

RODENTS, BIRDS AND OTHER PESTS

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RODENTS, BIRDS, AND **OTHER PESTS**

Learning Objectives

- Learn how to safely identify and handle larger pests
- Learn about rodents, mammals, birds, and others who are pests in the home, yard, and garden

Introduction

Some gardeners worry about critters while others consider them part of nature's plan. One gardener's wildlife habitat or sanctuary is another gardener's nightmare or problem. Over the years you spend tending a garden, you come to realize there are a few shortcuts to preventing animal and other pest problems. Some you need to control; others you learn to live with; and others you learn to share with other gardeners.

In all cases, you need to consider personal pest management objectives, the environment (city or country) in which you are gardening, your neighbors, and how treatments will impact the individual plant as well as the environment. Proper identification, timing, persistence, and diversification will play an important role in successful pest management plans.

Safety in Handling

Recently in Idaho, hantavirus has become a concern for anyone handling vertebrate pests. Also of concern are several other animal-human transferred diseases and parasites including rabies, plague, Lyme disease, and Rocky Mountain spotted fever.

If you handle equipment and work in areas where vertebrate pests are a problem, wear or use masks, gloves, and other protective clothing when implementing control measures.

Identification

Gardeners often become frustrated with the diverse creatures described in this chapter. Unlike many garden pests that remain in place or move around slowly (described in other chapters), these pests are marauders, staging hit-and-run attacks on desirable plants, yards, and gardens.

To find acceptable solutions, you must accurately identify the target pest. Most creatures have predictable needs and activities and you may be able to control or deter them by understanding their habits. This chapter covers only a few of the most common pests.

Your best source for specific species management is the Nebraska Cooperative Extension System's *Prevention and Control of Wildlife Damage Handbook*. This resource publication covers more than 80 species.

You can obtain more information about specific pests from the US Fish and Wildlife Service, United States Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) Animal Damage Control Specialists, the Idaho Cooperative Extension System, or the State of Idaho Fish and Game Department.

It is unlawful in Idaho to gas, poison, shoot, trap, or otherwise harm any endangered, wild animal, or wild bird species without special permits. Hunting seasons, the Migratory Bird Act, and the Eagle Protection Act regulate other animal harvesting. Before starting a vertebrate pest management program, be sure it is legal. Check with a local game warden for any local shooting and trapping limitations.

Always read the labels of federal- and state-approved pest control products before implementing control measures. It is illegal to use any pesticide not listed on a label. The user is responsible for checking the label to see that the site is listed.

Some pest-control measures are traditional or involve folklore repellents. The Cooperative Extension System does not have scientific data to support the use of most, but you may wish to try them.

Vertebrate Pests—Rodents

GENERAL RODENT INFORMATION

Most methods used in controlling rodents are aimed at destroying them. Poisoning, shooting, exclusion, destruction of habitat, trapping, and fumigating are among the methods used. Of these, poisoning is the most popular and probably the most effective and economical. Because rodent control is a diverse and complicated subject, it is beneficial to learn the life cycle of each rodent pest as you encounter it and before attempting its management.

Rodents is a rather all-inclusive and perhaps a bit deceptive term, because all rodenticides or repellents are not registered for all species. Their management thus requires accurate identification of the particular pest and careful selection of control materials.

Rodenticides differ widely in their chemical nature. Strychnine, indandiones, coumarins (anticoagulants), zinc phosphide, and several others are labeled for commercial use. Of the rodenticides available, anticoagulants are safest to use around the home, provided you follow label directions and pets don't accidentally ingest them. This is of particular concern with cats that are good "mousers." Sold as baits, rodenticides must be ingested for several consecutive days before they are effective. Several other restricted-use rodenticides are available for trained and licensed applicators. Rodent repellents Biomet-12 naphthalene, paradichlorobenzene, polybutenes, polyethylene, R55, and thiram have been used with some success against specific rodent species.

