

**BIOLOGICAL ASSESSMENT OF PROPOSED,  
THREATENED & ENDANGERED SPECIES**

Longleaf Restoration Project

Tuskegee National Forest  
Macon County, Alabama

**INTRODUCTION:** This Biological Assessment (BA) addresses the effects of the following management activities on Proposed, Endangered and Threatened species on the Tuskegee National Forest. The project proposal is a longleaf restoration project, to cover approximately total of 1,173 acres of treatment.

A Biological Assessment, to be used in conjunction with formal consultation, is required of all proposed U.S Forest Service (Forest Service) management actions pertaining to the potential effects on Proposed, Threatened and Endangered (T&E) species. According to Section 7 of the Endangered Species Act, the effects of all proposed actions must be analyzed regarding Federally listed, or proposed species as well as designated critical habitat.

The Tuskegee National Forest proposes to restore approximately 796 acres to longleaf pine by clearcutting with reserves, commercially thin approximately 377 acres of upland pines for an approximately total of 1,173 acres of treatment over the next 5 years. Site preparation may consist of a combination of herbicides; prescribed fire and /or mechanical means such as roller drum chopping, chainsaws or brush-cutters. In addition, treatment of non-native invasive species and prescribed burning activities will be initiated and conducted. The project areas are located in compartments 4, 5, 8, 10, 11, 13, 14, 15, and 18 within the Tuskegee Ranger District, National Forests in Alabama, in Macon County Alabama. This action is needed, because it will improve the long-term health of the Tuskegee National Forest and will implement the National Forests in Alabama Land and Revised Resource Management Plan (RLRMP or LMRP) forest-wide goals, objectives and standards, the national Healthy Forest Initiative and the Healthy Forest Restoration Act.

All existing inventoried old growth would be protected, and there would be an adequate representation of old-growth patches of those communities found on national forest lands. The health of the forest vegetation would improve by replacing off-site species, thinning overstocked stands, and restoring fire-dependent and fire-associated communities.

The effects of the proposed action will improve the health of the forest, begin the long-term process of restoring the longleaf ecosystem, reduce the wildfire potential, provide additional funding in lieu of taxes to Macon County, improve wildlife habitat and meet the goals and standards of the Revised Land and Resource Management Plan (RLRMP), reduce the threat for insects and disease, produce revenue for local businesses and residents employed by the logger or local businesses.

#### AFFECTED ENVIRONMENT:

Approximately 796 acres restored to longleaf pine and thin approximately 337 acres of upland pine sites over the next 5 years; use any one or a combination of herbicides, prescribed fire or roller drum chopping or other mechanical means for site preparation/release. on the Tuskegee National Forest, Macon county, Alabama.

#### T&E SPECIES

A list of the Proposed, Threatened or Endangered (T&E) species that may be considered endemic to the Tuskegee National Forest (TNF) follows. Some of the species are not known to occur on the BNF at the present time but potential habitat may be affected.

| <u>COMMON NAME</u>      | <u>SCIENTIFIC NAME</u>          | <u>FEDERAL STATUS</u> |
|-------------------------|---------------------------------|-----------------------|
| Red-cockaded woodpecker | <i>Picoides borealis</i>        | Endangered            |
| Wood Stork              | <i>Mycteria Americana</i>       | Endangered            |
| Bald eagle              | <i>Haliaeetus leucocephalus</i> | Threatened            |
| Fine-lined pocketbook   | <i>Lampsilis altilis</i>        | Threatened            |
| Orange-nacre mucket     | <i>Lampsilis perovalis</i>      | Threatened            |
| Southern pigtoe         | <i>Pleurobema georgianum</i>    | Endangered            |
| Ovate clubshell         | <i>Pleurobema perovatus</i>     | Endangered            |
| Southern clubshell      | <i>Pleurobema decisum</i>       | Endangered            |
| Relict trillium         | <i>Trillium reliquum</i>        | Endangered            |

#### RED-COCKADED WOODPECKER (RCW)

The red-cockaded woodpecker (*Picoides borealis*) is a federally listed endangered species endemic to open, mature and old-growth pine ecosystems in the southeastern United States. Currently, there are an estimated 12,500 red-cockaded woodpeckers living in roughly 5,000 family groups across twelve states. This is less than three percent of estimated abundance at the time of European settlement (USFWS, 2000). The red-cockaded woodpecker was listed as endangered in 1970 (35 Federal Register 16047) and received federal protection under the Endangered Species Act of 1973. The precipitous decline in population size that led to the species' listing was caused by an almost complete loss of habitat. Fire-maintained old-growth pine savannas and woodlands that once dominated the southeast, no longer exist except in a few, isolated, small patches. Longleaf pine (*Pinus palustris*) ecosystems, of primary importance to red-cockaded woodpeckers, are now among the most endangered ecosystems on earth. Shortleaf (*P. echinata*), loblolly (*P. taeda*), and slash pine (*P. elliottii*) ecosystems, important to red-cockaded woodpeckers outside the range of longleaf, also have suffered severe declines (USFWS, 2000).

Both dormant season and growing season burns can be utilized to maintain red-cockaded woodpecker habitats; however, growing season burns are more efficacious in killing encroaching hardwoods, restoring habitat structure, and favoring the development of native, pyrophytic grasses and forbs. Population management techniques to be utilized include: capture, banding and monitoring of

individual birds; translocation of birds from donor populations; and intra-population translocations. Population management techniques will follow Draft Revised Recovery Plan requirements for permits, training, and compliance.

