

WILDLIFE

management guide



Wildlife Management Section
South Carolina Department
of Natural Resources
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Eastern Gray Squirrel

HABITAT REQUIREMENTS

Productive gray squirrel habitat contains a variety of mast-bearing hardwood trees, other tree and shrub species that provide buds, fruit, flowers, cones and samaras in season, and ample den cavities for escape, shelter, and raising young.

▲ Food

Squirrel reproduction and survival fluctuates with changing yields of hard mast, particularly acorns, beechnuts and hickory nuts. When mast is not available, fruits and berries, floral parts, buds, bark, roots, mushrooms and animal matter provide food. Some variety in tree species is essential for habitat stability, but the presence of heavy-seeded tree species determines the carrying capacity for gray squirrels.

▲ Seasonal Foods of Gray Squirrels

Spring

acorns
(RO group)
hickory
beech
buds &
flowers of
maple, elm,
oak, etc.
fungi
red maple
seeds

Summer

buds & flowers
berries
mulberry
fungi
blackberry
yellow poplar
sugar maple
seeds

Fall

hickory
pecan
beech
blackgum
acorns (WO
& RO groups)
blackgum
magnolia
pine seeds
walnut
fungi
dogwood
hawthorn
hornbeam
chinquapin
yellow poplar
blackberry

Winter

hickory
beech
walnut
acorns,
(WO & RO groups)
yellow poplar



▲ Cover

Although squirrels use stands with open understories, they prefer habitat with a moderate to dense understory of shrubs and vines that offer cover and concealment.

Den trees are essential to squirrels for winter shelter, escape cover and rearing young. Leaf nests are also used as temporary shelter, winter shelter and brood-rearing. Litters raised in den cavities have a higher (up to 2-1/2 times as high) survival rate than those in leaf nests. Adult females with young will not tolerate other squirrels in the same den tree.

Normally, cavities suitable for dens appear in 40-50 year old stands. Adult squirrels usually frequent two or more den trees located near the periphery of their range. On the average about half of the den cavities identifiable from the ground are suitable for raising young. Optimal habitat will have 2 to 3 suitable cavities per acre.

▲ *Water*

While gray squirrels frequently use open water when available, apparently they can satisfy daily needs from other sources (*dew and succulent materials*) if necessary.

▲ *Home Range*

The home range of gray squirrels varies inversely with population density and is usually from 1.5 to 8 acres with many home ranges overlapping. Populations develop social hierarchies or “pecking orders” influenced by age and sex and dominant animals usually have larger home ranges.



STANDARD MANAGEMENT PRACTICES

Gray squirrels are almost wholly dependent upon hardwood forests of mast-bearing age for food and shelter. Conversion of low grade hardwood forests to pine, applying shorter than sawtimber rotations, impoundments that permanently flood bottomland forests, and drainage and conversion projects reduce or eliminate squirrel habitat.

If managing for squirrels, create stand sizes of 10 to 40 acres in hardwood or pine-hardwood types. When squirrels are desired throughout an extensive area (*a square mile or more*), retain at least one-third of it in 50 year age classes.

Hardwood inclusions of five acres or more within pine types may be managed effectively for squirrels. Protect den tree clumps and key areas for mast production.

In site preparation, limit understory control and use mechanical methods over herbicides. If understory reduction is necessary for good regeneration, top understory fruiting shrubs like dogwood, plum or grape rather than treating them with chemicals, or band necessary herbicides within the rows of planted trees rather than broadcast treating the entire area.

▲ *Rotation*

Rotation length, mast species and stocking greatly affect the quality of squirrel habitat. With appropriate tree species composition and stand treatment, 50 to 100 year-old stands will be the most productive.

▲ *Regeneration*

Harvest cuts remove squirrel habitat for about 30 years. This loss can be mitigated by using regeneration methods to improve the composition of new stands and, favoring tree species that provide good squirrel habitat. Size of regeneration cuts should be limited as much as practical and unharvested streamside management zones maintained.

To develop squirrel habitat from young stands:

- encourage suitable advanced reproduction of oaks and hickory prior to harvest
- use regeneration methods that encourage mixed hardwoods
- exclude cattle during regeneration.
- retain one-half acre clumps of deciduous trees suitable for den development per 20 acres.

▲ *Intermediate Treatments*

Thin early and frequently for rapid development of full crowns. Although all oaks provide an important component of squirrel habitat, oaks in the red oak group should be favored 2:1 over oaks in the white oak group because they are generally more reliable mast producers. Develop a tree species composition that assures a year-round food supply.

Remove stunted and stagnated stems (except den trees) and trees that show no sign of mast production. Release scarce but valuable food bearing tree species and retain all den trees.

▲ *Prescribed Burning*

Prescribed burning generally has little application in squirrel habitat management, although burning may be used to rejuvenate and improve productivity of some soft mast species such as blueberry or blackberry. Most hardwood species will be killed or severely damaged by fire.

DIRECT HABITAT IMPROVEMENTS

Nest boxes have been used successfully on experimental areas to increase squirrel populations. Due to the high cost of installation and maintenance and the rate of loss to storms and vandalism, nest boxes are not recommended on an extensive basis. They may be worthwhile in areas where natural cavities are limiting, but other components of squirrel habitat are present.

Leave some grain unharvested (*corn preferred*) and/or eliminate fall tillage of croplands adjacent to forested areas. Plant mast-producing trees along fence rows, adjacent to streams, or in other idle land areas. When possible, locate plantings adjacent to existing croplands.

OTHER SPECIES THAT BENEFIT FROM GRAY SQUIRREL MANAGEMENT

Numerous other game and nongame species benefit from squirrel management. Rather than focusing solely on squirrels, management plans should emphasize the communities of which squirrels are only a part.

The following species are common squirrel associates:

<u>Songbirds</u>	<u>Raptors</u>	<u>Game Species</u>
woodpecker	Cooper's hawk	raccoon
wood thrush	sharp-shinned hawk	wild turkey
Acadian flycatcher	red-tailed hawk	wood duck
white-breasted & brown-headed nuthatch	red-shouldered hawk	white-tailed deer
hooded & parula warbler	barred owl	
red-eyed vireo	great horned owl	
	screech owl	





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