GROUND SQUIRRELS, CHIPMUNKS, AND CHUCKS

These rodents are voracious feeders on lawns, bulbs, and leafy succulent plants during spring and summer. Ground squirrels (Figure 1) may dig a burrow system with entrances 2–3 inches (5–8 cm) in diameter. They are particularly troublesome in gardens that border fields or wild lands.

- The simplest removal method is to fill burrows with water. Reflooding may be necessary to keep them discouraged.
- Also consider live traps (check daily for relocation), gas bombs (place well back in the burrow after plugging all entrances), and poison baits.

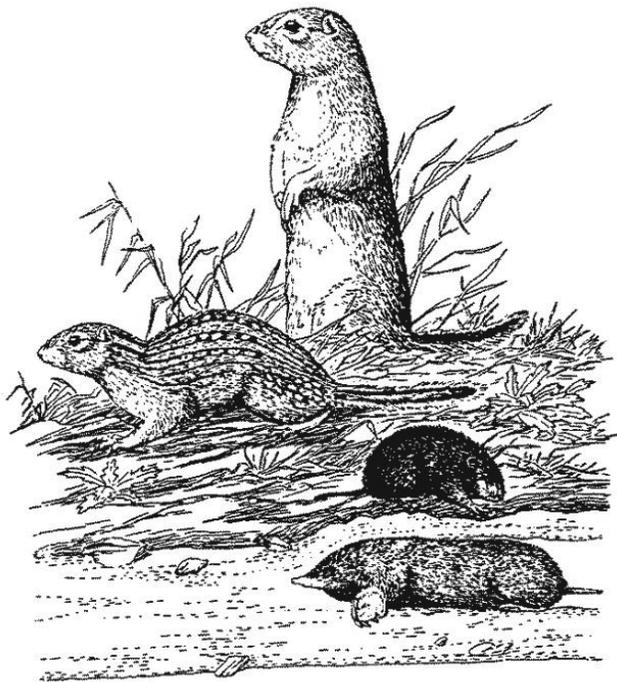


Figure 1. Sometimes, the Richardson ground squirrel (from top to bottom), the 13-lined ground squirrel, vole, and mole are called gophers.

- Protect bulb beds aboveground with a cover of fine mesh chicken wire.
- Repel rodents by placing mothballs or moth flakes in the runs or holes where they enter buildings.
- Chief natural enemies are foxes, snakes, hawks, and owls. Dogs and cats are also viable players in a pest management plan.

POCKET GOPHERS AND VOLES

Pocket gophers burrow through the ground, feeding on root crops and roots of garden plants and do surface damage to lawns and gardens. Voles, as in Figure 1, primarily damage the surface of grassy areas and may girdle woody plants.

Gopher runways are parallel to the ground surface and are located 6–10 inches (15–25 cm) below ground level. Control is usually easiest in early spring or fall when fresh mounds indicate activity.

Place poison baits, fumigant type pellets, or traps in their runs. Locate the burrow with a long screwdriver or probe. Carefully follow the control product or trap label instructions. If trapping efforts fail, line the sides of planting holes with light gauge chicken wire or hardware cloth.

Eliminating ground cover reduces population. Soil cultivation destroys burrows and reduces cover.

MICE AND RATS

Mice or rats can spread disease and viruses, consume and contaminate stored products, and may girdle woody plants by chewing bark (particularly in the winter). Mice eat seed and grain products and grass and create runways and bare patches on lawns. Damage to lawns can be severe in winters when snow covers the ground for months.

Sanitation is your first line of defense. Conduct a general cleaning, eliminate food sources, and destroy rodent nests. Get rid of rock piles, old boards, and junk. Keep piles of wood and lumber off the ground. Mow lawns regularly and remove long grass and vegetation from adjacent areas. Keep areas around the base of trees and shrubs free of grass and loose mulch where mouse damage is a problem. Store all dried and bagged food in rodent-proof containers. Proper composting of kitchen waste is important. Keep seeds and livestock or pet food in sealed containers.

