Biological Evaluation
of
Proposed, Threatened, Endangered and Sensitive Species

Wildlife Habitat Improvement Project
Wildlife Opening Construction, Expansion and Rehabilitation

Proposed Action within Winston and Lawrence Counties, Alabama

Responsible Agency:
USDA Forest Service
National Forests in Alabama
William B. Bankhead Ranger District

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Summary

The proposed project will construct, expand, and/or rehabilitate 22 wildlife openings (WLO's), totaling approximately 62.5 acres. The project sites are located across the Bankhead National Forest (BNF). Several sites are within the Black Warrior Wildlife Management Area (WMA). The areas proposed for treatment are in the Mountain Springs, McDougle and Central Lookout, Beech Creek, Dry Hollow, Holmes Chapel, Moreland, Black Pond, Cranal and Wolf Pen, Hepsidam, Stinson Gap, Caney Creek and Capsey Creek areas. They are found in Forest Service management compartments 58, 52, 46, 76, 31, 126, 161, 166, 94, 44, 53, 90, 116, 69, and 8. All sites are located within Winston or Lawrence counties. The sites proposed for treatment are existing wildlife openings, pine plantations and associated log landings and southern pine beetle impacted areas.

This project will construct eight new wildlife openings. Construction will be accomplished with a bulldozer or mulching machine or combination. This project will expand or rehabilitate 14 wildlife openings. Expansion will be accomplished by enlarging an existing opening with a bulldozer or mulching machine or combination. Rehabilitation includes reclaiming an existing WLO that has grown up in brush and saplings. Rehabilitation is accomplished by bulldozer or mulching machine or a combination. All vegetation will be removed from the sites. All sites will be revegetated

with desired species of forbs, grasses, grains, and legumes. The resulting condition after treatment will be an early successional permanent wildlife opening.

The purpose and need for the project is to improve wildlife habitat by providing permanent early successional habitat and to provide opportunities for hunting and wildlife viewing.

Based upon the findings of this evaluation, this project is ***not likely to adversely affect*** the Indiana bat. The project will have ***no effect*** on the remaining plants and animals that are federally listed on the Bankhead National Forest. The project will have ***no impact*** on the species listed as sensitive for the Bankhead.

Due to the findings of this assessment, written concurrence with the U.S. Fish and Wildlife Service is required.

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INTRODUCTION

The purpose of this Biological Evaluation (BE) is to determine whether the proposed action is likely to affect an endangered, threatened, proposed, or sensitive species. Forest Service Manual 2672.4 provides guidance to review programs and activities for possible effects to proposed, endangered, threatened, and sensitive species and to document findings.

The purpose and need for the project is to improve wildlife habitat by providing permanent early successional habitat and to provide opportunities for hunting and wildlife viewing. The project will construct, expand, and/or rehabilitate wildlife openings (WLOs) on the Bankhead National Forest, including the Black Warrior Wildlife Management Area (WMA). Wildlife openings are a common wildlife management practice in the southeast. They are utilized as a wildlife management tool by state and federal resource agencies as well by private land owners. Wildlife openings on Bankhead and Black Warrior provide multiple benefits for demand species. Demand species are defined as harvestable species that are in high public demand for consumptive uses including white-tailed deer, eastern wild turkey, and northern bobwhite quail. In addition to demand species, openings are used for nesting and feeding by resident and migratory songbirds and for feeding by small mammals, as well as raptors. Expansion of existing wildlife openings and creation of new wildlife openings will create areas with a mosaic of plant species and stem sizes and densities; enhance herbaceous and shrub species; and enhance both game and non-game wildlife habitat for viewing and hunting.

White-tailed deer are habitat generalist. They use a variety of forest types and successional stages to meet their year-round needs. In the spring and summer regenerating forests provide an abundance of food for white-tailed deer and are heavily used. Young regenerating stands contain substantial quantities of woody browse, herbs, fungi, and soft mast, which are limited in older forests. Managed wildlife openings (food plots), especially those containing clover-grass mixtures, are used most intensively by deer in early spring. They are also an important source of nutritious forage in winter, especially when acorns are in short supply. Based on utilization data, current deer densities in the Southern Appalachians can be maintained by providing approximately 5% in regenerating stands. Additionally approximately 2% of an area in high quality wildlife openings would be necessary to adequately buffer the effects of a poor acorn year.

Similar to deer, Eastern wild turkey occupy a wide range of habitats, with diversified habitats providing optimum conditions. This includes mature mast-producing stands during fall and winter, shrub-dominated stands for nesting and herb-dominated communities, including agricultural clearings for brood rearing. Habitat conditions for wild turkey can be enhanced by management activities including development of herbaceous openings. Recommendations for wild turkey include maintaining approximately 10% of a forested area in widely distributed permanent herbaceous openings in addition to the temporary openings that result from timber harvest and other activities.

The northern bobwhite quail is associated with early successional plant communities. It is associated with mature longleaf pine woodland maintained by fire. Bobwhite depend on multiple cover types to meet daily, seasonal, and annual habitat needs. Therefore the interspersion of multiple microhabitats is essential in providing quality habitat. Prime nesting cover is described as scattered shrubs interspersed with dense herbaceous and grassy vegetation. Breeding season ranges occur in open sites dominated by herbaceous vegetation. Brood-rearing habitat is described as broad-leaved herbaceous vegetation with 20% - 50% of the area in bare ground, an abundance of insects for chick development, and scattered shrubs and brush for thermal cover. Managed wildlife openings in association with pine woodlands maintained by fire may be used by northern bobwhite on Bankhead.

Wildlife openings have been utilized as a wildlife management practice on this area since the 1960's. Wildlife openings are managed by both the Bankhead National Forest- Forest Service and the Division of Wildlife and Freshwater Fisheries- Department of Conservation and Natural Resources. Wildlife openings are used for recreation on both the Black Warrior WMA and the Bankhead National Forest. On the Black Warrior, an average of 1300 man-days were spent hunting turkey during the 2004 and 2005 seasons. And, an average of 6100 man-days were spent hunting deer on the Black Warrior during the 2003/2004 and 2004/2005 seasons.

This project will construct, expand, and/or rehabilitate selected wildlife openings on the Bankhead National Forest, including the Black Warrior Wildlife Management area. Twenty-two wildlife openings are proposed for treatment. Treatment methods are described in the *Proposed Management Action* section below. The sites proposed for treatment are existing wildlife openings, pine plantations and associated log landings, and southern pine beetle impacted areas. Sites to be treated are on ridge tops and do not include streams, riparian areas, canyons, rock outcrops, glades, wetlands, or other rare communities. The resulting condition after treatment will be an early successional permanent wildlife opening. The result will provide early successional wildlife habitat for multiple species. The result will also provide sites for recreational opportunities including hunting and wildlife viewing and photography. The sites are proposed for treatment during Fiscal Years 2007 – 2013.

The objectives of this Biological Evaluation are:

- to ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or animal species or contribute to trends toward Federal listing of any species.
- to comply with the requirements of the Endangered Species Act that actions of Federal agencies not jeopardize or adversely modify critical habitat of Federally listed species.
- to provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision-making process.

The sites proposed for treatment are located within Winston and Lawrence counties in the Bankhead National Forest (BNF). Several of the sites are also within the Black Warrior Wildlife Management Area (WMA). A list of proposed sites is included here. Additionally, the Management Prescription, as identified in the Revised Land and Resource Management Plan (RLRMP), where the area proposed for treatment lies is included in the table below. Management Prescriptions included in this project are 9C3 – Southern Cumberland Plateau Native Ecosystem Restoration and Maintenance and 7E2 – Dispersed Recreation Areas with Vegetation Management. Also, the Area, as identified in the Bankhead's Forest Health and Restoration Project's Final Environmental Impact Statement (FHRP), is included in the table. Area 1 has a desired future condition in the uplands of oak forests, oak-pine forests, and oak woodlands. An additional goal described in the FHRP for Area 1 is to provide well distributed early successional habitat on up to 10% of the area. Area 2 has a desired future condition in the uplands of oak forests, oak/pine forests, oak woodlands, and shortleaf pine woodlands. Area 3 has a desired future condition in the uplands of oak forests, oak-pine forests, oak woodlands, and longleaf pine woodlands.

Areas To Be Treated by this Project

Site Name/ Wildlife Opening Number	Approximate Acres	Community/ County	RLRMP Management Prescription and FHRP Area	Management Compartment	Proposed Management
Dry Creek	5	Mountain Springs, Lawrence	Rx 7E2 Area 1	C 58	New WLO Construction
WMA # 12	3	McDougle Camp, Lawrence	Rx 7E2 Area 1	C 52	Expand WLO
WMA #25	1.5	Beech Creek, Lawrence	Rx 7E2 Area 1	C 46	Expand WLO
WMA # 8 & 9	3	Dry Hollow, Lawrence	Rx 7E2 Area 1	C 76	Expand WLOs
#031-3 & 031-4 Corridor	3	Holmes Chapel, Winston	Rx 7E2 Area 2	C 31	Connect two existing WLOs – Expansion
#126-4	1	Mill Creek, Winston	Rx 9C3 Area 2	C 126	Expand WLO
#161-1; 161-2; 161-3	3	Pinetucky, Winston	Rx 9C3 Area 3	C 161	Expand WLOs
#161-9	5	Pinetucky, Winston	Rx 9C3 Area 3	C 161	Rehabilitate WLO
#166-1	2	Black Pond, Winston	Rx 9C3 Area 3	C 166	New WLO Construction
#094-1	2	Cranal, Winston	Rx 7E2 Area 1	C 94	New WLO Construction
WMA #34	1	Hepsidam, Lawrence	Rx 7E2 Area 1	C 44	Expand WLO
WMA #13	8	Central Lookout, Lawrence	Rx 7E2 Area 1	C 53	Expand WLO
#090-1	10	Wolf Pen, Winston	Rx 7E2 Area 1	C 90	Rehab and Expand WLO
#116-1 & 116-2	4	Stinson Gap, Lawrence	Rx 9C3 Area 1	C 116	New WLO Construction
#069-4	4	Caney Creek, Winston	Rx 7E2 Area 1	C 69	New WLO Construction
#008-1	3	Capsey Creek, Winston	Rx 9C3 Area 2	C 8	Rehab and Expand WLO
#008-2 & #008-3	4	Capsey Creek, Winston	Rx 9C3 Area 2	C 8	New WLO Construction

Total Acres: 62.5

Fifth level watersheds where these proposed wildlife openings occur include Upper Brushy, Upper Sipsey, Lower Sipsey, Clear, and Bear. The Upper Brushy watershed is characterized by gently sloped ridges and pronounced valleys. Many of the larger streams are incised in picturesque gorges. Virtually the entire watershed is forested. The NF land occupies about 8/10th of the area. There are very few major influences within the watershed. Off NF land, influences include agriculture practices and logging. On NF land, the main influences are a high to moderate degree of recreation use and a history of timber harvesting. Similar to Upper Brushy, the Upper Sipsey Fork watershed is characterized by gently sloped ridges and pronounced valleys. Many of the larger streams are incised in picturesque gorges. Virtually the entire watershed is forested. The NF land occupies about 9/10th of the area. There are very few major influences within the watershed. Off NF land, influences include agriculture practices and logging. On NF land, the main influences are a high to moderate degree of recreation use and a history of timber harvesting. The Sipsey Wilderness is completely contained within this watershed. The Lower Sipsey Fork watershed is characterized by sharply rolling terrain and pronounced valleys. Some of the larger streams are incised in narrow gorges. Lake Lewis Smith has inundated most of the main channel. Most of the watershed is in forested land use (about 9/10th) with a small agricultural component. The NF land occupies about one-third of the area. There are some major influences within the watershed. Off NF land, influences include coal strip mining, agriculture practices, a high road density and logging. Lake Lewis Smith attracts recreation use and lake-side urbanization. On NF land, the main influences are recreation use (moderate to high degree) and a history of timber harvesting. The Clear watershed is characterized by broad ridges and pronounced valleys. Some of the larger streams are incised in narrow gorges. Lake Lewis Smith has inundated the lower portion of the main channel. Most of the watershed is in forested land use (about 9/10th) with a small agricultural component. The NF land occupies about one-seventh of the area. There are a few major influences within the watershed. Off NF land, influences include coal strip mining, agriculture practices, a high road density and logging. Lake Lewis Smith attracts recreation use and lake-side developments. On NF land, the main influences are recreation use (low degree) and a history of timber harvesting. The Bear watershed is characterized by rolling terrain of broad ridges and pronounced valleys. Most of the watershed is forested with a sizeable agricultural component. The NF land occupies a small fraction of the area (about 1/50th). There are a number of major influences within the watershed. Off NF land, influences include the Bear and Upper Bear reservoirs that attract high recreation use. Agriculture practices and logging influence the watershed as well. Industrial effects are apparent in the number of point sources and the impairment of two sites on Bear creek. On NF land, the main influences are recreation use (low degree) and a history of timber harvesting. In all of these fifth level watersheds, the aquatic condition reflects a diversity of native, endemic and PETS species and aquatic vulnerability is high.

CONSULTATION HISTORY

The Forest Health and Restoration Project and Environmental Impact Statement which outlines restoring native community types through reforestation and commercial thinning on almost 9,452 acres of the Bankhead was reviewed by the Fish and Wildlife Service during 2003. This project included the use of commercial thinning operations.
In that project, surveys were conducted on thousands of acres of loblolly pines stands including the majority of the stands where these wildlife openings are proposed for expansion or construction. The Fish and Wildlife Service has participated on the Bankhead Liaison Panel. Native forest community restoration, including distribution of early successional habitat on the Bankhead and Black Warrior, has been the primary discussion topic of the liaison panel for the past several years.

The Fish and Wildlife Service (FWS) has reviewed and concurred with many past projects that create early successional wildlife habitat. Examples include a 2001 roadside fuels management project, salvage timber removal, and shortleaf and longleaf pine planting and associated site preparation. Additionally, they have reviewed and concurred with past thinning, southern pine beetle suppression, and prescribed burning activities which include clearing areas of land with heavy equipment.

The project tiers to the National Forests in Alabama's Revised Land and Resource Management Plan and associated Biological Assessment and Evaluation. The sites are in Management Prescription 9C3 and 7E2 as identified in the Revised Land and Resource Management Plan. This project tiers to the BNF Forest Health and Restoration Project and associated Biological Assessment and Evaluation. The sites are in all Areas (Areas 1, 2, and 3) as identified in the Forest Health and Restoration Project's Final EIS.

PROPOSED MANAGEMENT ACTION

The proposed project will construct eight new wildlife openings totaling 21 acres. Three of those openings (6 acres) will be daylighting roads. They are WLO's 008-2, 008-3 and 094-1. The Dry Creek WLO (5 acres) will daylight an existing fireline. New construction of WLO 069-4 (4 acres) includes a southern pine beetle spot which was treated by bulldozing in summer 2006. Construction will be accomplished with a bulldozer or mulching machine or combination.

The proposed project will expand and/or rehabilitate 14 wildlife openings totaling 41.5 acres. Expansion includes enlarging an existing WLO with a bulldozer or mulching machine or combination. Rehabilitation includes reclaiming an existing WLO that has grown up in brush and saplings too large to be treated through mowing. Rehabilitation will also be accomplished with a bulldozer or mulching machine or combination.

