

Species:
Cottontail Rabbit
(*Sylvilagus floridanus*)

Cottontail rabbits, *Sylvilagus floridanus*, are one of the most commonly observed animals in urban and suburban areas, but they can be found throughout Kansas. Their light-brown upper body contrasts with their white fur belly. Long ears and a stubby powder-puff tail are their distinguishing characteristics. Adult cottontail rabbits are 15 to 19 inches long and weigh 2 to 4 pounds.

Cottontail rabbits produce 3 to 4 litters of young a year, beginning in late winter and continuing into early fall. Females build a nest approximately the size of a softball, line it with

fur from their bellies, and nurse their young for 2 to 3 weeks before they leave the nest.

Leash laws restricting movements of dogs and cats and laws prohibiting the use of firearms protect cottontail rabbits.

Cottontails prefer brushy cover interspersed with open areas. Abundant growth during the spring and summer provides the rabbits with all the food and cover they need. In the winter, when food is limited, rabbits eat twigs and gnaw the bark of woody plants. This is why young trees and seedlings need to be protected from rabbits during the winter months. Landscaped yards provide excellent rabbit habitats, accounting for the prevalence of cottontails in most suburban and urban areas.

Cottontail rabbits spend their lives in small areas of 10 acres or less. In good habitats where cottontail rabbits are firmly established, efforts to permanently reduce the rabbit population generally are not successful. Once a number of rabbits are removed, cottontails from adjacent areas move in.

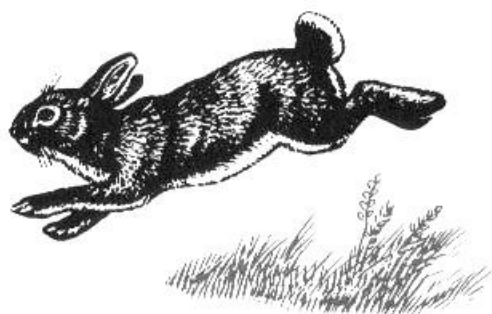
Managing Urban Rabbits

Gnawing marks and twigs cut at an angle, clippings on the nearby ground and round, pea-sized droppings are signs of cottontail rabbits. During snow cover, cottontail rabbit tracks are easily identified.

Exclusion

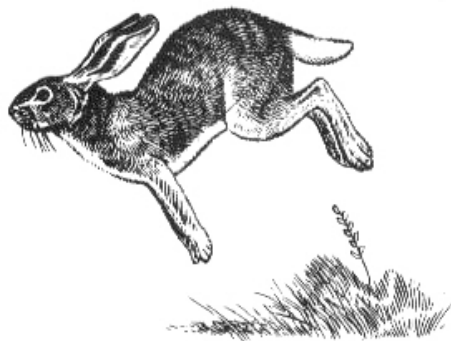
Rabbitproof fences are a practical and inexpensive way to protect valuable plants. Rabbits can be excluded from small areas of vegetable and flower gardens, nurseries and ornamental plants by encircling these areas with 1-inch mesh galvanized wire 18 to 24 inches high. Permanent posts are not required, but the

The cottontails are Colorado's only true rabbits. The snowshoe "rabbit" and "jackrabbit" are actually hares. True rabbits build a nest and their babies are born furless with their eyes closed. True hares do not build a nest and their babies are born fully furred and with their eyes open.

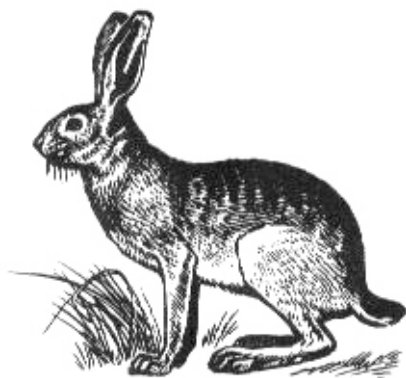


bottom edge of the wire must be staked to the ground or buried several inches deep to prevent rabbits from burrowing under the fence. Reusable fence panels may easily be constructed to protect a garden. These 18- to 24-inch high panels allow gardeners easy access, yet exclude foraging rabbits. Panel frames can be constructed with 1- by 2-inch or 2- by 2-inch lumber. A lightweight 1-inch mesh galvanized wire, such as poultry netting (18 to 24 inches high), is fastened to one side of the frame.

Two kinds of jackrabbits live in Colorado, the black-tailed and the white-tailed. Both are rather large hares and are active at night. Jackrabbits can become pests in farming areas. In Colorado they are considered "non-game" animals and can be hunted year round.



