the owl-like ruff of feathers about its eyes. This is our only species of hawk which habitually nests on the ground in marshy places. This hawk rarely touches poultry. Its food consists largely of meadow mice and gophers. The wise farmer will therefore protect it on his premises at all times.

The falcons, or “long-winged chasers” (see fig. 3), are represented by four species: prairie falcon, duck hawk, pigeon hawk, and sparrow hawk. The falcons can always be told in the hand by their having a tooth-like projection near the middle of each cutting edge of the upper half of the bill (see fig. 4). In all the other hawks this part of the bill is even, without tooth or notch (see fig. 5).



Fig. 4.—The falcons can always be distinguished by the tooth-like projection on each cutting edge of the upper half of the bill.

The prairie falcon and duck hawk are often called “bullet” hawks on account of their rapid flight and method of “stooping” or diving at their prey. These “noble” hawks are the most sportsmanlike of all the birds of prey, since they frequently capture their quarry in fair chase by reason of their superior speed. The prairie falcon (see fig. 6) has a length of from 17 to 20 inches, and is found chiefly in the semi-arid interior valleys; the duck hawk, slightly larger and darker, is found more commonly along the coast. Both of these large falcons have conspicuous black “mustaches” or stripes on the sides of their heads. Both species nest in niches or potholes on rugged cliffs. No nest is made, the eggs being laid on the bare sand which covers the bottom of the cavity. These large falcons do not ordinarily disturb poultry unless driven by extreme hunger and then their daring and persistence usually proves their undoing since they are apt to linger around and are easily shot.

The comparatively rare *pigeon hawk* and the common *sparrow hawk* are approximately of the same size, 9 to 13 inches in length. The pigeon hawk is much darker in color than the sparrow hawk, has no black stripes on the sides of the head, and is only a winter visitor in California. The sparrow hawk is resident and known to nearly everyone. It is quite harmless but is sometimes confused with the

sharp-shinned hawk and killed by uninformed people. There is no need of making this mistake, since the sparrow hawk has long pointed wings, two black stripes on the side of the head, and a reddish back. The sharp-shinned has short rounded wings, no black stripes on side of head, and dull dark brown or slaty back.



Fig. 5.—Head of live red-bellied hawk. In all the hawks except the falcons, the cutting edge of the bill is sharp but even, not toothed.

To sum up the hawks: Out of the four groups which include 16 of the 20 species of hawks found in California, only one group is decidedly harmful. This group, the bird hawks, consists of three species, all of which may be recognized by their quiet, stealthy, sneaky habits and, in flight, by their short round wings and long tail which

give them a decided "aeroplane" outline. The members of this group deserve no sympathy. The other 13 species of hawks in California are, with the exception of one falcon, the duck hawk, predominantly beneficial and should be protected. It is a lamentable custom of many hunters to shoot every hawk that they can, thinking that by doing so



Fig. 6.—An aggressive captive prairie falcon. Note dark stripe on side of head below eye, and "tear drop" spotting on breast.

they are rendering the community a favor, whereas in nine cases out of ten it is a beneficial hawk which, being most readily seen or heard, is killed.

Owls, working on the night shift, take up the work of rodent destruction when the hawks leave off in the evening. Song and game

birds are not abroad during the hours of darkness when owls are most active, hence these birds usually form a very small per cent of the food taken by owls. The common owls of this state may for convenience be divided into two groups: those that have conspicuous ear tufts or "horns" and those which, lacking these, appear "round headed." The horned, long-eared, and screech owls belong to the first group, and the barn and ground or "billy" owl, to the second group. The so-called ears or horns are only tufts of feathers which may be erected or depressed at will by the bird. The true ear of an owl is a wonderfully developed organ of hearing encased in the bony structure of the skull and its opening is protected by a movable fringe of stiff feathers. The sense of hearing is relatively as keen in the owl as the sense of sight in a hawk, so that the term "owl-eared" would be just as appropriate as "hawk-eyed."

The horned or hoot owl is the largest of all the common owls in California. It has a length of from 18 to 25 inches, is of stocky build, and weighs from 2 to 3 pounds. The conspicuous horns or ear tufts, and the deep voiced *whoo! whoo! ta-who!* so often heard at night, are the two most striking characters of this owl.

The horned owl is, with the possible exception of the Anna hummingbird, the earliest nesting bird in California. Fresh eggs have been found by J. B. Dixon in San Diego County on January 29 (1911). Records of the nesting dates of a particular pair of horned owls are available for over thirteen years. Glancing over these records, we find that this pair nested in old hawks' nests five times, and in the other eight instances nested on some rocky ledge of a steep hillside adjacent. The variation in nesting dates has been slight, January 29 to February 14. In five instances three eggs, and in eight cases two eggs were laid. Both parents assisted in incubation. The period of incubation was found to be slightly over twenty-eight days. The pair of owls did considerable hunting and flying about in the daytime, especially on cloudy days.