Project-level decisions implementing red-cockaded woodpecker improvement actions will include: restoration of off-site pine stands with native pine species; regeneration of limited mature pine stands with retention of potential roost trees; thinning of mid-successional and mature pine and pine-hardwood stands; prescribed burning to remove encroaching woody vegetation and restore herbaceous ground-cover; and chemical and mechanical treatment of midstory hardwoods where fire is not a viable management tool.

This species requires open pine stands of various age groups for foraging and nesting habitat. There are no RCW cavity tree clusters within or near treatment areas; therefore no effects would be anticipated. Red-cockaded woodpeckers have not been known to exist on the TNF since the early 1990's, when the last active site went inactive.

Areas were surveyed during the botanical surveys for relict trees as well as inactive cluster trees. One inactive tree was found in compartment 18, and several relict longleaf trees were found in stands 8 and 17 within compartment 18. Measures were prescribed in the EA directing retention of all of these relict longleaf.

**Direct Effects:** None. Red-cockaded woodpeckers have not been known to exist on the TNF since the early 1990's.

**Indirect Effects:** None. Red-cockaded woodpeckers have not been known to exist on the TNF since the early 1990's.

**Cumulative Effects:** None. Red-cockaded woodpeckers have not been known to exist on the TNF since the early 1990's.

## BALD EAGLE

The bald eagle ranges over most of the North American continent, from as far north as Alaska and Canada, down to Mexico. Experts believe that in 1782 when the bald eagle was adopted as our national bird, their numbers may have ranged from 25,000 to 75,000 nesting pairs in the lower 48 states. Since that time the species has suffered from habitat destruction and degradation, illegal shooting, and most notably from contamination of its food source by the pesticide DDT. In the early 1960's, only 417 nesting pairs were found in the lower 48 states. In 1999, more than 5,748 nesting pairs of bald eagles were recorded for the same area, resulting primarily from the banning of DDT in the United States in 1972 aided by additional protection afforded under the Endangered Species Act (USDI, Fish & Wildlife Service, 1999).

Bald eagles have few natural enemies but usually prefer an environment of quiet isolation from areas of human activity (i.e. boat traffic, pedestrians, or buildings), especially for nesting. Their breeding areas are generally close to (within 4 km) coastal areas, bays, rivers, lakes, or other bodies of water that reflect general availability of primary food sources including fish, waterfowl, rodents, reptiles, amphibians, seabirds, and carrion (Andrew and Mosher 1982, Green 1985, Campbell et al. 1990). Although nesting territory size is variable, it typically may encompass about 2.59 square kilometers

(Abbott, 1978). 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 (Andrew and Mosher, 1982). The same nest may be used year after year, or the birds may alternate between two nest sites in successive years. Bald eagles mate for life and are believed to live 30 years or more in the wild. Breeding bald eagles in Virginia appear to be permanent residents, whereas the young disperse extensively northward and southward. Although bald eagles may range over great distances, they usually return to nest within 100 miles of where they were raised (USDI, Fish & Wildlife Service, 1995).

Winter home ranges for eagles can be very large, especially for non-breeding birds. They generally winter throughout the breeding range but are more frequent along the coast. These birds commonly roost communally. The Bald Eagle was a locally common, breeding and wintering resident in Alabama on the Gulf Coast and the Tennessee Valley before 1960 (Imhof, 1976). Today the species is a rare to uncommon breeding and wintering resident.

This species usually uses large bodies of water for feeding and large mature trees in which to build nests. The bald eagle is a potential winter migrant to the TNF, although there are no reports indicating regular utilization. There is no known use of this area by bald eagles.

**Direct Effects:** None. There is no known use of this area by bald eagles.

**Indirect Effects:** None. There is no known use of this area by bald eagles.

**Cumulative Effects:** None. There is no known use of this area by bald eagles.

## WOOD STORK

The United States breeding population of wood storks is listed as an endangered species. This species may have formerly bred in all the coastal Southeastern United States from Texas to South Carolina. Currently, they breed throughout Florida, Georgia, and coastal South Carolina. Post-breeding storks from Florida, Georgia, and South Carolina occasionally disperse as far north as North Carolina and as far west as Mississippi and Alabama. Storks sighted in Arkansas, Louisiana, Texas, and points farther west may have dispersed from colonies in Mexico. The amount of overlap and/or population interchange is unknown (U. S. Fish and Wildlife Service 1996).

Wood storks use a variety of freshwater and estuarine wetlands for nesting, feeding, and roosting. Freshwater colony sites must remain inundated throughout the nesting cycle to protect against predation and abandonment. Foraging sites occur in shallow, open water where prey concentrations are high enough to ensure successful feeding. Good feeding conditions usually occur where the water column is uncluttered by dense patches of aquatic vegetation. Typical foraging sites throughout the species range include freshwater marshes and stock ponds, shallow, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments and depressions in cypress heads and swamp sloughs. Almost any shallow wetland depression where fish become concentrated, either through local reproduction or the consequences of area drying, may be used as feeding habitat (U. S. Fish and Wildlife Service 1996).

Wood storks are not known to be resident during breeding or wintering seasons on National Forests in Alabama. Occasional transients are known to occur on the Conecuh, and may exploit seasonal wetlands on Bankhead, Oakmulgee and Tuskegee

**Direct Effects:** None. There is no known use of this area by wood storks.

**Indirect Effects:** None. There is no known use of this area by wood storks.

**Cumulative Effects:** None. There is no known use of this area by wood storks.

## MUSSELS

Fine-lined pocketbook, southern clubshell, ovate clubshell, southern pigtoe and orange-nacre mucket are species with known or suspected presence in the major drainages of the TNF. In addition, Mobile Basin Critical habitat for these federally listed mussel species has been designated on the Tuskegee, particularly in the Choctafaula and Uphapee watersheds. Known locations of the fine-lined pocketbook, southern clubshell and ovate clubshell are found within the Choctafaula and Uphapee Creeks. There are currently no known occurrences of the southern pigtoe or the orange-nacre mucket on the Tuskegee. Water quality, cool temperatures and continuous flow are major considerations in the viability of these animals.