All vegetation will be removed from the sites. Vegetation will be pushed outside the site into the surrounding stand or mulched into the ground. After clearing, the sites will be disked and planted to control any potential erosion. Hay mulch may be applied if needed. Species planted will be dependant upon season of treatment and desired future condition of the site. Native warm season grasses will be established on some WLOs. Where this

is done, an annual grain will also be planted for erosion control until the warm season grasses are established. Mixtures of native warm season grasses will be used including little and big bluestems, Indian grass, eastern gamma grass, and side oats grama. Mixtures of native forbs may be included in these plantings such as partridge pea, desmodiums, coreopsis, Illinois bundleflower, or liatris. Typical WLOs planted in spring include soybean, cowpeas, brown-top millet, sunflower, grain sorghum, chufa, or buckwheat. Typical WLOs planted in fall include wheat, oats, rye, or clovers. No invasive species will be planted. Shrubs (such as wild plum) may also be planted in the openings to provide soft mast and cover. After initial construction, expansion or rehabilitation, wildlife openings may be managed by planting on an annual or semi-annual basis, disking, mowing, burning or a combination. Herbicides will not be used. Snags and den trees will not be treated except where they pose a safety hazard. Riparian areas and wetlands will not be treated. Glades and rock outcrops will not be treated. The sites proposed for treatment are existing wildlife openings, loblolly pine stands and associated log landings, road sides, and/or areas treated for or impacted by southern pine beetle. The sites are located in the uplands, primarily on ridgetops.

The resulting condition after treatment will be an early successional permanent wildlife opening. The result will provide early successional wildlife habitat for multiple species. The result will also provide sites for recreational opportunities including hunting and wildlife viewing and photography.

SPECIES CONSIDERED AND SPECIES EVALUATED

District wildlife staff have conducted literature reviews and field reviews of the project areas for presence of listed species and suitable habitat. Field surveys were performed on the majority of areas during the FHRP EIS preparation by contract botanists and wildlife biologists. Some sites have surveyed and monitored in the past for prescribed burning and southern pine beetle suppression activities. The BNF district office keeps current records of locations of known listed species throughout the area. These were reviewed as part of this evaluation. Critical mussel habitat is designated downstream of eight wildlife openings proposed for treatment. One wildlife opening proposed for treatment (WMA #8) is within the primary protection zone of known endangered bat hibernaculum and six other caves. WMA #8 and #9 are within the secondary protection zone of known endangered bat hibernaculum and several other caves. The Dry Creek WLO, WMA #25 and WMA #34 are within the secondary protection zone of several caves. WLO 166-1 is located approximately ¼ mile from a rock outcrop/sandstone glade. Additionally, rock outcrops/sandstone glades are known to occur in the vicinity of the WLOs in Compartment 161. The Compartment 161 WLOs are existing, do not contain, and are not adjacent to rock outcrops or glades.

All currently listed threatened, endangered, protected (as of 7/03) and sensitive species (Regional Forester's Sensitive Species list – 8/7/2001) were considered during this evaluation. Some of the species are not known to occur on the BNF at the present time but potential habitat was assessed for effects. This evaluation considered species range, life history information, available habitat information, and known locations to determine which species to evaluate. See the following table for a listing of species considered.

Federally Listed Species of the Bankhead National Forest

Scientific Name	Common Name	Status[1]	Habitat	Notes	Within Affected Area? May be affected by the project?
Myotis grisescens	Gray Bat	E	1	Known from Lawrence County.	Yes. Potential.
Myotis sodalis	Indiana bat	E	1	Known from Lawrence County.	Yes. Potential.
Haliaeetus leucocephalus	Bald Eagle	T	11	Known sites occur on Smith Lake.	Yes. Nest habitat along Smith Lake will not be affected.
Picoides borealis	Red-cockaded woodpecker	E	17	Does not occur on Bankhead	No.
Sternotherus depressus	Flattened musk turtle	T	A	Occurs on Bankhead.	Habitat within the project watersheds.
Epioblasma brevidens	Cumberlandian combshell	E	A	Does not occur on Bankhead.	No.
Epioblasma metastriata	Upland combshell	E	A	Has not been recorded within the Black Warrior drainage since the 1900's.	No.
Epioblasma turgidula	Turgid blossom pearly mussel	E	A	Does not occur on Bankhead and may be extinct.	No.
Lampsilis altilis	Fine-lined pocketbook	E	A	Occurs on Bankhead.	Habitat within the project watersheds.
Lampsilis perovalis	Orange-nacre mucket	T	A	Occurs on Bankhead.	Habitat within the project watersheds.
Medionidus acutissimus	Alabama moccasinshell	T	A	Occurs on Bankhead.	Habitat within the project watersheds.
Medionidus parvulus	Coosa moccansinshell	E	A	Has not been recorded on	Habitat within the project watersheds.

								Bankhead in recent years.			
Pleurobema furvum		Dark pigtoe		E		A		Occurs on Bankhead.		Habitat within the project watersheds.	
Pleurobema perovatum		Ovate clubshell		E		A		Has not been recorded on Bankhead in recent years.		Habitat within the project watersheds.	
Pleurobema plenum		Rough pigtoe		E		A		Does not occur on Bankhead.		No.	
Ptychobranchus greeni		Triangular kidneyshell		E		A		Occurs on Bankhead.		Habitat within the project watersheds.	
Lampsilis orbiculata (L. abrupta)		Pink mucket pearlymussel		E		A		Does not occur on Bankhead.		No.	
Dalea foliosa		Leafy prairie clover		E		6		Species not documented on Bankhead.		No.	
Lesquerella lyrata		Lyrate bladder-pod		T		6		Species not documented on Bankhead.		No.	
Marshallia mohrii		Mohr's Barbara's Buttons		T		2		Species not documented on Bankhead.		No.	
Sagittaria secundifolia		Kral's water-plantain		T		A		Occurs on Bankhead.		Habitat within the project watersheds.	
Thelypteris pilosa var al.		Alabama streak-sorus fern		T		7		Occurs on Bankhead.		Habitat within the project watersheds.	
Xyris tennesseensis		Tennessee yellow-eyed grass		E		11		Species not documented on Bankhead.		No.	
Apios priceana		Price’s Potato Bean		T		11 & 7		Species not documented on Bankhead.		No.	

[1]E = endangered; T = threatened

Habitat Code
1 = Cave Habitats
2 = Wetland (Bog) Habitats
6 = Glades, Prairies, and Woodlands Habitats
7 = Rock Outcrop and Cliff Habitats
8 = Grass/Forb Habitats
10 = Mid- to Late- Succesional Deciduous Forest Habitats
11 = Forest Riparian Habitats
12 = Habitat Generalist
13 = Area Sensitive Mid- to Late- Successional Deciduous Forest Habitats
17 = Southern Yellow Pine Forests and Woodland Habitats
18 = Mixed Mesic Forest Habitats
19 = Mixed Xeric Forest Habitats
20 = Shrub/Seedling/Sapling Habitats
21 = Seeps and Springs Habitats
A = Aquatic Species

Forest Service Sensitive Species of the Bankhead National Forest

Scientific Name	Common Name	Status[1]	Rank	Habitat	Within Affected Area? May be affected by the project?
Aesculus parviflora	Small flowered buckeye	S	S2S3G2G3	18	No
Astragalus tennesseensis	Tennessee Milkvetch	S	S1G3	6	No
Aureolaria patula	Spreading yellow false foxglove	S	S1G2G3	7	No
Carex brysonii	Bryson's sedge	S	S1G1	18	No
Delphinium alabamicum	Alabama larkspur	S	S2G2	6	No
Diervilla rivularis	Riverbank bush-honeysuckle	S	S2G3	11	No

Helianthus eggertii	Eggert's sunflower	S			8		No. Potential habitat may be affected.	
Hymenophyllum tayloriae	Gorge filmy fern	S		S1G1G2	7		No	
Jamesianthus alabamensis	Alabama jamesianthus	S		S3G3	11		Habitat within the project watersheds.	
Juglans cinerea	Butternut	S		S1G3G4	18		No	
Leavenworthia alabamica var.alabamica	Alabama Gladecress	S		T2T3G2G3	6		No	
Leavenworthia crassa	Fleshyfruit Gladecress	C&S		S1G2	6		No	
Lesquerella densipila	Duck River Bladderpod	S		SHG3	6		No	
Monotropsis odorata	Sweet pinesap	S		G3	10		No	
Asplenium x ebenoides	Scott's Spleenwort	S		HYBS1	7		No	
Marshallia trinervia	Broadleaf Barbara's buttons	S		S3G3	11		No	
Minuartia alabamensis	Alabama Sandwort	S		S2G2Q	6		No	
Neviusia alabamensis	Alabama snow-wreath	S		S2G2	6		No	
Platanthera intergrilabia	White fringeless orchid	C&S		S2G2G3	2		No	
Polymnia laevigata	Tennessee Leafcup	S		S2S3G3	18		No	
Robinia viscosa	Clammy Locust	S		G3	17		Potential habitat may be affected.	
Rudbeckia triloba var pinnatiloba	Pinnate-lobed Black-eyed Susan	S		S2S3G4T2	7		No	
Scutellaria alabamensis	Alabama skullcap	S		S2G2	7		No	
Sedum nevii	Nevius' stonecrop	S		S3G3	7		No	
Silene ovata	Blue Ridge catchfly	S		S1G2G3	7		No	
Talinum calcaricum	Limestone Fameflower	S		S2G3	6		No	
Talinum mengesii	Menge's fameflower	S		S2S3G3	6		No	
Thalictrum mirabile	Little mountain meadow rue	S		QS1G2G3	7		No	
Trillium lancifolium	Lanceleaf Trillium	S		S2S3G2	11		Potential habitat may be affected.	
Trillium simile	Jeweled Trillium	S		G3	18		No	

Speyeria diana		Diana Fritillary		S		S3G3		11		Potential habitat may be affected.		
Corynorhinus rafinesquii		Rafinesque's Big-eared bat		S				10		Potential habitat may be affected.		
Cheilolejeunea evansii		A liverwort		S		S1G1		11		No		
Aneura maxima		A liverwort		S		G1G2		11		No		
Pellia X appalachiana		A liverwort		S		G1G2		11		No		
Nardia lescurii		A liverwort		S				11		No		
Plagiochila echinata		A liverwort		S		G2		11		No		
Radula sullivantii		A liverwort		S		G2		11		No		
Riccardia jugata		A liverwort		S		G1G2		11		No		
Hydroptila paralatosa		A caddisfly		S		S2G2		A		No		
Rhyacophila carolae		A caddisfly		S		S1G1		A		No		
Elliptio arca		Alabama spike		S		S2G3		A		Habitat within the project watersheds.		
Obovaria jacksoniana		Southern Hickorynut		S		S2G1G2		A		No		
Obovaria unicolor		Alabama Hickorynut		S		S2G3		A		No		
Strophitus subvexus		Southern creekmussel		S		S2G3		A		Habitat within the project watersheds.		
Villosa nebulosa		Alabama rainbow		S		S3G3		A		Habitat within the project watersheds.		
Etheostoma bellator		Warrior darter		S		S2G2		A		Habitat within the project watersheds.		
Etheostoma douglasi		Tuskaloosa darter		S		S2G2		A		Habitat within the		

										project watersheds.	
Etheostoma phytophyllum		Rush darter		S		S2G2		A		Habitat within the project watersheds.	
Etheostoma tuscumbia		Tuscumbia darter		S		S1G2		A		No	
Percina sp.cf.macrocephala		Warrior Bridled Darter		S		G3		A		Potential habitat within the project watersheds.	
Necturus alabamensis		Black Warrior waterdog		S		S2G2		A		Habitat within the project watersheds.	

[1]S = sensitive; C = candidate for Federal listing

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20 = Shrub/Seedling/Sapling Habitats
21 = Seeps and Springs Habitats
A = Aquatic Species

All species listed for the Bankhead National Forest as threatened or endangered by the US Fish and Wildlife Service and as sensitive by the Regional Forester were considered, but some were excluded from further evaluation. Potential habitat was assessed for effects. A discussion of the excluded species and the reasons for exclusion follows.

Federally Listed Species (Threatened and Endangered Species)

Red-cockaded woodpecker. There has been no record of a red-cockaded woodpecker at the Bankhead National Forest since the early 1990's. The project areas do not contain suitable habitat for red-cockaded woodpecker. This species was excluded from further evaluation.

Mussels - turgid blossom pearly, pink mucket pearly, rough pigtoe, upland combshell and cumberlandian combshell mussels. Three of these species of mussels (turgid blossom, pink mucket pearlymussel, and rough pigtoe) are listed as having historic range within Lawrence County, Alabama. Their habitat was associated with the Tennessee River and its large tributaries. The turgid blossom is not known to occur in streams of the Bankhead. The turgid blossom is considered by some to be extinct. The rough pigtoe is currently known only to occur in a few sites in the Tennessee, Clinch, Cumberland, Barren and Green Rivers. This species is not known to occur within Bankhead. The pink mucket is distributed in Colbert, Lauderdale, Limestone, Madison, Marshall, and Morgan counties in Alabama. The pink mucket is a large river species known from the Mississippi, Tennessee, Ohio and Cumberland river systems.

The turgid blossom pearlymussel is considered to be extinct by the Fish and Wildlife Service and has never been found within the streams of Bankhead National Forest. The habitat for the pink mucket pearlymussel is considered to be larger rivers and their tributaries, such as the Ohio and Tennessee Rivers. This species has never been recorded within the streams of Bankhead National Forest and is not expected to occur here. The rough pigtoe is found within the Tennessee River proper and thus will not be found within Bankhead National Forest.

The Cumberlandian combshell may have had historic range within north Alabama, as the habitat was associated with the Tennessee River. However, records do not indicate that it is currently found in or near the Bankhead National Forest.

The upland combshell was historically known from the Black Warrior River drainage in Alabama. This species has not been observed within streams of the Black Warrior since the early 1900's. Threats to this species include habitat modification, sedimentation, and other forms of water quality degradation.

None of these species are listed by the US Fish and Wildlife Service within Winston County.

LRMP standards and guidelines are in place to preclude sedimentation or direct impact to streams. Appropriate stream habitat is not included within the proposed project areas. These species of mussels have been excluded from further evaluation.

Mohr's Barbara's buttons.
This species occurs in moist to wet prairie-like openings in woodlands and along shale-bedded streams and in meadows in a grass-sedge prairie community. Woodland clearing may be natural or artificial. Some populations are also located in swales on road rights-of-way that are seasonally wet. It has been found in Ketona dolomite glades. Mohr's Barbara's buttons is found in full sunlight or partial shade. Soils are sandy clays, which are alkaline, high in organic matter and seasonally wet. Surrounding forest type is described as mixed hardwoods with Shumard oak, willow oak and pine species. This species is found in a fire-maintained open habitat. It is reported to require an open to slightly shaded area underlain by a calcareous substrate.

One population was reported to have been discovered within the administrative boundary of the Bankhead National Forest. This plant is only known from north-central Alabama to northwest Georgia from 65 very localized sites. According to Nature Serve, it is found in Bibb, Calhoun, Cherokee and Walker counties in Alabama.

Mohr's Barbara's buttons is vulnerable to road widening and right-of-way maintenance including herbicide application, mowing and planting of aggressive competitors. Other threats include habitat conversion to pasture, cropland, pulpwood; encroachment of woody species due to the absence of fire; grazing, and drainage.

