Biological Evaluation

of

Proposed, Threatened, Endangered and Sensitive Species

for

Northern Bobwhite Quail and Associated Wildlife Habitat Improvement by Midstory Reduction, Rehabilitation of a Wildlife Opening, Establishment of Native Warm Season Grasses and the Establishment of a Walk – In Wildlife Viewing/Hunting Area

Proposed Action is within Winston County, Alabama

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

Contact:
Deciding Officer: District Ranger Glen D. Gaines
Biological Evaluation Prepared by Tom Counts
P.O. Box 278
Double Springs, Alabama 35553
Telephone 205-489-5111
FAX 205-489-3427
E-mail ggaines@fs.fed.us
tcounts@fs.fed.us

Summary

The purpose of the project is to improve habitat for the northern bobwhite quail and associated game and non-game wildlife species in areas with a desired future condition of longleaf pine woodlands. The proposed project will reduce midstory and understory trees and shrubs, rehabilitate an overgrown wildlife opening, provide for the establishment of native warm season grasses (NWSG) and establish a walk-in wildlife viewing/hunting area. The project sites are located near the Black Pond and the Inmanfield communities of Bankhead National Forest. The treatment areas are found in Forest Service management compartments 131, 132 and 160. The sites proposed for treatment are currently predominantly mature loblolly pine stands with scattered hardwoods present in the overstory of all stands. These stands have not been maintained in an open woodland condition but will exhibit that condition upon project completion.

Hardwood and pine vegetation of approximately less than or equal to 6 inches diameter at breast height (DBH) will be removed in upland pine-dominant habitat. Dogwood trees which are equal to or larger than 4” dbh will be retained. The result will be open pine stands with improved wildlife habitat and enhanced conditions for the development of herbaceous understory vegetation that is benedficial to the bob-white quail. The result will allow for restoration and maintenance of a fire dependent woodland system.

Based upon the findings of this evaluation, this project will have **no effect** on the plants and animals that are federally listed on the Bankhead National Forest and will have **no impact** on the species listed as sensitive for the Bankhead.

Due to the findings of this assessment, further concurrence on this project with the U.S. Fish and Wildlife Service is not required.

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National Forests in Alabama

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INTRODUCTION

The purpose of this Biological Evaluation (BE) is to determine whether the proposed action is likely to affect 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 the findings.

The purpose and need for the project is to conduct a variety of management practices which will improve the habitat for a number of wildlife species with a focus on the northern bobwhite quail. The northern bobwhite has experienced accelerated declines in population over its entire range during the period of 1966 through present. This project will also assist in the restoration and maintenance of native forest communities, specifically fire dependent woodlands. The Bankhead National Forest developed the Forest Health and Restoration Project (FHRP) in 2003, which planned for the restoration of open pine woodlands in certain areas of the District. Many practices within the FHRP project are beneficial to habitat for a number of bird species including the northern bobwhite quail. These include the development of open longleaf pine woodlands within their native range and the increased use of prescribed fire. Nesting success of northern bobwhites appears to be improved in areas that are prescribed burned. An impediment to bobwhite habitat is an abundance of hardwood midstory. This prevents the establishment of native herbaceous grasses and forbs which need high levels of sunlight and an open forest canopy. The sites planned for midstory reduction treatment exhibit high stocking levels of vegetation that cannot be properly controlled with current prescribed fire regimes. The thick midstory vegetation effectively prohibits the establishment of native warm season grasses and forbs, which are essential for ecosystem restoration and bobwhite habitat improvement.

The project will focus on the removal of midstory hardwood trees and shrubs, rehabilitation of wildlife openings, the establishment of native warm season grasses and establishment of a walk in wildlife viewing/hunting area.

The largest potential impact will be from the reduction of midstory and understory trees and shrubs. The sites proposed for treatment are primarily mature loblolly pine stands with scattered hardwood. The midstory and understory will be reduced by cutting, mowing, grinding or other mechanical method. The result will be open pine stands with improved conditions for wildlife and enhanced conditions for establishment of native herbaceous vegetation in the understory. The result will allow for restoration and maintenance of a fire dependent woodland system which provides necessary habitat components for the northern bobwhite.

