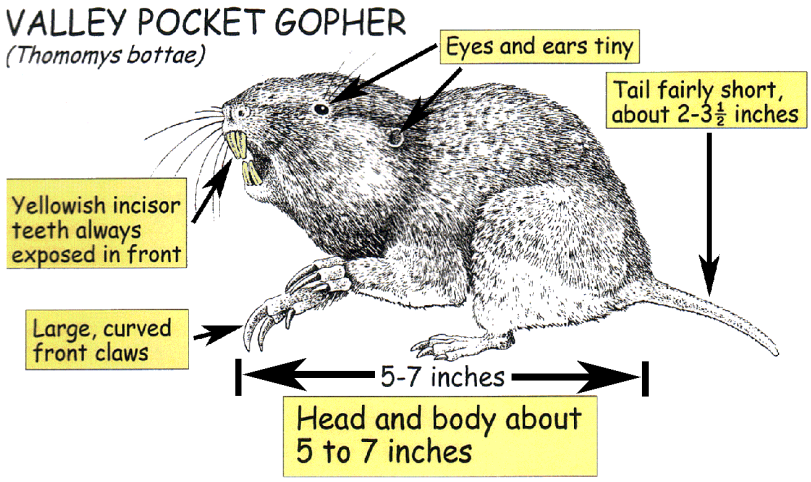
Los Angeles County Department of Agricultural Commissioner/Weights and Measures
PEST MANAGEMENT DIVISION

Pest Information Series
Pocket Gophers

There are five species of pocket gophers that occur in California, however the most likely to be encountered in Los Angeles County is the Valley or Botta's pocket gopher (*Thomomys bottae*).

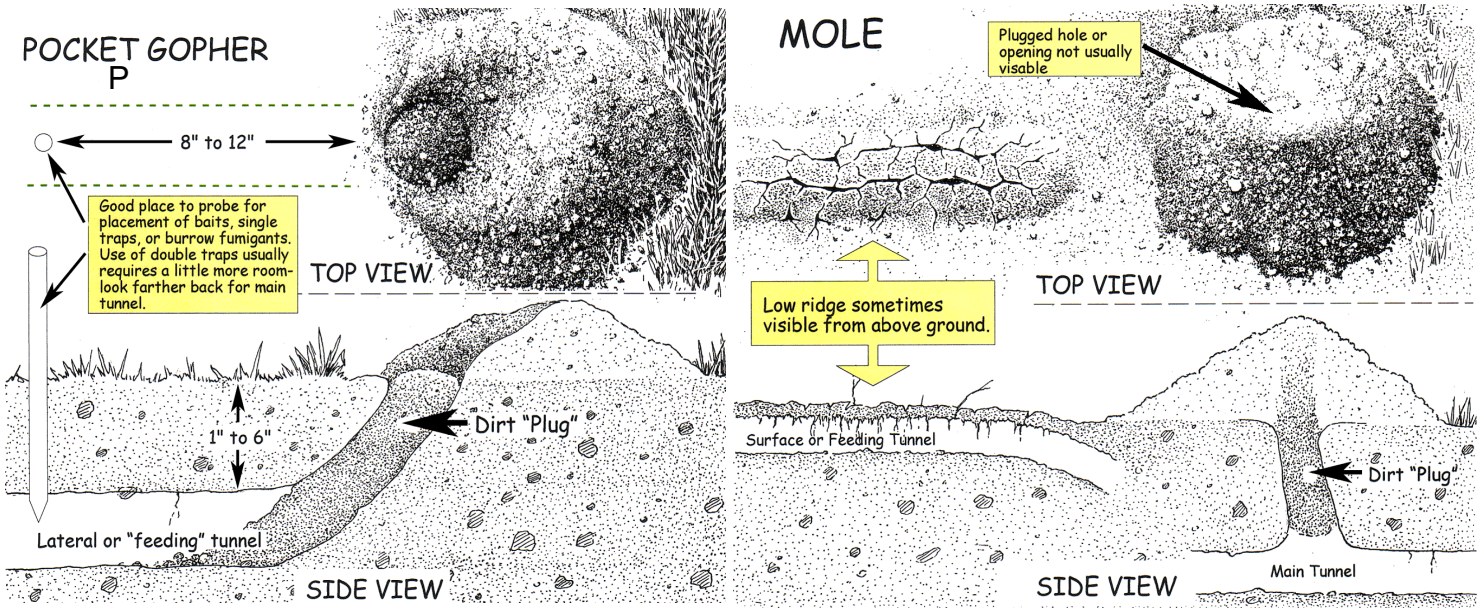
Pocket gophers are a small rodent about 5 to 7 inches long not including the tail. They come in a variety of colors but are most often greyish brown to brown. They have a very short tail, tiny ears and eyes, and huge, yellowish front teeth (incisors) which are always exposed. They also have large, curved front claws used for digging. Since they spend most of their time underground, gophers are hardly ever seen so the best identification method is to examine the dirt mounds that almost always accompany their activity. On average, a gopher makes about 1 to 3 mounds per day.