The following is an exact account of food found in the nest of this pair of owls covering a period of two weeks when the owlets were small: parts of two brush rabbits, three wood rats and five kangaroo rats (see fig. 7). Only on one occasion was there any indication of these owls feeding on other birds, that being a small bunch of quail feathers at the base of the cliff. If birds or poultry had been taken to any considerable extent, some feathers would certainly have been found about the nest. Notebook records of over 50 nests of horned owls examined, containing eggs or young, fail to show any trace of poultry having been taken. The writer therefore believes that the

poultry-stealing proclivities of this owl, in California, have been grossly over-estimated, to say the least. The horned owl is an important rodent destroyer in California and should be given legal protection instead of being classed as an outlaw.

The long-eared owl has a length of from 13 to 16 inches. As indicated by its name, the ear tufts in this species are very well developed and this feature, together with the medium size of the bird, affords the best field identification mark. Although this owl may be found

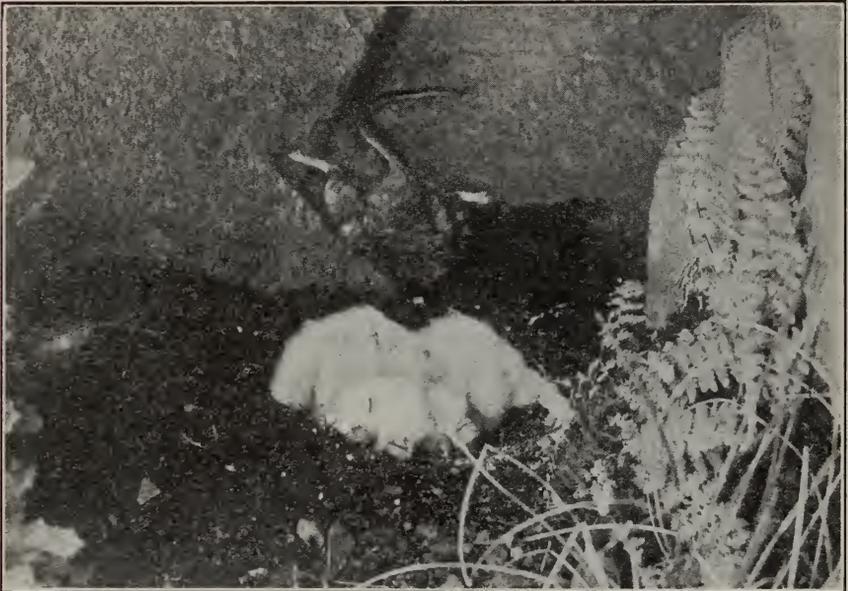


Fig. 7.—The horned owl is one of the best rodent destroyers in California. This is evidenced by the remains of a wood rat in the nest behind the two white downy young.

in suitable localities over most of the state, it is a species rarely seen during daylight hours, for it spends the day hidden away in the densest cover that it can find. Like the horned owl, the present species preëmpts the nests of other birds or animals and rarely if ever builds a nest for itself. In southern California the long-eared owl commonly nests on top of old wood rat nests, which in that region are often built in oak trees from 10 to 30 feet above the ground. Nests of crows and magpies are also appropriated by these owls (see fig. 8). At Mono Lake in May, 1916, the writer found six pairs of long-eared owls all nesting in magpie nests. The owls nested earlier than the magpies and apparently had first choice of the old nests available,

since in nearly every instance a new nest was built nearby by the magpies. From 3 to 7 white eggs are laid the last of April or first of May (see fig. 9). Both parents are valiant defenders of their nest. In the case of one pair, the female stood boldly on the rim of the nest, fluffed out her feathers, depressed her ear tufts, and glared at the intruder. The male bird flitted about the nest, hooting excitedly and mewling like a cat. As soon as the observer set up his camera and put his head under the focusing cloth, he was taken by surprise by the male owl, which swooped noiselessly down and started to dance a jig, with his sharp claws working furiously, on the top of the photographer's head.



Fig. 8.—A brooding long-eared owl. Note the long ear tufts which give the bird its name. This owl is an excellent mouser and merits the legal protection that has been given it.