Biological Evaluation
Northern Bobwhite Quail & Associated Species Habitat Management Practices

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 County in the Bankhead National Forest (BNF). All sites are predominantly loblolly pine or pine with scattered hardwoods. All sites are either located within established prescribed burn units or will be incorporated into burn units. All sites are in Management Prescription 9C3 – Southern Cumberland Plateau Native Ecosystem Restoration and Maintenance – as identified in the Revised Land and Resource Management Plan. All sites are in Area 2 & 3 as identified in the Bankhead's Forest Health and Restoration Project's Final Environmental Impact Statement. The project sites are located within the Lower Brushy or the Lower Sipsey Fork watersheds. Some project areas are in proximity Brushy Creek which is designated critical habitat for several species of mussels.

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 in similar topographical locations to the stands proposed by this project. Some of the stands to be treated in this project are adjacent to tracts thinned through the Forest Health and Restoration Project. The Fish and Wildlife Service has actively participated on the Bankhead Liaison Panel which reviews forest projects such as this. Native forest community restoration on the Bankhead has been the primary discussion topic of the liaison panel for the past several years. The group has encouraged the focus on developing and improving wildlife habitat within the scope of the forest restoration objectives as outlined in the FHRP.

The Fish and Wildlife Service (FWS) has reviewed and concurred with many past projects that were similar in treatment method and project goals. Examples include mid-story removal projects in longleaf pine stands, roadside fuels management project and annual prescribed burning program.

The project tiers to the National Forests in Alabama's Revised Land and Resource Management Plan and associated Biological Assessment and Evaluation. All sites are in Management Prescription 9C3 – Southern Cumberland Plateau Native Ecosystem Restoration and Maintenance – 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. All sites are in Areas 2 & 3 as identified in the Forest Health and Restoration Project's Final EIS.

PROPOSED MANAGEMENT ACTIONS – Practice Descriptions

Midstory Reduction
The proposed project will reduce midstory and understory trees and shrubs in the project sites, totaling 109 acres. Hardwood and pine vegetation between approximately less than or equal to 6 inches diameter breast height (DBH) will be removed in upland pine and pine-hardwood dominant habitat. The midstory and understory will be reduced by a combination of mechanical methods. A mower or mulcher-type machine may be used in combination with chainsaws where needed. The mower may be mounted upon a tracked or rubber tire tractor or similar vehicle. Herbicides will not be used. Snags and den trees important to wildlife will not be treated. Dogwoods (Cornus florida) will be retained when the DBH is 4 inches or greater. Riparian areas, glades, outcrops, wetlands or other rare communities will not be treated.

The sites proposed for treatment are predominantly loblolly pine or pine and hardwood stands. The sites are mature stands that have had prescribed burning or have been thinned in the past. These stands have not been maintained in an open woodland condition. The expected result of this project is that midstory and understory treatment will open up the stands allowing them to be maintained through prescribed burning to achieve an open woodland conditions with a prevalence of native herbaceous grasses and forbs. Prescribed fire has been and will be evaluated on a program year basis and is not the subject of this project.

Wildlife Opening Rehabilitation
An abandoned wildlife opening of approximately four acres is located within compartment 131. It is currently overgrown with a variety of shrubs and small trees. It is proposed for rehabilitation by removal of the vegetation by mechanical means similar to those for midstory reduction. Additional treatment for the control of nonnative invasive species may be conducted although that practice would not be a part of this particular project. When treated, the wildlife opening will be established to small grains or similar plant material by standard tillage methods to provide seed and vegetation that is useful to birds such as the northern bobwhite.

Native Warm Season Grass Establishment
The establishment of native warm season grasses will be conducted as part of this project. To conduct this practice, areas will be selected within the designated stands that are conducive for NWSG establishment. Areas may be selected in any of the stands proposed for midstory treatment. Ten acres are planned for this practice. Gently to moderately sloping areas will be utilized. The planting operation will be accomplished by land preparation with a tractor and farm disk harrow. The seed will be broadcast into this prepared area. Land preparation will be conducted in narrow strips as opposed to large blocks thus preventing an erosion problem.

Walk –In Wildlife Viewing Area
This practice proposes to establish a walk in wildlife viewing area predominately along existing roads within compartment 131. FS road 124C2 is currently gated and is closed year-round. Forest Service road 124 C5 is currently open to public use throughout the year, although it is blocked by fallen trees at one point. It is proposed to close this road by gating to limit vehicular traffic within the wildlife enhancement area. A small area between the two roads will be improved to join the two areas. This will be done by removing trees and brush with a chainsaw and hand tools in order to provide a connecting trail between the two existing roads. This trail and the existing roads that it connects with will be maintained in open condition by mowing with a tractor drawn rotary mower. Minimal ground disturbance is anticipated from this practice.

