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JACKRABBITS AND OTHER HARES

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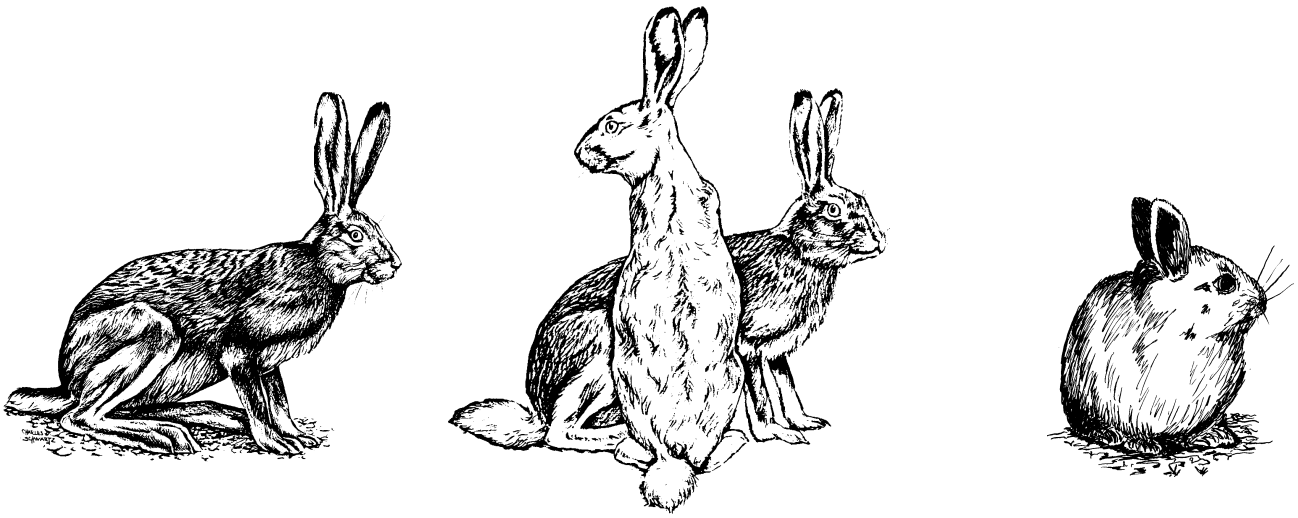
JACKRABBITS AND OTHER HARES

Fig. 1. Blacktail jackrabbit, *Lepus californicus* (left); whitetail jackrabbits, *L. townsendii* (middle); showshoe hare, *L. americanus* (right).



Damage Prevention and Control Methods

Exclusion

Fencing.

Tree trunk guards.

Cultural Methods

Manipulation of habitat.

Planting of less desirable crops.

Frightening

Guard dogs.

Repellents

Ammonium soaps, capsaicin, naphthalene, thiram, tobacco dust, ziram.

Toxicants

Anticoagulants (where registered).

Fumigants

None are registered.

Trapping

Body-gripping and leghold traps.

Box traps.

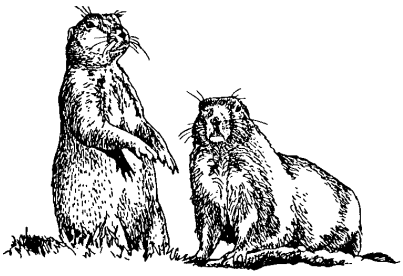
Shooting

Spotlighting and day shooting are effective where legal.

Hunting.

Other Methods

Predators.



PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994

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Animal and Plant Health Inspection Service
Animal Damage Control

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Wildlife Committee

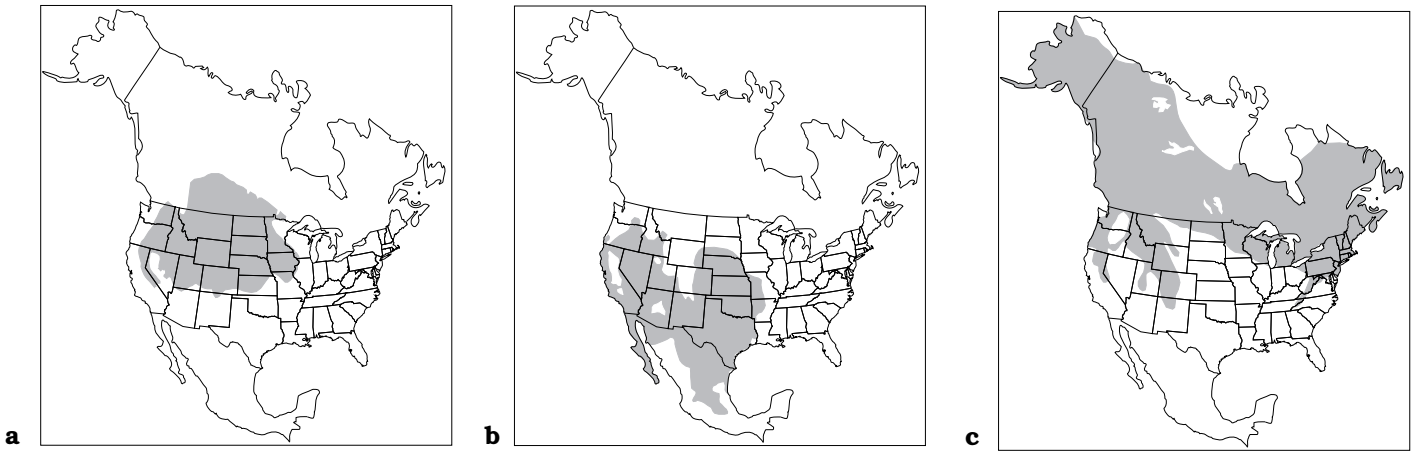

Fig. 2. Range of the (a) whitetail jackrabbit, (b) blacktail jackrabbit, and (c) snowshoe hare.

Identification

Three major species of jackrabbits occur in North America (Fig. 1). These hares are of the genus *Lepus* and are represented primarily by the blacktail jackrabbit, the whitetail jackrabbit, and the snowshoe hare. Other members of this genus include the antelope jackrabbit and the European hare. Hares have large, long ears, long legs, and a larger body size than rabbits.

The whitetail jackrabbit is the largest hare in the Great Plains, having a head and body length of 18 to 22 inches (46 to 56 cm) and weighing 5 to 10 pounds (2.2 to 4.5 kg). It is brownish gray in summer and white or pale gray in winter. The entire tail is white. The blacktail jackrabbit, somewhat smaller than its northern cousin, weighs only 3 to 7 pounds (1.3 to 3.1 kg) and is 17 to 21 inches (43 to 53 cm) long. It has a grayish-brown body, large black-tipped ears, and a black streak on the top of its tail. The snowshoe hare is 13 to 18 inches (33 to 46 cm) long and weighs 2 to 4 pounds (0.9 to 1.8 kg). It has larger feet than the whitetail and blacktail jackrabbits. The snowshoe turns white in winter and is a dark brown during the summer. Its ears are smaller than those of the other hares. The antelope jackrabbit is 19 to 21 inches (48 to 53 cm) long and weighs 6 to 13 pounds (2.7 to 5.9 kg). Its ears are extremely large and its sides are a pale white. The European hare is the largest of the hares in the Northeast, weighing 7 to 10 pounds (3.1 to 4.5 kg) and reaching 25 to 27 inches (63 to 68 cm) in size. This nonnative hare is brownish gray year-round.