As they dig their tunnels, pocket gophers periodically shove dirt out to the surface forming mounds. The dirt is pushed to the surface from tunnels that are at an angle to the surface, so the mounds form in a crescent or horseshoe shape. This helps distinguish them from mounds made by moles which are volcano shaped. Pocket gopher burrows are almost always plugged. This helps to distinguish them from other burrowing rodents like ground squirrels or meadow mice.

Biology and Behavior

Pocket gophers get their name from the fur-lined **external** cheek pockets which they use to store food and nesting material. They lead a life almost entirely underground only surfacing to push soil out of their burrow, seek new territory after weaning or to graze on plants near a burrow entrance. They use powerful shoulder muscles and large clawed front paws to tunnel through the soil to create extensive burrow systems.



ocket gophers have short fur, small eyes and external ears with very sensitive facial hairs. They have specially adapted lips which can be closed behind the front teeth to keep soil out of its mouth when using its teeth for digging.

Above: Comparison of the mounds made by gophers and moles.

Except for the breeding season, pocket gophers are solitary animals and will violently expel any other gopher that invades its burrow.

Pocket gophers inhabit all parts of the state except for the driest parts of the desert, extremely rocky areas, and the highest mountain meadows. They live in a burrow system that can cover as much as 2000 square feet. Burrows are usually about 2 to 3-1/2 inches in diameter, with feeding tunnels usually 6 to 12 inches underground and sleeping and food storage chambers as much as 6 feet deep. A typical burrow system consists of a main tunnel, food storage and sleeping chambers, and several lateral tunnels used to remove soil from the burrow and for feeding. Gophers seal the openings to their burrow systems with earthen plugs to keep unwanted guests out and to help maintain temperature and humidity. A gopher will travel through the entire burrow system once every 24 hours to inspect it for intruders or damage. Gophers do not hibernate and are active all year long, even though there is no evidence of fresh mounding seen. They can also be active at all times during the day. Gophers can occur at densities of up to 20 or more per acre.

A gopher's diet consists of a wide variety of plants, trees and shrubs, preferring the more succulent underground portions. Gophers use their sense of smell to locate food. Most commonly they feed on the roots and fleshy parts of plants they come across while digging. They will also " graze" the above ground areas at the entrances of the burrow.

Gophers become sexually mature at about one year of age and generally live about 3 years. On non-irrigated lands, they have a limited breeding season beginning sometime after the

rains start and the annual green forage becomes plentiful. In such places there is usually only one litter of young. In urban irrigated areas, reproduction can take place year round with females having as many as three litters. Litters average five to six young, but can vary from as few as one to as many as thirteen. Pocket gophers have a 19 day gestation period and the young remain in the nest for several weeks. After they are weaned, they are expelled from the burrow by the mother. Young gophers travel overland to start tunnels in new areas and it is at this time that they are most vulnerable to predation.

Damage

Pocket gophers can inflict a great amount of feeding damage by invading gardens and lawns as well as agricultural crops. They can girdle trees and will also gnaw on and damage plastic water lines and lawn irrigation systems. Their mounds can interfere with the harvest of hay and grain crops as well as damage lawn mowing equipment. The mounds also provide a starting place for invasive weeds in landscape and agricultural areas. Pocket gopher burrows can weaken ditch banks and canals. Irrigation water diverted though their tunnels can be carried away and can lead to soil erosion.

Legal Status

Pocket gophers are classified by the California Department of Fish and Game as a nongame mammal. If they are causing damage, they are allowed to be taken using gopher traps and poison bait by the owner or tenant of the property or their employees. Any poison bait used must be registered for that use in California.