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Planned Practices

Midstory Removal

Compartment/Stand	Forest Type/Age	Opening Rehab	Road Closure	Native Grass Est.
131 / 24 – 33 acres	Loblolly Pine / 72	131 / 21 - 4 acres	FS road 124 C5	10 acres in various compartments where midstory removal was conducted
131 / 33 – 17 acres	Loblolly Pine / 72			
132 / 18 – 34 acres	Loblolly Pine / 79			
160 / 03 – 25 acres	Loblolly Pine / 85			
Total of 109 acres				

SPECIES CONSIDERED AND SPECIES EVALUATED

District Biological Scientist Allison Cochran and District Wildlife Biologist Tom Counts have conducted literature reviews and field reviews of the project sites for presence of listed species and suitable habitat. The BNF district office keeps current records of locations of known listed species throughout the area, which were reviewed as part of this evaluation. All areas which may be disturbed or impacted, by this project were surveyed for presence of protected species. A review of all caves within the area was also conducted and there are none.

All currently listed threatened, endangered, protected and sensitive species (Regional Forester's Sensitive Species list) 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.

Federally Listed Species of the Bankhead National Forest

Scientific Name	Common Name	Status[1]	Rank
Myotis grisescens	Gray Bat	E	G3S2
Myotis sodalis	Indiana bat	E	G2S2
Haliaeetus leucocephalus	Bald Eagle	T	G4S3
Picoides borealis	Red-cockaded woodpecker	E	G3S2
Sternotherus depressus	Flattened musk turtle	T	G2S2
Epioblasma brevidens	Cumberlandian combshell	E	G1S1
Epioblasma metastriata	Upland combshell	E	GHSH
Epioblasma turgidula	Turgid blossom pearly mussel	E	GHSX
Lampsilis altilis	Fine-lined pocketbook	E	G2S2
Lampsilis perovalis	Orange-nacre mucket	T	G2S1
Medionidus acutissimus	Alabama moccasinshell	T	G1S1

Medionidus parvulus	Coosa moccansinshell	E	G1S1S2
Pleurobema furvum	Dark pigtoe	E	G1S1
Pleurobema perovatum	Ovate clubshell	E	G1S1
Pleurobema plenum	Rough pigtoe	E	G1S1
Ptychobranchus greeni	Triangular kidneyshell	E	G1S1
Lampsilis orbiculata (L. abrupta)	Pink mucket pearlymussel	E	G2S1
Dalea foliosa	Leafy prairie clover	E	G2G3S1
Lesquerella lyrata	Lyrate bladder-pod	T	G1S1
Marshallia mohrii	Mohr's Barbara's Buttons	T	G3S3
Sagittaria secundifolia	Kral's water-plantain	T	G1S1
Thelypteris pilosa var al.	Alabama streak-sorus fern	T	G4T1S1
Xyris tennesseensis	Tennessee yellow-eyed grass	E	G2S1
Apios priceana	Price's Potato-Bean	T	G2S2

[1]E = endangered;
T = threatened

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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)

Gray bat and Indiana bat. Small populations of these two species of bats were found within Bankhead National Forest in Lawrence County during 1999. Their presence has been verified in subsequent years. These two bat species have not been encountered in Winston County. No known or potential habitat for these species will be impacted by this project. Snags and similar trees known to be habitat for these bats will not be disturbed unless to provide for personnel safety. Known hibernacula are over twelve miles from the nearest project area. Bat monitoring efforts to date have not yielded either species in Winston county.

Bald eagle. The bald eagle has been a winter and spring resident around portions of Bankhead National Forest that border the Lewis Smith Lake. This species is threatened throughout its range by habitat loss, disturbance by humans, contaminants, decreasing food supply and illegal shooting.

Two inactive bald eagle nests were confirmed within the Bankhead during 2004. Monitoring in 2005 revealed that one nest was active although not successful. One of the nest structure sites was destroyed during 2007.
The project areas do not contain suitable habitat for bald eagle nest sites.

Red-cockaded woodpecker. There has been no record of a red-cockaded woodpecker at the Bankhead National Forest since the early 1990's. Informal conversations with Ralph Costa of the Fish and Wildlife Service resulted in agreement that the red-cockaded woodpeckers are no longer present here.

