

Future Opportunities for Terrestrial Wildlife and Botanical Resources

Question 3:

What habitat types, habitat parameters and management activities are important in providing the distribution and types of habitats to viable populations and/or desired habitat capability for the "short list" of wildlife and plants?

Question 4:

Based on our current knowledge of ecological unit land capabilities for the Southern Appalachians, what are the general habitat mixes and conditions needed to recover threatened and endangered (T&E) species, conserve viability of concern (VC) species; maintain the existing species and community diversity that will not result in the loss of viability for any plant or animal species, and provide sustainable levels of species populations on national forests?

Due to short time frames and the sensitivity of these topics, the Southern Appalachian Assessment (SAA) did not identify specific actions for sustaining various habitats. This chapter identifies habitats of concern that should be consistently managed throughout the SAA area and discusses the relationships between land ownership and ecological units. Actions for maintaining species groups based on habitat association are presented. The responsibilities and potential roles for private and public lands in maintaining the full diversity of habitats in the SAA are also discussed.

Rare Communities

The conservation of rare communities is the key to conserving the rare plant and animal species in the SAA area. Approximately 84 percent (43 out of 51) of the federally listed T&E plant and animal species associated with rare community and streamside habitats (fig. 4.1), and 74 percent (270 out of 376) of the terrestrial viability concern (VC) species is associated with 7 rare community species groups and streamside habitats (fig. 4.2). These habitats occur on less than one percent of the land area

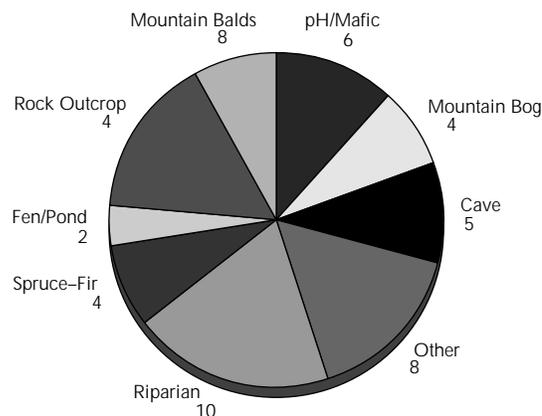


Figure 4.1 The distribution of the 51 terrestrial federally listed threatened, endangered, and proposed species according to community association in the Southern

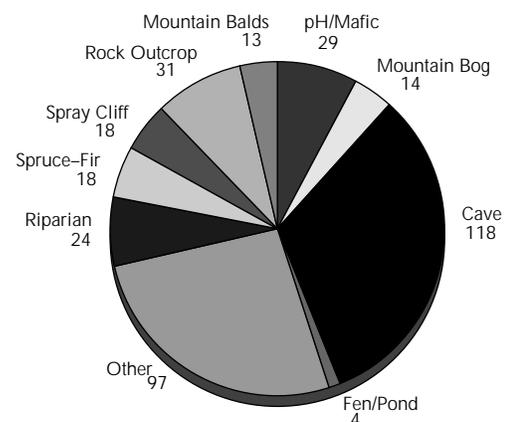
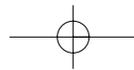


Figure 4.2 The distribution of the 366 terrestrial species with viability according to community association in the Southern



in the SAA area. The following are some considerations for maintaining the species groups based on rare communities developed from information in current recovery plans for some federally listed species.

Cave Habitat

Critical factors in protecting cave resources, including endangered bat species, are: proper gating of cave entrances to exclude human impacts; avoiding the alteration of cave entrances in order to maintain the proper temperature and humidity regimes in the caves; and maintaining the integrity of surface water recharge in the caves (USDI FWS 1976, USDI FWS 1978, USDI FWS 1982a).

Mountain Bog Habitat

Major threats include hydrology alterations, siltation, and encroachment of woody vegetation. Many bogs have been filled or drained for conversion to pasture or other agriculture activities. Restoration and/or maintenance of proper hydrology are primary management needs for these sites. Removal of competing woody vegetation is necessary to preserve some existing sites. Prescribed burning on bog sites would benefit the federally listed green pitcher plant, but the effects of fire on the other federally listed plant species in this habitat are unknown (USDI FWS 1990b, USDI FWS 1991b, USDI FWS 1994a).

Fen or Pond Wetlands

These communities vary from wet meadows, typically pastured, to true ponds. Long-term threats include nearby development that alters the hydrology of the area and changes that allow encroachment of woody vegetation. Siltation and competition from weedy invaders could become serious threats if habitats surrounding ponds are not protected.

High-Elevation Balds

The greatest threat to these communities and their associated species is overuse by human visitors. Air pollution may also be playing a part in the decline of these communities. Adequate protection of these areas from damage by people is essential for the recovery and maintenance of T&E and VC species.

Management to control encroaching woody vegetation may be appropriate in some locations (USDI FWS 1987, USDI FWS 1989, USDI FWS 1993b, USDI FWS 1993c).

High pH or Mafic Habitats

Some rare species are affected negatively by disturbance, while some respond positively to disturbances such as fire. Depending on objectives for a particular species and location, management options may range from prescribed burning and timber harvesting to limiting of timber harvesting and road development (USDI FWS 1995c).

Rock Outcrop and Cliff Habitat

Needs for these habitats include protecting from overuse by human visitors, maintaining early successional conditions on talus slopes, burning on sandstone cliff and quartzite ledges and outcrop communities, eliminating threats from rock quarrying, preventing overgrazing by deer and feral goats, and protecting adjacent forest vegetation from timber harvesting and air pollution in high-elevation granitic dome communities (USDI FWS 1979, USDI FWS 1983, USDI FWS 1991a, USDI FWS 1995a).

