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The Problem With Voles

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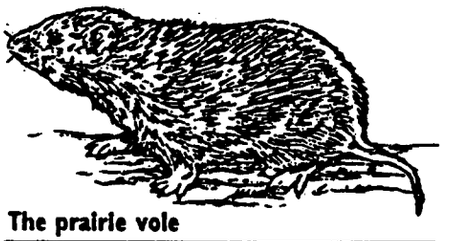
By Kim Wagner

At first glance, these small, stocky, short-tailed rodents may seem harmless, but don't let their appearance fool you! Voles (a.k.a. meadow mice) can cause a lot of damage. Voles kill trees by removing all the bark around the base of the tree (girdling), and by feeding on tree roots. Vole damage to seedlings and tree roots can significantly reduce reforestation rates and tree growth. In British Columbia, vole damage was the main reason over 40 percent of the forest plantations examined had inadequate restocking rates. Vole populations follow a cyclic pattern with population levels reaching a peak every two to five years. Damage can be especially severe in areas where high vole populations result in increased competition for food. Vole damage is most common during the fall and winter when other foods are limited.

Recognizing Vole Damage

The best way to check for vole activity is to look for a combination of tree damage and above-ground runways. Voles build extensive burrow systems and have above-ground runways between openings to their burrows. The presence of vole runways may be a cue to start looking for vole damage. Vole runways are one to two inches wide and may have droppings or plant clippings in the runway. In areas with heavy ground cover, runways may be more like above-ground tunnels. Plants may be clipped close to the ground in areas around well-traveled runways.

The most obvious vole damage is to the stems of trees. Marks from voles will be at various angles and may have a whorled or circular appearance. Tooth marks will only be about 1/8 inch wide, 3/8 inches long, and 1/16 inch or more deep. Rabbits and porcupines leave larger tooth marks and may leave larger chips at the base of the stem. Voles leave a somewhat pointed tip at the end



The prairie vole

of stems that they clip. Rabbits and porcupines generally leave angular cuts. Vole damage to tree roots may not be detected until the needles start turning brown. In these instances it may not be possible to determine the cause of damage without pulling up the tree and examining the roots. Voles damage roots by peeling the cambium off the root and then eating the root, leaving pointed root ends. In contrast, pocket gophers eat all of the root at once and leave angular root ends.

Managing Vole Damage

Voles eat a wide variety of vegetation including grasses, forbs, seeds, bulbs, bark and roots, and are attracted to areas with a high diversity of plant species. Areas with tall foliage and plant debris for cover from predators like hawks, owls, coyotes and foxes are also more desirable. You can do a lot to reduce vole problems by managing the site to minimize these attractions.

Plowing or disking destroys vole food, cover and burrows. It will take longer for voles to return to an area if the food and burrow systems have been destroyed. However, plowing is often not a realistic option, and vegetation reduction/removal with herbicides or fire may be a better alternative. In areas where some vegetation is needed to reduce runoff and erosion, spot treat-

ments can be used. Spot treatments involve removing vegetation and plant litter from around the base of the tree. Try to keep vegetation and plant debris at least three feet from the base of the tree. Cutting the remaining vegetation short will limit food and the amount of shelter from predators. If circumstances permit, create a buffer zone around your trees by also controlling the vegetation in the area surrounding your plantings. In orchards, installing perching poles (1 per acre) and nest boxes (10 per acre) for predatory birds has been successful in increasing predation on voles.

Poison baits (rodenticides) can be used in combination with habitat management. Population reduction is a good idea in areas with high vole populations because animals may put increased pressure on trees when alternate vegetation is removed during habitat management. Use of poison baits is often most effective within two to three days of plant removal when animals are looking for food. Spot treatments are generally not effective unless the vole population is reduced at the same time. Bait should be hand placed at burrows or placed in runways so it will be available to the voles. Grass cover should be reduced so broadcast bait can reach runways. Bait must be dry and fresh or it will be rejected by the animals. It is also important to keep the bait dry because some rodenticides will break down when wet. Placing pieces of shingle, tar paper, or a board over the section of runway with bait will help keep the bait dry and reduce the risk to other animals.

Very few toxicants are registered for use on voles in timber. Check with your local agriculture extension agent for a list of the products licensed for use in your area. When possible, alternate between poisons (active ingredients) and poison formulations (products) to reduce the chance that the voles will become bait shy or resistant to the poison. An animal becomes bait shy when it eats a low dose of poison, becomes sick, and associates the sickness with the food it just ate. This is a particular problem with single dose zinc phosphide baits because the animal becomes sick shortly after consuming the bait. The disadvantage of multiple dose poisons containing anticoagulants like chlorophacinone and diphacenone is that the animal may have to eat the bait over a period of several days to get a sufficient dose. Wet weather during this period may necessitate reapplication of the bait.

If your vole problems continue, make sure all techniques were properly applied (e.g. wet weather didn't spoil bait, bait provided for an adequate number of days, etc.). You may want to try a different combination of habitat management strategies, or you may want to consider trying a different product if you used a rodenticide.

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