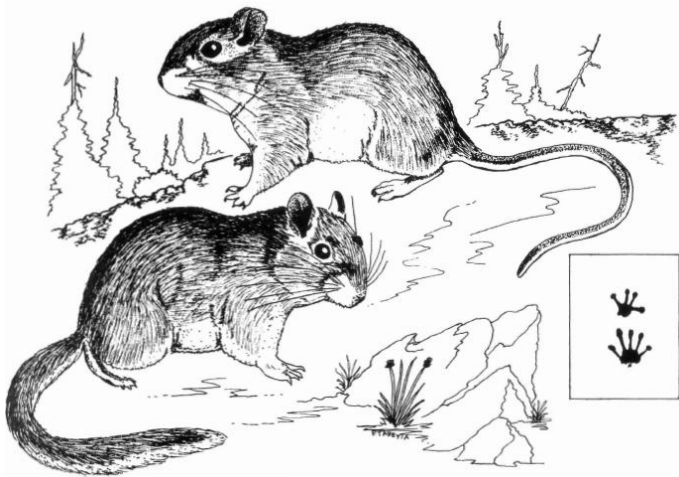


*BIOLOGY, LEGAL STATUS, CONTROL MATERIALS, AND DIRECTIONS FOR USE*

**Wood Rat**

*Neotoma spp., Pack rat*

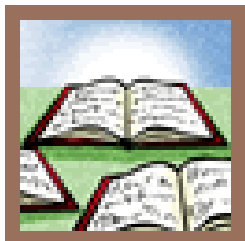
Family: Cricetidae



**Introduction:** Woodrats are known as “pack rats” or “trade rats” and are found throughout most of the United States. Their common name comes from their disposition to collect or “pack-around” various objects, and their collection of material to deposit in, or use in the construction of their nests. Woodrats are especially fond of small, bright, shiny objects which they will readily confiscate, but bones, cow chips, and bits of wood are all common. When Woodrats encounter an interesting object they drop or trade what they are carrying for the new item, consequently the name “trade rat.” Nationally woodrats are a minor pest. They only occasionally become numerous enough to cause significant agricultural damage. Most often they are a nuisance around vacation homes, cabins, and other outbuildings. Close association with humans is undesirable since they can carry diseases and ectoparasites e.g. Lyme disease.



**Identification:** Eight species of woodrat occur in North America. The woodrat is about the size of the common Norway rat. They are distinguishable from Norway rats by their hairy rather soft, fine, fur, and large ears. They usually have light colored feet and bellies.



**Legal Status:** Woodrats 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. Woodrats may also be taken by officers or employees of the Department of Food and Agriculture or by federal or county officers or employees when acting in their official capacities pursuant to the provisions of the Food and Agricultural Code pertaining to pests.



**Damage:** Wood rat populations are generally fairly dispersed but economic damage to agricultural crops can occur in limited areas. Agricultural damage occurs when woodrats clip small twigs and branches, and debark citrus and other fruit trees, seedling and sapling conifers, especially redwoods. Occasionally woodrats become numerous enough to damage and carry off grain and other crops. They sometimes take up residence in cabins, causing annoyance by their noise and theft of small articles in the dwelling. They may also shred upholstered furniture and mattresses for lining their nests, and may take up residence in parked vehicles, gnawing on wires and other mechanical components. Woodrat nests are frequently inhabited by conenose bugs capable of transmitting Chagas' disease and causing allergic reactions. Wood rat populations in certain high-risk areas in California are periodically reduced by outbreaks of sylvatic (bubonic) plague; these outbreaks coincide with plague epidemics in ground squirrel populations.



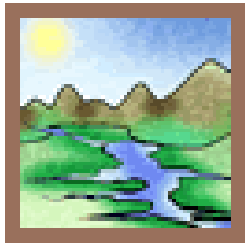
**Range:** Virtually every area of the state is occupied by one or more of the four species represented. White-throated woodrat is restricted to the southeastern corner of the state; Dusky-footed woodrat is found all along the coast and in a broad band inland; Bushy-tailed woodrat occupies the central Sierra and westward into northwestern California; Desert woodrat is found south of the San Joaquin River and in a small zone in Lassen County.