Range

The whitetail jackrabbit is found mainly in the north central and northwestern United States and no further south than the extreme north central part of New Mexico and southern Kansas (Fig. 2a).The blacktail jackrabbit is found mainly in the southwestern United States and the southern Great Plains, and no further north than central South Dakota and southern Washington (Fig. 2b). Snowshoe hares occupy the northern regions of North America, including Canada, Alaska, the northern continental United States, and the higher elevations as far south as New Mexico (Fig. 2c). Antelope jackrabbits are found only in southern Arizona, New Mexico, and western Mexico. The European hare is found only in southern Quebec, New York, and other New England states.

General Biology, Reproduction, and Behavior

Members of the genus *Lepus* are born well-furred and able to move about. Little or no nest is prepared, although the young are kept hidden for 3 to 4 days. Females may produce up to 4 litters per year with 2 to 8 young per litter. Reproductive rates may vary from year to year depending on environmental conditions.

Where food and shelter are available in one place, no major daily movement of hares occurs. When food areas and shelter areas are separated, morning and evening movements may be observed. Daily movements of 1 to 2 miles (1.6 to 3.2 km) each way are fairly common. In dry seasons, 10-mile (16-km) round trips from desert to alfalfa fields have been reported.

Damage

Hares consume 1/2 to 1 pound (1.1 to 2.2 kg) of green vegetation each day. Significant damage occurs when hare concentrations are attracted to orchards, gardens, ornamentals, or other agricultural crops. High jackrabbit populations can also damage range vegetation.

Most damage to gardens, landscapes, or agricultural crops occurs in areas adjacent to swamps or rangeland normally used by hares. Damage may be temporary and usually occurs when natural vegetation is dry. Green vegetation may be severely damaged during these dry periods.

Orchards and ornamental trees and shrubs are usually damaged by overbrowsing, girdling, and stripping of bark, especially by snowshoe hares. This type of damage is most common during winter in northern areas.

Rangeland overbrowsing and overgrazing can occur any time jackrabbit numbers are high. Eight jackrabbits are estimated to eat as much as one sheep, and 41 jackrabbits as much as one cow.

Estimates of jackrabbit populations run as high as 400 jackrabbits per square mile (154/km^2) extending over several hundred square miles. Range damage can be severe in such situations, especially where vegetation productivity is low.

Legal Status

Jackrabbits are considered nongame animals in most states and are not protected by state game laws. A few states protect jackrabbits through regulations. Most states in which snowshoe hares occur have some regulations protecting them. Consult local wildlife agencies to determine the legal status of the species before applying controls.

Damage Prevention and Control Methods

Exclusion

Fencing. Exclusion is most often accomplished by the construction of fences and gates around the area to be protected. Woven wire or poultry netting should exclude all hares from the area to be protected. To be effective, use wire mesh of less than 1 1/2 inches (3.8 cm), 30 to 36 inches (76 to 91 cm) high, with at least the bottom 6 inches (15 cm) buried below ground level. Regular poultry netting made of 20-gauge wire can provide protection for 5 to 7 years or more. Although the initial cost of fences appears high—about $1,000 per mile ($625/km)—they are economically feasible for protecting high-value crops and provide year-round protection on farms with a history of jackrabbit problems. Remember to spread the initial cost over the expected life of the fence when comparing fencing with other methods. Exclusion by fencing is desirable for small areas of high-value crops such as gardens, but is usually impractical and too expensive for larger acreages of farmland.

Electric fencing has been found to exclude jackrabbits. Six strands spaced 3 inches (7.6 cm) apart alternating hot and ground wires should provide a deterrent to most hares. Modern energizers and high-tensile wire will minimize cost and maximize effectiveness.

Tree Trunk Guards. The use of individual protectors to guard the trunks of young trees or vines may also be considered a form of exclusion. Among the best of these are cylinders made from woven wire netting. Twelve- to 18-inch-wide (30.5- to 45.7-cm) strips of 1-inch (2.5-cm) mesh poultry netting can be formed into cylinders around trees. Cylinders should be anchored with lath or steel rods and braced away from the trunk to prevent rabbits from pressing them against the trees and gnawing through them.