Diligently apply taste and smell repellents to the problem areas. Use live or spring traps or place bait boxes or poison baits where other animals and children cannot reach them. Some rats may become bait shy and others may develop an immunity to anticoagulants, so change the types and active ingredients of poisons when confronted with extended problems. Immunity develops over time and constant exposure to anticoagulants. It may be necessary to prebait. After completing sanitation measures, create bait stations. Place the baits in runways along a wall or fence where rodents often travel or places where rats or mice seek shelter. Check baits frequently to ensure they are fresh, dry, and free of mold.

In orchards, field mice feed on trunks of trees, rarely burrowing belowground. If the orchard is mulched, pull the mulch back a few feet from tree trunks in the fall. To deter field mice, place wire cylinders, tree collars, and plastic or paper wraps around the base of fruit trees.

RABBITS

Rabbits will girdle young trees, chew off bark and young twigs of woody plants in winter, and consume leafy plants during the summer (Figure 2).

You can livetrapped and relocate rabbits. Reduce the rabbit habitat by removing overgrowth on ditches, bushy fencerows, or brush piles within or near garden areas. Rabbits don't like to be far from cover so mowing, brush cutting, and general cleanup can help control them.

Place guards made of fine mesh (¼ inch) screens around the base of trees to protect them from rabbit damage. Form the guards into cylinders about 2 inches larger than the diameter of the tree trunk and long enough to protect the tree above the snow line. Tightly woven (no larger than 1-inch mesh wire and at least 30 inches high) fences, well anchored to the ground, also work well.

Plant "trap" crops like beans away from the garden to divert rabbits. This may provide extra food, however, resulting in more rabbits. Also, onions seem to repel them, so it may help to interplant an occasional row with your crops.

Also effective are commercial repellents containing thiram or Ziram fungicides or other materials sprayed or painted on tree trunks, plants, or shrubs. Blood dust, nicotine, and other repellents are labeled for rabbit control.

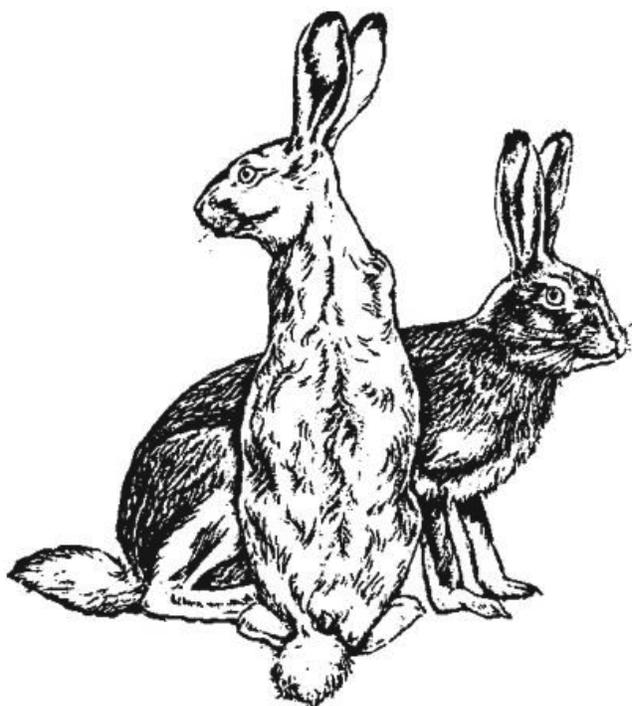


Figure 2. Cottontails and jackrabbits can become serious, year-round pests.

Some gardeners sprinkle dried blood meal around plant roots or spray a cow manure and water solution to reduce a rabbit's interest in particular plants. Others apply powdered rock phosphate, powdered aloes, red cayenne pepper, or fish tankage with bonemeal to seedlings as they emerge or as a dust on plants. Some gardeners spray or place coyote, fox, or other animal urine mixtures around garden areas as repellents.

BATS

Bats are beneficial insect-eating animals. Occasionally bats get into buildings or attics where they foul the area with odorous feces or guano and disturb the occupants with their nocturnal activities. Bats can carry rabies. Always vaccinate your pets. Do not handle bats. If you must handle them, wear heavy leather or rubber gloves.

