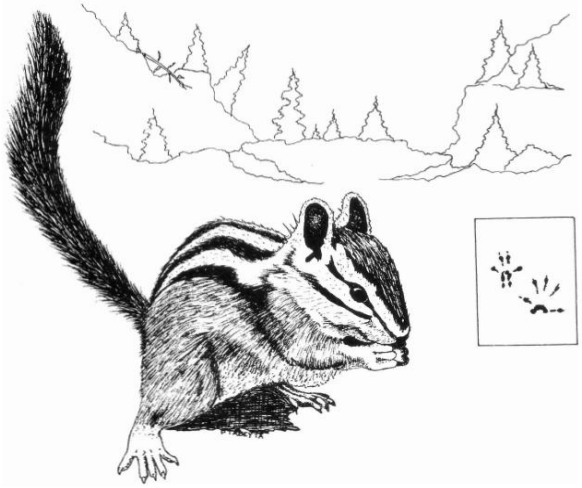
BIOLOGY, LEGAL STATUS, CONTROL MATERIALS, AND DIRECTIONS FOR USE

Chipmunks

Eutamias spp.

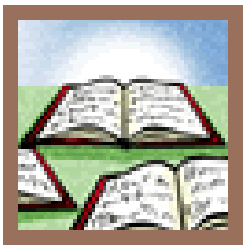
Family: Sciuridae



Introduction: Chipmunks are small striped squirrels and are members of the tree squirrel family. There are about 24 sub species of chipmunk found throughout North America. The only similar squirrel is the golden mantled ground-squirrel. Major differences between the two are size and striping. All chipmunks have stripes that extend to their head, the golden mantled squirrel does not have any striping on its head. Chipmunks are generally smaller than the golden mantled ground squirrel. They can be found in forested areas and scrub land.

Generally chipmunks do not cause property damage, although they are sometimes blamed for injuries to ornamental plants as they harvest fruits and nuts. Like tree squirrels, chipmunks occasionally dig up and eat spring flowering bulbs. Some homeowners get annoyed when chipmunks burrow in flower beds or under sidewalks and porches, but the burrows are almost never extensive enough to cause structural damage.

Identification: Depending on species, chipmunks can be gray to reddish-brown in color with contrasting dark and light stripes on the sides of their face and across their back and tail. They range in size from the least chipmunk, which, at 7.2 to 8.5 inches and 1.1 to 1.8 ounces, is the smallest chipmunk, to the Eastern chipmunk, which grows up to 11 inches and weighs as much as 4.4 ounces.



Legal Status: Chipmunks are classified as nongame mammals by the California Fish and Game Code. Nongame mammals which are found to be injuring growing crops or other property may be taken at any time or in any manner by the owner or tenant of the premises. They may also be taken by officers or employees of the Department of Food and Agriculture or by federal or county officials or employees when acting in their official capacities pursuant to the provisions of the Food and Agricultural Code pertaining to pests.

Damage: Around campgrounds and cabins, chipmunks often get into food and grain supplies and may be a nuisance to campers if allowed to become too numerous. Chipmunks can hamper reforestation where it relies on seed survival, but they are of little economic importance to cultivated agriculture.

Chipmunks and their ectoparasites may carry bubonic plague and Rocky Mountain spotted fever as well as other diseases. Being fairly numerous and often quite tame, chipmunks can readily transmit diseases to man if their populations are allowed to become excessively high or if allowed into close contact.