WHITE-TAILED JACKRABBIT



BLACK-TAILED JACKRABBIT

Panels can be made in various lengths to match the size of the garden or storage facility. Lightweight posts, such as electric fence posts, are sufficient for support. One post should be placed in each corner and at each junction of the panels. They can be fastened to the posts with a light malleable wire. If protected with a good coat of paint, panels should last for several years.

Small trees or seedlings can be protected with cylinder guards made from small mesh hardware wire. These rabbit guards should be 18 to 24 inches high or higher depending on the average snowfall. Cylinders should be large enough around to prevent rabbits from reaching through and damaging trees and should be staked for support.

Vexar is the trade name for a commercially available seedling protector. These protectors are tubes made of polypropylene plastic netting and are easily installed at planting time. Avoid installing them during freezing weather because Vexar becomes brittle and is easily broken.

Various paper and plastic wraps including tin foil can be placed directly around the trunks of small trees to prevent cottontail rabbit damage.

Laws and Regulations

Cottontail rabbits are classified as small game in Kansas, but currently they may be taken throughout the year with proper permits and within bag limits. KSA 32-1002, "does not prevent owners or legal occupants of land from killing any animals when found in or near buildings on their premises, or when found destroying property, subject to the following: (A) the provisions of all federal laws and regulations governing protected species and provisions of the Kansas nongame and endangered species conservation act are met, (B) it is unlawful to use or possess with intent to use, an animal so killed unless authorized by rules and regulations of the secretary, and (C) such owners or legal occupants shall make reasonable efforts to alleviate their problems with any such animals before killing them."

Trapping

Along with exclusion, using wooden-cage traps is probably the most practical means of controlling problem rabbits in urban areas. Live trapping is less effective during the summer months because abundant vegetation makes it more difficult to lure them. During summer, exclusion is more feasible.

If live traps are used, place them in an area with a lot of rabbit activity, evidenced by tracks and gnawing on woody plants. Use live traps that measure 6 by 6 by 24 inches. Metal traps of this size may be purchased from various sources, such as farm and garden and hardware stores.

A cage-live trap can also be constructed of wood using a few simple hand tools. The design and dimensions for building a wooden trap are included on the next page.

To catch cottontails, the cage trap must be placed in or along the trails made by rabbits using these areas. Opinions vary as to the importance of using baits, but some prefer to use them. Always place the bait so the rabbit can see it, with some bait at the outside entrance and the rest inside, beyond the trigger at the back.

These traps seem to catch more rabbits once the first cottontail is captured. When the first one is in the trap, leave it long enough to allow it to leave scent, but not long enough to stress the animal. Check traps daily. Lettuce, apples, carrots and corn are all good bait.

Repellents

Rabbit repellents are often unsatisfactory for protecting plants from rabbits. The label restrictions on most rabbit repellents limit their use predominately to woody plants and to the winter months when rabbits are most likely to cause damage. Snow and rain decrease their effectiveness, so they must be reapplied as necessary.

Repellents must be used according to label instructions. Carefully follow directions on

dilution, rates of application, and number of repeat treatments permitted.

In the typical urban situation where problems with cottontail rabbits occur, generally it is garden crops that are damaged. Normally, repellents are not designed nor recommended for use on plants grown for human consumption.

Repellents can be classified as area (odor) or contact repellents. Area repellents, which include bloodmeal ammonium soaps of higher fatty acids (Hinder), bone tar oil (Magic Circle Rabbit Repellent), and other similar repellents, are used during the growing season. Ammonium soaps of higher fatty acids are applied more frequently, especially after rains. Contact repellents applied during the growing season must be reapplied as new growth emerges.

Apply contact repellents such as Thiram, Ropel and Millers Hot Sauce directly to the plants because rabbits are repelled by the taste.

Thiram, one of the safest and most effective contact repellents, generally is used during the dormant season. Thiram is water soluble and a sticker must be added. (Stickers are listed on the Thiram label). Normally, one application of Thiram with a sticker will last the entire dormant season. Repellents can be brushed, sprayed or dipped onto the plants and should be applied 18 to 24 inches above the expected snow depth. Follow label directions closely when handling, applying and storing repellents.

Other Methods

Frightening devices, including electromagnetic and ultrasonic units, have not been proven effective in controlling cottontail rabbit damage. There are no poisons or fumigants for rabbits registered for use in Kansas.

For further information write to Animal Damage Control, Call Hall, Kansas State University, Manhattan Kansas, 66506-1600.

Also, watch for the publication, *Sources of Wildlife Damage Control Supplies*, rural and urban, to be published later.