One or two bats in a house is a problem. Usually, a bat will find its way out by detecting fresh air movement, so the simplest solution is to open windows or doors leading outside. Bats have day and nocturnal roosts that they return to daily. Each species selects roost sites with specific temperatures. If the roosting area is too hot, too cold, or too drafty, they will leave. A single light bulb in the space where they roost may keep it too hot for bats. Another solution is to create a draft by opening doors and windows and using an electric fan. To discourage bats from roosting in one place, scatter 3–5 pounds of moth flakes over the floor or hang them in mesh bags from the rafters.

The best time to batproof a building is in the fall or winter when bats migrate to wintering areas. As soon as they leave, seal the openings in eaves and attic louvers with ¼-inch mesh, narrowly spaced, parallel tightwires or fishing-line screen, or boards. Seal narrow cracks with caulking compounds. If you are bat proofing a building, be sure all bats are outside before plugging the last opening. Not all bats will leave at the same time. Consider installing a one-way device to allow bats to leave but not return. Building bat houses for excluded bats may help with the problem the next season.

Placing floodlights in the attic or directing them at openings for several nights will not discourage entry. Instead, the lights will attract nocturnal insects such as moths, providing a ready food source for bats.



Figure 3. Raccoons become especially bothersome near harvest for corn, melons, and other fruit.



Figure 4. To learn more about controlling deer damage and deer-resistant plantings, see the various publications in the “Further Reading” section at the end of this chapter.

Vertebrate Pests—Other Mammals

RACCOON

Raccoons have adapted to urban and suburban areas, feeding at night at “garbage can” restaurants or from pet dishes (Figure 3).

Raccoons are easy to catch with box traps. Normal fencing will not keep raccoons from your garden; however, electric fencing is particularly effective.

Sprinkle black pepper on corn ears before they are ripe. Installing motion lights and leaving radios on in the garden at dusk and dawn may help repel raccoons.

DEER

Deer can damage herbaceous and woody plants by browsing (Figure 4). Orchard and vegetable crop damage are a concern, too.

Base your landscaping on deer-feeding preferences to avoid using expensive chemical repellents.

Planting resistant or less palatable vegetables, annuals, perennials, trees, and shrubs in landscapes will discourage browsing.

An inexpensive way to exclude deer is to construct a wire-mesh fence, 7–10 feet (2–2½ meters) high, around small gardens or orchards. A horizontal outrigger — a fence extension — makes it harder for deer to jump fences. Some gardeners have had success with two parallel 5-foot fences with a 5-foot

“no deer” area between them. In some areas, electric fences work if constructed with at least five wires. Tightly strung piano wire in the Australian fashion of crossbeams forming an “X” at three heights also works. Deter deer by placing welded-wire fencing around individual trees or plants or types of plants or use other mechanical devices such as rigid tubes (Vexar, Tree Shelters, and Tubex), flexible sleeves, and bud caps.

Several commercial repellents are registered and may be partially successful. They require repeated applications, particularly after rain or watering. Spray contact or taste repellents such as thiram, Ziram, and capsaicin (derivative of chili pepper) on the lower trunks and lower limbs of trees at 2-week intervals.

Other methods include sport hunting to reduce populations; live traps for removal by conservation officers or professional biologists; temporary frightening devices such as gas exploders, tethered dogs, fireworks, or a radio left on at night; human hair balls or deodorant soap bars hung at close intervals around valuable plants or around the garden; and blood meal, coyote, or other animal urine sprayed or placed around garden areas as repellents.

SKUNK

Skunks are protected by law in most states and frequently are found to carry rabies. If possible, avoid handling them because they can eject their scent 6–10 feet. The persistent odor on clothing, in gardens, or buildings is highly offensive (Figure 5).

