

Control of Tree Squirrel Damage

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This NebGuide describes tree squirrel biology, behavior, and types of damage they cause. It suggests control methods and equipment and describes legal restrictions.

Tree squirrels are known for their bushy tails and their ability to climb high in trees. The eastern fox squirrel (*Sciurus niger*) is the most common tree squirrel in Nebraska and occurs statewide. The eastern gray squirrel (*Sciurus carolinensis*) lives in the deciduous forests along the Missouri River and in urban areas, while the southern flying squirrel (*Glaucomys volans*) exists only in the southeastern portion of Nebraska (Figure 1).

Tree Squirrel Biology

Fox Squirrels. Fox squirrels are about 18 to 24 inches long from nose to tip of tail. They weigh about 2 pounds and have large, bushy tails with yellow-to orange-tipped hairs. Pelage color can vary from silver-gray to black but is usually a grizzled rusty brown on top and buff to bright rust below. Adult fox squirrels breed during December to January and sometimes again in June to July. About three to six young are born after a 45-day gestation period. Each newborn squirrel weighs about 1/2 ounce. The young are weaned at 3 months of age. Fox squirrels do not hibernate but will increase their time in the nest during the winter. Fox squirrels generally live from four to seven years but can live as long as 12 years.

Gray Squirrels. Gray squirrels are about 17 to 19 inches long from nose to tip of tail. They are typically gray on top

with buff underfur, although some have blackish fur. Their bushy tails are gray with silvery-tipped hair. Eastern gray squirrels have litters of two to four young in spring. Another similar litter may be born in late summer. The young are weaned at 50 days but those in the second litter stay with the female over the winter.

Flying Squirrels. Flying squirrels are much smaller (9 to 10 inches long including tail) than fox and gray squirrels and have a membrane of skin that extends from the wrist of the front leg to the ankle of the hind leg. A horizontally flattened tail serves as a rudder during glides. Flying squirrels have large eyes to help them see during their night forays. Their fur is long and silky gray to brown on their back and creamy white on their belly. Southern flying squirrels breed during late winter and again in early summer. A single litter usually consists of three to four young. Flying squirrels rarely cause damage and are fully protected in Nebraska. Unlike other squirrels, flying squirrels are nocturnal and will live in colonies numbering as high as 40 squirrels.

All three species may eat acorns and other nuts, seeds, fruits, berries, buds, flower blossoms, and tree bark. They have been known to eat insects, bird eggs, nestlings, mice, and carrion as well. Squirrels are prey to hawks, owls, snakes, and several mammalian predators.

Economic Importance

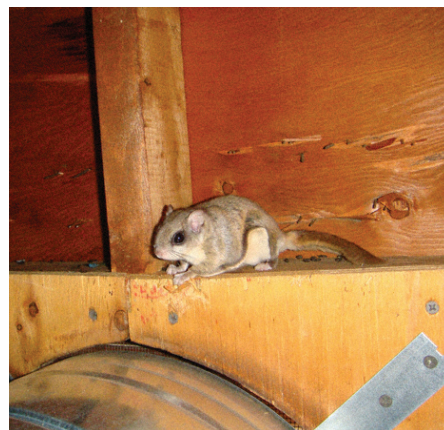
Tree squirrels are an attractive quarry to hunters wherever they are found. They are valued for their meat and fur. In 2006, Nebraska squirrel hunters harvested 17,500 tree squirrels. In addition, many people enjoy watching squirrels in public parks and in their own yards. On the negative side, tree squirrels damage personal property and cause an estimated loss of \$500,000 per year to public power facilities in Omaha alone.

Controlling Damage

Flying squirrels are protected in Nebraska. Fortunately, they rarely conflict with human interests. Residents living in southeastern Nebraska should understand that activity by flying squirrels is frequently misattributed as



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Matt Grady

Figure 1. Eastern fox squirrel and southern flying squirrel.



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Figure 2. Tree bark is commonly stripped by squirrels during winter and spring.

mice. Visit icwdm.org to learn how to distinguish the signs of flying squirrels from mice. The remainder of this NebGuide will focus on managing problems caused by fox and gray squirrels.

