

APPENDIX G

**NORTHSIDE TIMBER SALE
and
ASSOCIATED ACTIVITIES**

**MANAGEMENT INDICATOR SPECIES
HABITAT EVALUATION**

Appendix G

Management Indicator Species Habitat Evaluation

Northside Project

Introduction

An assessment of habitat changes linked to management indicator species (MIS) is documented in this section. The assessment provides a checkpoint of project level activities, the change in habitat used by MIS, and the likely contribution to forestwide trends.

Process

The amount of habitat changed by the project is checked for consistency with the Forest Plan and the recent trends in activities. If any inconsistencies are uncovered, then further investigation should be made to determine effects on MIS. However, if the project activities are consistent with recent trends, then effects of habitat changes to MIS should remain constant.

To process and document the information efficiently, a series of tables are used as follows.

- 1) **Tables MIS-1 and MIS-2** are reproductions of the biological communities and special habitats examined in the Forest Plan (Plan EIS, III-48 to III-52) and the associated MIS.
- 2) **Tables MIS-3 and MIS-4** list the biological communities and special habitats, along with forestwide estimates and the estimated change in habitat by the activities in the various alternatives.
- 3) **Table MIS-5** reverses the previous tables to show each species and the habitats they are indicating. Also, an estimate of their population trend is shown. More information about MIS habitats and population trends is documented in the MIS Assessment, a document continuously being updated.

The process shows effects of the alternatives on MIS. It provides another checkpoint for the decision maker to be aware of project level effects.

Table MIS-1. Biological communities and associated MIS (using Plan EIS, Table III-8).

Biological Community	MIS
Fraser fir forests	Fraser fir, golden-crowned kinglet, Carolina northern flying squirrel
Red Spruce/fraser fir forests	Golden crowned kinglet, Carolina northern flying squirrel, solitary vireo
Grassy and heath balds	Mountain oat-grass, Catawba rhododendron
Northern hardwood forests	Carolina northern flying squirrel, twisted stalk, solitary (blue-headed) vireo
Carolina hemlock bluff forests	Golden-crowned kinglet, Carolina hemlock
Cove forests	Ginseng, black cherry, buckeye, basswood, solitary (blue-headed) vireo
Oak and oak/hickory forests	Red oak, white oak, hickories
White pine forests	White pine (natural community only)
Yellow pine mid-successional communities	Pine warbler (low elevational shortleaf/Virginia pine)
Xeric yellow pine forests	Pine warbler (pine/oak/heath low elevation habitats) pitch pine, table mountain pine, turkey beard, mid-successional)
Reservoirs	Index of biotic integrity, largemouth bass, bluegill
Forested seep wetlands	Golden saxifrage, umbrella leaf, mountain lettuce
Bogs	<i>Sphagnum spp.</i>
Mountain ponds and ephemeral pools	Spotted salamander (vernal pools)
Barrens and glades	Prairie dropseed, slender wheatgrass
Shaded rock outcrops and cliffs	Green salamander (granitic gneiss rock outcrops with crevices and mesic conditions), Jordan's salamander, alumroots, saxifrages
Open rock outcrops and cliffs	Raven, peregrine falcon, Biltmore sedge, wretched sedge, mountain oat-grass
Caves	Bats (all cave-using species)
Alluvial forests	Two-lined salamander (mid-late successional stages), raccoon (all forest types), mink
Coldwater streams	Brook, brown, and rainbow trout; sculpin, blacknose dace
Coolwater streams	Smallmouth bass, white sucker, moxostoma spp., index of biotic integrity
Warmwater streams	Index of biotic integrity, smallmouth bass, freshwater mussels, spotfin chub

Table MIS-2 Special Habitats and associated MIS (using Plan EIS, Table III-9).