Mussels - turgid blossom, pink mucket pearly, rough pigtoe 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, Tennesee, Ohio and Cumberland river systems.

The turgid blossom mussel 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 pearly mussel 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 fourth, 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. None of these four species are listed by the US Fish and Wildlife Service within Winston County.

Appropriate stream habitat is not included within the proposed project areas. Mitigation measures are in place to preclude sedimentation of streams and no soil disturbance is anticipated with the project.

Leafy Prairie Clover. This species has not been found on the Bankhead National Forest. 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.
The proposed project areas do not include habitat for 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 habitat for lyrate bladderpod.

Mohr's Barbara's buttons. This species occurs in moist prairie-like openings in woodlands and along shale-bedded streams in a grass-sedge community. Some populations are also located within road rights-of-way that are seasonally wet. One population was recently discovered within the administrative boundary of the Bankhead National Forest although on private land. This plant is only known from north-central Alabama to northwest Georgia.

Threats include road widening and right-of-way maintenance activities including mowing, herbicide application, and planting of aggressive competitors. Habitat conversion and encroachment of woody species in the absence of fire are also threats to populations.

A detrimental impact to the species is not expected or anticipated due to the fact that the plant has not been encountered on National Forest lands. This species has not been observed within the project areas nor is suitable habitat available.

Alabama Streak Sorus Fern. The known range of this plant includes a 3.1 mile stretch of the Sipsey River in Winston County. 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.
No plants were observed within the proposed project areas nor is habitat for them present within proposed treatment areas. Any areas with potential habitat for this species was excluded from the project proposal.

Kral's water plantain. This is an aquatic perennial plant that occurs along Sipsey and Caney Creeks. It is only known from three tributaries in northern Alabama and Georgia. Kral's water plantain (also known as Little River Arrowhead) occurs in undammed riverine reaches on exposed shoals or rooted among loose boulders in sands, gravels, and silts in pools up to 3 feet deep. Stream bottoms are typically narrow and bounded by steep slopes. Locally distributed, but where suitable habitat exists, the plants grow in nearly pure stands.

Appropriate stream habitat is not included within the proposed project areas nor downstream. However, mitigation measures are in place to preclude sedimentation or direct impact to streams. Erosion control (mitigation measures) will be utilized where indicated by FS personnel to control erosion.

Tennessee yellow-eyed grass. This species has not been found on the Bankhead National Forest. Twenty 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. It is also threatened by right-of-way maintenance.Tennessee yellow-eyed grass 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.

A small depressional wetland is present within compartment 131 but will not be treated by this project. No plants were observed within the proposed project areas. Wetlands within the project area are excluded from heavy equipment use.

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.

A detrimental impact to the species is not expected or anticipated due to the fact that the plant has not been encountered on National Forest lands. This species has not been observed within the project areas nor is suitable habitat, floodplain edges, riparian areas, and rocky woods at the base bluffs, available within the proposed project areas. Therefore, it was excluded from further evaluation.

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.

Site specific surveys were conducted by District Wildlife Biologist Tom Counts and Biological Scientist Allison Cochran for this project. Survey dates for these stands were from April through July of 2007. Surveys noted the presence of wetlands within 1 stand. These areas will be protected from heavy machinery by establishment of an exclusion zone in the contract.

Some of these and adjacent sites are within prescribed burn units and have received additional surveys by Counts and Cochran for prescribed burning projects in 2001, 2002, 2003, 2004 and 2005.

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 were encountered during field surveys. The only rare communities found during the surveys of these sites were the wetland, as previously noted.

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

Mussels - Orange-nacre mucket, Alabama moccasinshell, Coosa moccasinshell, triangular kidneyshell, dark pigtoe, fine-lined pocketbook, upland combshell, ovate clubshell.

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.

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. The ovate clubshell is considered to be rare throughout its range and it has designated critical habitat within Bankhead National Forest.

The triangular kidneyshell's current range includes the Sipsey Fork in the Black Warrior River drainage. 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 over utilization for commercial, recreational, scientific, and educational purposes.

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.

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. 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; one 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.

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. 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.

The current range of the Alabama moccasinshell includes the headwaters of the Sipsey Fork in the Black Warrior River drainage 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.