One method of control is to exclude skunks from their sleeping or nesting quarters. Sprinkle a thin layer of flour around holes or building entrance areas to form a tracking patch. Examine the area after dark, when the tracks lead out of the entrance. Close off the space with lumber or fencing or consider livetrapping and relocating the skunk. Leaving a radio on all day in the skunk's nesting area may disturb sleep patterns enough to cause them to relocate.

A chemical known as Neutrolem Alpha is probably the most effective odor neutralizer available. A tablespoon in a water bath works well for pets and humans unfortunate enough to be "hit." Use 2 ounces in each gallon of water to scrub walls, outbuildings, basements, outdoor furniture, and the like. You also can use chlorine bleach or household vinegar (diluted 1–10 parts water) with a little detergent. Tomato juice is not as effective.

DOGS AND CATS

Male dogs urinate and kill parts of leafy plants, especially conifers; female dogs' urine may cause dead patches in a lawn. Dogs leave feces on lawns or flower beds and dig in garden beds. Cats can severely damage bark on young trees where they sharpen their claws. They dig in garden soils and leave fecal matter that may transmit parasites or diseases to humans. Cats are the number one enemy of songbirds in the garden.

Controls include fences; scolding; clapping hands; waving brooms; or spraying the cat or dog with water from a garden hose. A screen around the tree base will obstruct cats as will clipping the cat's claws. Cats will avoid resting or walking on walls or fences with moth crystals sprinkled at regular intervals.

Repellents are almost too numerous to mention, including allyl isothiocyanate, amyl acetate, anethole, Bitrex, bone oil, capsaicin, citrus oil, cresylic acid, eucalyptus, geranium oil, lavender oil, lemongrass oil, menthol, methyl nonyl ketone, methyl salicylate, nicotine, pentanethiol, pyridine, sassafras oil, and thymol.

Vertebrate Pests—Birds

GENERAL BIRD INFORMATION

All birds, in one way or another, are beneficial to man. They can, however, create problems singly or in groups. Birds are important in preventing insect

outbreaks and their control of other garden pests benefits most gardens. Man considers birds as pests when they consume and destroy fruit and seed crops such as strawberries, sweet cherries, and sunflowers; contaminate foodstuffs or buildings with their feces; and transmit diseases directly or indirectly to man, poultry, or dairy animals.

Avicides registered by the Environmental Protection Agency for specific species often require prebaiting for several days and the quick removal of dead birds at regular intervals to be effective. Chemosterilants, birth control agents, and repellents are also available. There are three repellent categories: (1) olfactory (odor), (2) tactile (touch), and (3) gustatory (taste). In the olfactory category, gardeners have used naphthalene (mothballs) granules or flakes to repel all domestic animals. Tactile repellents are made of various gooey combinations of castor oil, petroleum, or solvents and applied as thin strips or beads to roosts, window ledges, and resting areas. Taste repellents are varied and have multiple uses. For example, fungicides applied as seed treatments sometimes inhibit seed-pulling birds.

To protect sprouting seedlings and maturing vegetables, floating row covers are easy to use and need no supports. Drape cheesecloth, nylon netting, or other mesh materials over garden crops or fruit trees susceptible to bird damage during ripening. Put these up 2–3 weeks before ripening. Place screen or cloth over strawberries and other small fruits.

Commercially designed noisemakers are partially effective but not very popular in populated areas. Stakes and flags, continuous string flagging or netting, spiral twirlers, shiny propellers, and other objects that flash in the sunlight or rustle or rattle as they spin are useful in small areas until birds become accustomed to them.



Figure 5. Skunks are kin to weasels and are not afraid of humans.

Poisoning is effective but not selective. Invariably, poisons kill songbirds or birds that are protected, so using them is not recommended.

YELLOW-BELLIED SAPSUCKER

A member of the woodpecker family, sapsuckers drill horizontal rows of squarish holes through the bark of spruce, Scots pine, birch, nut trees, and Siberian elm. They feed on sap and sapwood. Hummingbirds feed on this sap and, like the sapsucker, take advantage of the insects attracted to the ooze. Girdled trees may die.