Special Habitat	MIS
Old Forest Communities (100+ years old)	Black bear (dens, low levels of disturbance), bats (roosting and foraging habitats in mature forests), pileated woodpecker (cavities, foraging habitat), lung lichens
Early successional (0-10 years old)	White-tailed deer (all communities and elevations), eastern wild turkey (all communities), ruffed grouse (early and mid-successional all communities) rabbits, rufous-sided (eastern) towhee, bobcat, field sparrow (brushy, riparian thickets)
Early successional (11-20)	Rufous-sided (eastern) towhee, ruffed grouse (early and mid-successional all communities)
Soft mast producing species	Wild grape (<i>vitus spp.</i>), cedar waxwing (all communities soft mast)
Hard mast-producing species (>40 yrs)	Black bear, wild turkey, gray squirrel, white-tailed deer
Cove forests	Ginseng, black cherry, buckeye, basswood, solitary (blue-headed) vireo
Mixed pine/hardwood forest types (successional stage and hard mast)	Black bear, eastern wild turkey, gray squirrel, white-tailed deer
Contiguous areas with low disturbance (< 1 mile open travelway/4 square miles)	Black bear (all communities)
Contiguous areas with moderate disturbance levels (<1 mile open travelway/2 square miles)	Eastern wild turkey (all communities)
Large contiguous forest areas	Ovenbird (in breeding range, moderately productive sites), northern parula warbler (in breeding range, requires cover and riparian habitats) veery, solitary (blue-headed) vireo
Permanent grass/forb openings	Eastern wild turkey, eastern meadowlark, rabbit
Den trees (>36" dbh)	Black bear (large dens)
Snags and dens (>22" dbh)	Pileated woodpecker, raccoon (moderate sized dens)
Small snags and dens	Gray squirrel, white-breasted nuthatch, yellow-bellied sapsucker (breeding populations)
Downed woody debris – all sizes (foraging and cover habitats)	Black bear (all communities), pileated woodpecker, ruffed grouse (down logs for drumming), Jordan's salamanders

Table MIS-3 Biological communities, forest wide estimates, and expected changes resulting from the various alternatives.

Biological Community	Forest wide Estimate	Estimated Changes
Fraser fir forests	See below	None Affected
Red Spruce/Fraser fir forests	14,700 ac	None Affected
Grassy and heath balds	18 occurrences	None Affected
Northern hardwood forests	52,000 ac	None Affected
Carolina hemlock bluff forests	6 occurrences	None Affected
Cove forests	Rich= 107,500 ac Acidic= 174,500 ac Cove (other) =2,800ac	Proposed harvest units in 2-age regeneration (22 acres Alt 2, 17 acres in Alt 3 or 4) should result in recruitment of natural regeneration of oak and hickories within this community type in the long term if Alternative 3 or 4 is selected.
Oak and oak/hickory forests	High El R.Oak: 40,500 ac Mesic Oak/H: 283,340 ac Dry Mesic Oak/H: 21,700ac	Proposed harvest units in 2-age regeneration (22 acres Alt 2, 19 acres in Alt 3 or 4) should result in recruitment of the natural regeneration of oak and hickories within this community type in the long term if any of the action alternatives are selected.
White pine forests	WP/Oak : 17,600 ac	No natural communities Affected.
Yellow pine mid-successional communities	13,400 ac	None Affected
Xeric yellow pine forests	17,400 ac	None Affected
Reservoirs	36,000 ac	None Affected
Forested seep wetlands	22,000 ac	Occurrence of <1 acre within project area May be affected by action alternatives
Bogs	10 occurrences	None Affected
Mountain ponds and ephemeral pools	27 ponds/pools (22 ac) 9 Beaver Ponds (3 ac)	None Affected
Barrens and glades	1 occurrence (300ac)	None Affected
Shaded rock outcrops and cliffs	66,282 acres (high probability)	Occurrence of <1 acre within project area Temporarily affected by action alternatives
Open rock outcrops and cliffs	141 occurrences (800 ac)	None Affected

Table MIS-3 Biological communities, forest wide estimates, and expected changes resulting from the various alternatives continued.

Caves		None Affected
Alluvial forests	21,000 ac Alluvial Forest 55,000 ac other flood prone areas	None Affected
Coldwater streams	5,060 mi	None Affected
Coolwater streams	400 mi	None Affected
Warmwater streams	210 mi.	None Affected

Table MIS-4 Special Habitats, forestwide estimates, and changes of the various alternatives.