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

This project lies within two distinct watersheds – one tract in FS management compartment 160 is located within the lower Sipsey fork watershed. This area is within the watershed of the lower Sipsey Fork and within the impounded portion of Lewis Smith Lake (Rockhouse and Hoghouse creeks). Rockhouse/ Hoghouse creeks are not known to be habitat for mussels and they are not currently found there (Huntley 2007). Mussels species of the types listed do not

occur in the impounded portions of Smith lake. Midstory reduction and establishment of native warm season grasses are planned for this unit.

The other sites proposed for treatment within compartment 131 and 132 are located within the watershed of Inman creek. Inman creek is a direct tributary of Brushy Creek. The portion of Brushy Creek where Inman enters is designated as critical mussel habitat.

Appropriate stream habitat for mussels is not included within this proposed project treatment area. Sites to be treated by the project are hilltop and hillside areas. Areas with steeper slopes have been omitted from the project. 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* (Chapter 2, p. 2-22). 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. Erosion control (mitigation measures) will be utilized where indicated by FS personnel to control erosion on disturbed soils. The use of mulching machines and other methods of midstory reduction have previously been evaluated and approved by Fish and Wildlife Service, as noted. Mulching operations typically result in minimal if any significant ground disturbance. When the soil is disturbed by these machines there is usually a small area with a large amount of debris or mulch associated with it, thus preventing excessive runoff potential.

The practice of planting native warm season grasses involves disking a strip of land to prepare the site for seeding. The disking will leave natural residue in place and will only be done in strips of less than 30 feet in width. They will be placed across the slope, in a manner to reduce the cross slope potential for erosion. Soil loss from this practice will be minimal due to the narrow width, retention of vegetative debris within the strip and immediate seeding of the area to grasses.

The placement of a gate on an existing FS road will limit vehicle access of the area. It will potentially reduce soil erosion as it will reduce vehicle travel on these areas which can cause ruts and wash outs. The connection of the two existing roads to create a wildlife viewing / hunting area will be conducted by using hand tools to remove the vegetation in the treatment area which connects the two areas.

The project will be conducted in an upland area that does not include habitat for these aquatic species. Thus, there will be no opportunity for a direct effect. The potential for indirect effects would be present due to the project site being directly uphill from a water course, such as Inman creek. Project standards and built-in project mitigations as described above will prevent indirect effects. Adverse modification of designated critical habitat is not anticipated due to the fact that the project will not cause off-site soil movement or result in a decrease in water quality in Inman or Brushy creeks.

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. Cumulative watershed effects from off-forest sources are of concern given the interspersion of private in-holdings on some sections of proposed critical habitat. However, the Forest Service has no authority on private land activities. Mussels face a multitude of habitat concerns across their entire range. With the use of habitat and watershed protection measures, monitoring, and restoration will be the primary recovery objectives on Forest lands. This project is to be conducted with a high level of concern and project planning to protect aquatic habitats. Thus the project is not anticipated to be associated with a negative cumulative effect.

Determination of Effect
Based on these standards as noted above, this project will have "no effect", on the above listed mussels and "no adverse modification of designated critical habitat is anticipated."

Flattened Musk Turtle

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, Clear and Caney Creeks and their primary tributaries. There are populations existing in some backwater sloughs of Lewis Smith Lake also, when appropriate habitat is available.
Threats to the flattened musk turtle include over collection, 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
This project lies within two watersheds – one tract located in FS management compartment 160 is located within the lower Sipsey fork watershed. This area is within the impounded portion of Lewis Smith Lake (Rockhouse and Hoghouse creeks). Rockhouse/ Hoghouse creeks are not known to be habitat for flattened musk turtles and they are not currently found there (Huntley 2007), however the primary habitat for these turtles is several miles upstream from the project site. Portions of Lewis Smith Lake also are utilized by this species and these areas are typically backwater sloughs that have rocky features along the shore. These sites are not typical of those sites which exhibit turtle use in the lake. The other tracts planned for treatment within this project in FS management compartments 131, 132, are within the general watershed of Brushy creek and specifically the Inman creek drainage. While Inman is not known to provide turtle habitat, Brushy creek is generally considered as prime turtle habitat. The project will take place on upland areas and in no case will equipment operate within any stream or water body. Thus there will be no chance of direct effects to this species or any aquatic species due to the project.