Historically, landscape-scale vegetative removal through timber sales and agricultural clearing has had the greatest impact on watershed infiltration and run-off. However, currently, Forest Service silvicultural practices are greatly reduced in frequency and intensity. Current Forest Service practices are also moderated by standards on silvicultural and ground disturbing activities.

These species are all found in moderate to swift currents over stable sand, gravel, and cobble substrates in large rivers to small creeks. Freshwater mussels are filter feeders taking organic detritus, diatoms, phytoplankton, and zooplankton from the water column. Mussels require clean gravel riffles and are especially susceptible to stream degradation resulting from low dissolved oxygen levels or high chlorine concentrations in waterways. Furthermore, these mussels require waters of low turbidity in order to be able to attract potential host fish to the glochidia. The primary constituent elements of designated critical habitat include: stable channels, appropriate flows, necessary water quality, clean substrates, available fish hosts, and lack of competitive nonnative species (such as Asian clams and zebra mussels (USFWS 2003)).

Measures to protect these characteristics are necessary for all actions within the drainages and aquatic systems on the TNF. For this project, BMPs will be used to minimize effects of sedimentation or contaminated particles, no herbicides will be used in or near SMZs, drains, streams, bottomland or floodplain systems. Wetland areas have been identified as mechanical no-entry zones. SMZs, drains, streams, bottomland and/or floodplain systems will be excluded during stand layout in the field.

Consultation with soil scientist and hydrologist confirm modifications and measures imposed to prevent impacts to SMZs and riparian areas. The impacts are expected to be miniscule compared to other private land uses (terraforming, agriculture), and sedimentation downstream, while possible, is expected to be of short duration.

**Direct Effects:** None

**Indirect Effects:** Some sedimentation, short duration

**Cumulative Effects:** Some sedimentation, short duration.

## RELICT TRILLIUM

Relict trillium is a federally endangered species of basic mesic hardwood forests occurring on soils that contain a high level of organic matter and medium to high levels of calcium. The largest and most vigorous populations are located in the lower piedmont/fall line sandhills province, in drainages of both the Savannah and Chattahoochee Rivers of Georgia and South Carolina. Relict trillium is known to occur from 21 populations (U.S. Fish and Wildlife Service, 1990) in Alabama, Georgia, and South Carolina, but none of the populations occur on National Forest land. Primary threats to the species are loss of habitat resulting from urban development, and in some cases, competition with invasive exotic species, logging, species conversion, or fire (TNC, 1990).

The proposed treatment areas were surveyed for the presence of habitat as well as potential occurrences of this species. No plants were found, and no potential habitat was found to occur within the proposal areas. There are currently no known populations of this species that occur on the Tuskegee National Forest.

**Direct Effects:** None. There are currently no known populations of this species that occur on the Tuskegee National Forest.

**Indirect Effects:** None. There are currently no known populations of this species that occur on the Tuskegee National Forest.

**Cumulative Effects:** None. There are currently no known populations of this species that occur on the Tuskegee National Forest.

## EXPLANATION OF DETERMINATIONS

**Possible Determinations and the Needed Follow-up Actions:** The determination of effects for Federally Listed Species are: 1) No Effect; 2) May affect, but not likely to adversely affect; 3) May affect, likely to adversely affect. All the possible effects can and should be included under one of the above determinations. A “not likely to adversely affect” determination should be used for beneficial, insignificant or discountable effects. A “may affect” determination should be used for adverse effects. A “no effect” determination should be used when the proposed actions have no effects on the PETS species. The follow-up actions, needed vary depending on the type of species and the determination. No follow-up action is required for any type of species if the determination is “no effect”. If the species is proposed for listing or listed as endangered or threatened and the determination is “may affect” or “not likely to adversely affect”, consultation with the U.S. Fish and Wildlife Service (FWS) is needed. If the determination is “not likely to adversely affect”, written concurrence is required from the FWS for both proposed and listed species. If the determination is “may affect” and the species is proposed for listing, conference with the FWS is required. Conference is a legally required “informal consultation” with the FWS. If the determination is “may affect” and the species is listed as threatened

or endangered, formal consultation with the FWS is required. 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.

**DETERMINATION OF EFFECTS:** The potential affects of the proposed activity in the previously described areas on endangered and threatened species are as follows:

| Species                       | Status     | Determination                  | Rationale                                    |
|-------------------------------|------------|--------------------------------|--|
| Red-cockaded woodpecker (RCW) | endangered | No Effect                      | No occurrences on unit                       |
| Bald eagle                    | threatened | No Effect                      | No suitable habitat                          |
| Wood stork                    | endangered | No Effect                      | No suitable habitat                          |
| Southern pigtoe               | endangered | No effect                      | No occurrences on unit                       |
| Orange-nacre mucket           | threatened | No effect                      | No occurrences on unit                       |
| Southern clubshell            | endangered | Not Likely to Adversely Affect | No suitable habitat<br>Minimization measures |
| Ovate clubshell               | endangered | Not Likely to Adversely Affect | No suitable habitat<br>Minimization measures |
| Fine-lined pocketbook         | threatened | Not Likely to Adversely Affect | Minimization measures<br>No suitable habitat |
| Relict trillium               | endangered | No Effect                      | No known occurrences on unit                 |
| Mobile Basin Critical Habitat | designated | Not Likely to Adversely Affect | Minimization measures                        |