Because sapsuckers are a protected species, it is unlawful to kill them; so wrap the damaged trees in burlap and treat with pruning paint. Painting a mixture of cayenne pepper and petroleum jelly on affected areas may discourage continued damage. Noisemakers also may scare birds away.

STARLINGS

Exclude starlings (Figure 6) by closing all openings to less than 1 inch (2.54 cm). Use boards or metal coverings at 45° angles and metal prongs or sticky repellents on ledges or rafters. Attach netting to prevent roosting on buildings or rafters. PVC strips work well to cover door openings. Frightening devices, including alarms, distress calls, lights, and bright objects, may work. Repellents to protect ripening fruit and poison baits also are available.

Invertebrates and Arthropods of the Home Yard and Garden

NEMATODES

Nematodes or eelworms are tiny, unsegmented worms that may be as small as $\frac{1}{125}$ inch in length. An impermeable cuticle covers and protects them. They survive during unfavorable periods of cold or heat in protective eggshells. Accurately identifying this pest and learning its specific life cycles (eggs may remain viable in cysts for several years) is the key to proper management.

Nematodes cause their greatest damage when soil moisture and temperature are suitable for germination. They frequently pierce roots and feed on them. They may lay their eggs on roots causing knots to form. Nematodes can transfer diseases between plants. A plant attacked by parasitic

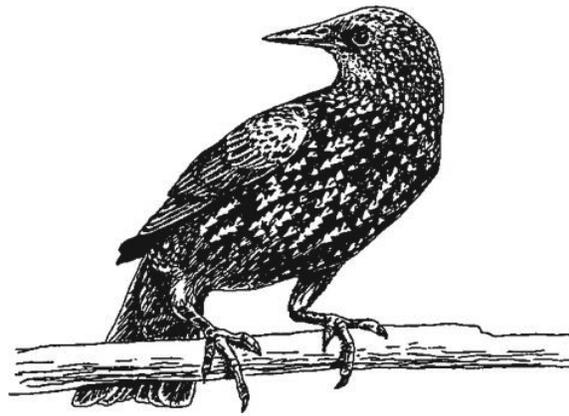


Figure 6. Starlings can cause damage because of their prolific numbers and flocking habits.

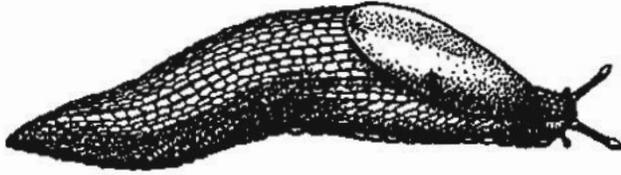
nematodes loses nourishment and may appear stunted or die. There are a number of beneficial free-living, nonparasitic nematodes associated with the root systems of many plants; therefore, finding root knots does not always indicate nematode injury.

Control culturally by selecting nematode-free planting stock or resistant plant varieties. You can kill considerable numbers of nematodes by soil solarization, flooding the soil for extended periods, or by permitting the soil to completely dry out. Maintaining high fertility levels or adding organic amendments (peat, manure, and green chop) to garden soils decreases the pest's impact. Some commercial preparations of organisms (bacteria, sporozoa, fungi, viruses, protozoa, predatory nematodes, tardigrades, mites, and springtails) that prey on nematodes are available.

Crop rotation is perhaps the most inexpensive, yet effective way to control nematodes. Nematode-suppressive plants such as French marigolds (*Tagetes patula*), asparagus, garlic, and onions have been reported to abate nematodes if they are planted in blocks and used as part of a rotation.

Orchard floor management through the use of cover crops in orchards or vineyards can have a significant impact on nematode infestations. Sanitation, preventing the movement of soils or water from an infested area of the garden, and planting or harvest dates based on soil temperature (with an understanding of nematode life cycles) also may help.