Building a rabbit live trap

Materials list:

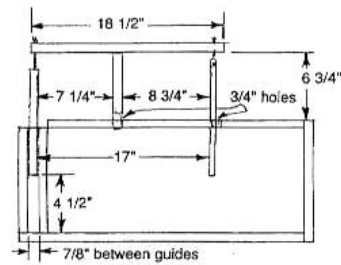
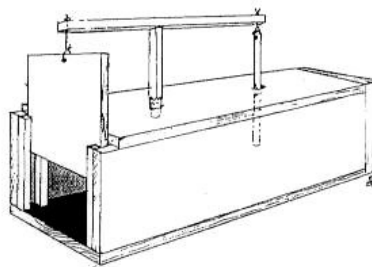
All box parts can be built from a single 1" x 8" board 10 ft. long (see diagram).

Lever— $\frac{3}{4}$ " x $\frac{3}{4}$ " x 18 $\frac{1}{2}$ "

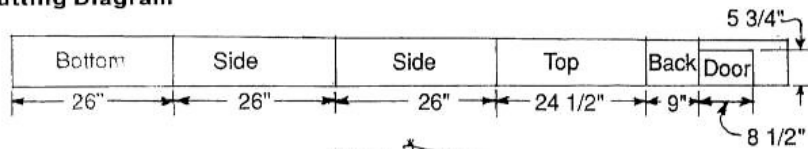
Pivot— $\frac{3}{4}$ " x $\frac{3}{4}$ " x 7 $\frac{1}{2}$ "

Guides— $\frac{3}{4}$ " x $\frac{3}{4}$ " x height of side (make 4)

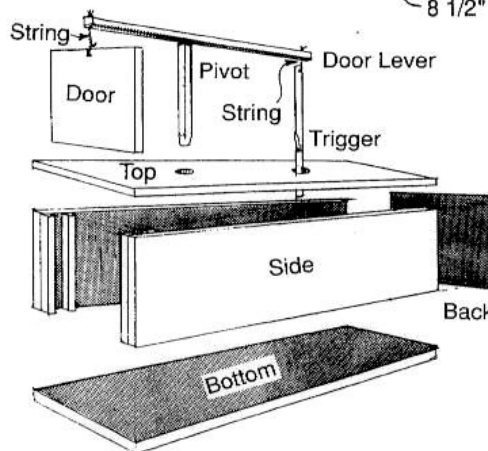
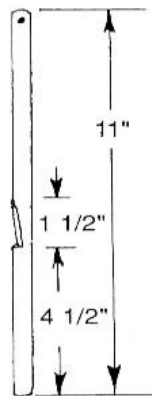
Trigger— $\frac{3}{8}$ " or $\frac{1}{2}$ " dowel 11 inches long (see trigger detail)



Cutting Diagram



Trigger Detail



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CONTROLLING RABBIT DAMAGE IN TREE PLANTINGS

Rabbit damage to newly planted trees and shrubs can be a problem in Colorado. Cottontail rabbits and jackrabbits damage trees, shrubs, and shelterbelt plantings by clipping stems, buds, and small branches, and by girdling larger trees. Damage occurs primarily during the fall and winter, especially when snow cover is present. Young trees are susceptible to rabbit damage until their smooth, thin bark becomes thick and rough with age. Rabbits prefer apple, plum, cherry, pine, ash, maple, honeylocust, bald cypress, Russian olive, and several nut trees in addition to cottoneaster, sumac, Japanese barberry, dogwood, euonymous, autumn olive, pyracantha and roses. Juniper and cedar trees are least susceptible to rabbit damage.

Methods of controlling rabbit damage include use of fences, tree protectors, habitat alteration, repellents and rabbit removal through hunting and trapping.

Fences

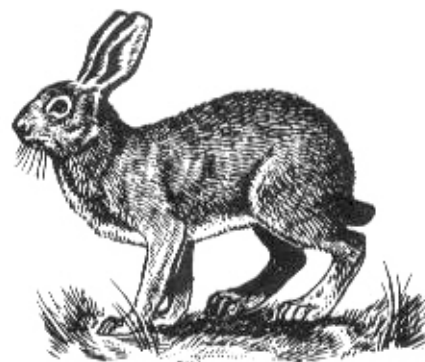
Cottontail rabbits can be excluded from small plantings by erecting a 2-foot tall, 1-inch mesh, galvanized poultry wire fence. The bottom portion of the fence should be secured to the ground or buried a few inches to prevent rabbits from crawling under. Cost and maintenance of this fence generally preclude its use in shelterbelts, windbreaks and other large areas.