A detrimental impact to the species is not expected or anticipated due to the fact that the plant has not been encountered on the forest or the project sites. Direct effects to this species have been minimized by pre-project field surveys. Moist opening within woodlands will not be treated by this project. This plant has been excluded from further evaluation.

Leafy Prairie Clover. Habitat of the leafy prairie clover in Alabama is described as thin-soiled limestone glades and limestone barrens. In Tennessee, this plant occurs on wet calcareous barrens and moist prairies or cedar glades, usually near a stream or where some seepage from limestone provides seasonal moisture. Leafy prairie clover requires full sun and low competition. Periodic fire is required to maintain these conditions.

This species has declined throughout its range due to habitat destruction and alteration due to development, overgrazing, and fire suppression. It is highly threatened by continued habitat loss due to land use change. Additionally, sites in Tennessee are threatened by exotic, invasive shrubs like privet and bush honeysuckle.

This species has not been found on the Bankhead National Forest. In Alabama, it is known from Colbert, Franklin, Lawrence and Morgan counties.

The proposed project areas do not include the limestone glade habitat required by leafy prairie clover.

Lyrate bladderpod. This species has not been found on the Bankhead National Forest. The six known populations of this plant occur in Franklin, Lawrence and Colbert counties, Alabama.

This plant's habitat is described as red soils, limestone outcroppings, disturbed cedar glades and glade-like areas (open pastures, fields, and roadsides in calcareous areas). This species is restricted to shallow soils. This plant requires periodic disturbance to maintain the open cedar glade habitat where it occurs. It is threatened by woody plant succession and habitat loss or modification.

The proposed project areas do not include glades or glade-like habitat required by lyrate bladderpod.

Tennessee yellow-eyed grass. This species has not been found on the Bankhead National Forest. Sixteen extant populations are known in Alabama, Georgia and Tennessee.

This species is vulnerable to land-use conversion and habitat fragmentation resulting mainly from highway construction and alteration of wetlands (hydrological alteration causing substrate to dry out). It is also threatened by right-of-way maintenance and woody and invasive plant encroachment.

Tennessee yellow-eyed grass is restricted to basic or circumnuetral soils that thinly cover calcareous substrates with year-round seepage or mineral-rich water flow. It is found in open or thin canopy woods in gravelly seep-slopes or gravelly bars and banks of small streams, springs and ditches. It may be found in moist- to wet places including, on seepage slopes, springy meadows, bogs, and banks of small streams, in open areas or thin woods where calcareous rock is at or near the surface or on thin calcareous soils.

The project areas do not include potential habitat for Tennessee yellow-eyed grass; therefore, it was excluded from further evaluation.

Price's Potato Bean. This threatened plant species is an herbaceous, twining, perennial vine. Based on the habitats in which it is known to occur, Price's potato bean is thought to be an early successional species that is apparently dependant on a moderate level of disturbance. However, excessive habitat modification is threatening the existence of the species.

Price's potato bean is known from Alabama, Kentucky, Mississippi and Tennessee. In Alabama, it is known from Autauga, Dallas, Jackson, Lawrence, Madison, and Marshall counties. It has been reported from private property within the Bankhead National Forest administrative boundary. The location is in the northeast portion of the Bankhead in the Oakville quadrangle. In 2001, approximately 80 plants were observed at this site. It is possible that undiscovered populations of *Apios priceana* exist on Bankhead.

Suitable habitat is described as open, rocky, wooded slopes and floodplain edges. Known sites are usually under mixed hardwoods or in associated forest edges or clearings, often where bluffs or ravine slopes meet creek or river bottoms. Open woods, forest gaps, and low areas near creeks and along stream banks may contain potential habitat for this legume. The species seems to prefer mesic areas and is found along open, low areas near streams or along the banks of streams. It is sometimes found along the base of limestone bluffs. This plant grows well in well drained loams or old alluvium over limestone on rocky, sloping terrain. Populations are known to extend onto road and powerline rights-of-ways. The species can survive a broad range of pH from less than five to greater than eight. Apparently, the species is unable to tolerate deep shade. It is often found in association with chestnut oak, hog peanut, sugar maple, redbud, basswood, slippery elm, white ash, bluebell, spicebush, giant cane, poison ivy, and Virginia creeper.

Price's potato bean is currently known from about 25 widely scattered populations, most with fewer than 50 individuals. Range-wide threats include habitat loss and degradation from successional canopy closure, heavy or clear-cut logging, highway right-of-way maintenance, trampling and soil compaction by cattle, residential and commercial development, and non-native invasive species competition.

Habitat for Price's potato bean will not be affected by this project; therefore it was excluded from further evaluation.

Forest Service Sensitive Species

TENNESSEE MILKVETCH and MENGE'S and LIMESTONE FAMEFLOWER
Tennessee Milkvetch is found on limestone glades in Morgan County. Potential habitat exists within the BNF. Menge's fameflower is associated with cedar glades, limestone or sandstone outcrops, sandstone cliffs or rocks. Menge's fameflower is found in soil pools within expanses of flat sandstone outcrops that are large enough to allow full sunlight or near full sunlight on the outcrop. These plants are present throughout the Bankhead National Forest in glade type habitats. Limestone fameflower is also associated with glades and rock outcrops. It has not been encountered in the Bankhead National Forest. Limestone fameflower is known from the Nashville Basin and calcareous lowlands of middle Tennessee, from northern Alabama, and from Kentucky. This locally abundant plant is threatened by urban expansion and conversion of some open glades to low-quality pasture.

Rock outcrops/sandstone glades are known in the vicinity of Managaement Comapartments 161 and 166. However, rock outcrops are not included within the treatment areas and will not be impacted.

SMALL-FLOWERED BUCKEYE and BUTTERNUT
Small-flowered Buckeye is found in rich mesic woods and along creek margins. Butternut is found primarily on, but not limited to, limestone-derived soils, heavy clay-like soils, and well-drained soils associated with bottomlands and floodplain woods, or calcareous mesic woods. Butternut is found in rich hardwoods and streamside margins, especially in calcareous alluvial depositions along the streams. This tree rarely occurs in pure stands. It is shade-intolerant. The major threat to butternut throughout its entire range is the butternut canker disease. Lack of disturbance and shading are also threats to successful reproduction of butternut.

Wildlife openings will not be constructed or expanded in riparian areas.

BRYSON'S SEDGE
This species is associated with, but not limited to, low wet woods or areas commonly considered being riparian areas within streamside management zones. It needs mesic conditions and at least partial shade to survive. They are not limited to a particular soil type, but do include moist, sandy loams. Bryson's sedge is found in rich deciduous woods or on bluffs above streams. It is a newly identified plant (1993) and little is known about its life science. Bryson's sedge is apparently narrowly endemic to gorges of a single drainage in the Cumberland Plateau physiographic province in Alabama.

Threats include land-use conversion and habitat fragmentation.

Riparian areas are not included in the areas proposed for treatment by this wildlife habitat improvement project.

ALABAMA LARKSPUR
This species is associated with cedar glades, limestone or sandstone outcrops, sandstone cliffs or rocks, and surrounding open woodlands and in prairies. The larkspur is found in prairies, limestone cedar glades or open woods bordering these habitats. It is found thriving on basic clay soils derived from calcareous rocks. This plant has been encountered by Gunn in the Oakville quadrangle on a limestone cedar glade and adjacent cedar woodlands.

Rock outcrops/sandstone glades are known in the vicinity of Managaement Comapartments 161 and 166. However, rock outcrops are not included within the treatment areas and will not be impacted.

SWEET PINESAP
This small saprophytic plant is often found in dry sandy (acidic) woods, and is usually found in pine and mixed pine/hardwood stands. It is most often found under pines, giving rise to the common name. It has been reported as being saprophytic on pine roots, and the bases of pine trees. It has also been reported to occur in mixed deciduous hardwood pine stands. It occurs in the south in the mountain foothills and piedmont areas. Given the community association of occurrence, sweet pinesap should be a fire

tolerant, if not fire dependent species. The community type, in addition to a frequent fire regime, historically tended to a more open canopy, with occasional gap dynamics creating openings in the canopy cover.

Sweet pinesap has a limited distribution and is rare throughout its range. Loss of forested habitat is a threat to this species.

Sweet pinesap and its habitat of open pine woodlands are not present within the areas to be treated. Wildlife opening construction, expansion or rehabilitation will not provide potential habitat for sweet pinesap. Therefore, it was excluded from further evaluation.

SPREADING YELLOW FALSE FOXGLOVE
This species has been encountered in Cherokee County in Alabama. Other species of Aureolaria are found on a variety of sites from upland hardwoods to sandy sites of the coastal plain. This particular species is found on river bluffs in Tennessee.

Threats include destroying overstory shading, allowing invasion of exotic weeds, runoff and erosion.

This species is not known to occur in Bankhead National Forest. Riparian areas and bluffs are not included in the areas proposed for treatment by this wildlife habitat improvement project.

RIVERBANK BUSH-HONEYSUCKLE
Diervilla rivularis is a localized Southern Appalachian endemic. It occurs in a few counties in northwestern Georgia and in only a few counties in northeastern Alabama. This species is found along streams in riparian areas. This plant is somewhat threatened range-wide by land-use conversion, habitat fragmentation, and forest management practices.

Stream habitat and associated riparian areas will not be included in the project areas.

GORGE FILMY FERN
This species is somewhat to very epipetric in that they are usually found growing directly on more or less vertical rock faces. Gorge filmy fern grows on moist bluff faces. It is restricted to deeply sheltered, continuously moist habitats in the southern Appalachians, including the ceilings of moist grottos, cliff crevices in narrow stream gorges, and waterfall spray zones on cliffs. This species is considered to be highly threatened throughout its range because of its limited distribution and restricted habitat.

Bluffs and riparian areas are not be included in the project areas.

FLESHY-FRUIT and ALABAMA GLADECRESS
Fleshy-fruit gladecress has been encountered on two limestone glades within the Bankhead National Forest. It is endemic to Lawrence and Morgan counties in Alabama and verified from six sites in those two counties. It occurs on limestone glades, fallow

fields and along roadsides in sunny, open habitats. This gladecress is highly threatened by human disturbance, including ATV use and trash disposal on glades.

Alabama gladecress is associated with limestone glades and is known from Franklin and Lawrence counties.

Rock outcrops/sandstone glades are known in the vicinity of Managaement Comapartments 161 and 166. Limestone glades are not known from the proposed project areas. Rock outcrops and glades are not included within the treatment areas and will not be impacted.

DUCK RIVER BLADDERPOD

This species is only known from four counties in Alabama and from approximately fifty occurrences in seven counties in Tennessee. This species is known to occur in Franklin and Marshall counties in calcareous fields and pastures. It has not been encountered within the BNF and is not expected to occur within the project areas. This habitat will not treat potential habitat for duck river bladderpod.

Agriculture, stream modification, dam construction and competition with grasses all pose threats to this species.

LITTLE MOUNTAIN MEADOW RUE, NEVIUS' STONECROP, LIVERWORTS AND SCOTT'S SPLEENWORT

These species are somewhat to very epipetric in that they are usually found on more or less vertical rock faces.

Little mountain meadow-rue is restricted to wet sandstone habitats and known only from eastern Kentucky and Tennessee, south to northern Alabama. Like the other epipetric species considered here, habitat is difficult to access limiting threats.

Stonecrop is most likely on rock faces or bluffs above creeks and rivers on limestone or shale, and on limestone outcrops in woodlands growing amongst various mosses under light to heavy shade. It is restricted to a total of 8 counties in north-central Alabama, west-central Georgia and southeastern Tennessee. Nevius' stonecrop is threatened primarily by factors that dry out its habitat or intensively shade it. The rocky, bluff habitats of this species make it difficult to access; therefore, it is not severly threatened range-wide.

Liverworts are moss-like, non-vascular plants that grow on damp ground, rock outcrops, spray cliffs, and downed wood. These species are found in late successional riparian forests. *Plagiochila echinata* is reported to occur on rocks and stream banks in humid gorges and in the spray zone of waterfalls when encountered in North Carolina. *Cheilolejeunea evansii* is known from eleven extant occurrences in the southern Appalachians in western North Carolina, western South Carolina and north-central Alabama. This liverwort is found at lower elevations on the bark of trees in moist gorges and gorge-like habitats. It may occur on standing trees at just above ground level to 3

meters up the trunk on a variety of mesic to dry-mesic hardwoods. Threats to this liverwort include clear cutting or activities that would result in the removal of trees in the vicinity of the bryophyte.

Scott's spleenwort is epipetric. It is found in cool rock crevices (limestone, sandstone, or conglomerate cliffs) with a northern exposure. It is also associated with moist, shady habitats. It is not known from BNF, but has been encountered in Jefferson County.

Rock bluffs and riparian areas will not be included in or affected by the project.

BROADLEAF BARBARA'S BUTTONS

Broadleaf Barbara's buttons is endemic to the southeast and is known from several states, but is not common. This species is restricted to specialized seepy calcareous habitats. This species has been described as being found in pinelands and damp woods. It is not known from the Bankhead. Habitat for this plant is generally unsuitable for other uses, but land-use conversion and fragmentation are considered threats.

The proposed project areas will not include the seepy calcareous habitat required by broadleaf Barbara's buttons.

ALABAMA SANDWORT

Alabama sandwort is not currently known from any locations on the Bankhead, although it has been found within one mile of the administrative boundary. This species is an Alabama endemic and is associated with glades, barrens, and rock outcrops.

Rock outcrops/sandstone glades are known in the vicinity of Managaement Comapartments 161 and 166. Limestone glades are not known from the proposed project areas. Rock outcrops and glades are not included within the treatment areas and will not be impacted.

ALABAMA SNOW-WREATH

This plant is rare throughout its range, with widely scattered populations that are mostly or entirely clonal. It is known to occur on forested bluffs, talus slopes, and streambanks. It occurs on a variety of geologic substrates, soils and aspects, and under open- to completely closed-canopy conditions. This species has not been recorded in BNF, or in Winston, Lawrence or Franklin counties. It has been recorded from DeKalb, Jackson, Madison, and Tuscaloosa counties.

Nature Serve lists potential threats as timber harvesting, recreational development, encroachment by undesirable weedy species, grazing, urban expansion, and forest management practices.

Bluffs and riparian areas are not proposed for treatment.

WHITE FRINGELESS ORCHID

White fringeless orchid is an obligate wetland species. Habitat for this orchid is generally described as wet, flat, boggy areas, stream heads, or seepage slopes in acidic muck or sand, in flat or at the bottom of sharply sloped streamside in association with species of Sphagnum moss and Cinnamon fern, chain fern and/or New York fern. Soils are permanently moist, but are not often flooded. Sites are partially, but not fully shaded.

This species has been encountered in one location within the Bankhead administrative boundary. This location is on private land near the Rocky Plains community. This species of limited distribution is threatened by land-use conversion, habitat fragmentation, succession, pollution, and to a lesser degree by forest management practices according to Nature Serve. Altering the hydrology is the most destructive threat to bog-like habitat. Logging operations, development, road projects, pond construction, and beaver activities can alter sites to become unnaturally wet by damming drainage. These activities disrupt and alter hydrological regimes, which have the most severe and long-term impacts.

Wildlife openings will not be constructed or expanded into riparian areas or wetlands.