Diseases

Due to the solitary underground nature of pocket gophers, there are no known incidences of diseases spread to humans. Like any rodent, they can be infected with any number of potentially harmful organisms. Any gopher that displays unusual behavior, such being above ground should be avoided and dead gophers should be handled with care. Gophers are very aggressive and can inflict a painful bite if given the chance.

Management

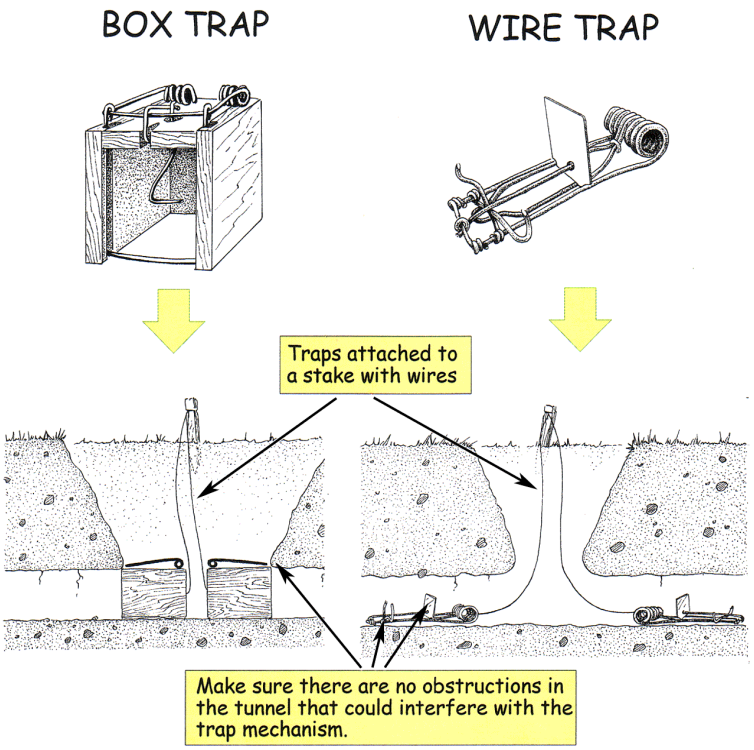
There are several different techniques that can be successfully used to control pocket gophers. The technique that will work best for you, will be best determined by the size of the area to be managed and the amount of gophers that are living there. Another consideration is the rate that re-infestation will occur, for instance if you live next to a large vacant area particularly if it is irrigated, the likelihood of rapid re-invasion is very high. In situations where constant maintenance may be required over a large area a contract with a private pest control operator or county agricultural commissioners office may be a cost effective alternative to doing the work yourself. Further advice about your particular gopher control problem can be

obtained by calling the Pest Management Division of the LA County Agricultural Commissioner/Weights and Measures Department @ (626) 575-5462.

Trapping

Trapping can be a safe and effective method to control small populations of gophers. There are several brands and types currently available for trapping pocket gophers. Traps fall into roughly two categories: the box type and the two-pronged pincher type. Box traps are very useful when the diameter of the burrow is less than three inches in diameter or you've never set traps before. Their only disadvantage is that they are bulky and require much more excavation to place, especially when a double set is required. The pincher type trap is a little trickier to set, but requires less soil excavation, and, once you become experienced quicker, to place, especially when large numbers of traps are to be used.

Traps are readily available from retail nurseries, home and garden stores, and hardware stores. In order to place traps, you will need to find the burrow with the most recent activity. This can be determined by looking for mounds of soil that appear darker or moist. If you have difficulty in determining recent activity, use your foot to push the mounds over level with the ground and return the next day and look for new soil pushed up from the active burrows.



To place traps, use a probe to locate the main run of the burrow system. A probe can be as simple as a metal rod with a handle, a long shanked screwdriver, or one of several commercially available versions. One of the later is available through the Agricultural Commissioner's office at cost. Start probing from the plug side of the mound about 8-12 inches from the plug, probe around in the soil until there is a sudden drop or lack of resistance of about two inches. This should be the main run, usually located about 6-12 inches under the ground. With a shovel excavate the area and place traps facing in opposite directions. Traps should be placed with care, level with the bottom of the burrow with no obstruction allowed to interfere with the tripping mechanism of the trap.