The owlets when hatched were covered with fluffy white thistle-down-like feathers. Ten days later, bluish pin feathers began to appear and the owlets developed tremendous appetites, so that the parents started hunting as soon as the sun was down in order to keep their hungry youngsters fed. As the owlets grew older they began to edge away from the nest, and long before they were able to fly they hopped about freely from limb to limb in the dense willow thickets (see fig. 10). Mice were abundant on the sandy sage-covered flats and in the grassy meadows near the owls' home. Remains of white-footed, meadow, and pocket mice were found about the nest, but no bird remains were ever discovered there. The long-eared owl lives almost exclusively on the smaller mice and is therefore one of the most beneficial birds in the state.

Last, and least of the eared owls, comes the *little screech owl* (see fig. 11), which, by the way, does not ordinarily "screech" but gives a low, mellow, quavering call *toock, toock, toock, tut-tut-tu tu tu tu*, repeated rapidly toward the end. This pocket edition of the horned owl is from 7½ to 10 inches long and is small enough to enter easily a flicker hole. In such cavities, they lay their 4 or 5 round white eggs. Normally, this species feeds upon mice and the larger insects. It is commonly found about farms, living in trees near the farm buildings. The screech owl seems to seek out human habitations, perhaps



Fig. 9.—Five eggs of long-eared owl in an old magpies' nest. This owl pre-empt the nests of other birds and mammals, rarely building a nest for itself.

being influenced by the abundance of mice usually to be found there. Individuals sometimes take up quarters in bird boxes and may drive out or even destroy the other bird tenants; but, taking it by and large, they are decidedly beneficial and should not be killed.

Taking up the round-headed owls, or those which lack ear tufts, we have the medium-sized barn or monkey-faced owl and the little ground or "billy" owl. *The barn owl* has a length of from 15 to 18 inches and is often described as a white or golden owl. This species, as its name implies, is commonly found living in barns, tank houses, or other outbuildings. The food of the barn owl, especially in alfalfa sections, consists principally of pocket gophers and mice. On May 13,

1914, near Mendota, Fresno County, Mr. J. G. Tyler found two pairs of barn owls nesting in an old tank house. "One nest was placed in the tank on the bones, fur, pellets, and refuse that had accumulated to a depth of several inches. One bird was perched on a beam overhead asleep, while his mate occupied the nest, which contained four very small birds and six eggs. Scattered about on the floor were five pocket gophers (*Thomomys*), five kangaroo rats (*Perodipus*), one pocket mouse (*Perognathus*), and two white-footed mice (*Peromyscus*), all of which were in good condition and undoubtedly of the previous night's catch. Besides these, there were partly eaten remains



Fig. 10.—As the owlets grew older they began to edge away from the nest and long before they were able to fly they hopped about from limb to limb in the dense willow thickets.

and fresh skeletons of several more. If the thoughtless persons who so relentlessly destroy this owl on account of its supposed fondness for chickens and pigeons would take the trouble to keep watch of a nest site through one season, the most ignorant among them could hardly fail to realize that they are working against their own best interests whenever they kill a barn owl." (See front cover.)

The ground owls are probably known by sight to more people in California than is any other species of owl in the state. This is largely due to their habit of living in open country and to their being abroad in the daytime. Their predilection for perching on fence posts and telephone poles (see fig. 12) and their curious manner of watching passers-by bring them to the attention of the people traveling along the highways. To schoolboy and Argonaut alike, this owl is affection-

ately known as "billy" owl. This is the only one of our owls that habitually nests underground. Old burrows of ground squirrels are usually chosen, and the nest, made almost always of finely broken horse manure, is placed at the end of the burrow. It is believed that,



Fig. 11.—The screech owl, a pocket edition of the horned owl, is the smallest of the "eared" owls and often lives in flicker holes in trees about farm buildings where it catches many mice.

in addition to serving as a soft nest material, the manure, especially when the ground is damp, also serves as an incubator, much as it does in the ordinary hotbed used in sprouting sweet potatoes. These little



Fig. 12.—The ground owl or “billy” owl is probably known by sight to more people than any other owl in the state. This owl feeds chiefly on insects such as grasshoppers and crickets and should be protected at all times.

owls are harmless. They live for the most part on grasshoppers and crickets. They hunt mainly in the evenings and at night, but are often seen catching grasshoppers in the daytime. Judged by stomach contents, and food found in owl pellets and in nests containing young owls, all the species of owls commonly found in California do more good than harm and should be protected at all times.

Of the four groups of hawks found in the state, two groups, the squirrel hawks and the mouse hawks, are beneficial. One group, the bird hawks, is harmful; while the fourth group, the falcons, consists of some species that are beneficial and some that are harmful. All the common species of owls are believed to be beneficial to man's interests.

The far-sighted rancher will protect the many beneficial bird tenants on his lands and will seek to destroy only the few harmful species.

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