[Bushy-Tailed Woodrat](#)

[Desert Woodrat](#)

[Dusky-footed Woodrat](#)

[White-throated Woodrat](#)



**Habitat:** White-throated woodrats lives in brush land and rocky cliffs with shallow caves; Dusky-footed woodrat inhabits heavy chaparral, streamside thickets, and is closely associated with the presence of oaks; Bushy-tailed woodrat occupies the pine forest, rim rock and rockslide areas of high mountains; Desert woodrat lives on desert floors or rocky slopes with scattered cactus, yucca, or other low vegetation.



**Biology:** Wood rats are mostly nocturnal and usually do not venture out of their homes on bright moonlit nights. Woodrats are good climbers, but as a group they are not especially arboreal in habit. Woodrats are chiefly vegetarians, feeding on whatever is available. Bushy-tailed woodrats of the high mountains feeds on twigs, shoots, and other green vegetation; its lowland relatives feed on a variety of seeds, nuts, acorns, fruits, green vegetation, fungi and cactus. Woodrats do not hibernate.

The unmistakable trademark of woodrat presence in the wild is the large nest (or house) built of sticks, rocks, tin cans, dried manure, or cactus. Ball-shaped or conical, the nest may be built in a tree or bush, on a cliff, in a rock crevice or cactus patch, or around a stump or old log. Nest diameters and heights to three to five feet are common for dusky-footed woodrats, slightly smaller nests being the rule for the other species. Bark stripping and removal of small side branches of conifers is for nest construction rather than food, as the nest of forest-dwelling species is usually lined with finely shredded bark or other material. The nest has several entrances and it contains several chambers including a food storage room and a waste disposal area. Some wood rats build an auxiliary nest in a tree adjacent to the ground house. The home range of dusky-footed woodrat is fairly small, not over 150 feet across. The home range of white-throated woodrat is probably less than 100 feet across and populations of 10 to 20 adults per acre may occur.

The breeding season varies with elevation, but the young are born in spring and summer. Desert woodrat has four or more litters per year, and white-throated woodrat probably has more than one per year. Bushy-tailed woodrat has one litter per year. One to five young are born, usually two or three (average four for bushy-tailed woodrat), in a litter. Gestation period is 23 to 38 days, depending on the species.

The young are completely dependent on the mother for several weeks. They remain attached to her teats while she is in the nest during the early weeks, and cling tenaciously to her if she is driven from the nest. The young often live in the nest until they are nearly full grown. They may move to some nearby unoccupied nest, or the mother may move elsewhere, leaving the house to the young. The young of desert woodrat are sexually mature at 60 days.

Woodrats have many enemies, including owls, foxes, coyotes, weasels, and large snakes. Individuals of dusky-footed woodrat have been known to live four years in the wild, but trapping data in Oregon (Hooven, 1959) indicated a high mortality of young dusky-footed woodrats by the end of summer.



### Damage Prevention and Control Methods

**Exclusion:** Whenever nuisance problems occur around buildings, exclusion is the most effective method of eliminating damage. Wood rats may be excluded from buildings by the same methods used to exclude Norway and roof rats. Several species of wood rat are agile climbers; all entrances to buildings including those at attic level should be closed. Cracks in foundations, openings for water pipes, electric wires, sewer pipes, drain spouts, and vents must be sealed. Also check attic vents and broke roof tiles. Openings larger than ½ inch should be sealed. Ensure doors, windows, and screens fit tightly. Coarse steel wool, wire screen, lightweight sheet metal are excellent tools for plugging small gaps and holes. Plastic sheeting, wood, or similar materials will likely be gnawed away. When rodent proofing always make sure the rodent is not trapped inside the building to avoid excessive damage and gnawing. One way to accomplish this is to install a temporary gravity door made of sheet metal or rigid mesh wire, hinged at the top, over entrance holes. So that it can only work one way similar to the commercially available cat flaps.

**Habitat Modification:** See Norway Rats

**Frightening:** Not a practical method for rodent control.

**Fumigants:** None registered.

**Repellents:** No woodrat repellents are registered with the EPA. Generally chemical repellents are not considered a practical solution to woodrat problems. Objectionable odors, e.g. mothballs, or tacky substances may make an enclosed area temporarily undesirable for woodrats. However, as with other mammals, it will not have a permanent effect.