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December 17, 2004  
Date

**BIOLOGICAL EVALUATION  
of  
REGIONAL FORESTER SENSITIVE SPECIES**

**LONGLEAF RESTORATION PROJECT  
Tuskegee National Forest  
Macon County, Alabama**

**Prepared by:**

**Forest Botanist/Ecologist, Rhonda Stewart  
Forest Biologist, Dagmar Thurmond**

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**BIOLOGICAL EVALUATION  
(FSM 2672.4)  
of  
REGIONAL FORESTER'S SENSITIVE SPECIES**

**I. INTRODUCTION**

This Biological Evaluation (BE) is prepared in compliance with policy outlined at Forest Service Manual (FSM) 2670. This policy is designed to avoid impacts that may cause a trend toward listing of a species under the Endangered Species Act, or loss of species viability. A comprehensive analysis of effects of Proposed Action and its alternatives on habitats, and the implication of these effects to species viability, is included in the Environmental Analysis. This BE addresses expected effects under the Proposed Action only. Relative effects of alternatives on Sensitive Species and other species of potential viability concern can be found in the EA.

This BE relies heavily on the terrestrial and aquatic species viability analysis done in support of the EIS for the Forest Plan Revision and the Biological Evaluation done in support of the Forest Plan EIS.

The Proposed Action and its action alternative potential treatment effects will be mitigated by mandatory application of Forest Plan Standards. This projects was evaluated for the need to inventory project areas for these species in accordance with the Region 8 supplement to the Forest Service Manual §2672. Available literature and Forest- and District-level records and data bases were reviewed to derive a list of viability concern species for this proposal area. Regional Forester's Sensitive Species and Locally Rare species are evaluated in this BE. Federally-listed species (Proposed, Endangered, and Threatened Species) are evaluated in a separate biological analysis. District data bases and distribution maps were reviewed to disclose areas of known populations of viability concern species within the proposed project area. In addition, a field survey of the proposed project area was conducted in May, June and July, to determine if any of the listed species or potential habitat were present. Generally, this survey involved a visual inspection of the sites as well as a walking survey through the stands. This project has been reviewed by a forest service interdisciplinary team to ascertain concerns for implementation. Site-specific surveys for the proposed longleaf restoration project were conducted by Rhonda Stewart, forest botanist/ecologist.

## II. PROPOSED ACTION

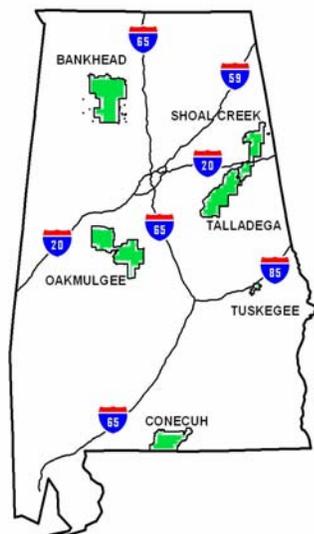
The Tuskegee National Forest proposes to restore approximately 796 acres to longleaf pine by clearcutting with reserves, and thin approximately 377 acres of upland sites. A total of 1,173 acres of harvest treatments are proposed to be implemented over the next 5 years. Proposed site preparation methods include the use of prescribed fire, chemical and/or mechanical means such as roller drum chopping, chainsaw felling, or brush-cutting. Project areas are located in compartments 4, 5, 8, 10, 11, 13, 14, 15, and 18 within the Tuskegee National Forest, National Forests in Alabama, in Macon County Alabama. This action is needed, because it will improve the long-term health of the Tuskegee National Forest and will implement the National Forests in Alabama Land and Revised Resource Management Plan (RLRMP or LMRP) forest-wide goals, objectives and standards.

Proposed actions will improve the health of the forest, begin the long-term process of restoring the longleaf ecosystem, reduce wildfire potential, provide additional funding in lieu of taxes to Macon County, improve wildlife habitat, meet the goals and standards of the Revised Land and Resource Management Plan (RLRMP), reduce the threat for insects and disease, produce revenue for local businesses.

The Proposed Action emphasizes management of forest ecosystems through restoration and maintenance—which ensures healthy watersheds; provides for sustainable and diverse ecosystems that support viable plant, wildlife, and fish populations; and provides for high quality, nature-based recreation opportunities. Emphasis on restoration and maintenance of forest ecosystems and rare communities would be expected to have additional benefits for sensitive species.

## III. AFFECTED AREA

The **Tuskegee National Forest**, containing a little over 11,000 acres, lies within Macon County. It runs across the middle to upper Gulf Coastal Plain, making up a major portion of the Uphapee floodplain and the Tuskegee Hills land type associations.



Project areas are located in compartments 4, 5, 8, 10, 11, 13, 14, 15, and 18 within the Tuskegee National Forest, National Forests in Alabama, in Macon County Alabama.

***Map 1 – Vicinity map for National Forests in Alabama lands by unit.***

#### IV. METHOD OF SPECIES SELECTION AND ANALYSIS

Sensitive Species are species “identified by a Regional Forester for which population viability is a concern...” (FSM 2670.5(19)). The Regional Forester’s list of Sensitive Species is periodically updated to reflect improved knowledge of species’ status and to focus on those species most at risk. The most recent Sensitive Species list was issued August 7, 2001. All species on that list that occur or potentially occur on the National Forests in Alabama are evaluated in this document (Tables V.1, V.2, V.3).