TENNESSEE LEAFCUP

Tennessee leafcup occurs mainly on rich wooded slopes in light to dense shade of mixed mesophytic woods on moist loamy and rocky substrates. In Tennessee, habitat includes limestone bluffs, ridges, rocky creek bottoms, and mixed mesophytic forest slopes on the Cumberland Plateau. In Kentucky, it occurs on rich, mesic wooded slopes on loess or alluvial slopes. In Florida, it occurs on thin moist soils directly over limestone bedrock.

Across it's range, threat may include logging operations and grazing that result in competition from non-native plants.

Wildlife openings will not be constructed or expanded along bluffs or within riparian areas.

PINNATE-LOBED BLACK-EYED SUSAN

This species may be found in riparian areas, on moist shaded hardwood slopes, on rich soils and in association with rock outcrops and cliffs. It is known from 27 sites in the state of Alabama.

Range-wide threats include land-use conversion and habitat fragmentation. This species does not tolerate disturbance or over-drying of soils.

This wildlife habitat improvement project will not occur within rock outcrops, cliffs, or riparian areas.

ALABAMA SKULLCAP

This species is known to occur in Calhoun, Cullman, Etowah, Jefferson and St. Clair counties. It is associated with moist clearings in oak-pine flats. Habitat is described as moist shaded hardwood slopes and rich soils; mixed pine-hardwoods; and forest margins.

This plant is not known to occur in the Bankhead National Forest. Sites proposed for wildlife opening construction or expansion do not contain potential Alabama skullcap habitat.

BLUE RIDGE CATCHFLY

Silene ovata is associated with cliffs, rock barrens, sandstone outcrops and rock houses in rich woods. Although it has been recorded only from Dallas, Geneva, and Marengo counties, suitable habitat does exist on the BNF, but not within the treatment areas.

Range-wide threats include heavy logging, grazing, flooding by impoundment, clearcutting, construction and quarrying projects that destroy this species habitat.

Rock outcrops/sandstone glades are known in the vicinity of Managaement Comapartments 161 and 166. Rock outcrops, glades, rock houses and cliffs are not included within the treatment areas and will not be impacted.

JEWELED TRILLIUM

Jeweled trillium is known from the Bee Branch area of the BNF. The habitat of this plant is described as rich coves under mature trees, in rhododendron thickets along streams, and at forest edges, frequently on outcrops partially exposed by road building. The plant is associated with moist, "humusy" soil.

The rich and moist soil habitat required by this species is not available within the treatment areas.

CADDISFLIES

Two sensitive species of caddisflies may be found in the BNF. *Hydroptila paralatosa* is found in small streams of the fall line and has been collected in Winston County. *Rhyacophila carolae* has been collected in a small tributary of Bee Branch in the BNF.

Caddisflies are confined to water during the majority of their life cycle. Adults of most species are inactive during the day and active during the evening (Harris et al., 1991).

Threats and population estimates are not available from Nature Serve for these species.

LRMP standards and guidelines are in place to preclude sedimentation or direct impact to streams. Wildlife openings will not be constructed in or expanded into riparian areas.

SOUTHERN HICKORYNUT and ALABAMA HICKORYNUT

Suitable habitat for these aquatic species exists on BNF. Mussels require habitat stability, including substrate and water quality. These species are sensitive to water quality degradation; sedimentation being an important factor. Ground disturbing activities within a watershed are potential sediment sources.

The Alabama hickorynut is restricted to large streams in the Mobile Basin. It has been extirpated from most of the historical range by stream impoundment and channelization and water quality degradation. This species is currently declining globally and is generally uncommon. It is relatively tolerant of nondestructive intrusion, but heavy recreational use of habitat could be disruptive.

The Southern hickorynut was historically distributed from Alabama to Eastern Texas, and in the Mississippi embayment as far north as southeastern Missouri. Alabama counties included in distribution records include Greene, Pickens, Sumter, and Tuscaloosa counties.

These species are not expected to exist within the proposed project areas. Perennial streams are not present within the project areas. LRMP standards and guidelines are in place to preclude sedimentation or direct impact to streams. Wildlife openings will not be constructed in or expanded into riparian areas. These two mussel species are not known to occur within the project watersheds. Therefore, they were excluded from further evaluation.

TUSCUMBIA DARTER
Tuscumbia darter is found in limestone spring ponds and runs with aquatic vegetation present. Tuscumbia darter has a narrow range in springs along the Tennessee River in Alabama. According to NatureServe, Tuscumbia darter occurs in the Wheeler Lake, Upper Elk, and Pickwick Lake watersheds. Populations are vulnerable to land use changes. Other threats include siltation, changes in the water table, predation, and loss of aquatic vegetation. This species is especially sensitive to changes in physical habitat, such as temperature or turbidity. Tuscumbia darter is not known from any of the watersheds where this wildlife opening project is proposed.

Perennial streams are not present within the project areas. LRMP standards and guidelines are in place to preclude sedimentation or direct impact to streams. Wildlife openings will not be constructed or expanded into riparian areas.

EVALUATED SPECIES SURVEY INFORMATION

Although all species that potentially may occur on the Bankhead National Forest were considered, those with actual or potential habitat within the project areas were evaluated. The following species were evaluated in this BE; gray bat, Indiana bat, bald eagle, flattened musk turtle, fine-lined pocketbook, orange-nacre mucket, Alabama moccasinshell, Coosa moccasinshell, dark pigtoe, ovate clubshell, triangular kidneyshell, Kral's water plantain, Alabama streak sorus fern, Eggert's sunflower, Alabama jamesianthus, clammy locust, lanceleaf trillium, Diana fritillary, Rafinesque's big-eared bat, Alabama spike, southern creekmussel, Alabama rainbow, warrior darter, Tuskaloosa darter, rush darter, warrior bridled darter and black warrior waterdog.

Indiana bat, gray bat, and bald eagle have been documented on Bankhead. Surveys and monitoring for all three of these species are conducted annually by Bankhead staff, with assistance from Alabama Department of Conservation and Natural Resources and Alabama A&M University.

Clammy locust and Alabama jamesianthus have been documented on the BNF. Scott Gunn and Susan Oberholster recorded Jamesianthus along Capsey Creek in the Upper Brushy watershed. Clammy locust has been recorded in one location on the BNF by Dr. Jimmy Huntley during his 2000 – 2001 southern pine beetle epidemic surveys.

Flattened musk turtle surveys have been conducted on the Bankhead in 1986 and 1989 by Kenneth Dodd, US Fish and Wildlife Service; in 1991 by Robert Mount, Auburn University; in 1994 by Karen Schnuelle, Auburn University; in 1999 by Gregory Lein, Alabama Department of Conservation and Natural Resources; and in 2004 by Sherry Rogers and Ken Marion, UAB.

Black warrior waterdog surveys have been conducted by Mark Bailey between 1990 and 1992; Michelle Durflinger in 2001; and Bailey, Durflinger and Craig Guyer in 2002.

Carol Johnston and Kevin Kleiner, Auburn University, conducted status surveys for rush darter in 2001 and 2002.

Potential and/or occupied habitat for the aquatic species evaluated is present within the watersheds where this project will occur.

Site specific surveys were conducted by contract biologists and botanists in 2003 for Forest Health and Restoration Project thinning. Additionally sites being expanded into southern pine beetle impacted areas were surveyed for southern pine beetle by Tom Counts, Allison Cochran, and/or contract biologists and botanists during 2000, 2001 and again in 2006 and 2007. Additionally, Counts or Cochran have surveyed sites for this wildlife opening project. Field survey methods included walking over the project sites searching for listed plants and animals, as well as suitable habitat.

No species listed as threatened or endangered by the FWS or as sensitive by the Regional Forester have been encountered during field surveys of the project sites. Critical mussel habitat is designated downstream of eight wildlife openings proposed for treatment. One wildlife opening proposed for treatment (WMA #8) is within the primary protection zone of known endangered bat hibernaculum and six other caves. WMA #8 and #9 are within the secondary protection zone of known endangered bat hibernaculum and several other caves. The Dry Creek WLO, WMA #25 and WMA #34 are within the secondary protection zone of several caves. Primary and secondary protection zones are defined in the RLRMP. WLO 166-1 is located approximately ¼ mile from a rock outcrop/sandstone glade. Additionally, rock outcrops/sandstone glades are known to occur in the vicinity of the WLOs in Compartment 161. The Compartment 161 WLOs are existing, do not contain, and are not adjacent to rock outcrops or glades.

The following species were considered and identified as having potential habitat within the action area or potentially being affected by the action and were included for further evaluation.

ENVIRONMENTAL BASELINE FOR THE SPECIES EVALUATED IN THIS BE and
EFFECTS OF PROPOSED MANAGEMENT ACTION ON EACH SPECIES EVALUATED

Federally Listed Species

Gray bat
Environmental Baseline
The Gray bat is Federally listed as endangered and is listed by the State of Alabama as a Priority One Species – Highest Conservation Concern. The gray bat occupies a limited geographic range in limestone karst areas of the southeastern United States. The gray bat is narrowly restricted to cave habitats and occupies caves year-round. Gray bats use caves for both summer roosting, maternity colonies and winter hibernation. These bats forage primarily over water.

Small populations of Indiana and Gray bats were found in two caves on the Bankhead National Forest in February, 1999. Their presence has been verified by Forest Service cave monitoring efforts conducted bi-annually during 2001, 2003, 2005, and 2007. Their presence has also been verified by Forest Service, Alabama Department of Conservation and Natural Resources, and Alabama A&M University biologists bat harp trapping efforts at cave entrances. Many other caves are present within the karst landscape of Bankhead National Forest and may provide habitat for this species. Additional harp trapping, mist netting, and cave surveys conducted on Bankhead National Forest to date have found no other caves used by Indiana or Gray bats. As with other bats of deciduous forests, it is extremely difficult to accurately determine the number of individuals present during the summer. Due to apparently small populations, they are difficult to capture by commonly deployed techniques such as mist netting. No gray bat maternity colonies have been documented on Bankhead. Gray bats have not been documented in Winston County.

Their population was estimated at about 2.25 million in 1970. Although there have been declines since that time, the population of some sites is stable or increasing. Population increases are due to successful protection of many inhabited caves. They hibernate in caves and it is estimated that nine known caves house about 95 percent of their population. Banding studies indicate that these bats occupy a rather definite summer range with relation to the roosting site and nearby foraging areas over large streams.

Limiting factors for the gray bat may include warm caves in the northern portion of its range, and cold caves in the southern portion. A key cause of decline appears to be human disturbance and loss of cave habitat quality. Deforestation of areas around occupied cave entrances and between caves and large water sources (feeding corridors)

may have a detrimental effect. Forest cover provides protection from predators, especially for young bats. Retention of forested corridors around cave entrances, along river and perennial stream edges, and along reservoir shorelines within 25 km of known gray bat maternity caves is important.

Gray Bat

Wildlife Opening	Practice	Cave Habitat Considerations	Forest Plan Action
WMA #8	Enlarge WLO by cutting/dozing a 30 foot buffer around existing area	Primary Protection Zone **Backwards/Confusion** Captain Jacks * Snow Cave * **Secondary Protection Zone** Several other unsurveyed caves	Do not operate between Sept. 1 & Dec. 1 Fall Swarming Period No activity within 200 feet of cave
WMA #9	Enlarge WLO by cutting/dozing a 30 foot buffer around existing area	**Secondary Protection Zone** Backwards/Confusion* & Several other unsurveyed caves	Do not operate between Sept. 1 and Dec. 1 Fall Swarming Period
WMA #25	Enlarge WLO	**Secondary Protection Zone** Several other unsurveyed caves	Do not operate between Sept. 1 and Dec. 1 Fall Swarming Period
WMA # 34	Enlarge WLO by cutting/dozing a 30 foot buffer around existing area	**Secondary Protection Zone** Several unsurveyed caves	Do not operate between Sept. 1 and Dec. 1 Fall Swarming Period
* / =	unsurveyed		

Direct, Indirect and Cumulative Effects

Five wildlife openings proposed for treatment are within two miles or less of known caves. WMA #8 is within ½ mile (primary protection zone) of endangered bat hibernacula. WMA #9 is within 2 miles (secondary protection zone) of endangered bat hibernacula. WMA #8 and #9, Dry Creek WLO, WMA # 25, and WMA #34 are within the secondary protection zone of several other caves, as well.

The cave near WMA #8 and #9 documented to be used by endangered Indiana and gray bats is surveyed bi-annually. Less than 10 Indiana and gray bats have been using this cave since 2001. No gray bats have been captured during mist netting efforts in these two wildlife openings proposed for treatment.

The areas to be treated are existing wildlife openings. WMA #8 and #9 are ridge top sites; they are located adjacent to each other; connected by a closed woods road; and are surrounded by loblolly pine plantations that were first thinned through the Forest Health and Restoration Project (FHRP) in 2006. The Dry Creek site will expand an existing fire control line around an immature longleaf pine stand (less than 20 years old). This area was evaluated as a fireline for the 2007 prescribed burn program. WMA # 25 is an existing opening that will be expanded into an immature hardwood stand (less than 30 years old). WMA # 34 is an existing opening that will be expanded into an FHRP loblolly pine plantation scheduled for thinning in 2009.

Potential direct effects to gray bats include disturbance during hibernation. Gray bats will not be directly effected by wildlife opening construction, expansion or rehabilitation. Sites proposed for treatment do not provide habitat for gray bats. Wildlife opening construction, expansion and rehabilitation will not occur within 200 feet of known cave entrances. Wildlife openings within the primary and secondary protection zones of occupied or unsurveyed caves will not be treated (expanded) during the fall swarm and maternity roosting periods (September 1- December 1 and May 1 – July 1).

Indirect effects may include the potential for alteration of cave habitats, removal of forest cover around caves or along riparian corridors, and impairment of water quality limiting production of aquatic insect forage. Cave habitats will not be altered by this project. Additionally, road closures in effect at known endangered bat hibernacula will remain in effect. All new wildlife openings constructed will be gated to prohibit vehicular access to the sites. No vegetation will be removed from within 200 feet of any cave entrance. Wildlife openings will not be constructed within riparian corridors. Standards for riparian corridors within the RLRMP will be adhered to. After initial clearing, the sites will be disked and planted to control any potential erosion. Hay mulch may be applied if needed. All sites will be monitored to ensure vegetation is established. Additional plantings and mulching will be used if initial vegetation establishment is inadequate. Application of riparian corridor standards and erosion prevention through site selection, planting and mulching will ensure high water quality to support aquatic prey and forested cover along streams for foraging habitat.

RLRMP standards and guidelines eliminate the potential for take of hibernating bats and the modification to cave habitat. All activities within primary and secondary cave protection zone are coordinated with the US Fish and Wildlife Service (FW-94). Until caves are surveyed for use by federally listed bats, they are assumed to be present and habitat is maintained for them by applying standards for occupied caves (9.F-56). For all caves suitable for supporting cave-associated species, a minimum buffer of 200 feet is maintained around portals and cave associated collapse and sinkholes (9.F-57).