Special Habitat	Forestwide Estimate	Estimated Changes
Old Forest Communities (100+ years old)	171,000 ac	None
Early successional (0-10 years old)	26,800 ac (yr 2000) 2040 ac (5 yr avg) downward trend	Increase of 59 acres Alt 2 Increase of 49 acres Alt 3 or 4
Early successional (11-20)	46,290 ac (yr 2000) Peak of upward trend	None
Soft mast producing species	High Probability 5,800 ac downward trend	Increase 4 ac, Alternative 1 Increase 53 ac, Alternative 2 Increase 61 ac, Alternative 3 and 4
Hard mast-producing species (>40 yrs)	681,000 ac increasing trend	Low potential decrease over 15 acres in Alternative, 13 acres Alternative 3,4
Mixed pine/hardwood forest types (successional stage and hard mast)	52,521 increasing trend	4 acres regenerating Action alternatives increase regeneration by 15 acres
Contiguous areas with low disturbance (< 1 mile open travelway/4 square miles)	160,832 ac	None
Contiguous areas with moderate disturbance levels (<1 mile open travelway/2 square miles)	576,240 ac	None
Large contiguous forest areas	38 Patches (302,000 ac)	None
Permanent grass/forb openings	3,000 ac	Minimal increase <1 acre For alts 2,3,4
Den trees (>36" dbh)	See below	None affected
Snags and dens (>22" dbh)	See below	None affected
Small snags and dens	Ave. at 80 yr. Cove= 4/ac Upland=3/ac Pine-2/ac	None affected
Down Woody Material	<u>High Accumulation</u> Small wood: 18,000 Large wood: 386,000 <u>Low Accumulation</u> (approx: 600,000)	<u>High Accumulation</u> Small wood: Increase; 65 ac, Alt 2; 49 ac Alt 3 and 4 Large wood: Increase on 4 acres, all alternatives

Discussion

Cove Forest

All action alternatives would temporary convert about 30 acres of Acidic Cove Forest to an earlier successional stage of Acidic Cove Forest by thinning or two-age harvest. Species composition of earlier successional Acidic Cove Forest may be different than that of the current species composition. It would affect 29 acres, about 7%, of the 412 acres of cove forest within the project area. Site preparation and supplemental oak planting of 29 acres may affect species composition by encouraging oak species.

Oak, Oak-Hickory Forest

All action alternatives would temporarily convert 19 acres of Oak and Oak-Hickory Forest to an earlier successional stage of Oak-Hickory Forest by harvesting 19 acres, about 1.5%, of the 1230 acres of the Oak-Hickory Forest within the project area. Species composition of earlier successional Oak and Oak-Hickory Forest may be different than that of the current species composition.

Shaded Rock Out Crops and Cliffs

The proposed action alternatives may temporarily affect some small shaded rock outcrops in Unit 5 by removal of the tree overstory. This increase in light may affect temperature and moisture, which may, in turn, influence species composition. It is expected that, as the canopy recovers (within 15 years), the species composition would return to approximately the same composition. Therefore, the various alternatives would not affect Forest trend.

Forested Seep Wetlands

All action alternatives in this proposal may temporarily affect some small, shaded seeps in Units 3b and 5 by removal of the tree overstory. This small increase in light may slightly affect temperature and seep discharge, which may, in turn, influence species composition. It is expected that, as the canopy recovers (within 15 years), the species composition would return to approximately the same composition. Therefore, the various alternatives would not affect Forest trend.

Early Successional Habitat

This project would create early successional habitat (ESS) habitat of 59 acres (Alternative 2) or 49 acres (Alternative 3 or 4), which is about 3 percent of the forestwide average over the last 5 years. Other projects throughout the forest would contribute to ESS habitat, and cumulatively, they would be near the forestwide average. However, in 2001 there have been fewer than expected projects and the downward trend over the past 5 years is likely to continue.

Soft mast

Soft mast producing species have declined across the Forest since 1990 and 1980, adversely affecting the availability of this habitat for associated species. This project would create some new habitat in regeneration areas of 59 acres (Alternative 2) or 49 acres (Alternative 3 or 4), with the site preparation criteria selecting species that would persist in a mature forest condition. These habitat acres, when considered across the Forest, would not be sufficient to reverse this downward trend.

Hard Mast

Hard-mast producing species greater than 40 years old have increased across the Forest since 1990 and 1980, as younger stands have matured into this age-class. This project, along with other similar projects, would cumulatively reduce the amount of this habitat available up to the forest annual average of cove and upland forests regeneration (approx 1600 average ac/year). However, with the residual tree marking guidelines, this small reduction has little effect on the total availability of hard mast and is not likely to change the trend of increasing hard mast availability.

Mixed pine/hardwood forest.

Mixed pine/hardwood forest types have declined across the Forest since 1990 and 1980. This project will regenerate 19 acres in Alternatives 2, 3 and 4 to a hardwood/pine forest type, contributing to this downward trend across the Forest.

Permanent Grass/forb

Permanent grass/forb habitat is below the Forest Plan standard across the Forest. This project would seed any landings developed during harvest activity for use as grass/forb openings; however, the estimated acreage developed would be <1 acre. This minimal amount of new habitat would not improve the level of grass/forb habitat across the Forest.

Down woody material.