Indirect effects could occur by way of sedimentation induced by erosion of the hillside that could potentially enter the water source. Soil erosion that could affect aquatic species including the flattened musk turtle is prevented by a number of avenues. The project was laid out to not include the most steeply sloping areas for treatment. The use of mulching type equipment provides a very low impact on the land. Some soil disturbance is done but it is minimal in size, incorporates natural mulch and vegetation into the disturbed area and is infrequent. The Bankhead office has conducted a number of these mulching operations to reduce midstory hardwood trees and shrubs. There has been no issues with soil erosion to date although there have been some small areas of soil disturbance within every treatment block.

Continued and unrestrained development of private lands along the lake could potentially have an effect (positive or negative) upon the Flattened Musk turtle. Although some level of erosion control is in place for lake construction, it is not highly regulated. Thus sediment from under-regulated private development is a potential problem for this species. Indirect effects to this species are negligible in that all Forest Service projects are critically examined and mitigated within the project planning phase to reduce and prevent erosion.

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 these standards, this project will have little or no effect on aquatic or riparian species.

Thus, direct or indirect physical damage or habitat damage is not anticipated to occur due to 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. Cumulative watershed effects from off-forest sources are of concern given the large amount of private land around the lake. However, the Forest Service has no authority on private land activities. Continued habitat and watershed protection, monitoring, and restoration will be the primary recovery objectives on Forest lands. This project is to be conducted with a high level of concern and project planning to protect habitat for this species. Measures will be actively taken to prevent and control soil erosion. Thus this project is not anticipated to be a part of a negative cumulative effect.

Determination of Effect
Based on these standards as noted above, this project will have "no effect" on the flattened musk turtle.

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

The proposed activity will have "no effect" on Indiana and gray bats, bald eagle, red-cockaded woodpecker, leafy prairie clover, lyrate bladder-pod, Mohr's Barbara's buttons, Alabama streak-sorus fern, Kral's water plantain, 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.

The proposed activity will have "no effect" on flattened musk turtle, the twelve listed species of mussels. 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 Forest Plan standards and erosion control measures. The project will also not jeopardize or adversely modify critical habitat of Federally listed species.

Summary of Findings for Federally Listed Species

Scientific Name	Common Name	Status	Finding
Myotis grisescens	Gray Bat	E	No effect
Myotis sodalis	Indiana bat	E	No effect
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 "no effect" for all federally listed species, additional concurrence from the FWS is not required.

Forest Service Sensitive Species

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
Hymenophyllum tayloriae	Gorge filmy fern	S	S1G1G2	7	No
Jamesianthus alabamensis	Alabama jamesianthus	S	S3G3	11	No
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	Not known from the project area. Potential habitat present.
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	No.
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	No
Trillium simile	Jeweled Trillium	S	G3	18	No
Speyeria diana	Diana Fritillary	S	S3G3	11	No.
Corynorhinus rafinesquii	Rafinesque's Big-eared bat	S	S2G3G4	10	No
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	No
Obovaria jacksoniana	Southern Hickorynut	S	S2G1G2	A	No
Obovaria unicolor	Alabama Hickorynut	S	S2G3	A	No
Strophitus subvexus	Southern creekmussel	S	S2G3	A	No
Villosa nebulosa	Alabama rainbow	S	S3G3	A	No
Etheostoma bellator	Warrior darter	S	S2G2	A	No
Etheostoma douglasi	Tuskaloosa darter	S	S2G2	A	No
Etheostoma phytophyllum	Rush darter	S&C	S2G2	A	No
Etheostoma tuscumbia	Tuscumbia darter	S	S1G1	A	No
Percina sp.cf.macrocephala	Longhead darter (Warrior Brinled Darter)	S	G3	A	No
Necturus alabamensis	Black Warrior waterdog	S&C	S2G2	A	No
Helianthus eggertii	Eggert's sunflower	T		8	No

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

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

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.
These species were not encountered within the proposed project areas although suitable habitat does exist adjacent to treatment areas.

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. Although no plants were found during surveys of the proposed project areas, 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.

Glade habitats are not present within the proposed project areas.

SPREADING YELLOW FALSE FOXGLOVE
This species has been encountered in Cherokee County. 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. The proposed project will not threaten this species as potential habitat is not present.

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. The project areas do not contain habitat for this species as treatment sites are upland pine habitats.

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 cedar glades and adjacent cedar woodlands.
The proposed project areas do not include glade habitats.