#### V. SENSITIVE SPECIES – TUSKEGEE NATIONAL FOREST

##### V.1. Terrestrial Animals:

| Scientific Name                       | Common Name                | Status <sup>1</sup> | Taxonomic Group | Tuskegee NF Distribution |
|---------------------------------------|----------------------------|---------------------|-----------------|--------------------------|
| <i>Pituophis melanoleucus mugitus</i> | Florida pine snake         | S                   | Reptile         | FP                       |
| <i>Ursus americanus floridanus</i>    | Florida black bear         | S                   | Mammal          | FP                       |
| <i>Corynorhinus rafinesquii</i>       | Rafinesque's big-eared bat | S                   | Mammal          | FP                       |
| <i>Myotis austroriparius</i>          | Southeastern myotis        | S                   | Mammal          | FP                       |
| <i>Aimophila aestivalis</i>           | Bachman's sparrow          | S                   | Bird            | F2                       |

FP=Forest Potential-No known occurrences, F1=0-5 Known Occurrences, F2=6-20 Known Occurrences, F3=21-100 Known Occurrences on Tuskegee NF

##### V.2. Plants:

| Scientific Name                                 | Common Name              | Status <sup>1</sup> | Taxonomic Group | Tuskegee NF Distribution                     |
|---|--------------------------|---------------------|-----------------|--|
| <i>Baptisia megacarpa</i>                       | Apalachicola wild indigo | S                   | Vasc. Plant     | Moist woodlands, ravine slopes, stream banks |
| <i>Hexastylis speciosa</i>                      | Harper's heartleaf       | S                   | Vasc. Plant     | Seeps, springs, moist woodlands              |
| <i>Hymenocallis caroliniana</i> (=H. coronaria) | Carolina spider lily     | S                   | Vasc. Plant     | Stream banks, moist woodlands, streams       |
| <i>Rudbeckia heliopsidis</i>                    | Sunfacing coneflower     | S                   | Vasc. Plant     | Transition from riparian to longleaf pine    |

##### V.3. Aquatic Animals

| Scientific Name               | Common Name       | Status <sup>1</sup> | Taxonomic Group | Tuskegee NF Distribution |
|-------------------------------|-------------------|---------------------|-----------------|--------------------------|
| <i>Crystallaria asperella</i> | Crystal darter    | S                   | Fish            | Rare                     |
| <i>Etheostoma parvapipe</i>   | Goldstripe darter | S                   | Fish            | Rare                     |
| <i>Etheostoma zonifer</i>     | Backwater darter  | S                   | Fish            | Rare                     |
| <i>Notropis uranoscopus</i>   | Skygazer shiner   | S                   | Fish            | Abundant                 |
| <i>Percina lenticula</i>      | Freckled darter   | S                   | Fish            | Sparse                   |
| <i>Anodontoides radiatus</i>  | Rayed creekshell  | S                   | Mussel          | Locally common           |

| Scientific Name                        | Common Name          | Status <sup>1</sup> | Taxonomic Group | Tuskegee NF Distribution |
|--|----------------------|---------------------|-----------------|--------------------------|
| <i>Lasmigona complanta alabamensis</i> | Alabama heelsplitter | S                   | Mussel          | Common                   |
| <i>Neurocordulia molesta</i>           | Smokey showdragon    | S                   | Insect          | Uncommon                 |

<sup>1</sup> Status: E = endangered; T = threatened; P = proposed; C = candidate; S = sensitive (2001 Regional Forester's List)

## VI. SPECIES EVALUATIONS AND DETERMINATIONS

Species evaluated are compiled from the Revised Forest Plan biological evaluation (USFS 2003e) of Regional Forester's Sensitive Species and from the 2001 Regional Forester's Sensitive Species List (USFS 2001) adapted to only those species known or likely to occur on Tuskegee National Forest.

In this section, each Sensitive Species is addressed individually in terms of 1) its status, distribution, and trend; 2) its habitat relationships and likely limiting factors; 3) potential effects of management; and 4) a determination of effect and supporting rationale.

Status, distribution, and trend information are based on a variety of sources that represent the best information currently available. It is expected that the quality of this information will be maintained or improved during Plan implementation, in compliance with FSM 2670.45(4), through inventory and monitoring programs.

Habitat relationships of Sensitive Species were defined during species viability evaluation for the EIS (for the 2004 Revision of Forest and Land and Resource Management Plan). Each terrestrial Sensitive Species was linked to habitat elements, and each aquatic Sensitive Species was linked to watersheds and key environmental factors. This biological evaluation is based on these habitat relationships. Risks from these habitat relationships are assessed, along with other non-habitat factors, to identify what are believed to be the most critical factors limiting populations.

The EA for Tuskegee NF Longleaf Restoration Project includes analysis of management effects to habitats important to Sensitive Species. Overall effects to habitats are disclosed, as is the general likelihood that activities conducted as part of Proposed Action implementation will directly impact individuals. The role of National Forest management activities in cumulative effects to the species is also addressed.

Determinations represent the overall expected effect of Proposed Action implementation on each Sensitive Species. Determinations in this document reflect the effect of National Forest management actions only. Because ecological sustainability, native ecosystem restoration, and species viability were one of the primary drivers used to define Forest Plan goals, objectives, and standards (implemented by the Proposed Action), it is expected that treatment effects to most Sensitive Species will be beneficial.