Tree Protectors

Tree protectors are one of the best long-term solutions for rabbit damage. Various types of plastic, wire, paper, and tin foil protectors can be purchased or made at home. The protectors should be tall enough to protect trees 12 to 18 inches above expected snow depths. Rigid

polypropylene (VEXAR) seedling protection tubes made of 1/4 to 1/2-inch mesh, 2 to 5-inch diameters, and heights exceeding 18 inches, give excellent protection. These tubes should be supported with a lath or bamboo stake. Side branches of evergreen and deciduous trees grow through the mesh while the leader should grow through the top of the

The snowshoe hare (or varying hare) is named for its large hind feet that help it stay on top of the snow. This hare is found in brushy forests in mountainous areas. Unlike some rabbits, snowshoes do not usually live in burrows. Instead they live in small depressions at the bases of trees and shrubs.



SNOWSHOE (Summer Coat)



SNOWSHOE (Winter Coat)

cylinder. These cylinders generally last 3 to 5 years. A 3-inch diameter and 30-inch tall tube costs about \$0.20 and a bamboo support stake costs about \$0.05.

Flexible polypropylene netting also can be used to protect seedlings; however, it often tends to restrict or bend the terminal leader. Galvanized poultry wire in 1-inch mesh and 30 gauge can be used to construct 4 to 6-inch diameter cylinders to protect young trees. Cylinders also can be constructed of heavier 1 x 3-inch mesh welded wire. Cylinders constructed of ¼-inch hardware cloth will also prevent small rodent (mouse) damage to trees. Wire cylinders should be supported with stakes. They generally are more expensive than the plastic tubes and require some labor in construction.

Various types of paper and plastic wraps can be placed directly around the trunk of small trees to prevent rabbit damage. Tin foil also can be wrapped around the trunk of seedlings to protect them from cottontails, but it is not effective against jackrabbits.

Habitat Alteration

Habitat modifications can provide long-term, nonlethal control of rabbit damage. Removing brush piles, weed patches, junk piles, and other dense cover adjacent to tree plantings where rabbits live and hide can provide excellent control. Since rabbits tend to avoid open areas to escape natural predators, damage can be reduced by mowing or cultivating grass and weeds in tree plantings. After the trees have grown large, they can provide excellent habitat.

Repellents

Repellents can provide seasonal control of rabbit damage. If no alternative foods are available, however, repellents may fail to provide protection. Repellents can be classified as area (odor) or contact (taste) repellents. Area repellents, which include ammonium soaps of higher fatty acids (Hinder, Leffingwell Division, Thompson-Hayward Chemical Co.), bone tar oil (Magic Circle Rabbit Repellent, J.C. Ehrlich Chemical Co.), naphthalene mothballs, and other

natural substances are used during the growing season. Thiram (Gustafson 42-S, Gustafson Inc.), one of the safest and most effective contact repellents, generally is used during the dormant season. Ammonium soaps of higher fatty acids are applied more frequently, especially after rains. Contact repellents applied during the growth season need to be reapplied as new growth emerges.

Repellents can be brushed, sprayed, or dipped onto the plants. Repellents should be applied 18 to 24 inches above the expected snow depth. Approximately 150-200 trees can be sprayed per hour and 1 gallon (diluted per label instructions) usually will cover 170-220 small trees. The cost of repellents ranges from \$0.02 to over \$0.20 per tree depending on brand, concentration, and quantity purchased. Follow label directions closely when handling and storing repellents. Most repellents are not designed for use on plants grown for human consumption.

Rabbit Removal

Rabbits can be removed by hunting and trapping. Hunting in the early morning and late evening may effectively reduce the rabbit population and lessen the damage. Hunting generally is least effective where there is ample hiding cover.

Trapping is one of the best ways to reduce rabbit problems in urban areas. Several types of wooden and wire live traps are available from garden centers, hardware stores, and seed catalogs for about \$20. Wire traps are more effective when the sides are covered with canvas. Traps should be placed close to cover where rabbits feed and rest. During the winter, the trap door should be placed away from prevailing winds to prevent leaves and snow from entering. Traps can be baited with ear corn, dried apples, or dried leafy alfalfa or clover during the winter. Apples, carrots, and cabbage work well during the summer but become mushy during winter. Traps should be checked daily to replenish bait and remove rabbits. Captured rabbits should be released several miles from the plantings.

Jackrabbits usually do not enter wire box traps. They can be captured using large funnel traps placed in travel lanes.

Other Methods

Frightening devices, including electromagnetic and ultrasonic units, have been proven effective for rabbit control.

There are no toxicants or fumigants registered for rabbit control in Kansas.

Technical Assistance

Assistance with rabbit problems can be obtained by contacting your county Extension office, area Extension forester, wildlife damage control specialist, or a Colorado Fish and Game or Soil Conservation Service representative.

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Check with your local and state wildlife agencies for regulations.

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