A cumulative effects analysis should consider incremental impact of actions when added to past, present and reasonably foreseeable future actions. The analysis includes all actions regardless of who undertakes the actions. Cumulative effects can result from individually minor but collectively significant actions taking place over time. While this project is considered as relatively minor in impact, a collection of other actions of can impact habitats. Essentially all Forest Service actions are evaluated for their impact upon federally listed species such as these. Actions that take place off the forest are generally not evaluated to such an extent. These actions are also under no regulatory authority of the Forest Service. Management activities are being conducted that will benefit habitat for these bats in the form of opening overstocked forest stands, reforesting and restoring native forest community types, protecting hibernacula, and restoring water sources within known bat ranges. It is anticipated that these projects are improving bat habitat on the forest. Gray bats are not known to occur on private lands within the counties where Bankhead National Forest is located. Cumulative effects include creating additional acreages of early successional habitat near known hibernacula. The RLRMP standard (FW-95) for forested acreages existing on the landscape within the secondary buffer of occupied bat hibernacula is that a minimum of 60% of all forested acreage is maintained at greater than 70 years old, and a minimum of 40% of forest types with significant oak and hickory components is maintained at greater than 80 years old. Additionally, the standard is that the 0-10 age class does not exceed 10% of the forested acreage of the secondary buffer at any time. Currently within the secondary buffer of endangered bat hibernaculum in close proximity to WMA # 8 and #9 proposed for treatment, seven wildlife openings, ranging in size from 1 to 6 acres, exist on the landscape. Two are proposed for expansion by three acres. Additionally, scattered acres of early successional forest exist that have been created by southern pine beetle infestation. RLRMP and FHRP direction are to manage forested acreage in the areas of endangered bat hibernacula for hardwood forests. Regeneration by managers has not occurred within the secondary buffer of endangered bat hibernaculum in close proximity to WMA #8 and #9 in the past that results in any stands being in the 0 – 10 age class at this time other than those created by southern pine beetle infestations. Expanding wildlife openings within the secondary buffer of endangered bat hibernacula will not significantly increase the acreage of early successional forest on the landscape.

Determination of Effect

There are numerous protective mechanisms built into the Revised Forest Land and Resource Management Plan for the Gray bat. Site-specific field surveys, cave database review, and on-going cave surveys and mist netting will eliminate the potential for take of a Gray bat during wildlife opening construction, rehab, or expansion. Thus the determination of “no effect” is made for Gray bat.

Indiana bat
Environmental Baseline
The Indiana bat is federally listed as an endangered species and listed by the State of Alabama as a Priority One Species – Highest Conservation Concern. The Indiana bat's distribution is generally associated with limestone caves in the eastern U.S. During the summer, maternity colonies of adult female Indiana bats may be found roosting under sloughing bark of dead and dying trees of many species, often in forested settings. Reproductive females require multiple alternate roost trees. Adults forage within three miles of maternity roosts. Fall swarming of males and females has been documented at cave entrances prior to hibernation. Caves and mines are used for hibernation and provide very specific microclimates. Indiana bats forage in and around the tree canopy of floodplain, riparian and upland forests. Within floodplain forests Indiana bats show a preference for areas where canopy closure ranges from 30% to 70%. Streams, associated floodplain forests, and impounded bodies of water are preferred foraging habitats for pregnant and lactating Indiana bats, which may fly up to 1.5 miles from upland roosts to feed. In general, Indiana bats forage within the canopy of upland forests, over clearings with early successional vegetation, along the borders of croplands, along wooded fence rows and over farm ponds in pastures.

Small populations of Indiana bats were found in two caves on the Bankhead National Forest in February, 1999. Their presence has been verified by Forest Service cave monitoring efforts/hibernacula surveys conducted bi-annually during 2001, 2003, 2005 and 2007. Their presence has also been verified by Forest Service, Alabama Department of Conservation and Natural Resources, and Alabama A&M University biologists bat harp trapping efforts at cave entrances. Many other caves are present within the karst landscape of Bankhead National Forest and may provide habitat for these species. Additional harp trapping, mist netting, and cave surveys conducted on Bankhead National Forest to date have found no other caves used by Indiana or Gray bats. As with other bats of deciduous forests, it is extremely difficult to accurately determine the number of individual Indiana bats present during the summer. Due to apparently small populations, they are difficult to capture by commonly deployed techniques such as mist netting. Thus it is not known if or to what extent Indiana bats use the Bankhead during the non-hibernating season. No maternity colonies have been documented on Bankhead. Based upon very limited information on the presence and distribution of Indiana bats in Bankhead, there is an assumption that Indiana bats may be present within appropriate habitat on the Bankhead National Forest from spring to fall.

There are 13 Indiana bat hibernacula in six states which are designated as critical habitat. Priority One hibernacula are defined as hibernation sites with recorded populations of more than 30,000 bats since 1960. Priority Two hibernacula have record of between 500 and 30,000 bats since 1960. Priority three hibernacula have records of 500 or fewer bats. The hibernacula at Bankhead are within the Priority Three category. Indiana bat populations have declined by about 60% since the 1960's. The total population of Indiana bats was estimated at 353,000 in 1997. Range-wide causes of decline are not well-known and have continued despite protection of all known major hibernacula.

The main threats to this species are availability of natural roost structures, loss of winter hibernaculum and human disturbance at winter caves.

Direct, Indirect and Cumulative Effects

Gray and Indiana bats are known from two caves on Bankhead National Forest. Small populations of Indiana bats were found within Bankhead National Forest in Lawrence County during 1999. Indiana and gray bats have been documented to hibernate in two caves on Bankhead and their presence has been verified in subsequent years. Summer use has not been verified, although fall swarming has been observed. No known maternity sites exist on or within the proclamation boundary of the Bankhead. Indiana bats have not been encountered in Winston County.

Five wildlife openings proposed for treatment are within two miles of caves. WMA #8 is within ½ mile (primary protection zone) of endangered bat hibernacula. WMA #9 is within 2 miles (secondary protection zone) of endangered bat hibernacula. WMA #8 and #9, Dry Creek WLO, WMA # 25, and WMA #34 are within the secondary protection zone of several other caves, as well.

The cave near WMA #8 and #9 documented to be used by endangered Indiana and gray bats is surveyed bi-annually. Less than 10 Indiana and gray bats have been using this cave since 2001.

The areas to be treated are existing wildlife openings. WMA #8 and #9 are ridge top sites; they are located adjacent to each other; connected by a closed woods road; and are surrounded by loblolly pine plantations that were first thinned through the Forest Health and Restoration Project (FHRP) in 2006. The Dry Creek site will expand an existing fire control line around an immature longleaf pine stand. WMA #25 is an existing opening that will be expanded into an immature hardwood stand. WMA #34 is an existing opening that will be expanded into an FHRP loblolly pine plantation scheduled for thinning in 2009.

Potential direct effects to Indiana bats include disturbance during hibernation, disruption of fall swarming and damage to a maternity roost. Wildlife openings do not provide habitat for Indiana bat hibernation. Wildlife opening construction, expansion and rehabilitation will not occur within 200 feet of known cave entrances. Roost trees could be directly affected by wildlife opening construction, rehabilitation or expansion. The potential for direct effects to occupied roost trees is minimized by the timing of the project. Wildlife openings within the primary and secondary protection zones of occupied or unsurveyed caves will not be treated (expanded or constructed) during the period of fall swarming and maternity roosting periods (September 1- December 1 and May 1 – July 1).

Indirect effects many include the potential for alteration of cave habitats, removal of forest cover around caves or along riparian corridors, impairment of water quality limiting production of aquatic insect forage, and removal of potential maternity roost

trees. Cave habitats will not be altered by this project. Additionally, road closures in effect at known endangered bat hibernacula will remain in effect. All new wildlife openings constructed will be gated to prohibit vehicular access to the sites. No vegetation will be removed from within 200 feet of any cave entrance. Wildlife openings will not be constructed within riparian corridors. Standards for riparian corridors within the RLRMP will be adhered to. After initial clearing, the sites will be disked and planted to control any potential erosion. Hay mulch may be applied if needed. All sites will be monitored to ensure vegetation is established. Additional plantings and mulching will be used if initial vegetation establishment is inadequate. Application of riparian corridor standards and erosion prevention through site selection, planting and mulching will ensure high water quality to support aquatic prey and forested cover along streams for foraging habitat. Snags will not be felled unless necessary for immediate safety. Shagbark hickories and white oaks greater than 6" DBH will be retained if they are present.

RLRMP standards and guidelines eliminate the potential for take of hibernating bats and the modification to cave habitat. All activities within primary and secondary cave protection zone are coordinated with the US Fish and Wildlife Service (FW-94). Until caves are surveyed for use by federally listed bats, they are assumed to be present and habitat is maintained for them by applying standards for occupied caves (9.F-56). For all caves suitable for supporting cave-associated species, a minimum buffer of 200 feet is maintained around portals and cave associated collapse and sinkholes (9.F-57).

RLRMP standards and guidelines, in addition to the proposed project timing and mitigations will essentially eliminate the risk for "take" of a maternity roost tree during the summer or roost tree used by Indiana bats during the fall swarming period. Known roost trees will not be disturbed by this project.

A cumulative effects analysis should consider incremental impact of actions when added to past, present and reasonably foreseeable future actions. The analysis includes all actions regardless of who undertakes the actions. Cumulative effects can result from individually minor but collectively significant actions taking place over time. While this project is considered as relatively minor in impact, a collection of other actions can impact habitats. Considering the overall population of Indiana bats, the Bankhead group is likely not significant. However, all Forest Service actions are evaluated for their impact upon federally listed species including the Indiana bat. Actions that take place off the forest are generally not evaluated to such an extent as they are also under no regulatory authority of the Forest Service. Management activities are being conducted that will benefit habitat for Indiana bats in the form of opening overstocked forest stands, reforesting and restoring native forest community types, protecting hibernacula, and restoring water sources within known bat ranges. It is anticipated that these projects are improving bat habitat on the forest. Increasing southern pine beetle activity on the Bankhead is creating more snags that may be used by Indiana bats. Indiana bats are not known to occur on private lands within the counties where Bankhead National Forest is located. Cumulative effects include creating additional acreages of early successional habitat near hibernacula. The RLRMP standard (FW-95) for forested acreages existing

on the landscape within the secondary buffer of Indiana bat hibernacula is that a minimum of 60% of all forested acreage is maintained at greater than 70 years old, and a minimum of 40% of forest types with significant oak and hickory components is maintained at greater than 80 years old. Additionally, the standard is that the 0-10 age class does not exceed 10% of the forested acreage of the secondary buffer at any time. Currently within the secondary buffer of endangered bat hibernaculum in close proximity to WMA # 8 and #9 proposed for treatment, seven wildlife openings, ranging in size from 1 to 6 acres, exist on the landscape. Two wildlife openings are proposed for expansion by a total area of three acres. Additionally, scattered acres of early successional forest exist that have been created by southern pine beetle infestation. RLRMP and FHRP direction are to manage forested acreage in the areas of Indiana bat hibernacula for hardwood forests. Regeneration by managers has not occurred within the secondary buffer of Indiana bat hibernaculum in close proximity to WMA #8 and #9 in the past that results in any stands being in the 0 – 10 age class at this time other than those created by southern pine beetle infestations. Expanding wildlife openings within the secondary buffer of Indiana bat hibernacula will not significantly increase the acreage of early successional forest on the landscape.

Indiana Bat

Wildlife Opening	Practice	Cave Habitat Considerations	Forest Plan Action
WMA #8	Enlarge WLO by cutting/dozing a 30 foot buffer around existing area	Primary Protection Zone **Backwards/Confusion** Captain Jacks * Snow Cave * **Secondary Protection Zone** Several other unsurveyed caves	Do not operate between Sept. 1 & Dec. 1- Fall Swarming Period Do not operate between May 1 and July 1 for maternity roosting considerations No activity within 200 feet of cave
WMA #9	Enlarge WLO by cutting/dozing a 30 foot buffer around existing area	**Secondary Protection Zone** Backwards/Confusion & Several other unsurveyed caves	Do not operate between Sept. 1 and Dec. 1 - Fall Swarming Period Do not operate between May 1 and July 1 for maternity roosting considerations
WMA #25	Enlarge WLO by removal of vegetation by dozing/dozing	**Secondary Protection Zone** Several other unsurveyed caves	Do not operate between Sept. 1 and Dec. 1- Fall Swarming Period Do not operate between May 1 and July 1 for maternity roosting considerations

WMA # 34	Enlarge WLO by cutting/dozing a 30 foot buffer around existing area	**Secondary Protection Zone** Several unsurveyed caves	Do not operate between Sept. 1 and Dec. 1- Fall Swarming Period Do not operate between May 1 and July 1 for maternity roosting considerations
* / = Cave Unsurveyed			

Determination of Effect
There are numerous protective mechanisms built into the RLRMP for the Indiana bat that are incorporated into this project. Site-specific field surveys, cave database review, and on-going cave surveys and mist netting will reduce the potential for take of an Indiana bat during wildlife opening construction, rehab, or expansion. Retaining snags, eliminating activities within 200 feet of known cave entrances, and project timing will further reduce the potential for take. However, the potential for take is reduced to an insignificant level by the adoption of all of the project mitigations as noted above. The project will occur in very close proximity to known Indiana bat habitat and the size of impact to that habitat should never reach the level for a take to occur. Therefore, the determination of effect is "not likely to adversely affect" Indiana bat.

Bald eagle
Environmental Baseline
The bald eagle is widely distributed in North America, with a large number of occurrences. The eagle suffered great decline in the southern and eastern part of the range from a number of factors including illegal shooting, habitat destruction and degradation, and the pesticide DDT which contaminated the eagle's food source. Populations in many areas have rebounded in recent years due to protection and active management.

Bald eagles prefer an environment of quiet isolation from areas of human activity, especially for nesting. Their breeding habitat includes areas close to a water body that reflects general availability of primary food sources including fish, waterfowl, rodents, reptiles, amphibians, seabirds, and carrion. Preferred roosts are conifers or other sheltered sites. Bald eagles usually nest in tall trees or on cliffs near water. Nest trees across the range include pines, spruce, firs, cottonwood, oaks, poplars, and beech. The same nest may be used year after year or they may alternate between two nest sites. Nesting size territory is variable, but it typically may encompass about 2.59 km^2. Most nest sites are found in the midst of large wooded areas adjacent to marshes, on farmland, or in logged-over areas where scattered seed trees remain.

Bald eagles are known to roost communally, especially in winter. Winter home ranges can be very large, especially for non-breeding birds. Generally they winter throughout the breeding range but are more frequent along the coast.

This species is threatened throughout its range by habitat loss, disturbance by humans, contaminants, decreasing food supply and illegal shooting.

The bald eagle has been observed during the winter and spring around portions of Bankhead National Forest that border Lewis Smith Lake. Two inactive bald eagle nests were confirmed within the Bankhead during 2004. The nests were not active during 2004, but monitoring has revealed that one nest has been active, but unsuccessful in 2005. Observations in 2006 have failed to locate birds on the nests. However, the nests were maintained. In 2007, one of the nests located in a pine snag was lost when the snag fell. Nesting activity has not been observed at the remaining nest during 2007.

Direct, Indirect and Cumulative Effects

Direct effects to bald eagles would include killing a bird. Direct effects, causing a fatality, is not expected when conducting normal, legal management activities on the Bankhead. The project areas do not contain bald eagle nests or suitable habitat for bald eagle nest sites.

Indirect effects would include disturbance resulting in breeding or nesting failure and alteration of occupied habitats. Creating new wildlife openings in suitable habitat has the potential to impact the bald eagle. The nearest project area WLO 166-1 is approximately one mile from the known bald eagle nest site. With the exception of WLO 166-1 and the four WLOs in Compartment 161, the project areas are not near Lewis Smith Lake or any other body of water. No areas proposed for treatment contain suitable bald eagle habitat currently.