## VII. REGIONAL FORESTER'S SENSITIVE SPECIES

### VII.A. SENSITIVE TERRESTRIAL ANIMALS

#### Florida pine snake (*Pituophis melanoleucus mugitus*)

**Distribution, Status, and Trend**— This species is usually found in sandhill habitat where longleaf pine and scrub oaks are dominant and gopher tortoises and pocket gophers occur (Mirarchi et.al. 2004). In Alabama, this species is ranked as S2, *Imperiled*, and may intergrade with the black pine snake on the Conecuh National Forest, the only management unit of the National Forests in Alabama that with certainty is within the species' range. However, the species has been collected in Russell County, which borders Macon County to the east. Tuskegee NF has suitable habitats that continue to be managed to the benefit of this species (frequently burned uplands with woodland character). This species is not known to occur on Tuskegee NF. However the species is potentially found on Tuskegee NF, where it may intergrade with northern pine snakes. In either case, both northern pine snakes and Florida pine snakes were ranked as a Priority 2 (High Conservation Concern) species in the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

**Habitat Relationships and Limiting Factors**—Viability evaluation indicates this species uses a variety of habitat components including longleaf pine woodlands and savannas, xeric sandhills, and downed woody debris in remote areas where gopher tortoises and pocket gophers build burrows in deep sandy soils. Pine snakes feed on pocket gophers and use the burrows of pocket gophers and gopher tortoises for shelter. While pocketgophers and gopher tortoises are no longer known to occur on Tuskegee NF, public conservation lands such as National Forests are considered desirable and remote from human activities. Land use conversion, development, and commercial forestry are the primary reasons for range-wide declines as forest stands in a woodland or savanna condition and sandhill habitats have been lost (NatureServe Explorer 2003). Restoration and protection of gopher tortoise and pocket gopher habitat in longleaf pine woodlands and savannas, and xeric sandhill communities are necessary for species persistence.

**Potential Management Effects**— Revised Forest Plan standards provide optimal protection and management of xeric sandhill communities. Restoration management objectives for woodland and savanna structure in upland pine (especially longleaf pine) are included in the Proposed Action. Distribution and abundance of longleaf woodlands and savannas would be increased. Xeric sandhill community distribution is dictated by locations of deep sands, but they too would be improved by restoration fire regimes prescribed in the Proposed Action. This would result in improved potential habitat conditions for pine snakes as herbaceous communities increase and small mammal populations rise. As a result, habitat conditions for this species are expected to improve as a result of Proposed Action implementation; however source populations (of gopher tortoise, pocketgophers, and pine snakes) will remain the factor limiting colonization of isolated National Forest habitats. Cumulatively, many of these habitats on private lands have been lost, and those remaining are not likely to be treated so favorably,

making their presence and restoration on National Forest land increasingly important to this species.

**Determination and Rationale**— Implementation of the Proposed Action **may impact individuals (and provide habitat benefits), but is not likely to cause a trend toward listing or loss of viability.** Impacts to individuals are expected because the management actions that may cause mortality or habitat loss in the short-term (harvesting and burning) must be implemented in order to produce long-term benefits (woodland ecosystem restoration) to the species' population. Overall, implementation of the Proposed Action is expected to have beneficial effects to the preferred habitat of this species because disturbance-dependent habitats will be restored, and potential adverse effects to individuals (if present) will offset by greater benefit to the population.

### **Florida black bear (*Ursus americanus floridanus*)**

**Distribution, Status, and Trend**— The Florida black bear is a subspecies of the wide-ranging American black bear and occurs only in Florida and the coastal plain areas of Alabama and Georgia. The former candidate for federal listing was found in December of 1998 as not of merit for listing as endangered or threatened. The Service's status review determined that the population was sustainable at the estimated level of 1600 to 3000 individuals covering much of the species' original range, and residing on secure habitat in four areas: Apalachicola National Forest, Okefenokee National Wildlife Refuge and Osceola National Forest, Ocala National Forest, and Big Cypress National Preserve. In Alabama, about 377 sq km support an estimated population of less than 50 bears of the Florida subspecies in Baldwin and Mobile Counties. Alabama lists the nominate species as a game species with no open season, and it is ranked as S2, *Imperiled*. Occasional transient males of the nominate subspecies (American black bears) have been reported from almost every management unit of National Forests in Alabama. Although no female bears with established home ranges are known to occur on any of the National Forests in Alabama management units. The black bear (*Ursus americanus*) was ranked as a Priority 1 species by the second non-game wildlife conference and published in *Alabama Wildlife* (Mirarchi et.al. 2004).

**Habitat Relationships and Limiting Factors**—Viability evaluation indicates this species uses a variety of habitat components, including canebrakes, mature mesic hardwood forests, hard mast, den trees, and remote areas. Intense forestry practices involving even-aged timber management over a large area (at the landscape scale) probably reduce habitat suitability for bears. Large-scale winter burning may reduce food resources by reducing blueberry, runner oak and other soft-mast-producing plants. Summer burning may encourage desirable plant species (NatureServe Explorer 2003).

**Potential Management Effects**— The Proposed Action is subject to Forest Plan Standards, to be applied as mandatory mitigations. Revised Forest Plan Standards provide optimal protection and management for canebrakes. All den trees are protected from cutting by a Forest Plan Standard and are expected to increase in abundance over time. Distribution and abundance of mature mesic hardwood forests are not affected by the Proposed Action and would be

maintained. Public conservation lands such as National Forests are considered desirable and remote from human activities, notwithstanding necessary silvicultural treatments to sustain suitable to optimal habitat conditions. Habitat conditions for this species are expected to improve as a result of the Proposed Action implementation through restoration of canebrakes, native communities, and native fire regimes. Projects implemented in compliance with Forest Plan Standards present a discountable potential for direct impacts to individuals, because 1) bears are very mobile and occupy large home ranges, and can move during temporary disturbance associated with silvicultural activity, 2) harvest activities in mature mesic hardwood forests have not been proposed, and 3) the likelihood of species occurrence in the project area is low. Cumulatively, many of these habitats on private lands are not likely to be managed so favorably, making their presence on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action is expected to have **beneficial effects** to this species because: 1) protection and restoration measures for canebrakes 2) abundance and distribution of den trees and mature mesic hardwood forests are expected to improve or be maintained, and 3) potential for adversely impacting individuals is discountable.