Montane Spruce-Fir Forest

High-elevation spruce-fir forest communities have been reduced to current levels by the past century of logging, exotic insect infestations, and possibly other factors not yet fully understood. In recent years, Fraser firs (*Abies Fraseri*) in these stands have suffered extensive mortality due to infestations of balsam woolly adelgid (*Adelges piceae*). Current threats to this community and associated species include exotic species infestations, air pollution, and degrading of habitat by opening forest canopies, raising soil temperatures, and decreasing soil moisture (USDI FWS 1990a).

Seeps, Springs, and Streamside Habitats

Management considerations for these habitats include maintaining bald eagle (*Haliaeetus leucocephalus*) nest and roost sites, maintaining canopy openness of sand and gravel bars, and reducing human disturbances to sites. Water flows should be maintained,



shading should be reduced where needed to help associated species, and habitat conversion to agricultural land uses should be avoided (USDI FWS 1982b, USDI FWS 1990c, USDI FWS 1995a).

Mountain Longleaf Pine Forests

The greatest opportunities for maintaining mountain longleaf pine woodland appear to be in red-cockaded woodpecker (*Picoides borealis*) management areas in the Southern Ridge and Valley on the Talladega National Forest. Talladega and Shoal Creek Ranger Districts in Alabama have identified a tentative habitat management area totaling approximately 120,000 acres. Management direction has been established for red-cockaded woodpecker recovery (USDA FS 1995).

Mid- and Late-Successional Deciduous Forests (Includes Mixed Pine-Hardwood Forests)

The mid- and late-successional deciduous forests in the Southern Appalachians are an important habitat for 80 species on the special list. Less than 50 percent of this habitat is in tracts larger than 5,000 acres. Priority should be given to maintaining the remaining existing larger tracts that have the potential to support the species associated with mid- and late-successional forests. Currently, national forests and national parks contain the largest portion of these large tracts and most likely will continue to provide the core habitat for source populations of deciduous forest species. Private landowners with large tracts, through their voluntary participation, should be invited to identify their lands as additional habitats, especially for area sensitive species. The majority of mid- to late-successional deciduous forest acreage occurs on private lands. If current levels of this habitat type are to be maintained, private landowner involvement will be necessary.

“Forest interior species” are thought to be negatively affected by increased interactions with predators and nest parasites associated with adjoining nonforest or early successional habitats. These “edge effects” may be related to larger landscape patterns (Robinson and others 1995). When managing for sustainable

forest interior habitat, the landscape/forest interior assumptions discussed in Chapter 3 should be used to balance incorporation of early successional habitat.

Maintaining T&E and VC species may require protecting sites from road construction, preventing loss of forests to development, and mitigating measures for some silviculture practices (USDI FWS 1984, USDI FWS 1985, USDI FWS 1994b).

Mid- and late-successional oak forests are primary providers of oak mast for dependent wildlife species. Techniques for estimating oak mast production calculation techniques are discussed in Chapter 3 and Whitehead (1989).

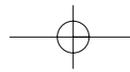
Sufficient late-successional deciduous forest will need to be maintained to provide special habitat features required by some species, such as large cavity trees, large standing snags, perhaps greater than 20 inches in diameter at breast height (d.b.h.), and den trees. Spatial arrangement of these features should be considered. An example for calculating minimum levels of late-successional acreage required to maintain these special features can be found in SAA process records (Hedrick, unpublished).

A sustained flow of vigorous mid- and late-successional deciduous forest habitats can be maintained over the long term by using a silvicultural management system (even-aged, two-aged, or uneven-aged) compatible with a landowner's overall natural resource objectives.

Early Successional Habitats

Early successional habitats (0- to 10-year-old forest communities and abandoned/idle land) are required by 10 species and are important for several game species and habitat generalist species. These habitats can result from even-aged regeneration harvests, group-selection harvests, disturbance (i.e. insect, disease, fire), and nonintensively managed, cultivated land. These very dynamic habitats are not abundant and succeed rapidly into sapling/pole forest habitats. For this reason, land management strategies should consider the landscape principles of isolation, patch size, and source/sink communities when planning for these habitats.

Little attention has been given to the size of early successional habitats. A patch created by group selection harvest or a natural disturbance

*chapter four*

may not support all the species identified for early successional habitats. For this reason, the size of early successional patches is a consideration when providing these habitats. In addition, standing snags larger than 12 inches dbh is an important component of these habitats.

It is possible that isolated early successional habitats may not be inhabited by less mobile species. If the areas are inhabited, they may serve only as a sink population source with little opportunity for population expansion due to the short life of this habitat type and isolation from other suitable habitats. Early successional habitats should be provided near current permanent source habitats or future planned early successional habitats in order to lessen possible isolation of these habitats.

To provide early successional habitats on national forests will require strategies that emphasize even-aged harvests in conjunction with group selection harvests. This approach should maintain species dependent on early successional habitat types and will help meet the public demand for game species on national forests.

Black Bear Habitat

Remoteness from human activity is a key habitat parameter for black bears, but determining what constitutes remote habitat is problematic. Road density is a measure of remoteness, but there appears to be no definitive road density threshold at which habitat quality begins to decline. Activities that result in increased human activities during all times of the year decrease the quality of black bear habitat. In the absence of specific threshold levels, national forests with black bear habitat objectives should, as a goal, maintain an open-road density of 0.8 miles or less per square mile through seasonal and permanent road closures (Pelton 1986). Managers of state and private tracts may also want to consider road closures to benefit black bear. Closing roads and seeding them create secure brood range, nesting habitat, and feeding areas during the spring, summer, and fall months for other species associated with these open habitats. Largely because of the security they provide, national parks and national forests will continue to be the core of quality black bear habitat in the SAA.