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 are not included within 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.
The proposed project areas do not include filmy fern habitat.

JAMESIANTHUS

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. Threats 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.

A review of existing records of occurrence and field surveys reveal that this species has never been found within or adjacent to the project sites. The project areas do not provide suitable habitat.

FLESHY-FRUIT and ALABAMA GLADECRESS

Fleshy-fruit gladecress has been encountered on two 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.

Limestone glades, from which these species are known are not present within the project areas.

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

It has not been encountered within the BNF and is not expected to occur within the project areas. Potential habitat is not present within any of the project sites.

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.

The proposed project sites do not contain the appropriate type of habitat for any of these epipetric species. None of these species were found during field reviews.

BROADLEAF BARBARA'S BUTTONS
Broadleaf Barbara's buttons is endemic to the southeast and is known from several states, but is not common. This speices 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 do not contain 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.

The proposed project areas do not contain glade, barren, or rock outcrop habitat.

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.

Habitat for this plant is not present within the proposed project sites.

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.

This species has not been observed within the project sites nor is potential habitat available. Sites proposed for treatment in this project are upland pine stands.

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 plant has not been encountered at the project sites. The project areas do not contain 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 was not encountered during field surveys and is not known to occur in the Bankhead National Forest.

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 project areas.

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

Potential habitat is not present within the project sites and will not be affected by the project. This plant was not encountered during field surveys.

TRILLIUMS

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, "humus" soil.

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.

Trilliums have not been encountered within any of the project sites. The rich and moist soil habitat required by these species is not available within the project areas although they may be adjacent to 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.

Stream habitat and associated riparian areas are not included within the project areas. Mitigation measures are in place to preclude sedimentation of streams and no significant soil disturbance is anticipated with the project.

ALABAMA SPIKE, SOUTHERN CREEKMUSSEL, SOUTHERN HICKORYNUT, ALABAMA HICKORYNUT, ALABAMA RAINBOW

Suitable habitat for these aquatic species exists on BNF. All of these mussel species 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. Reservoirs and other waterway projects, as well as kaolin strip mines have altered Alabama Spike habitat in some areas of this species range. These threats are not currently factors on the Bankhead. Several of these species have been collected in the northern portion of the BNF, including the Alabama spike, southern creekmussel and the Alabama rainbow (McGregor, 1992).

Alabama spike 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/records. The Alabama spike (*Elliptio arca)* may be the same species as the delicate spike (*Elliptio arctata).*

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 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. No mussels were encountered during field surveys as perennial streams are not present within the project treatment areas. Mitigation measures are in place to preclude sedimentation of streams and no significant soil disturbance is anticipated with the project.

DARTERS

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. 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 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. 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.

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. 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.

The longhead darter, also known as the warrior bridled 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. 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 of fuel or hazardous substances.

These species are not expected to exist within the proposed project areas. No fish were encountered during field surveys as perennial streams are not present within the project treatment areas. Mitigation measures are in place to preclude sedimentation of streams and no significant soil disturbance is anticipated with the project.

BLACK WARRIOR WATERDOG

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.

This waterdog is not expected to exist within the proposed project treatment areas. It was not encountered during field surveys as perennial streams are not present within the project areas. Mitigation measures are in place to preclude sedimentation of streams and no significant soil disturbance is anticipated with the project.

MONKEY-FACE ORCHID (White Fringeless Orchid)

Habitat for this orchid is generally described as wet, 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.

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.

Potential Management Effects and Determination

This species has been encountered in one location on the Bankhead. Field reviews of the site did not reveal this plant in any of the planned treatment areas. One wetland site which could be potential habitat is located in compartment 131 . The habitat of record for this plant is apparently associated with streams and hillside seeps. This is somewhat different from the depressional type wetlands found within the compartment 131 treatment sites. Although the habitat is somewhat different than that described for this species, there are some similarities. The wetland found during field surveys were excluded from treatment in this project by marking exclusion zones for heavy equipment. Exclusion zones will be monitored by BNF Wildlife Staff. There will be no equipment use or activity in wetland areas. This will protect any potential habitat for this plant.

Due to these project mitigations, there will be no impact on white-fringeless orchid.

CLAMMY LOCUST

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 Bankhead National Forest.

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

Potential Management Effects and Determination
No plants were observed in any of the project areas. Actions associated with this project will not be detrimental to clammy locust because it is not present. Management activities used to achieve woodland restoration should improve habitat conditions for clammy locust and other woodland species.

