

● ALTERNATIVES

CONTROLLING VOLES (MEADOW MICE)

BY DAN STEIN

Voles, also known as meadow mice, short-tailed mice, and orchard mice, can be serious pests of gardens, crops and orchards. Voles are often confused with house mice, and sometimes with moles and gophers.

Before getting too excited about how to eliminate voles, it is important to remember that voles are an essential link in the food chain, providing a major part of the diet for many predators, including coyotes, foxes, badgers, weasels, cats, gulls, and especially hawks and owls.¹ It is important *not* to control them unless they are doing clearly unacceptable damage.

Voles are notorious for going through unpredictable population cycles that occasionally spin out of control. In parts of the Willamette Valley, vole populations in the winter of 2005/06 rocketed to up to an estimated one million voles per acre.² That adds up to 20 voles per square foot, an astounding and clearly unsustainable number. The following summer, hardly a vole was to be found. This was likely due to a lack of food and the spread of disease, (or, possibly, a lack of enough space to lie down and go to sleep!)

Identification

Voles are mouse-like rodents with compact, heavy bodies, short legs, short-furred tails, small eyes, and partially hidden ears.³ The long, coarse fur is grayish to blackish brown. When fully grown they can measure five to eight inches long, including the tail. Voles differ from house mice in that they are larger and have shorter tails and smaller ears.

Voles spend most of their time



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Voles are larger than mice (adult voles measure up to five to eight inches long), and have shorter tails and ears.



An adult house mouse is not more than three and a half inches long.

below ground in their burrow system but establish above-ground runways that connect burrow openings.⁴ These runways are usually hidden beneath a protective layer of grass or other ground cover. There are multiple burrow openings about 1-1/2 to 2 inches in diameter that lead to a tunnel system just below the ground surface that is used for feeding on plant roots. A deeper set of burrows, typically six to eight inches deep, are used for food storage, nesting, and rearing young.

Biology and Behavior

Voles can begin breeding after only three weeks of age and produce four to six offspring per litter, with as many

as ten litters per season.⁴ Species of voles that live at higher elevations have shorter breeding seasons. The gestation period is three weeks. Their life span is two to sixteen months. Voles are active day and night, year-round.⁵

Several adults and young may occupy a burrow system. Their home range is usually a few hundred square feet. Voles feed on a variety of grasses, herbaceous plants, bulbs, and tubers. They will also eat bark and tree roots, especially in fall or winter. Voles store seeds and other plant matter in underground chambers.

Damage

Voles cause damage by their feeding, especially when numbers are high. Damage to tree trunks normally occurs in the area just above or below the ground surface, sometimes causing girdling that can kill trees. Where snow cover is present, damage to trees may extend a foot or more up the trunk, and may escape notice until it is too late.

Monitoring

The distinctive on-the-surface runways, which may be partially hidden by grasses and weeds, and the small numerous burrow openings are the main signs of voles. On trees, gnaw marks about 1/8 inch wide and 3/8 inch long found in irregular patches may be found. Remember to check for below-ground damage by pulling soil away from tree trunks. In areas with winter snow, voles can do serious damage to tree trunks hidden under the snow pack.

Controlling Voles

Vole control, especially on large acreages, can be a serious challenge. While total vole control may not be possible, you should be able to keep the numbers down to a level that is tolerable through a combination of pest control efforts.

USDA

Center for Disease Control

Removing or Reducing Vegetative Cover

Heavy mulch and dense vegetative cover encourage voles by providing food and protection from predators and environmental stresses.⁶ Mowing and frequent soil cultivation helps to make areas unsuitable to voles.⁴ Where feasible, maintain weed-free buffer strips around gardens at least fifteen feet wide. A four-foot diameter vegetation-free circle around the base of young trees or vines can also reduce problems. Wood chips and paper mulches are not favored by voles. Nor is vetch, for those who want to use a winter ground cover.⁶

Vole Fences

Because voles are poor climbers, wire fences at least twelve inches above the ground with a mesh size of 1/4 inch or less will help to exclude voles from gardens.⁴ These fences can either stand alone or be attached to the bottom of an existing fence. Bury the bottom edge of the fence six to ten inches to prevent voles from tunneling beneath it. A weed-free barrier on the outside of the fence will increase its effectiveness.

Potato farmers in eastern Oregon have used twelve inch aluminum roof flashing to make a short fence to enclose whole fields that was effective in keeping voles out.⁵ This was surrounded by a 30-foot buffer that was kept clean-cultivated.

Tree Guards

Young trees, vines, and ornamentals can also be protected from girdling by putting cylinders made from hardware cloth, sheet metal, or heavy plastic around the trunk.³ Support or brace these devices so that they cannot be pushed over or pressed against the trunk. Also, make sure they are wide enough to allow for tree growth and, in areas with snow, are tall enough to extend above snow level. Be sure to check periodically to make sure voles have not gnawed through or dug under cylinders.

Trapping

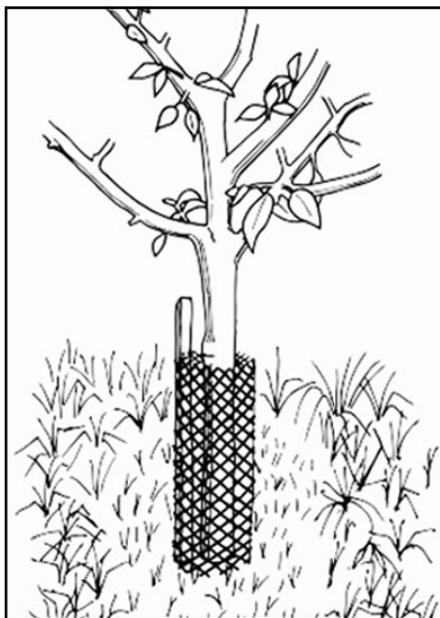
Using simple snap-type mouse traps is often effective, especially in smaller



Vole damage in lawn with burrow openings leading to tunnel system.

areas.⁴ Don't skimp on the number of traps you use. Use at least a dozen for small gardens, though more is better. Traps can be baited with a little peanut butter or used unbaited. A few oats can be placed next to the traps in the vole runways too.

Trap placement is the key. Voles seldom stray from their runways, so set traps along their routes. Place baited traps at right angles to the runways with the trigger end in the runway, or



Young trees, vines, and ornamentals can be protected from girdling with cylinders made from hardware cloth, sheet metal, or heavy plastic.

use them in pairs with the triggers facing out in opposite directions. Examine traps daily and remove dead voles or reset sprung traps as needed. Continue to trap in one location until no further voles are caught.

Be careful handling dead voles as they are known to host various serious diseases such as plague and Lyme disease, though there are no reports of voles as vectors of disease to humans.⁴ Nevertheless, to be safe, wear plastic or rubber gloves when handling dead voles.

Several Methods Not to Use

Baits can cause secondary poisoning to predators that eat poisoned voles and kill non-target creatures such as birds. Commercial repellents have not been proven effective against voles.³ Nor are burrow fumigants effective due to the shallow burrow system with numerous open holes. Electromagnetic and ultrasonic devices are also considered ineffective.

Putting Voles into the Bigger Picture

The narrow confines of this article portray voles mostly as pests. But, please remember the importance of voles in the ecosystem. Low population levels generally do no appreciable damage to human crops and gardens. Remember not to be in a hurry to kill them. Even last winter when populations skyrocketed, nature took care of bringing numbers back into control without the need for any human intervention. ♣

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