Down woody material has increased across the Forest since 1990 and 1980, due to the aging of the Forest and the effects of hurricanes, windstorms, and the southern pine beetle. This project would increase the amount of small diameter down woody material on the forest floor. The trend for down woody material in larger size classes would continue to increase, specifically in the area of the Northside project due to recent southern pine beetle attacks.

Evaluation

First, many of the biological communities and special habitats in the project area are not affected by activities in the various alternatives. Second, the habitat changes cited above are consistent with the Forest Plan. Most of the habitat changes are needed to accomplish the multiple use goals of the Forest Plan. Finally, the cumulative effect of this project, along with other similar projects, would change habitats in amounts close to forestwide averages of the recent past. Therefore, population trends of MIS related to habitat changes on the forest would continue as cited in the most recent update of the MIS assessment.

Table MIS-5. MIS species, estimated trend, and biological community or special habitat indicated by the species

Species	Estimated Population Trend	Biological Community or Special Habitat					
		1	2	3	4	5	6
Black Bear	Increase	Old Forest Communities	Hard mast-producing species	Mixed Pine/hardwood forest types	Contiguous areas with low disturbance	Den trees (>36 dbh)	Downed woody debris- all sizes
Carolina northern Flying Squirrel	static	Frasier Fir Forests	Red Spruce/fraser fir	Northern hardwood forests			
White Tailed Deer	Static to decreasing	Early-successional (0-10)	Hard mast-producing species	Mixed pine/hardwood forest types			
Raccoon	Increase	Alluvial Forests	Snags and dens (>22 dbh)				
Rabbit	decrease	Early successional (0-10)	Permanent grass/forb openings				
Gray Squirrel	static	Hard mast-producing species	Mixed pine/hardwood forest types	Small snags and dens			
Bobcat	Static	Early successional (0-10)					
Mink	static	Alluvial Forests					
Bats	Varies by species	Caves	Old Forest Communities				
Pileated	increase	Old Forest	Snags and dens	Downed woody			

Woodpecker		Communities	(>22 dbh)	debris – all sizes			
Golden Crowned Kinglet	decrease	Fraser Fir Forests	Red Spruce/Fraser Fir Forests	Carolina Hemlock bluff forests			
Veery	static	Large Contiguous Forest Areas					
Solitary (Blue headed) Vireo	increase	Red Spruce/Fraser fir Forests	Northern Hardwood Forests	Cove Forests	Large Contiguous forests		
Northern Parula Warbler	static	Large Contiguous Forest Areas					
Ovenbird	decrease	Large Contiguous Forest Areas					
Yellow-Bellied Sapsucker	decrease	Small snags and dens					
Rufous-Sided (Eastern) Towhee	decrease	Early-successional (0-10)	Early successional (11-20)				
White-breasted Nuthatch	increase	Small snags and dens					
Cedar Waxwing	static	Soft mast-producing species					
Pine Warbler	static	Yellow pine mid-successional forests					
Raven	static	Open rock					

		outcrops and cliffs					
Field Sparrow	Decrease	Early successional (0-10)					
Eastern Wild Turkey	Northern mtns = increase; Southern mtns = decrease	Hard mast-producing species	Mixed pine/hardwood forest types	Contiguous areas with moderate disturbance	Permanent grass/forb openings		
Ruffed Grouse	Static	Early successional (0-10)	Early successional (11-20)	Downed woody debris			
Peregrine Falcon	Increase	Open rock outcrops and cliffs					
Eastern Meadowlark	absent	Permanent grass/forb openings					
Green Salamander	static	Shaded rock outcrops and cliffs					
Jordan's Salamander	Static	Shaded rock outcrops and cliffs					
Spotted Salamander	static	Mountain ponds and ephemeral pools					
Blue Ridge two-lined salamander	static	Alluvial Forests					
Brook, Brown and Rainbow	Static	Coldwater streams					

Trout, sculpin							
Largemouth Bass, Bluegill	Static	Reservoirs					
Blacknose Dace	Static	Coldwater streams					
Freshwater mussels	Varies by species	Warmwater streams					
Smallmouth Bass, white/redhor ses	Static	Coolwater streams	Warmwater streams				
Spotfin Chub	static	Warmwater streams					
Red Oak	Static	Oak and oak/hickory forests					
White Oak	Static	Oak and oak/hickory forests					
Buckeye	Static	Cove forests					
Basswood	static	Cove forests					
Black Cherry	Increase	Cove Forests					
Hickory (All Species)	Static	Oak and oak/hickory forests					
White Pine	Increase	White Pine Forests					
Pitch and Table Mountain Pine	Decrease	Xeric yellow pine Forests					