A cumulative effects analysis should consider incremental impact of actions when added to past, present and reasonably foreseeable future actions. The analysis includes all actions regardless of who undertakes the actions. Cumulative effects can result from individually minor but collectively significant actions taking place over time. While this project is considered as relatively minor in impact, a collection of other actions can impact habitats. Essentially all Forest Service actions are evaluated for their impact upon federally listed species such as these. Actions that take place off the forest are generally not evaluated to such an extent. These actions are also under no regulatory authority of the Forest Service. Bald eagles have not been reported to occur on private lands in Winston County on Smith Lake at this time. Riparian prescription and associated standards and objectives in the RLRMP emphasize low levels of disturbance and maintenance of mature forest near bodies of water. The riparian prescription will improve potential habitat for bald eagles on National Forest system lands. Additionally, RLRMP standards are in place directly addressing bald eagle management. Protection zones are delineated and maintained around all bald eagle nest and communal roost sites, until they are determined to be no longer suitable through coordination with the US Fish and Wildlife Service. The protection zone extends a minimum of 1500 feet from the nest

or roost. Activities that modify the forest canopy within this zone are prohibited. All management activities not associated with bald eagle management and monitoring are prohibited within this zone during periods of use (nesting season is October 1 to June 15; roost use periods are determined through site-specific monitoring). Where controlled by the Forest Service, public access routes into or through this zone are closed during the seasons of use, unless they are major arterial roads (RLRMP Standard FW-77).

Determination of Effect
There are numerous protective mechanisms built into the Revised Forest Land and Resource Management Plan for the bald eagle. The lack of suitable bald eagle habitat within the areas proposed for wildlife opening construction, rehab, or expansion eliminates the potential for take of a bald eagle. Thus the determination of "no effect" is made for bald eagle.

Flattened Musk Turtle
Environmental Baseline
The flattened musk turtle is an aquatic species that is found within the upper Black Warrior drainage. This species generally requires clear gravel bottomed streams with rocky outcroppings and pools 3 to 5 feet in depth. Clear streams are necessary for the production of filter feeders (mussels), which are the primary source of food for this species. The rocky crevices and outcroppings provide cover for the turtle. This species is found in the perennial streams of the Sipsey Fork, Brushy Creek, and Caney Creeks and their primary tributaries. The flattened musk turtle is known from the Lewis Smith Lake Reservoir. Withersheds included in this project that contain flattened musk turtle habitat are Upper and Lower Sipsey and Clear Creek. Historic habitat is present within the Clear Creek watershed.

Threats include overcollection, disease, habitat degradation from sedimentation and water pollution, habitat fragmentation and human-caused catastrophes and accidents (for example accidental spills).

Direct, Indirect and Cumulative Effects
The proposed project is outside of known flattened musk turtle habitat but is within the same watersheds as potential and occupied habitat. Perennial streams are not included within the proposed project areas.

Direct effects such as killing individual turtles or crushing eggs will not occur as a result of this project because perennial streams are not within the treatment area. Indirect effects would include altered water quality, sedimentation, temperatures, nutrient cycling, channel structure, flow or blockage of mussel host fish passage. Activities associated with this wildlife opening project will not alter any of these stream parameters. Perennial streams are not present within the project sites. Indirect effects to waters in the Clear Creek, Upper Sipsey and Lower Sipsey watersheds downstream of the project sites are unlikely to occur as a result of this project. Wildlife opening construction, rehab, and expansion will not occur in riparian areas. Openings will be planted and mulched with hay where needed promptly after ground disturbing activities occur. Project mitigations

include standards regarding riparian areas, riparian corridors and streamside management zones which are outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama (RLRMP). These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs. Based on these standards, this project will not affect aquatic or riparian species. On-going Forest Service activities that may cumulatively affect the flattened musk turtle or potential turtle habitat include thinning of loblolly pine stands and site preparation and planting of shortleaf and longleaf pines through the Forest Health and Restoration Project (FHRP). These thinning and site preparation activities all include the project mitigations described above and identified in the RLRMP and FHRP Environmental Impact Statement. Therefore, those additional Forest Service activities will not cumulatively affect aquatic species. Historic and off-Forest activities will contribute to on-going effects, regardless of Forest Service actions.

Determination of Effect
Based on the absence of perennial streams within the project sites and project mitigations, there will be no effect on the flattened musk turtle from implementation of the proposed project.

Mussels - Orange-nacre mucket, Alabama moccasinshell, Coosa moccasinshell, triangular kidneyshell, dark pigtoe, fine-lined pocketbook, ovate clubshell.
Environmental Baseline
These are aquatic species with habitat on Bankhead National Forest. The historic and current habitat for many of these include the Sipsey Fork, Thompson, Flannagin, Borden, Caney, North Fork Caney, Brushy, Capsey, Rush, Brown and Beech Creeks within Bankhead National Forest.

In compliance with a court order the U.S. Fish and Wildlife Service has assessed the best data available to evaluate critical habitat for 11 species of mussels. The final rule to designate critical habitat was published in the Federal Register on July 1, 2004 (50 CFR Part 17) and was effective as of August 2, 2004. Those five species with designated critical habitat on Bankhead National Forest include the orange-nacre mucket (Lampsilis perovalis), Alabama moccasinshell (Medionidus acutissimus), ovate clubshell (Pleurobvema perovatum), dark pigtoe (Pleurobema furvum), and triangular kidneyshell (Ptychobranchus greenii). Critical habitat is a term used in the Endangered Species Act to refer to a specific geographic area that is essential for the conservation of a threatened or endangered species and may require special management or protection. Federal agencies such as the Forest Service are required to consult with the Fish and Wildlife Service to ensure that their actions do not jeopardize the continued existence of these species or destroy or adversely modify critical habitat. This designation also serves to enhance awareness of the importance of the habitat and the need for special management considerations.

Critical mussel habitat is designated in streams adjacent to WLO 069-4, WLO 090-1, WLO's in Compartment 8, WMA #8 and #9, WLO 031-3 and 031-4. Orange nacre muckets have been collected upstream of the WLO 069-4 site. Orange nacre mucket,

Alabama moccassinshell, and triangular kidneyshell have been collected downstream of the WLO's in Compartment 8. Orange nacre muckets have been collected downstream of the WMA #25 and #34 sites. Orange nacre mucket and dark pigtoe have been collected in the vicinity of the proposed WLO 031-3 and 031-4 corridor.

The Coosa moccasinshell and the ovate clubshell have not been recorded on the BNF in recent years, although it is within their historic range. There are no population estimates for the Coosa moccasinshell on Bankhead. The ovate clubshell is rare throughout its range.

The triangular kidneyshell's current range includes the Sipsey Fork in the Black Warrior River drainage. The species or its habitat is present within the Upper Brushy, Lower Sipsey and Upper Sipsey watersheds. Population estimates for this species are not known. Its range is extremely limited. This limited range, combined with low species numbers make it very vulnerable to threats. Threats include impoundment of habitat and overutilization for commercial, recreational, scientific, and educational purposes.

The current distribution of the dark pigtoe is limited to the tributaries of the Sipsey Fork in Winston County, where it is most common, and the North River in Tuscaloosa and Fayette counties. This species is generally rare wherever it occurs. Population estimates are not known. The mussel or its habitat is present within the Upper Brushy, Lower Sipsey, Upper Sipsey watersheds, but unlikely in the Clear watershed. This species is sensitive to impoundment, habitat modification, sedimentation, and water quality degradation.

The current distribution of the fine-lined pocketbook is believed to be limited to the headwaters of the Sipsey Fork of the Black Warrior River drainage; Tatum Creek in the Alabama River Drainage; Little Cahaba River in the Cahaba River Drainage; Conasuaga River in the Coosa drainage and one site in the main channel; and Chewacla and Opintlocco Creeks in the Tallapoosa River drainage. Threats to this species include habitat modification, sedimentation and water quality degradation. Historically this species was spread throughout the Mobile River Basin, but currently there are only eight records for this species within the historic range. Potential habitat for this mussel is present within the Upper Brushy watershed. Fine-lined pocketbook or its habitat is present within the Lower Sipsey and Upper Sipsey watersheds.

The orange-nacre mucket was historically known from Brushy Creek, Mulberry and Sipsey Forks in the Black Warrior River drainage in the area around Bankhead National Forest. It has disappeared from many streams within its historic range. Population estimates are unavailable for this species, although it is described as being common in a few streams in Bankhead National Forest. And, these populations within Bankhead may be stable, according to Nature Serve records. Threats to this species include habitat modification, sedimentation and water quality degradation. This species is reported to be relatively tolerant of nondestructive intrusion, though heavy recreational use of mussel habitat could be disruptive. It is unlikely that a population of the orange-nacre mucket

has the potential to exist in the Clear watershed. The orange-nacre mucket may be found in the Upper Brushy, Lower Sipsey, and Upper Sipsey watersheds.

The current range of the Alabama moccasinshell includes the headwaters of the Sipsey Fork in the Black Warrior River drainage (Brushy Creek – Upper Brushy watershed) where this species is considered to be locally common and the populations stable. Threats to this species include habitat modification, sedimentation and water quality degradation. This mussel or its habitat may also be found in the Upper and Lower Sispey watersheds.

Water quality, cool temperatures and continuous flow are major considerations in the viability of these animals. Measures to protect these characteristics are necessary for all actions within the Black Warrior Drainage system. Threats to these species include habitat modification, sedimentation and water quality degradation.

Direct, Indirect and Cumulative Effects

Direct effects such as mortality of individuals will not occur as a result of this project because perennial streams are not within the project areas. Indirect effects that would negatively affect mussel species include altered water quality, sedimentation, temperatures, nutrient cycling, channel structure, flow or blockage of mussel host fish passage. Activities associated with this wildlife opening project as plan should not alter any of these stream parameters. Perennial streams are not present within the areas to be treated. Project plans and mitigations will alleviate any adverse effects to potential mussel habitat within the Upper Brushy, Upper Sipsey, Lower Sipsey and Cleark Creek watersheds. Project plans include establishing vegetation and mulching with hay, where needed, promptly after ground disturbing activities. Monitoring of project sites and remedial actions, when needed, will ensure vegetation establishment is successful and erosion is minimized. Project mitigations include standards regarding riparian areas, riparian corridors and streamside management zones which are outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama (RLRMP). These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs. Based on these standards, this project will not affect aquatic or riparian species. On-going Forest Service activities that may cumulatively affect these mussel species or potential mussel habitat include thinning of loblolly pine stands and site preparation and planting of shortleaf and longleaf pines through the Forest Health and Restoration Project (FHRP). These thinning and site preparation activities all include the project mitigations described above and identified in the RLRMP and FHRP Environmental Impact Statement. Therefore, those additional Forest Service activities will not cumulatively affect aquatic species. Historic and off-Forest activities will contribute to on-going effects, regardless of Forest Service actions.

Determination of Effect

Based on project mitigations and the absence of perennial streams within the project sites, there will be no effect on the seven federally listed mussel species from implementation of the proposed wildlife opening project.

Kral's water plantain

Environmental Baseline

This is an aquatic perennial plant that occurs along Sipsey and Caney Creeks. It is only known from three areas. It is known from the Littler River drainage in northeast Alabama including Dekalb and Cherokee Counties. It occurs in the Black Warrior River drainage – Sipsey Fork in Winston County, Alabama. And, it is found in Northwest Georgia in Chatooga County in the Littler River drainage. Kral's water plantain (also known as Little River Arrowhead) occurs in clear water over sandstone in undammed riverine reaches on exposed shoals, frequently exposed shallows, or rooted among loose boulders in sands, gravels, and silts in pools up to 1 meter deep. Stream bottoms are typically narrow and bounded by steep slopes. The plants on Bankhead were rooted tightly in cracks of sandstone bedrock when they were located. Kral's water plantain frequently is found associated with water willow and other aquatic species. Locally distributed, but where suitable habitat exists, the plants grow in nearly pure stands.

Siltation, impoundments, and eutrophication due to sewage are threats to this species. Activities that increase stream turbidity or siltation from erosion pose a threat to this species by reducing the amount of light reaching this submersed plant and burying it under silt. Eutrophication may lead to alga growth on the plant.

Direct, Indirect and Cumulative Effects

Direct effects to this plant would include direct mortality of individual plants. Direct effects will not occur as a result of this project because wildlife opening rehab, construction and expansion will not occur in streams or riparian areas. Indirect effects would include the potential for siltation from erosion as a result of this project. The Bankhead population of Kral's water plantain is located within the Wild and Scenic River Corridor which is classified as unsuitable for many management activities. Since the population is located at the junction of Caney Creek and Sipsey Fork some silt may be contributed to the Sipsey Fork by activities above and along Caney Creek. However, RLRMP standards for riparian corridors should minimize the amount of silt reaching Caney Creek and Sipsey Fork and other creeks and streams on Bankhead where potential habitat is present. Project plans and mitigations will alleviate any adverse effects to potential habitat within the project watersheds. Project plans include establishing vegetation and mulching with hay, where needed, promptly after ground disturbing activities. Monitoring of project sites and remedial actions, when needed, will ensure vegetation establishment is successful and erosion is minimized. Project mitigations include standards regarding riparian areas, riparian corridors and streamside management zones outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama (RLRMP). These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs. Based on these standards, this project will not affect aquatic or riparian species. On-going Forest Service activities that may cumulatively affect Kral's water plantain or its habitat include thinning of loblolly pine stands and site preparation and planting of shortleaf and longleaf pines through the Forest Health and Restoration

Project (FHRP). These thinning and site preparation activities all include the project mitigations described above and identified in the RLRMP and FHRP Environmental Impact Statement. Therefore, those additional Forest Service activities will not cumulatively affect aquatic species. Historic and off-Forest activities will contribute to on-going effects, regardless of Forest Service actions.

Determination of Effect
Based on project mitigations and the absence of perennial streams within the sites proposed for treatment, there will be no effect on Kral's water plantain from implementation of this proposed wildlife opening project.

Alabama Streak-Sorus Fern.
Environmental Baseline
Alabama streak-sorus fern has very specific habitat requirements of moist sandstone surfaces where conditions are maintained by a combination of shade and high humidity. This plant is found in fissures of sandstone rock shelters located directly on the Sipsey Fork. It grows in fissures on ceilings of rock houses, ledges beneath overhangs and on exposed cliff faces. The known range of this plant includes a 5.5 km stretch of the Sipsey River in Winston County. All nineteen element of occurrence records for this species are on the Bankhead National Forest. Where it is found, in rock shelters along the Sipsey, it is locally abundant.

Threats to this fern include impoundments, bridge construction, logging of upslope forests, vandalism, and incidental damage from recreational use of the habitat.

Direct, Indirect and Cumulative Effects
Direct effects to this plant would include direct mortality of individual plants. Direct effects will not occur as a result of this project because wildlife opening rehab, construction and expansion will not occur in streams or riparian areas or adjacent to bluffs or rockhouses. Potential habitat for Alabama streak-sorus fern is not present within the proposed project areas.