Gardeners seldom use nematicides unless they encounter greenhouse or cold-frame problems. Most of today's chemical nematicides are soil



fumigants or volatile halogenated hydrocarbons. There are no nematocidal agents registered for use in the home garden. If this pest problem occurs, contact a commercial applicator. To avoid damaging other plants, the products must be applied before planting. Chemical applications must have high vapor pressure to spread through the soil and successfully contact nematodes in the water film surrounding soil particles.

SLUGS AND SNAILS

These are mollusks, not insects. Both have soft bodies and secrete a silvery mucus that appears as trails across the garden. Snails carry a shell about with them. They spend the winter in the soil as eggs. Young and adult slugs often rest in night crawler tunnels. They appear in early spring and multiply rapidly under moist conditions. There are several kinds, but all are similar in appearance. Their color varies from white to pale yellow to lavender purple to nearly black with brown spots, specks, and mottlings. They have rasping mouthparts. Slugs are humidity-loving animals that attack all kinds of garden and ornamental plants. They may eat irregular sections or consume entire leaves. There is only one generation per year.

Culturally control slugs by eliminating cool, moist, dark hiding places (low-growing weeds, stones, trash, and ground covers) where slugs seek daytime shelter. Keeping the garden dry and plants well spaced can help. Regularly hand picking slugs from plants at night, maintaining a border of bare soil, and building copper screens or copper strip barriers that they cannot crawl over may also help. Commercial traps are also available. Shallow pans placed at ground level and filled with stale beer are good homemade alternatives. Shingles, boards, and flowerpots placed on the ground as hiding places also make good traps; check traps daily and scrape off and destroy the slugs. Commercial preparations of diatomaceous earth can be effective as a protective barrier if kept dry. Among their natural enemies are ladybug larvae, ducks, chickens, snakes, and turtles.

You can chemically control slugs by using molluscicides such as metaldehyde baits. Note these baits may attract and be toxic to pets. Improve the bait's effectiveness by placing it under a protective cover such as a 5-inch-diameter pie pan. Fresh baits are most effective. Do not allow bait to come in contact with edible parts of plants. Methiocarb (Mesurol) is the most effective of the insecticides registered for use against snails and slugs on ornamentals. Other registered insecticides include Carbaryl and Mexacarbate.

Do not use salt because it contaminates soil and kills plants. A solution of one-half household ammonia and one-half water in a spray bottle may destroy slugs and snails without harming the soil. Keep the spray solution off leaf surfaces because it can damage plants; however, it leaves nontoxic residues.

A mulch of oak leaves or tobacco stem meal will repel slugs and snails. A drenching of wormwood tea will deter them. Hellebore has long been used to keep slugs from grapevines.

EARTHWORMS OR NIGHT CRAWLERS

Earthworms need a moist environment. They are headless, eyeless, toothless, bisexual (have both male and female reproductive organs), and lack antennae. Soils with high worm populations often have high organic matter levels. Saline soils, sandy soils, and soils with a pH of 4.5 or lower usually have few worm problems. Earthworms are normally found in the top 6–30 inches of the soil. They come to the surface at night and after heavy rains.

Earthworms can grow to 10 inches in length. Most gardeners feel they are beneficial, but for some their burrowing and hard casts make a lawn lumpy and difficult to mow. They burrow through soil, feeding on organic matter and dead leaves or stems at the soil surface. They decompose thatch, mix organic material through the soil, and aerate the soil with their tunneling.

Culturally some lawn maintenance professionals use heavy lawn rollers in the spring before the mowing season, or when problems occur, to level the ground.

No chemicals are registered for earthworm control.

Further Reading

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BOOKLETS AND PAMPHLETS

University of Idaho Extension

CIS 1041 *Conduct Your Own Garden Research*

Oregon State University

EC 987 *Controlling Moles*

EC 1255 *Controlling Pocket Gopher Damage to Conifer Seedlings*

To order OSU publications, write to Publication Orders, Extension & Station Communications, Oregon State University, 422 Kerr Administration Bldg., Corvallis, OR 97331-2119 or call (800) 561-6719.

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Trade Names — To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

Groundwater — To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.

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