Types of tree protectors commercially available include aluminum, nylon mesh wrapping, and treated jute cardboard. Aluminum foil, or even ordinary sacking, has been wrapped and tied around trees with effective results.

Wrapping the bases of haystacks with 3-foot-high (0.9-m) poultry netting provides excellent protection.

Cultural Methods

Habitat Manipulation. In areas where jackrabbit or hare damage is likely to occur, highly preferred crops such as alfalfa, young cotton plants, lettuce, and young grape vines are usually most damaged. Crops with large mature plants, such as corn, usually are not damaged once they grow beyond the seedling stage. Where possible, avoid planting vulnerable crops near historically high hare populations.

Overuse of range forage can sometimes lead to high jackrabbit numbers. Jackrabbits are least abundant where grass grows best within their range. Like many rodents, they prefer open country with high visibility to areas where the grass prevents them from seeing far. Thus, control programs accompanied by changes in grazing practices that encourage more vegetative growth may be necessary for long-term relief.

Frightening

Guard Dogs. Dogs can be chained along boundaries of crop fields or near gardens to deter jackrabbits.

Repellents

Since state pesticide registrations vary, check with your local Cooperative Extension or USDA-APHIS-ADC office for information on repellents legal in your area.

Various chemical repellents are offered as a means of reducing or preventing hare damage to trees, vines, or farm and garden crops. Repellents make protected plants distasteful to jackrabbits. A satisfactory repellent must also be noninjurious to plants.

In the past, a variety of repellents have been recommended in the form of paints, smears, or sprays. Many of these afford only temporary protection and must be reapplied too often to warrant their use. Other, more persistent materials have caused injurious effects to the treated plants. Some chemical substances such as lime-sulphur, copper carbonate, and asphalt emulsions have provided a certain amount of protection and were harmless to the plants. These are less commonly used today and have been replaced by various commercial preparations such as ammonium soaps, capsaicin, dried blood, napthalene, thiram, tobacco dust, and ziram, which are probably more effective. Repellents are applied during either the winter dormant season or summer growing season. Recommendations vary accordingly.

Be sure to use repellents according to the manufacturer's guidelines and follow label recommendations.

Powders. Any repellent applications that involve the use of powders should be dusted on garden crops early in the morning when plants are covered with dew, or immediately after a rain. Do not touch plants with equipment or clothing because moist plants, especially beans, are susceptible to disease. When a duster is not available and only a few plants are involved, use a bag made of cheesecloth to sift repellent dust onto plant foliage. Repeated applications may be necessary after rains have washed the powder from the foliage and as new plant growth takes place.

Sprays. Thoroughly cover the upper surfaces of the leaves with spray repellent. If a sprayer is unavailable and only a small number of plants are involved, a whisk broom or brush can be used to apply the repellent to the plant foliage. The repellents will adhere to the foliage for a longer period if a latex-type adhesive is used. Reapply liquid repellents after a heavy rain and at 10-day intervals to make certain new plant growth is protected.

Some repellents are not registered for application to leaves, stems, or fruits of plants to be harvested for human use. A list of registered commercial repellents can be found in **Supplies and Materials.** Many of these may be purchased at a reasonable cost from suppliers handling seed, insecticides, hardware, and farm equipment.

Commercial repellents containing thiram are effective and can be applied safely to trees and shrubs. Treat all stems and low branches to a point higher than rabbits can reach while standing on top of the estimated snow cover. One application made during a warm, dry day in late fall should suffice for the entire dormant season. Coal tar, pine tar, tar paper, and oils have caused damage to young trees under certain conditions. Carbolic acid and other volatile compounds have proved effective for only short periods. For further information on repellents and their availability, see **Supplies and Materials.**

Toxicants

Since state pesticide registrations vary, check with your local Cooperative Extension or USDA-APHIS-ADC office for information on toxicants legal in your area. Be sure to read the entire label. Use strictly in accordance with precautionary statements and directions. State and federal regulations also apply.