Range: There are ten species of chipmunks in California, inhabiting virtually all the mountain ranges in the state. The ten species and their approximate distributions are as follows:

E. townsendi: Sierra Nevada, northern coastal and inland ranges. *E. speciosus*: Sierra Nevada, San Gabriel Mountains and other southern California ranges. *E. umbrinus*: Sierra Nevada from Mammoth Pass south into Inyo County, and the White Mountains. *E. merriami*: Sierra Nevada south of Tuolumne County, Coastal Range south of San Francisco, many ranges of southern California. *E. amoenus*: northern Sierra Nevada, northern ranges. *E. minimus*: east side of Sierra Nevada and ranges to the east, northeastern ranges. *E. sonomae*: northern coastal ranges, other ranges in northwestern California. *E. quadrimaculatus*: Sierra Nevada from Plumas County south to Madera County. *E. alpinus*: high Sierra Nevada from Tuolumne County to Olancha Peak. *E. panamintinus*: east side of Sierra Nevada between Bishop and Olancha Pass; Panamint, White, Cocos, Inyo, Argus, and Providence Ranges. Click on the name below for more range information.

Alpine Chipmunk

Least Chipmunk

Lodgepole Chipmunk

Long-Eared Chipmunk

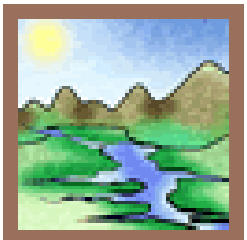
Merriam's Chipmunk

Panamint Chipmunk

Sonoma Chipmunk

Uinta Chipmunk

Yellow-Pine Chipmunk



Habitat: Chipmunks appear in a wide variety of habitats, generally preferring open coniferous forests. They are also found in chaparral, oak woodland, pinon-juniper woodland, sagebrush, and open rocky areas. Most species prefer the presence of rocks and brush in their habitat, and usually require the presence of trees.

Biology: Chipmunks are much smaller than any ground or tree squirrels. They are brightly colored, with four light-colored stripes, separated by darker stripes on their backs. Similar in appearance to the golden-mantled ground squirrel, they can be differentiated in that chipmunks have stripes on the sides of their face and possess twice as many light dorsal stripes. Their tails are fully haired, but not bushy.

Chipmunks are diurnal and have a longer activity period than California or golden-

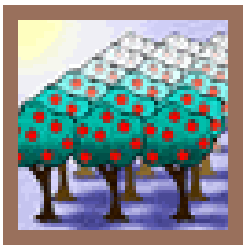
mantled ground squirrels. They are active an hour before sunrise and remain out a half-hour after sundown. They avoid the midday heat by retreating into their burrows or remaining in shade. In mid-summer, this period of inactivity may prevail from 9:00 a.m. to 4:00 p.m. At the higher elevations, chipmunks undergo a winter hibernation beginning about November. Since they do not store large quantities of fat in their bodies, chipmunks survive the winter on cached food. This food is stored in the nest and is thus readily available whenever the chipmunk awakens. They do not enter into a deep torpor as do ground squirrels, but remain relatively inactive during winter until about March. They are less often seen in winter than the golden-mantled ground squirrels. In regions where snowfall is light, they enter hibernation later and emerge earlier than the golden-mantled ground squirrels. If the snow is very light, they disappear during the storm and emerge when the snow melts. In the low desert regions, they may remain active year-round. Neither adults nor juveniles appear to estivate.

The main predators of chipmunks include: coyotes, bobcats, weasels, badgers, and hawks. Chipmunks are also occasionally preyed on by rattlesnakes, pygmy owls, golden eagles, skunks, foxes, martens, fishers, and wolverines. They are commonly parasitized by botflies (*Cuterebra* spp.), although the wounds heal readily.

Chipmunks may build nests in holes in trees (e.g., abandoned woodpecker holes) or in ground burrows, depending on the species. Nests are usually made of shredded leaves and lichen. The burrows of chipmunks are much less noticeable than those of most ground squirrels. They do not construct conspicuous mounds and there are not obvious paths leading to the mouth of the burrow. The burrow opening is usually under the edge of a stone or under a stump or tree root. The burrows are about two inches in diameter and several yards long, with branching tunnels and occasional chambers. The depth of a tunnel system varies from one to four feet.