**Toxic Bait:** Toxicants available for woodrat control include anticoagulants and zinc phosphide. When using toxic baits, follow label instructions carefully.

Anticoagulants are effective for woodrat control. Anticoagulants work by interfering with the blood clotting mechanism. Death usually occurs 4 to 5 days after feeding on bait begins. With the anticoagulant baits, chlorophacinone or diphacinone, feeding must occur daily for 4 to 5 days. Finely ground or meal type anticoagulants are recommended, since woodrats have a tendency to pack away items, pellet bait should be avoided since it is often cached away at nest sites, making it ineffective and a potential danger to nontarget species.

#### Toxic baits:

CDFA labels 0.005% Diphacinone Rodent Bait Block

0.005% Chlorophacinone and Diphacinone grain bait

**Anticoagulant baits:** NOTE: A single feeding of first generation anticoagulant baits will not control wood rats. Baits of first generation anticoagulants must be eaten over a period of several days to give adequate control.

Closed-box type anticoagulant bait stations are often filled with sticks and other debris by the wood rat.

Open bait containers protected by inverting a crate or something similar over the bait may prove more practical.

**Bait stations:** Place 4 to 16 ounces of bait in a bait box or if in a shallow container cover with a protective crate or box. Bait stations should be located near existing wood rat runways or dens. Inspect bait stations daily and add bait as needed. Bait should be picked up and disposed of upon completion of rodent control program.

In agricultural situations, zinc phosphide, a Restricted Use Pesticide, requires permits to be used. Oat groats treated with 2% zinc phosphide are generally very effective on woodrats. Usually a table spoon should be scattered near nest site runways. Best time to apply is late afternoon prior to the woodrats night time feeding. Zinc phosphide can result in bait shyness, often caused by sub lethal amounts being used. For this reason do not use zinc phosphide more than once in a 6 month period.

**Trapping:** Wood rats can usually be trapped quite easily. Bait a wooden-base rat trap with a whole prune, raisin or nut meat and place the trap near signs of fresh activity near nests or pathways. Live catch traps such as Havahart No. 2 are also effective in catching wood rats using the same baits described above. Release of trapped animals is not recommend and may be against local fish and game regulations. Research shows that animals released in a new area often die from exposure, predation, or competition with resident animals.

Burrow entrance traps (lethal) such as the Conibear trap may also be useful for woodrat control. The trap is placed in nest openings or other restricted travelways and is triggered when the woodrat passes through the trap opening. When traps are used in this manner no baiting is required, be careful to avoid nontarget animals.

Remember, all traps should be placed so that children, pets, and other nontarget animals do not have access to them. Trapping woodrats requires a trapping license issued by the Department of Fish and Game.

#### **Other**

**Shooting:** Shooting can effectively reduce wood rats on a very limited scale. Kicking, stomping or poking the nest will usually cause the wood rat to run out where they may be taken.

Destroying woodrat nests has been suggested as a method of control. When a nest is destroyed, the animals may run for cover, thus exposing them to predation by humans or dogs. This method of control is time consuming and probably of limited value. Once the woodrats in an area are controlled, destroying their nests may reduce invasion by other woodrats.

## REFERENCES AND ADDITIONAL READING

Borecole, John E., H.C. Black, 1990. Animal Damage Problems and Control Activities on National Forest System Lands. Proc.14th Vertebrate Pest Conf. (L.R. Davis and R.E. Marsh, Eds.) Published at Univ. of Calif., Davis Pp. 192-198.

Lane, Robert S., 2006. Lyme Disease in California: Ecology and Epidemiology. Proc. 22nd Vertebrate Pest Conf. (R.M. Timm and J.M. O'Brien, Eds.) Published at Univ. of Calif., Davis. Pp. 308-310.

Smith, Charles R., 1992. Rodent Disease Implications Associated with Campgrounds and Public Use Areas in California. Proc. 15th Vertebrate Pest Conf. (J.E. Borrecco & R. E. Marsh, Eds.) Published at Univ. of Calif., Davis. Pp. 258-260.