Tree squirrels can cause a variety of problems, including damage to trees, flowers, lawns, gardens, vehicles, and structures (*Figure 2*). Wildlife Control Operators regularly rate tree squirrels as a significant nuisance animal in the United States. Everybody who feeds birds is aware of the voracious appetite of tree squirrels for birdseed. On structures, the ability of squirrels to gnaw, enter small holes, and climb a variety of surfaces make them a significant challenge. Squirrels can cause extensive damage to structural insulation and electrical wires in homes, vehicles, and power lines.

Modify the Habitat

Trim tree limbs at least 8 feet away from buildings to prevented squirrels from jumping to roofs. Failure to trim upper branches may simply allow a squirrel to leap down to the roof from a higher branch. To prevent climbing on buildings or trees, install three horizontal rows of porcupine wire, spaced so that the points are 1-inch apart. Porcupine wire is very sharp. Prevent potential human injuries by installing the wire at least nine feet off the ground. Plant seedless varieties of trees to lower the amount of available food to reduce squirrel populations.

Problem Squirrels at Bird Feeders

Despite popular belief, squirrels can be excluded from bird feeders. The key to squirrel-free feeders is to respect the athletic abilities of squirrels. A grey squirrel can jump sideways eight feet, straight up four feet, and down 15 feet, then hang on where it lands. Fox squirrels have similar abilities and present similar challenges.

Avoid hanging bird feeders from trees. Instead, use a large-diameter metal pole, with accompanying baffle, to elevate a bird feeder at least five feet off the ground and 10 feet away from branches or other structures from which a squirrel could leap (*Figure 3*). Hang the bird feeder by a chain or cable from an arm of a pole with a properly placed baffle. Alternatively, metal flashing or a stovepipe can be placed on poles below platform bird feeders. Bird feeders also can be hung from a horizontal wire with plastic pipe sleeves as protection on either side (see section *Prevent Squirrel Travel on Wires and Poles*).

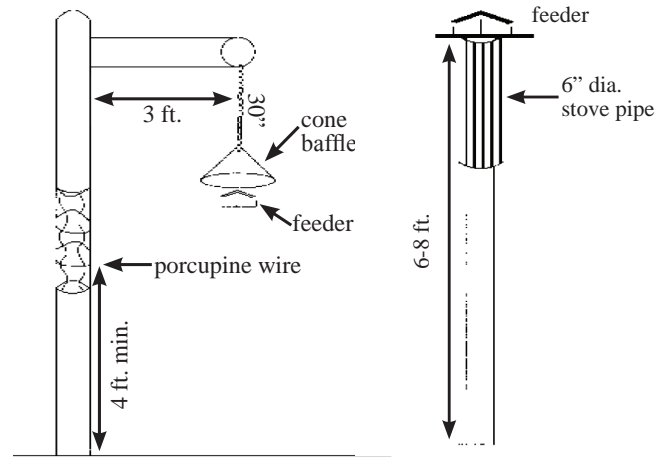


Figure 3. Two designs for squirrel-resistant bird feeders.

Greased poles and sliding two-part poles usually fail. Enclose an entire birdfeeder with 2-inch wire mesh to permit small birds to feed, while preventing squirrels. Using squirrel-resistant feeders, such as those with weight-activated perches, can also reduce the stealing of seed by squirrels. Capsaicin, mixed with bird seed, may be effective in repelling squirrels (See icwdm.org for additional tips on squirrel-proofing feeders).

It is ill-advised to feed squirrels. Well-fed squirrels quickly fill available nesting areas and are more likely to invade structures. In addition, the gathering of squirrels by feeding may increase the transmission of sarcoptic mange among the squirrels.

Unwanted Squirrels in Buildings

Damage by squirrels usually is easy to identify. Sign includes droppings, gnawed holes, leaves, twigs, shells, hulls, pits, shredded insulation, or nesting materials inside an attic. Property owners frequently hear scurrying in the ceiling shortly after dark and before dawn. Acorns that are crushed, as opposed to being opened at one end, also signify the presence of fox and gray squirrels. Tracks of tree squirrels (*Figure 4*) can be distinguished from rats by the lack of the splayed toes.