Indirect effects would include the potential for increasing recreational use and drying out habitat as a result of constructing or expanding wildlife openings. The populations of Alabama streak-sorus fern are located within the Upper and Lower Sipsey Fork watersheds. The populations are located within the Wild and Scenic River Corridor which is classified as unsuitable for many management activities. RLRMP standards for riparian corridors and rare communities including bluffs and rock outcrops should eliminate indirect effects from increasing recreational use and drying out habitat. Wildlife openings will not be constructed, expanded or rehabilitated within riparian areas or adjacent to bluffs or rockhouses. Project mitigations include standards regarding riparian areas, riparian corridors and streamside management zones outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama (RLRMP). These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs. Based on these standards, this project will not affect riparian species. On-going

Forest Service activities that may cumulatively affect Alabama streak-sorus fern or its habitat include thinning of loblolly pine stands and site preparation and planting of shortleaf and longleaf pines through the Forest Health and Restoration Project (FHRP). These thinning and site preparation activities all include the project mitigations described above and identified in the RLRMP and FHRP Environmental Impact Statement. Therefore, those additional Forest Service activities will not cumulatively affect riparian species. Historic and off-Forest activities will contribute to on-going effects, regardless of Forest Service actions.

Determination of Effect

Based on project mitigations, there will be no effect on Alabama streak-sorus fern from implementation of this proposed wildlife opening project.

Sensitive Species

EGGERT'S SUNFLOWER

Environmental Baseline

This sunflower is known only from the Interior Low Plateaus of Kentucky, Tennessee, and Alabama. This sunflower is found growing in colonies in open oak/pine woodlands, grassy openings and barrens with shallow soils (barrens/woodland ecosystem). Habitat has been described as rocky hills, barrens or open upland oak-pine woods. It is believed to be an early successional species that is shade-intolerant. It is also reported that this sunflower requires disturbance, such as fire, for germination and habitat maintenance. The habitat it is known from is described as a barrens/woodland ecosystem that is maintained by fire and drought. This habitat type was presumably more widespread when fire and free-roaming grazing animals were more common on the landscape.

In the southeast, large areas with scattered trees and abundant stands of native grasses and flowering herbaceous plants are no longer common. This community persists on roadsides and recently disturbed areas. This plant has not been encountered on the Bankhead National Forest, but suitable habitat exists. In Alabama, this species has been recorded in Franklin County in open ridgetop oak savannahs.

Across its range, most of this plant's natural habitat has been converted to cropland or pasture or developed as residential or commercial sites. This species is found in disturbed areas such as road rights-of-ways. In these locations, the plants present may be threatened by road maintenance activities. Other known habitat is currently threatened by weedy and woody succession. The foreseeable threat with the greatest impact is habitat degradation/loss. This species is threatened by loss of barrens habitat due to lack of periodic fire. Because of fire suppression, sites are threatened by weedy and woody succession. Other threats to this species are conversion of the habitat for other uses, roadside and powerline maintenance including herbicide spraying and inappropriately timed-mowing, invasive exotic plants, and herbivory. The plant is known to respond positively to management activities including burning and mowing. Herbicide applications (using appropriate procedures) may also be beneficial in eliminating invasive species.

Eggert's sunflower has not been encountered in the wildlife openings proposed for treatment by this project. Adjacent areas proposed for expansion of existing wildlife openings do not contain potential habitat for Eggert's sunflower.

Potential Management Effects and Determination

A detrimental impact to the species is not expected or anticipated due to the fact that the plant has not been encountered on the forest. This species is not known from the project areas; therefore, there will not be direct effects. Indirect and cumulative effects include the potential for increasing the available habitat on the forest over the long term. These effects will not be on individuals, but are effects on the amount of available habitat. The indirect effects may be realized at the project sites which will be converted to grassy and

herbaceous openings. The cumulative effects may be realized across the forest landscape. When considering this project in conjunction with sites identified for restoration to upland woodland communities through the Forest Health and Restoration Project (roughly 6000 acres), the cumulative effects of restoring potential habitat for woodland species, including Eggert's sunflower, will be beneficial.

The proposed project will have no impact on Eggert's sunflower.

JAMESIANTHUS

Environmental Baseline

This species is associated with, but not limited to, low wet woods or areas commonly considered as streamside management zones. They need mesic conditions and at least partial shade to survive. Jamesianthus is found in silty sand or gravelly margins of streams, especially where streams cut through limestone, in full or partial sun.

This species is known from six counties in Alabama and has been reported in Georgia, where its status is unknown. The plant is not known from Lawrence County, but is known from Winston and Franklin counties. The wildlife openings proposed for construction, rehabilitation and expansion in Management Compartment 8 (008-1, 2, 3) are upstream of known Jamesianthus locations in Capsey Creek. However, the sites proposed for treatment do not contain potential habitat for Jamesianthus.

Threats to this species include grazing, trampling, erosion, silt deposition, land-use conversion, habitat fragmentation, and forest management practices. Soil disturbance along stream margins may create openings for opportunistic weedy species, which will adversely impact Jamesianthus habitat.

Potential Management Effects and Determination

A detrimental impact to the species is not anticipated due to the fact that the plant and its habitat are not present within the areas proposed for treatment. There will not be direct effects to Jamesianthus from constructing, expanding and rehabilitating wildlife openings in the uplands. Indirect and cumulative effects may include the potential for siltation from erosion and creating openings for opportunistic weedy species. Openings will not be constructed or expanded within riparian areas. Therefore, openings and competition from encroaching weedy species will not occur in occupied or potential Jamesianthus habitat. Jamesianthus is known from Capsey Creek downstream of areas proposed for treatment in Management Compartment 8. However, RLRMP standards for riparian corridors should minimize the amount of silt reaching Capsey and other creeks and streams on Bankhead where potential habitat is present. Project plans and mitigations will alleviate any adverse effects to potential habitat within the project watersheds. Project plans include establishing vegetation and mulching with hay, where needed, promptly after ground disturbing activities. Monitoring of project sites and remedial actions, when needed, will ensure vegetation establishment is successful and erosion is minimized. Project mitigations include standards regarding riparian areas, riparian corridors and streamside management zones outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama (RLRMP). These standards are in

place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs. Based on these standards, this project will not affect aquatic or riparian species.

This project will have no impact on Jamesianthus.

CLAMMY LOCUST

Environmental Baseline

Clammy locust is known from the eastern United States and Europe. The shrub is probably native only to the mountains of western North Carolina and Tennessee, and perhaps southern Virginia, Georgia, and Alabama. It has been introduced in other parts of the country. This shrub has been observed growing in rocky woods in Winston County. Other habitat descriptions include thin woods, open places, ridgetops, dry rocky mountain longleaf pine forests, and open woodland or savannah settings. Clammy locust occurs on dry sandy soils, rocky slopes, and around small drainheads. It is shade tolerant to some degree.

It is reported to be present in a wildlife opening on Bankhead National Forest. Dr. Jimmy Huntley confirmed the presence of clammy locust in the wildlife opening. No other locations of this species are known on the BNF.

Lack of disturbance leading to succession and unknown causes of decline are moderate threats to this species.

Potential Management Effects and Determination

Clammy locust is not known from any of the areas proposed for treatment; therefore there will not be direct effects. Indirect and cumulative effects include the potential for increasing the available habitat on the forest over the long term. Creating, expanding, and rehabilitating early successional openings may provide potential habitat for this species. These effects will not be on individuals, but are effects on the amount of available habitat. The indirect effects may be realized at the project sites which will be converted to grassy and herbaceous openings. The cumulative effects may be realized across the forest landscape. When considering this project in conjunction with sites identified for restoration to upland woodland communities through the Forest Health and Restoration Project (roughly 6000 acres), the cumulative effects of restoring potential habitat for woodland species, including clammy locust, will be beneficial.

The project will have no impact on clammy locust.

LANCELEAF TRILLIUM

Environmental Baseline

Lanceleaf trillium flourishes in alluvial soils and floodplains. It has been encountered growing in rocky upland woods and brushy thickets. It is commonly associated with moist to wet soils.

Potential Management Effects and Determination
Alluvial soils and floodplains are not included in proposed treatment areas. However, wildlife openings proposed for rehabilitation are upland sites and currently vegetated with shrubs and saplings. Lanceleaf trillium is not known from any of the areas proposed for treatment; therefore there will not be direct effects. Indirect and cumulative effects include the potential for increasing the available habitat on the forest over the long term. As openings created through this project succeed, they may provide potential habitat for this species. These effects will not be on individuals, but are effects on the amount of available habitat. The indirect effects may be realized at the project sites which will be converted to grassy and herbaceous openings. The cumulative effects may be realized across the forest landscape. When considering this project in conjunction with additional existing wildlife openings on the Bankhead and sites identified for regeneration through the Forest Health and Restoration Project, the cumulative effects of maintaining early successional forest may be beneficial to lanceleaf trillium. Additionally, for individuals of this species associated with riparian areas (floodplains) project mitigations will eliminate the potential for detrimental impacts. Project mitigations include standards regarding riparian areas, riparian corridors and streamside management zones outlined in the RLRMP. These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs.

This project will have no impact on lanceleaf trillium.

DIANA FRITILLARY
Environmental Baseline
This butterfly is described as a woodland species that is associated with stream habitat and riparian areas. The species uses a variety of habitat components including hardwood woodlands and mixed pine/hardwood woodlands and forests. Breeding habitats are generally described as mesic forests such as cove forests and sometimes bottomland areas. Adults also use adjacent fields, pastures, shrublands and grasslands for nectar.

This species is somewhat common in the mountains in a small area from southwestern Virginia to the Great Smokies region and rare to sporadic elsewhere. Forest Service records do not indicate this species presence on the Bankhead. Diana fritillary has the potential to occur on BNF.

Currently, gypsy moth spraying is the largest threat to this species throughout the range. Other threats to this species include habitat loss and habitat fragmentation.

According to Nature Serve, there are no useful estimates of numbers of this species to address global abundance. Again, this species is not known from Bankhead, so there are no estimates of population size to address local abundance either.

Potential Management Effects and Determination
As Diana fritillary is not known to occur on Bankhead and wildlife openings are not planned in potential breeding habitat, there will be no direct effects as a result of this

project. Potential breeding habitat along streams will not be disturbed or impacted by this project as all sites identified for treatment are in the uplands. Project mitigations include standards regarding riparian areas, riparian corridors and streamside management zones outlined in the RLRMP. These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs. Over the long term, woodland restoration and reforestation projects across the BNF identified in the FHRP may benefit Diana fritillary and other woodlands associates. Additionally, continued management of wildlife openings across the BNF will provide potential foraging habitat for Diana fritillary.

There will be no impact to Diana fritillary from the proposed project.

RAFINESQUE'S BIG-EARED BAT

Environmental Baseline

This mammal uses abandoned, dilapidated buildings and large hollow trees in or near wooded areas as sites for nursery colonies and summer roosts. According to E. D. Pierson, this species may form roosts under loose sloughing bark of dead and dying trees, in addition to roosts formed in tree cavities. This bat may roost singly, in small clusters, or in large groups of up to 100 or more individuals. Bridges have been shown to be important day-roost sites in some areas. Summer roosts may also occur in the twilight zone of caves and mines.

Winter roosts include old mines, caves, cave entrances, cisterns and wells in the northern part of its range. In Kentucky, shallow caves or rock shelters in sandstone formations of the Cumberland Plateau are used.

Foraging habitat for this bat has been described as primarily mature forests in both upland and lowland areas. Rafinesque's big-eared bat is reported to forage in brushy communities, mature bottomland hardwood, swamp forests, and 3 to 5 year old pine plantations in a study of the Savannah River Site (Menzel et. al. 2003).

Despite records of large number of occurrences of this species throughout its range, it has never been considered abundant. This bat roosts in small numbers at scattered locations. It is known or suspected to be declining in more than half of the states within its range. In most other states, data are unavailable to determine population trends. The range of this species approximates the historical range of the great cypress swamps, indicating that it may have relied on these sites for roosting and foraging (Bat Conservation International 2001).

This species is very intolerant of disturbance and may abandon roost sites or hibernation sites if disturbed. Threats to Rafinesque's big-eared bat include forest destruction, hollow tree removal during forest management, decreasing availability of abandoned buildings, insecticide applications, vandalism of caves and mines, and closing or blasting of mines.

Potential Management Effects and Determination
Rafinesque's big-eared bat has never been documented on BNF, although potential habitat is present within the BNF. Roost sites will not be disturbed by this project. Rock shelters, bridges, buildings, cisterns, wells, or caves are not present within, nor will they be impacted by this wildlife opening project. Trees that provide potential roost habitat including den trees and snags will be retained. Wildlife opening construction, expansion and rehabilitation may increase the amount of potential brushy or shrubby foraging habitat. Over the long term, woodland restoration and reforestation projects across the BNF identified in the FHRP may provide additional potential foraging habitat for Rafinesque's big-eared bat.

There will be no impact on Rafinesque's big-eared bat as a result of this project.

SOUTHERN CREEKMUSSEL, ALABAMA RAINBOW and ALABAMA SPIKE
Environmental Baseline
The southern creekmussel is most common in mid-channel river habitats in most of its range. These habitats are threatened by excess sedimentation, channel modifications, impoundments, water withdrawals, urbanization and point and non-point pollution. The southern creekmussel has been documented by McGregor in the northern portion of Bankhead. This mussel has been collected in the Upper Sipsey watershed upstream of WLO 069-4 proposed for construction. It has been collected in the Upper Brushy watershed downstream of the wildlife openings in Compartment 8 proposed for construction, rehabilitation and expansion. It has been collected in the Upper Brushy watershed downstream of WMA #25 and #34 proposed for expansion. It has also been collected in the Upper Brushy watershed downstream of the expansion between WLO #031-3 and #031-4.

The Alabama rainbow primarily inhabits small headwater streams. This species probably requireds clean gravel riffles, low turbidity, and some water flow. Potential habitat for this mussel is available on Bankhead in the Upper Brushy and Lower Sipsey Fork watersheds. It has been collected in the northern portion of the Bankhead by McGregor. There is an element of occurrence record for Alabama rainbow in the Upper Brushy watershed downstream of the expansion between WLO #031-3 and #031-4.
It is known to occur in Winston, Lawrence, Madison, Marshall and Jackson counties in Alabama.

The Alabama spike has also been collected in the northern portion of the BNF by McGregor. This species is known to occur in high gradient streams. Data are limited on population trends for the Alabama spike throughout its range. Additionally, some taxonomic confusion and lack of status surveys contribute to the lack of abundance data. The Alabama spike (*Elliptio arca*) may be the same species as the delicate spike (*Elliptio arctata*). Upper Sipsey Fork, Lower Sipsey Fork and Clear watersheds may support the Alabama spike. This mussel is locally common within the Sipsey River.

Potential Management Effects and Determination

The proposed project will not be conducted within nor affect aquatic habitats. There are no streams present within the areas proposed for treatment; therefore, there is no opportunity for direct impacts to these aquatic species. Indirect and cumulative effects may include the potential for siltation from erosion as a result of this project. Project plans and mitigations will alleviate any adverse effects to potential habitat within the project watersheds. Project plans include establishing vegetation and mulching with hay, where needed, promptly after ground disturbing activities. Monitoring of project sites and remedial actions, when needed, will ensure vegetation establishment is successful and erosion is minimized. Standards regarding riparian areas, riparian corridors and streamside management zones are outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama. These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs.

Based on project plans and RLRMP standards, this project will have no impact on southern creekmussel, Alabama rainbow or Alabama spike.