### **Rafinesque's big-eared bat (*Corynorhinus rafinesquii*)**

**Distribution, Status, and Trend**— This species is widespread over the southern states, but generally at low densities and in scattered locations; it is thought to be declining in many areas (NatureServe Explorer, 2003). This species has not been documented on any management unit of the National Forests in Alabama, despite numerous attempts to find it during documentation of federally listed bat fauna. No individuals or roost sites are known for this species on Tuskegee NF. In Alabama this species is state ranked as S2, *Imperiled*. This species is ranked as a Priority 1 (Highest Conservation Concern) species in the recently published, *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

**Habitat Relationships and Limiting Factors**—Viability evaluation indicates this species uses a variety of habitat components, roosting in caves, hollow trees, and other structures, and foraging over open water and in riparian areas. Caves and open wetlands are the habitat components most likely to be limiting due to their rarity on the landscape. Protection of roosts from disturbance is a primary need (NatureServe Explorer 2003).

**Potential Management Effects**— The Proposed Action is subject to Forest Plan Standards, to be applied as mandatory mitigations. Revised Forest Plan Standards provide optimal protection and management for caves, wetlands, and lakeshores. All den trees are protected (through Forest Plan Standard) from cutting and are expected to increase in abundance over time. Distribution and abundance of late-successional riparian forests are not affected by the Proposed Actions and would be maintained. Habitat conditions for this species are expected to improve over time and are not affected by the Proposed Action. Proposed Actions implemented in compliance with Forest Plan Standards present a discountable potential for

direct impacts to individuals, because 1) potential roosting sites in caves and den trees are protected, 2) Proposed Action management activities in late-successional riparian forests will be limited to backing fires (aimed at upland habitats), and 3) the likelihood of species occurrence in any project area is low. Cumulatively, many of these habitats on private lands are not likely to be maintained or managed favorably, making their presence on National Forest land increasingly important to this species.

**Determination and Rationale**— Implementation of the Proposed Action **may impact individuals, but is not likely to cause a trend toward listing or loss of viability.** Overall, implementation of the Proposed Action is expected to have beneficial effects to the preferred habitat of this species because 1) protection measures for caves, den trees, and known roost sites are incorporated, 2) abundance and distribution of den trees and late-successional riparian forests are expected to improve or be maintained, and 3) potential for adversely impacting individuals is discountable. Negative effects to individuals are possible (though at immeasurable, insignificant, and discountable levels) however, overall long-term benefits are expected.

### **Southeastern bat (*Myotis austroriparius*)**

**Distribution, Status, and Trend**— The Southeastern bat, a former C-2 Federal Candidate, is principally a southeastern species that ranges from coastal North Carolina west to eastern Texas and southeastern Oklahoma. A large portion of the population apparently occurs in northern Florida in caves (NatureServe Explorer 2003). Apparently a 45-50 % decline occurred over the past 30-40 years with no sign of abatement. In Alabama, this species is state ranked as S2, *Imperiled*. The species is known from the southern edge of Alabama and is known to utilize a cave on Conecuh National Forest. No individuals of this species, or roosting sites for this species are known to exist on Tuskegee NF. For the Forest Plan revision viability analysis, this species was ranked F1 on the Conecuh NF, and FP on the Oakmulgee and Tuskegee units. This species is ranked as a Priority 2 (High Conservation Concern) species in the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

**Habitat Relationships and Limiting Factors**—This species has high vulnerability to devastation by large scale disasters, such as a regional flood event affecting several caves or roost trees simultaneously. Viability evaluation indicates this species uses a variety of habitat components, roosting in caves, hollow trees, and other structures, and foraging over open water and in riparian areas. Caves and open wetlands are the habitat components most likely to be limiting due to their rarity on the landscape. Protection of roosts from disturbance is a primary need (NatureServe Explorer 2003).

**Potential Management Effects**— The Proposed Action is subject to Forest Plan Standards, to be applied as mandatory mitigations. Revised Forest Plan Standards provide optimal protection and management for caves, wetlands, and lakeshores. All den trees are protected from cutting by a Forest Plan Standard and are expected to increase in abundance over time. Distribution and abundance of late-successional riparian forests are not affected by harvesting in the Proposed Action and will be maintained. Habitat conditions for this species are expected to remain the same or improve over time as a result of Proposed Action implementation.

Proposed Action treatments implemented in compliance with Forest Plan Standards present a discountable potential for direct impacts to individuals, because 1) known and potential roosting sites in caves and den trees are protected, 2) Proposed Action management activities in late-successional riparian forests will be limited to low-intensity backing fires (adjoining uplands are management target of prescribed burns), and 3) the likelihood of species occurrence in any project area is low. Cumulatively, many of these habitats on private lands are not likely to be managed so favorably, making their potential presence on National Forest land increasingly important to this species.

**Determination and Rationale**— Implementation of the Proposed Action **may impact individuals, but is not likely to cause a trend toward listing or loss of viability**. Overall, implementation of the Proposed Action is expected to have beneficial effects to the preferred habitat of this species because 1) protection measures for caves, den trees, and known roost sites are incorporated, 2) abundance and distribution of den trees and late-successional riparian forests are expected to improve or be maintained, and 3) potential for adversely impacting individuals is discountable. Negative effects to individuals are possible (though at immeasurable, insignificant, and discountable levels) however, overall long-term benefits are expected.