Squirrels can squeeze through holes 1.5 inches in diameter and will enlarge smaller holes by gnawing. Squirrels can climb vertical brick or masonry walls that have a roughened surface. They can enter through vents, chimneys, broken windows, knotholes, and gaps in construction under eaves or



Figure 4. Tree squirrels typically hop, placing their hind feet forward of their front feet.

gables. Tree squirrels most often enter attics and spaces along the gutter line or through vents. Follow the trapping instructions before implementing any repairs. Cork entry holes with newspaper to determine squirrel activity. If newspaper is not moved for five consecutive days during good weather, then it is reasonably safe to secure the opening.

To reduce future problems with squirrels in buildings, prevent their access by inspecting and repairing small holes before they become large enough for squirrels to enter. Never secure an opening unless certain that it is no longer being used. Prevent air movement by filling gaps with caulk or expanding foam before covering openings with metal flashing, ¼-inch weave hail screen, or other permanent material. From the outside of the building, secure air-vents with ¼-inch hardware cloth. Paint the mesh to match the color of the vent to reduce its visibility. Secure roof vents with professionally manufactured stainless-steel screens. Consult with a roofer on proper installation techniques to prevent leaks. After ensuring that chimney flues are functioning properly, install a professionally manufactured stainless-steel chimney cap (*Figure 5*).



Figure 5. Stainless steel chimney excluder.

Exclude Squirrels from Gardens and Lawns

Tree squirrels cause damage to gardens, flowers, and lawns. They chew on spring-planted potted plants, bury nuts in turf or landscaped areas, dig up seeds and bulbs of garden vegetables and flowers, and eat ripened fruits and grains.

Wire mesh fences (no larger than ½-inch weave) topped with electrified wire or mesh enclosures may be practical for keeping squirrels out of small areas. Electrified wires are not recommended for use where there are children or pets. Little else can be done with squirrels in larger areas, other than removing the offending squirrels by cage trapping or shooting where safe and legal.

Taste repellents like Ro-pel® and capsaicin can be used to treat seeds, bulbs, and flowers not destined for human consumption. Polybutenes are sticky materials that repel squirrels by touch, but they are only marginally effective and are messy to use.

Prevent Squirrels from Traveling on Wires and Poles

Various disc baffles and pipe sleeves are available to prevent squirrels from using utility lines (*Figure 6*). Consult with your utility company before installing any of these products yourself. Under no circumstances should electrical lines be approached. Have the utility company install them. CritterGuard® is one product that power companies have successfully used on their lines.

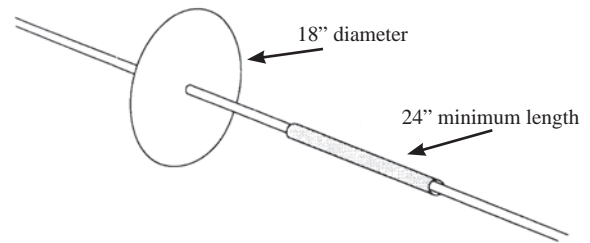


Figure 6. Disc baffle and pipe sleeve to prevent squirrels from traveling on utility line wires.

To protect nonelectrical bearing horizontal lines, cut a 2-inch diameter plastic pipe lengthwise, spread it open, and place it over the cable. The sleeves should fit loosely so they rotate as squirrels try to traverse them. Sleeves should be at least 18 to 24 inches long. Collars can be creatively painted so that they look like the bark of the tree behind them.

Metal collars can be used to encircle trees and poles to prevent squirrel travel. Collars should be at least 2 feet wide and placed 6 to 8 feet above the ground. Collar edges should be overlapped and connected by springs to allow for tree growth.

Prevent Bark Stripping, Twig Clipping, and Territorial Marking

Squirrels typically strip bark during winter and spring. Deciduous trees with smooth bark sustain the most damage, but other trees can be targeted. Twig clipping occurs most frequently in spring and early fall. Fortunately, trees can sustain damage up to 50 percent of the trunk's circumference and foliage losses up to 30 percent without significant impacts. Landowners can prevent damage to trees by installing metal collars as described above. Polybutene-based repellents can also help prevent access of squirrels to trees or branches. Protect the tree from the petroleum-based repellent by applying a plastic barrier between the tree surface and the repellent. Follow label instructions.