DARTERS

Environmental Baseline

Tuskaloosa darter is found in streams with moderate to swift flow. It will be found in cobble, gravel and slab riffles. It has been collected in Sipsey Fork, Borden Creek, Rush Creek and Capsey Creek in the Bankhead. This species was not collected during Biomonitoring in the Upper Mulberry Fork Watershed, 1999-2001 conducted by Geological Survey of Alabama. There is potential habitat for this darter in the Upper and Lower Sipsey Fork, Upper and Lower Brushy and Clear watersheds. The Tuskaloosa darter has a small range and limited number of occurrences, but it is abundant where it does occur. The populations are considered to be stable. Threats include timber practices, coal mining, proposed reservoirs, and siltation resulting from increased urbanization.

The warrior darter (sipsey warrior darter) is found in small to medium streams with moderate flow. This species will be found in rubble, bedrock, and gravel-filled pools. This species feeds on aquatic insect larvae. Warrior darter has been collected in the following creeks on Bankhead National Forest; Thompson, Borden and Sipsey Fork. Potential habitat is present in the Upper and Lower Sipsey Fork watersheds. This species is restricted to the Black Warrior River system where the species is common but localized. The species is considered to be currently stable, but threats include habitat alteration and modification due to development and impoundments.

Rush darter has been collected in the Clear Creek system in Bankhead National Forest. Collection sites are characterized as relatively low gradient, small streams with sand substrate and burrweed beds. There are three small known populations of this species. This species is uncommon and vulnerable to habitat alteration and decreases in water quality.

The warrior bridled darter (longhead darter) is known only from the upper Sipsey Fork of the Black Warrior River, where abundance is low. It has been collected within the Bankhead National Forest in the Sipsey Fork. This darter is currently only known from a 10 mile stretch of the Sipsey Fork. This population is believed to be stable. Potential habitat is available in the Upper and Lower Sipsey Fork watersheds. Current threats are reported to be sedimentation from logging and road construction by the timber industry. Implementation of riparian zone protection should reduce threats from logging practices. Additionally, the large amount of truck traffic crossing bridges over the Sipsey Fork present a potential threat in the form of an accidental spill.

Potential Management Effects and Determination

The proposed project will not be conducted within nor affect aquatic habitats. There are no streams present within the areas proposed for treatment; therefore, there is no opportunity for direct impacts to these darters. Indirect and cumulative effects may include the potential for siltation from erosion as a result of this project. Project plans and mitigations will alleviate any adverse effects to potential habitat within the project watersheds. Project plans include establishing vegetation and mulching with hay, where needed, promptly after ground disturbing activities. Monitoring of project sites and remedial actions, when needed, will ensure vegetation establishment is successful and erosion is minimized. Standards regarding riparian areas, riparian corridors and streamside management zones are outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama. These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs.

Based on project plans and RLRMP standards, this project will have no impact on these four species of darters.

BLACK WARRIOR WATERDOG

Environmental Baseline

The Black Warrior waterdog is an aquatic salamander that is known to occur in the Lower and Upper Sipsey Fork and Lower and Upper Brushy watersheds in the Bankhead. Optimal habitat is described as free-flowing large streams or small rivers with forested streamside zones. Detectable flow and leaf packs within streams are required. Other factors contributing to habitat quality include a low silt load and substrate deposits, low nutrient content and bacterial counts, moderate temperatures, and minimal overall chemical pollution. This salamander is currently known from 10 locations; the populations are highly fragmented; the population densities are low; and the habitat conditions are degraded in general. Habitat degradation and fragmentation are threats to this species.

Potential Management Effects and Determination

The proposed project will not be conducted within nor affect aquatic habitats. There are no streams present within the areas proposed for treatment; therefore, there is no opportunity for direct impacts this aquatic salamander. Indirect and cumulative effects may include the potential for siltation from erosion as a result of this project. Project

plans and mitigations will alleviate any adverse effects to potential habitat within the project watersheds. Project plans include establishing vegetation and mulching with hay, where needed, promptly after ground disturbing activities. Monitoring of project sites and remedial actions, when needed, will ensure vegetation establishment is successful and erosion is minimized. Standards regarding riparian areas, riparian corridors and streamside management zones are outlined in the Revised Land and Resource Management Plan for the National Forests in Alabama. These standards are in place to protect water quality, aquatic species and the terrestrial and aquatic ecosystems associated with streams, seeps, ponds, bogs, and springs.

Based on project plans and RLRMP standards, this project will have no impact on the Black Warrior waterdog.

DETERMINATION OF EFFECT – *Federally Listed Species (Threatened and Endangered)*

The proposed activity will have "no effect" on red-cockaded woodpecker, turgid blossom mussel, pink mucket pearly mussel, rough pigtoe, upland combshell, cumberlandian combshell, Mohr's Barbara's buttons, leafy prairie clover, lyrate bladder-pod, Tennessee yellow-eyed grass, and Price's potato bean. The rationale for this finding is that the proposed project does not intersect with potential habitat for these species, thus there is no opportunity for the proposed project to affect the species in a direct, indirect or cumulative manner. This project does not jeopardize the continued existence of these mussel species or destroy or adversely modify critical habitat.

The proposed activity will have "no effect" on gray bat. The rationale for this finding is that Revised Land and Resource Management Plan (RLRMP) standards will eliminate the potential for take of this species. The proposed activity will have "no effect" on flattened musk turtle, orange-nacre mucket, Alabama moccasinshell, Coosa moccasinshell, triangular kidneyshell, dark pigtoe, fine-lined pocketbook, ovate clubshell, Kral's water plantain, or Alabama streak-sorus fern. The rationale for this finding is that the proposed project will not intersect streams or riparian habitats and will not result in a change to water quality or sediment delivery to streams based on RLRMP standards. This project does not jeopardize the continued existence of mussel species or destroy or adversely modify critical habitat.

The proposed activity is "not likely to adversely affect" the Indiana bat. The rationale for this finding is that the RLRMP standards and project mitigations will protect this species but the potential for take cannot be completely eliminated.

Scientific Name	Common Name	Status	Finding
Myotis grisescens	Gray Bat	E	No effect
Myotis sodalis	Indiana Bat	E	Not likely to adversely affect
Haliaeetus leucocephalus	Bald Eagle	T	No effect
Picoides borealis	Red-cockaded woodpecker	E	No effect
Sternotherus depressus	Flattened musk turtle	T	No effect
Epioblasma brevidens	Cumberlandian combshell	E	No effect
Epioblasma metastriata	Upland combshell	E	No effect
Epioblasma turgidula	Turgid blossom pearly mussel	E	No effect
Lampsilis altilis	Fine-lined pocketbook	E	No effect
Lampsilis perovalis	Orange-nacre mucket	T	No effect

Medionidus acutissimus		Alabama moccasinshell		T	No effect
Medionidus parvulus		Coosa moccansinshell		E	No effect
Pleurobema furvum		Dark pigtoe		E	No effect
Pleurobema perovatum		Ovate clubshell		E	No effect
Pleurobema plenum		Rough pigtoe		E	No effect
Ptychobranchus greeni		Triangular kidneyshell		E	No effect
Lampsilis orbiculata (L. abrupta)		Pink mucket pearlymussel		E	No effect
Dalea foliosa		Leafy prairie clover		E	No effect
Lesquerella lyrata		Lyrate bladder-pod		T	No effect
Marshallia mohrii		Mohr's Barbara's Buttons		T	No effect
Sagittaria secundifolia		Kral's water-plantain		T	No effect
Thelypteris pilosa var al.		Alabama streak-sorus fern		T	No effect
Xyris tennesseensis		Tennessee yellow-eyed grass		E	No effect
Apios priceana		Price's Potato Bean		T	No effect

[1]E = endangered; T = threatened

Determinations and the Needed Follow-up Actions: The determination of effects for Federally Listed Species are: 1) No Effect; 2) Is not likely to adversely affect; 3) Is likely to adversely affect. All the possible effects can and should be included within one of the above determinations. The needed follow-up actions vary depending on the type of species and the determination.

A **"no effect"** determination should be used when the proposed actions have no effects on the PETS species or critical habitat. No follow-up action is required for this determination.

A determination of "**is not likely to adversely affect**" should be used for discountable, insignificant or beneficial effects. If the determination of "is not likely to adversely affect", written concurrence is required from the FWS for both proposed and listed species.
Discountable effects are those extremely unlikely to occur. Based upon best judgment, a person would not be able to meaningfully measure, detect or evaluate insignificant effects.
Insignificant effects relate in size of the impact and should never reach the scale where take occurs.
Beneficial effects are positive effects without any adverse effect to the species.

A determination of "**is likely to adversely affect**" should be used if any adverse effect to a listed species may occur as a direct or indirect result of the proposed action. If the determination is "likely to adversely affect" and the species is proposed for listing, conference with the FWS is required. If the determination of "is likely to adversely

affect" and the species is listed as threatened or endangered, formal consultation with the FWS is required by ESA section 7.

Conference is a legally required "informal consultation" with the FWS. All requests for formal consultation must be sent through the Regional Forester. If applicable, Region or Forest-wide concurrence letters from the FWS can be referenced for site-specific projects.

Consultation Implications: Based on the finding of "not likely to adversely affect" for Indiana bat, written concurrence from the FWS is required.

DETERMINATION OF EFFECT – *Forest Service Sensitive Species*

Some species are of concern although not listed as threatened or endangered by the FWS. They have been ranked Globally as G1, G2 or G3 by the Natural Heritage Network of The Nature Conservancy, which means viability concerns throughout their entire range. This may be due to habitat requirements, range limits or particular vulnerability to activities. These species have been listed by the Regional Forester as Sensitive and require special consideration in order to ensure that viability is not impaired and to preclude any trend toward the necessity of their being proposed for listing as threatened or endangered by the FWS. According to the Natural Heritage Network rankings, G1 species are critically imperiled globally because of extreme rarity (typically less than 6 occurrences, less than 1,000 individuals or very few remaining acres) or because of some factor(s) making them especially vulnerable to extinction. Species ranked G2 are imperiled globally because of extreme rarity (typically 6-20 occurrences, 1,000 to 3,000 individuals or few remaining acres) or because of some factor(s) making them very vulnerable to extinction. Species ranked as G3 are rare or uncommon (typically 21-100 occurrences or 3,000 to 10,000 individuals) throughout its range; or found locally, even abundantly, in a restricted range (e.g. in a single state or physiographic region); or vulnerable to extinction throughout its range because of specific factors. Rankings begin with a T instead of a G are used for subspecies and two rankings together, such as G2G3, indicates uncertainty in the ranking of that species. A question mark (?) indicates some doubt concerning the status of the species or subspecies. Rankings preceded by an S indicate the status inside the state of Alabama as determined by the Alabama Natural Heritage Program. The list of plant and animal species is based upon the Southern Region Sensitive Species, revision August 7, 2001.

The determination is “no impact” for the sensitive species of plants, bryophytes and wildlife listed for Bankhead National Forest. The rationale for this finding is that these species or their habitat are not present on the project sites and will not be impacted by the proposed project.

Forest Service Sensitive Species of the Bankhead National Forest

Scientific Name	Common Name	Status[1]	Finding
Aesculus parviflora	Small flowered buckeye	S	No impact
Astragalus tennesseensis	Tennessee Milkvetch	S	No impact
Aureolaria patula	Spreading yellow false foxglove	S	No impact
Carex brysonii	Bryson's sedge	S	No impact
Delphinium alabamicum	Alabama larkspur	S	No impact
Diervilla rivularis	Riverbank bush-honeysuckle	S	No impact
Helianthus eggertii	Eggert's sunflower	S	No effect
Hymenophyllum tayloriae	Gorge filmy fern	S	No impact
Jamesianthus alabamensis	Alabama jamesianthus	S	No impact
Juglans cinerea	Butternut	S	No impact

Leavenworthia alabamica var.alabamica		Alabama Gladecress		S	No impact
Leavenworthia crassa		Fleshyfruit Gladecress		C&S	No impact
Lesquerella densipila		Duck River Bladderpod		S	No impact
Monotropsis odorata		Sweet pinesap		S	No impact
Asplenium x ebenoides		Scott's Spleenwort		S	No impact
Marshallia trinervia		Broadleaf Barbara's buttons		S	No impact
Minuartia alabamensis		Alabama Sandwort		S	No impact
Neviusia alabamensis		Alabama snow-wreath		S	No impact
Platanthera intergrilabia		White fringeless orchid		C&S	No impact
Polymnia laevigata		Tennessee Leafcup		S	No impact
Robinia viscosa		Clammy Locust		S	No impact
Rudbeckia triloba var pinnatiloba		Pinnate-lobed Black-eyed Susan		S	No impact
Scutellaria alabamensis		Alabama skullcap		S	No impact
Sedum nevii		Nevius' stonecrop		S	No impact
Silene ovata		Blue Ridge catchfly		S	No impact
Talinum calcaricum		Limestone Fameflower		S	No impact
Talinum mengesii		Menge's fameflower		S	No impact
Thalictrum mirabile		Little mountain meadow rue		S	No impact
Trillium lancifolium		Lanceleaf Trillium		S	No impact
Trillium simile		Jeweled Trillium		S	No impact
Speyeria diana		Diana Fritillary		S	No impact
Corynorhinus rafinesquii		Rafinesque's Big-eared bat		S	No impact
Cheilolejeunea evansii		A liverwort		S	No impact
Aneura maxima		A liverwort		S	No impact
Pellia X appalachiana		A liverwort		S	No impact
Nardia lescurii		A liverwort		S	No impact
Plagiochila echinata		A liverwort		S	No impact
Radula sullivantii		A liverwort		S	No impact
Riccardia jugata		A liverwort		S	No impact
Hydroptila paralatosa		A caddisfly		S	No impact
Rhyacophila carolae		A caddisfly		S	No impact
Elliptio arca		Alabama spike		S	No impact
Obovaria jacksoniana		Southern Hickorynut		S	No impact
Obovaria unicolor		Alabama Hickorynut		S	No impact
Strophitus subvexus		Southern creekmussel		S	No impact
Villosa nebulosa		Alabama rainbow		S	No impact
Etheostoma bellator		Warrior darter		S	No impact
Etheostoma douglasi		Tuskaloosa darter		S	No impact
Etheostoma phytophyllum		Rush darter		S	No impact
Etheostoma tuscumbia		Tuscumbia darter		S	No impact
Percina sp.cf.macrocephala		Longhead darter (Warrior Brinled Darter)		S	No impact
Necturus alabamensis		Black Warrior waterdog		S	No impact

[1]S = sensitive; C = candidate for Federal listing

Determinations and the Needed Follow-up Actions: Possible Determinations and the Needed Follow-up Actions – The four possible determinations of effects are:

1. "no impact",
2. "beneficial impact",
3. "may impact individuals, but not likely to cause a trend to federal listing or loss of viability",
4. "likely to result in a trend to federal listing or a loss of viability".

All the possible effects of a proposed action should be included under one of the above determinations. There is no need to consult with the FWS for sensitive species. No action, other than documenting the rationale, is required for determination of "no impact", "beneficial impact" or "may impact individuals, but not likely to cause a trend to federal listing or a loss of viability". If the determination is "likely to result in a trend to federal listing or a loss of viability", the proposed action should be modified to avoid, minimize or rectify the impact.

Consultation implications: Consultation with the FWS is not required for Forest Service sensitive species.

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