Anticoagulants. In areas where they are legal, anticoagulant baits may be used to control jackrabbits. Varying degrees of success have been reported with diphacinone, warfarin, brodifacoum, and bromadiolone. Anticoagulants control jackrabbits and hares by reducing the clotting ability of the blood and by causing damage to the capillary blood vessels. Death is caused only if the treated bait is consumed in sufficient quantities for several days. A single feeding on anticoagulant baits will not control jackrabbits. Brodifacoum and bromadiolone may be exceptions, but they are not yet registered for use on jackrabbits. Bait must be eaten at several feedings on 5 or more successive days with no periods longer than 48 hours between feedings.

When baiting with anticoagulants, use covered self-dispensing feeders or nursery flats to facilitate bait consumption and prevent spillage. Secure feeding stations so that they cannot be turned over. Place 1 to 5 pounds (0.5 to 2.5 kg) of bait in a covered self-dispensing feeder or nursery flat in runways, resting, or feeding areas that are frequented by jackrabbits. Inspect bait stations daily and add bait as needed. Acceptance may not occur until rabbits become accustomed to the feeder stations or nursery flats, which may take several days. When bait in the feeder is entirely consumed overnight, increase the amount. It may be necessary to move feeders to different locations to achieve bait acceptance. Bait should be available until all feeding ceases, which may take from 1 to 4 weeks. Replace moldy or old bait with fresh bait. Pick up and dispose of baits upon completion of control programs. Dispose of poisoned rabbit carcasses by deep burying or burning.

Fumigants

There are no fumigants registered for jackrabbits.

Trapping

Trapping with box-type traps is not effective because jackrabbits are reluctant to enter a trap or dark enclosure. Snowshoe hares are susceptible to box-type traps.

Body-gripping and leghold traps can be placed in rabbit runways. Trapping in runways may result in unacceptable nontarget catches. Check for tracks in snow or dirt surfaces to be sure only target animals are present. Placement of sticks 1 foot (0.3 m) above the trap will encourage deer and other large animals to step over the trap while allowing access to jackrabbits or other hares. Be sure to check with local wildlife officials on the legality of trapping hares and jackrabbits.

Shooting

Where safe and legal to do so, shooting jackrabbits may suppress or eliminate damage. Effective control may be achieved using a spotlight and a shooter in the open bed of a pickup truck. Driving around borders of crop fields or within damaged range areas and carefully shooting jackrabbits can remove a high percentage of the population. Some states require permits to shoot from vehicles or to use spotlights.

In some states sport hunting of jackrabbits can be encouraged and may keep populations below problem levels.

Other Methods

Predators. Natural enemies of jackrabbits include hawks, owls, eagles, coyotes, bobcats, foxes, and weasels. Control of these predators should occur only after taking into account their beneficial effect on the reduction of jackrabbit populations.

Economics of Damage and Control

Jackrabbits consume considerable vegetation. In cases where their overuse of natural forage results in the reduction of livestock on rangeland, control measures may need to be implemented. Few studies have been conducted on the cost-effectiveness of jackrabbit control on rangelands. Damage must be extreme to justify expenditures for control programs. In most cases, cultural controls and natural mortality will suffice to keep jackrabbit populations in check.

Economic loss on croplands is much easier to measure. In areas with historic jackrabbit or hare damage, farmers should anticipate problems and

have materials available to use at the first sign of damage. During dry times of the year or times of natural food shortages, preventive measures such as shooting and exclusion may be considered a part of regular operations. Jackrabbits and other hares can be deterred most easily if control measures are implemented before the hares become accustomed to or dependent on crops.

Acknowledgments

Figure 1 of the snowshoe hare by Clint E. Chapman, University of Nebraska.

Figure 2 adapted by David Thornhill, from Burt and Grossenheider (1976).

For Additional Information

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