Traps need to be attached to a stake using wire to prevent the loss of the trap down the burrow. It is not necessary to bait the traps, but it is important to exclude light from entering the burrow, otherwise the gopher will respond by pushing soil to close a perceived burrow opening and will set off the trap by filling it with soil. The opening can be closed with sod, dirt clods, cardboard, plywood or some other material. Fine soil can be sifted around the outside edges to ensure a light-tight seal. Check the traps once every 24 hours and reset them if necessary. If no activity is found after three days relocate the traps.

Toxicants

This method of control works best when large numbers of gophers are present, particularly if large areas are involved. There are several different products available, but most fit into two categories: baits and fumigants.

Fumigants

Fumigants generate poisonous gasses that kill gophers quickly before they can detect them and seal off their burrow. They do not persist in the environment and some are better than 90% effective with one application. Unfortunately, the two most effective fumigants aluminum phosphide and acrolein, are restricted use pesticides, and are only available for use by certified applicators. Gopher “bombs” available through hardware and garden stores are not very effective and have been known to cause injury to the applicator. In California, it is illegal to use the exhaust gas from an automobile for any kind of pest control activity.

Baits

Toxic baits can be an effective way to control pocket gophers over a large area. The secret to success with this method is the proper placement of bait into burrow. Bait must be placed in the main burrow run if it is to be effective. The placement of bait in a lateral tunnel may result in not only the lack of control desired, but may result in toxic bait being pushed up onto the soil surface.

Two types of baits are currently available for use, strychnine and anticoagulants. Strychnine is an acute or single feeding type bait and is applied by using a probe to locate the main burrow and placing the bait there at the label recommended rate. Strychnine is very toxic and any spilled material must be picked up immediately to avoid potential harm to animals or small children. Anticoagulant baits are used in the same way as strychnine, but require multiple feedings to control the animal and are much lower in toxicity.

Flooding

Outside of agricultural settings where a large amount of water can be put on an area in a short period of time and left standing for an extended period of time, this control method has very little practical value for residential uses. The old “garden hose down the hole” method tried by

almost everyone who has ever attempted to control gophers rarely works and is usually a waste of water and time.

Exclusion

Trying to keep gophers out of your yard or garden by using physical barriers can sometimes be effective if done on a small scale. Any large project, such as placing fencing around the perimeter of your backyard would be cost prohibitive and would at best only provide short term control. Raised flower beds can be protected by placing a layer of 1/4 inch galvanized hardware cloth under the bed and securing it to the 2x6 wood frame before filling with soil. In reforestation or orchard situations, a "cage" of hardware cloth lining the hole and extending six inches aboveground can give a young tree room to establish a good root system before being exposed to gopher depredations.

Six to eight inches of gravel one inch or more in diameter around underground utility cables or sprinkler lines may discourage gnawing by gophers.

Repellents

There are no repellents available at the present time that have been proven to protect lawns or other planting sites from pocket gophers. Several plants, such as gopher purge (*Euphorbia lathyrus*) and castor bean (*Ricinus communis*), have been purported to offer protection from ravenous gophers, but these claims have never been proven.

Natural Controls

Gophers have a number of natural enemies that do feed on and place pressures on gopher populations. These predators include snakes, owls, cats, dogs, and coyotes. However, they generally don't give the kind of control that will prevent unacceptable harm to your landscape from occurring. Natural cycles of predator and prey reproduction prohibit the use of natural control methods from being effective in maintained crop or landscape land.

Habitat Modification

In residential areas that border undeveloped vacant or park lands, the reduction of food sources by mechanical or chemical means may decrease migration of gophers from these areas. Where possible remove weedy areas next to your garden or lawn to create a buffer zone of undesirable habitat.

Other Control Methods

There are a number of frightening devices available commercially for the control of gophers. These devices either use ultrasonic waves or vibrations to attempt to scare gophers away from your garden or other plantings. In general, gophers do not frighten easily, and since they literally live beneath our feet, they are very used to most vibrations. This makes these control methods of little value as they have never been proven to be effective. Placing things such as chewing gum, laxatives, dog or cat feces into the burrow in hopes of killing or frightening gophers has not been shown to be effective. Remember it is often unwise and sometimes illegal to use " home remedies" or concoctions to control pests.

Monitoring

Once you have controlled your gopher problem you must routinely check on the area to see if re- invasion has occurred. If not checked regularly, gophers can re-invade your property and do a lot of damage in a short period of time.

Warning On The Use Of Chemicals

Pesticides are poisonous, careful application will prevent injury. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of reach of children, unauthorized persons, pets and livestock.