The project will have no impact on clammy locust.

DIANA FRITILLARY
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 and sporadic elsewhere. Forest Service records do not indicate this species presence on the Bankhead. Diana fritillary has the potential to occur on Bankhead National Forest. A host species for this insect is the violet. 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. There are documented records of this species from other parts of Alabama but it is not known from Bankhead, so there are no estimates of population size to address local abundance.

Potential Management Effects and Determination
Treatment of midstory and understory shrubs and trees will not directly impact Diana fritillary. The host plant for this species (violets) are not targeted for treatment. Potential breeding habitat along streams will not be disturbed or impacted by this project. These areas are not within the project area.

Over the long term, woodland restoration projects across the BNF such as this one may benefit Diana fritillary and other woodlands associates.

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

RAFINESQUE'S BIG-EARED BAT
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 (1998). 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. According to Best et al., this species usually is not found hibernating in caves in the southern part of its range (1999). 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, possibly insecticides, 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 Bankhead National Forest, although potential habitat is present.

Roost sites will not be disturbed by this project as only very small diameter trees will be disturbed. Rock shelters, bridges, buildings, cisterns, wells, or caves are not present within the treatment areas, nor will they be directly or indirectly impacted by the project. Trees that provide potential roost habitat including mature trees in the overstory, den trees and snags have been identified and will not be impacted by this project. Potential foraging habitat, described as mature forests, is present within all project sites.

There will be no impact to Rafinesque's big-eared bat.

EGGERT'S SUNFLOWER
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 open stands of 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. Although, this species is not listed as occurring in Winston County by the Fish and Wildlife Service. In Alabama, this species has

been recorded in Winston County, within a mile of the Bankhead National Forest administrative boundary, 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.

Habitat is not currently available for this plant within any of the project sites or adjacent areas although it could be in the future.

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. Direct effects to this species have been minimized by conducting pre-project field surveys. This species was not encountered within 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 individual project sites. The cumulative effects may be realized across the forest landscape. When considering these project sites in conjunction with additional sites identified for restoration to upland woodland communities through the Forest Health and Restoration Project, the cumulative effects of restoring potential habitat for woodland species, including Eggert's sunflower, may be beneficial in the future.

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

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, the 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.

All project sites provide potential habitat for sweet pinesap as they are upland pine and mixed pine/hardwood stands. None of this potential habitat within the project sites is currently occupied by sweet pinesap as far as detectible populations.

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

Potential Management Effects and Determination
No plants were observed in any of the project areas. Actions associated with this project will not be detrimental to sweet pinesap because it is been found to be present. This is a very rare plant. The proposed project may benefit sweet pinesap in the long term by restoring the pine woodland community it is associated with.

The project will have no impact on sweet pinesap.

Biological Evaluation
Northern Bobwhite Quail & Associated Species Habitat Management Practices

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. 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
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		C&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		C&S	No impact
Helianthus eggertii		Eggert's sunflower		T	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.

MITIGATION MEASURES

Specific mitigation measures for this project are not required. Field surveys did not reveal the presence of any listed plants or animals on or immediately adjacent to the project sites. An exclusion zone was established around the wetland as noted to provide protection for any species not observed during field surveys.

PREPARERS

Biological Surveys conducted by:

Allison Cochran
District Biological Scientist
Bankhead Ranger District

Tom Counts
District Wildlife Biologist
Bankhead Ranger District

Biological Evaluation Completed by: /s/ Tom Counts

Tom Counts
District Wildlife Biologist
Bankhead Ranger District

On: July 12, 2007
Date

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Dr. W.E. Stone, Alabama A & M University, 4900 Meridian Street, Normal, Alabama 35762.

Paul Hartfield, USDI, US Fish & Wildlife Service, Threatened and Endangered Species Office, Jackson, Mississippi.

Ralph Costa, Red-Cockaded Woodpecker Coordinator, USDI, US Fish & Wildlife Service, Clemson University, Clemson, South Carolina.

Dan Spaulding, Curator of Collections, Anniston Museum of Natural History, 800 Museum Drive, Anniston, Alabama.

Dr. Robert Kral, Cairo, Georgia.

Dr. Merlin Tuttle, Executive Director of Bat Conservation International.

Dr. Jimmy Huntley, Louisville, Mississippi.

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