Breeding: Males are fecund on emergence from hibernation. The females become estrous somewhat later (late March-early April). Mating occurs over a four to six-week period from about April to mid-June. Some may produce two litters annually, but most produce one per year. The gestation period is 31 days. There are from two to seven young per litter, born in May or June. The young are born naked and blind and are weaned at six weeks. They appear in the above-ground population about a month after birth. The young are sexually mature the following spring.

Food: Chipmunks feed on all manner of nuts and seeds, as well as grain, fruits, fungi, insects, bulbs, roots, leaves and flowers or a wide variety of plants, bird eggs, young birds and other meat when available. Chipmunks gather food in membranous (internal) cheek pouches and cache it underground.



Damage Prevention and Control Methods

Exclusion

Chipmunks can be excluded from buildings using hardware cloth, wire mesh ¼ inch, and caulking to close any openings. Hardware cloth is also useful to exclude chipmunks from ornamental plantings, flower beds. Seeds and bulbs can be covered with the cloth and the cloth is then covered with soil. The cloth should extend 1 foot beyond each planting.

Habitat Modification

Wherever possible reduce groundcover, trees, and shrubs as they provide protective cover for chipmunks

who may wish to gain access to homes for food. Similarly, it is difficult to detect chipmunk burrows close to buildings when debris, wood piles, or ground cover provides protection. Bird feeders should be placed 15 to 30 feet away from buildings to deter chipmunks.

Frightening

Not a recommended method of control, and likely to be ineffective.

Fumigants

Chipmunk burrows are complex which makes locating burrow openings difficult. For this reason fumigant control is not effective and not recommended.

Repellents

Naphthalene flakes have been used to repel chipmunks from attics, summer cabins, and storage area, although the quantity of materials needed may cause irritation to people and pets. There is no registration for this use and it is not a recommended approach to ridding an area of chipmunks.

Toxic Bait

CDFA Label bait	Chlorophacinone 0.005% grain bait
	Diphacinone 0.005% grain bait

Toxicants

Bait Grains: Crimped oat groats treated with 0.005% anticoagulant (diphacinone, chlorophacinone) is applied in bait stations.

Anticoagulant Baits

NOTE: A single feeding of anticoagulant baits will not control chipmunks. Anticoagulant baits must be eaten over a period of several days to give adequate control.

Bait stations: Place 1 to 5 pound of bait in a covered bait station in areas frequented by chipmunks (near runways, burrows, etc.). Inspect bait stations daily and add bait as needed; increase the amounts when all bait in containers is eaten overnight. Continue until all feeding ceases which may be one to four weeks. Initial acceptance may not occur until chipmunks become accustomed to the bait station, which may take several days. Replace moldy or old bait with fresh bait. Baits should be picked up and disposed of upon completion of rodent control program. Bait stations should have entrance holes large enough to admit chipmunks but not large animals, about 2 inches. Standard rat bait stations could be used but rat and mouse bait other than diphacinone or chlorophacinone should not be used. Secure bait stations so that they cannot be turned over.

Trapping

Trapping may be a practical means of control for chipmunks in limited areas. Rat snap traps can be used

effectively. These can be baited with peanut butter, pumpkin or sunflower seeds, raisins, prune slices, or breakfast cereal grains. Place traps along pathways where you have seen chipmunks travel. Pre-baiting is recommended, place bait on the trap for several days with the trap unset in order to 'condition' the chipmunk. Check daily, once you notice bait being eaten, set the trap properly with bait. Always check traps frequently. Do not directly handle live chipmunks.

Live trapping (wire mesh) traps can be used to catch chipmunks. This is not a recommended procedure as live trapped animals cannot be relocated and released in California where it is illegal. Thus, you will then have to face the issue of either euthanizing the chipmunk(s) or contacting you local County Animal Services division. Euthanizing chipmunks is not recommended and requires experience and specialist knowledge.

Trapping chipmunks requires a trapping license issued by the Department of Fish and Game (see ground squirrel section for details).

Other

Shooting: Where shooting is legal, shotgun or .22 – caliber rifles are recommended. Chipmunks by nature are nervous and alert mammals, and make difficult targets.

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