Occasionally, tree squirrels will gnaw on structures, decks, porches, fences, and other objects that do not provide nutrition, moisture, or housing needs. It is believed that this type of damage is a byproduct of territorial marking. If a physical barrier, such as metal flashing is not an option, then commercial repellents can be effective. Apply the repellent on the marks and to a 12-inch radius around it. Repeat as necessary. If the impact to trees or structures is significant, remove offending squirrels by cage trapping or shooting.

Trapping Squirrels

Cage traps for squirrels should be at least 18 inches long with a 6-by-6-inch door. Place traps outside and very near the squirrel's entry hole. Trapping in an attic is less successful unless the attic can be safely lighted and/or the traps can be located within a few feet of a nest. Entry into an attic also requires one to wear appropriate respiratory protection.

If trapping on an elevated surface, fasten traps securely. In all circumstances, place a durable cover over 50 percent of the trap at the bait end to protect captured squirrels from extreme temperatures. The cover will also prevent the theft of bait (*Figure 7*). Bait traps with corn, peanut butter, nuts, or pieces of orange or apple. Traps should be checked twice daily at morning and dusk. If trapping on the ground, close traps at dusk to prevent capturing skunks, or learn how to release trapped skunks. Whenever possible, avoid trapping in April



Figure 7. A professional placing a squirrel cage trap on a roof.

and May to reduce the risk of orphaning young. Translocation of squirrels is illegal in Nebraska. A problem squirrel must be released within 100 yards of capture site or euthanized. Euthanasia information may be found at icwdm.org.

A variety of lethal traps are available for capturing squirrels. Place traps inside buildings or more than 8 feet off the ground to avoid injuries to nontarget animals and people. Lethal traps such as body grip style #55, tunnel trap, Kania, Koro, and Gopher Getter gopher trap, have a greater chance of obtaining a quick kill. Consult manufacturers or distributors for specific advice on using of these devices to control squirrels.

We do not recommend capturing squirrels by hand. They are very evasive and have a powerful bite. If a squirrel has accidentally entered a building, darkening rooms will encourage squirrels to move toward the light. Use a light trail and barricades to encourage the squirrel to move outside. Otherwise, use box or cage traps to remove the squirrel. Locate traps on boards or hard surfaces as trapped squirrels will damage carpet through scratching and defecation.

Shooting Squirrels

Squirrels that are causing damage in rural areas can be safely removed by shooting with a shotgun, small-caliber rifle, or pellet gun. Squirrel calls can improve hunting success. Avoid shooting squirrels in urban areas because of the ordinances against discharging firearms and obvious dangers to other animals and people.

Squirrels and Disease

Squirrels are susceptible to parasites, including ticks, fleas, bot flies, and mange mites. The latter cause a disease called sarcoptic mange that produces scabs and severe hair loss. The scabs become thick and wrinkled, giving the squirrel a startling appearance. The disease can cause death by exposure. Sarcoptic mange mites typically are species-specific so mange does not ordinarily spread from squirrels to people or pets. Report to authorities any squirrel that acts extremely aggressive or is convulsive.

Nebraska Laws Relating to Tree Squirrels

1. Fox and gray squirrels are classified as small game animals and can be taken by individuals with a small game hunting permit during the hunting season (typically August 1 to January 31). Letters of authorization to shoot or trap tree squirrels out of season can be issued for damage situations by the Nebraska Game and Parks Commission. Tree squirrels also may be shot or trapped within municipalities by people who possess a valid Wildlife Damage Control Permit.
2. Municipal laws are usually more restrictive than state laws regarding the control of tree squirrels. Some communities forbid the use of lethal traps within their jurisdictions.
3. Southern flying squirrels are fully protected as a threatened species in Nebraska because of their limited range and low numbers.
4. Squirrels must be released within 100 yards of the capture site or they can be euthanized if taken under the authority of a Wildlife Damage Control Permit. Wildlife Damage Control Permits may be obtained from your local representative of the Nebraska Game and Parks Commission or by calling (402) 471-0641.

Additional Sources of Information

Internet Center for Wildlife Damage Management icwdm.org

Wildlife Encounters and Conflicts: A Nebraska Guide To Finding Assistance NebGuide G1828 www.ianrpubs.unl.edu/sendIt/g1828.pdf.

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