

## 21. GRAY SQUIRREL

*Sciurus carolinensis*

### SUMMARY

Gray squirrels live primarily along the Lake Champlain and Connecticut River valleys in Vermont in hardwood forests of oak, hickory, and beech. They require mast-producing oak trees in conjunction with other mast- or seed-producing trees (see wild turkey and mast tree sections of these guidelines for more information). As a landowner, you can promote gray squirrel populations on your land by selectively thinning around large, prolific hard mast trees and by leaving several trees with small cavities for den sites.

### NATURAL HISTORY

Gray squirrels are not only found in backyards but also in mature hardwood forests dominated by hard mast-producing trees such as oak, hickory, and beech. Gray squirrels seldom utilize pole stage hardwood or pure softwood stands, unlike red squirrels. Although gray squirrels can be found throughout much of Vermont, the best habitat and highest populations occur in the oak-dominated hardwood forests of the Champlain Valley, Connecticut River Valley, and southern Vermont.

Home ranges of gray squirrels vary from 1 to 25 acres depending upon habitat quality. Normal daily movements average only 160 feet.

Squirrels reach sexual maturity at 8 to 11 months. They undergo two breeding periods each year in January and June. The gestation period is 60 days, with litter size normally two or three blind and hairless young. Food availability greatly influences survival and reproductive success. In good food years, up to 40 percent of females produce second litters; in poor years, almost none will. Average life expectancy for a squirrel is 1 to 2 years, although some individuals may live up to 10 years. Annual mortality rates average 50 percent for adults and 75 percent for juveniles.

Gray squirrels feed on a variety of foods including acorns, nuts, seeds, buds, flowers, fungi, insects, and small bird eggs. Hard mast (acorns, hickory nuts, and beechnuts) makes up the bulk of their diet throughout the year and is critical to their survival. Several consecutive years of mast failure can trigger increased movements of squirrels in search of food, resulting in heavy mortality. During such times, populations can drop by 15 to 25 percent, though they may recover to former levels after a couple of good mast years.

### HABITAT REQUIREMENTS

In Vermont, good gray squirrel habitat consists of mature hardwood forest with a high component of oak, in combination with hickory or beech. A closed or nearly closed canopy is also necessary. The availability of alternate food-producing trees such as ash, maple, butternut, hop hornbeam, and black cherry can buffer against years of poor mast crops.

Den trees provide winter shelter, escape cover, and nest sites. Squirrels select cavities that are 1- to 3-feet deep and 6- to 10-inches in diameter with entrance holes 3- to 4-inches wide. Gray squirrels avoid larger



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**Figure 21.1**  
Lowland hickory and oak forest are excellent gray squirrel habitat.

entrance holes because these allow raccoons to enter their dens. Leaf nests are constructed to provide alternate escape and nesting cover, but cavities provide better shelter than leaf nests.

A permanent source of water such as woodland streams and ponds, is important to squirrels, especially lactating females.

## MANAGEMENT PRACTICES

In Vermont, the best management opportunities for gray squirrels are in mature hardwood forests and woodlots dominated by oak. The presence of mature hickory and beech in these stands further enhances their value. Gray squirrels can be managed for in woodlots as small as 5 to 10 acres. Gray squirrel density of one per acre is a reasonable goal in good habitat, with two to five per acre possible in the very best habitats. Small woodlots, riparian zones, and field borders can be managed for gray squirrels if they are 5 acres or more in size, at least 50 feet wide, and have nearly complete crown closure.

A minimum of 150 pounds of acorns and nuts per acre is required to maintain viable gray squirrel populations and accommodate use by other wildlife (more than 80 species of birds and mammals are known to feed on acorns alone). To provide this amount, trees producing hard mast must be a major component of the forest stand. Quality habitat should have two or more primary hard mast tree species plus several alternate food species to buffer against poor mast crop years. Stands of mixed hardwoods or hardwoods and pine can be improved by selective thinning. Mark trees in the autumn to identify and favor the best mast producers. To promote crown vigor and increase mast production, select trees with crowns equal in feet to twice the diameter of the tree's base in inches (example: a 16-inch tree should have at least a 32-foot crown width). During thinning, release the best mast producers, but retain a diversity of mast species. Areas managed for gray squirrel will benefit a variety of wildlife.



Provide at least two to five den trees per acre, distributed throughout the managed area. Den trees should be live, durable hardwood species ten inches or greater in diameter with holes 3- to 4-inches in diameter.



## RESOURCES

U.S.D.A. Natural Resources Conservation Service. "What is Forest Stand Improvement?" [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1081110.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1081110.pdf)

—. Forest Stand Improvement Job Sheet (666) – Mast Tree Release. [http://efotg.sc.gov.usda.gov/references/public/VT/JS666VT\\_\(Mast\)\\_FillableForm.pdf](http://efotg.sc.gov.usda.gov/references/public/VT/JS666VT_(Mast)_FillableForm.pdf)