### **Bachman's sparrow (*Aimophila aestivalis*)**

**Distribution, Status, and Trend**— Once a common inhabitant of southern pine forests, this species is now very localized in its distribution. In Alabama, the Bachman's sparrow is ranked as an S3, *Vulnerable*, and is a Priority Species (Partners in Flight 2001) in each of the physiographic regions containing National Forests in Alabama management units. The species is known from point counts and bird surveys on the Talladega and Oakmulgee Divisions of the Talladega National Forest, and the Tuskegee and Conecuh National Forests. For the Forest Plan revision viability analysis this species was ranked as F2. This species is ranked as a Priority 2 (High Conservation Concern) species in the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

**Habitat Relationships and Limiting Factors**— Viability evaluation indicates this species uses open pine woods with a thick ground cover of native grasses, maintained by frequent growing season fires. These habitats are generally in longleaf pine stands with low tree densities. Woodland or savanna structures are preferred over densely timbered forest stands. Open woodland and savanna conditions maintained by thinning and growing season fires are the habitat components most likely to be limiting due to their rarity on the landscape across the southeast. Restoration of longleaf pine and management of mature and old-growth pine stands, especially longleaf and shortleaf, by thinning and growing season burning is a primary need (NatureServe Explorer 2003).

**Potential Management Effects**— The Proposed Action is subject to Forest Plan Standards, to be applied as mandatory mitigations. Forest Plan Standards provide ample opportunity for the restoration of native ecosystems, including longleaf pine ecosystems. The Proposed Action

includes treatments designed to achieve desired future conditions for restored woodland condition, longleaf ecosystems, and native fire regimes. Distribution and abundance of suitable restored woodlands and savannas should increase over existing levels through fulfillment of objectives in the revised Forest Plan for prescribed burning and woodland and savanna restoration. Efforts to restore longleaf pine stands, and woodlands and savannas, as provided in the revised Plan should provide increased habitat for this species. Activities used to achieve this restoration may disturb individuals in the short term, but improve habitat conditions and increase habitat quantity and continuity in the long run. However, these birds evolved in an ecosystem in which fires (and other disturbance) occur within breeding seasons, and any short-term losses that may occur are more than compensated for by the long-term improvement of landscape level habitat conditions. Improved population health is more critical than the loss of a few individuals (Partners in Flight 2001). Cumulatively, these habitats are not usually maintained on private lands, making their presence on National Forest land increasingly important to this species.

**Determination and Rationale**— Implementation of the Proposed Action **may impact individuals, but is not likely to cause a trend toward listing or loss of viability.** Impacts to individuals are expected because the management actions (harvest and burning) that may cause mortality or habitat loss in the short-term, must be implemented in order to produce long-term benefits to the species' population (woodland restoration). Overall, implementation of the Proposed Action is expected to have beneficial effects to the preferred habitat of this species because disturbance-dependent habitats will be restored, and adverse effects to individuals will be offset by greater benefit to the population afforded by increasing areas of suitable to optimal habitat for this species.

## **VII.B. SENSITIVE PLANTS**

Tuskegee National Forest lies at the edge of the Fall Line that demarcates the Upper Coastal Plain, in east central Alabama. Tuskegee occurs within the larger East Gulf Coastal Plain ecoregion. Sensitive and Locally Rare Plant Species evaluation for the Tuskegee National Forest included consideration of 150 rare plant species of the Coastal Plain of Alabama. Of these species, 16 plant species of viability concern (includes both Regional Forest's Sensitive plant Species and plant species considered to be locally rare) from the Coastal Plain of Alabama are known to occur on or near the Tuskegee National Forest.

### **VII. B. 1 Rare Community and Habitat Components**

For the purposes of this document, only sensitive and candidate species are directly addressed by at the species level. However, there are innumerable locally rare species or species of potential viability concern. Viability concern may be due to rarity on the landscape, loss of habitat, or potential poaching of the species for horticultural or medicinal uses. This locally rare plant list for the Tuskegee National Forest is based on coordination with numerous state and non-government agencies, as well as species inventories and known occurrences. As such it is constantly being updated, based on the most current information. To adequately evaluate potential management effects to locally rare species, these species were grouped by habitat

utilization and evaluated according to potential management effects on rare community or habitat components. Rare community and habitat components most commonly associated with Regional Forester Sensitive Species and Locally Rare species of plants will be briefly evaluated in this section.

Although no federally listed (Proposed, Threatened, Endangered Species) plant species were found during field surveys, potential Rare Community components were identified in proposed treatment stands. These will be monitored and evaluated for inclusion in the Rare Community Prescription (9F). Most rare plant species are uniquely tied to Rare Community habitats. Protection, maintenance or restoration treatments favoring Rare Community characteristics or habitat components within a stand may result in an improvement of local biodiversity and ecosystem condition by stimulating vegetative or flowering response from root stock or seeds that have lain dormant in the existing soil strata. The identification, management, and restoration of Rare Community components may prove crucial in maintaining or increasing suitable to optimal habitats for viability concern species.

Rare Communities, with the exception of rare forest types or conditions (Low Elevation Basic Mesic Forests, Pine Savannas and Woodlands, etc.) are usually small, discrete, and associated with a topographic feature embedded within the greater landscape of the stand. Potential Rare Community characters, though not substantiated by the discovery of numerous rare plant species during these field surveys, will be delineated on maps to monitor protection, restoration or maintenance effects of management. If restoration treatments produce a proliferating response from viability concern plant species, these areas may later be incorporated into the Rare Community Prescription (9F).

Potential Rare Community habitat components were found during botanical surveys in the following areas:

| <b>Comp.</b> | <b>Stand</b> | <b>Identified</b>  |
|--------------|--------------|--|
| 4            | 1            | Forested canebrake   |
| 4            | 14           | Coastal plain baygall and bayhead                            |
| 5            | 23           | Low elevation basic mesic forest (riparian portion of stand) |
| 5            | 27           | Forested canebrake (W), Xeric sandhill (middle)              |
| 5            | 4            | Xeric sandhill   |
| 8            | 11           | Xeric sandhill   |
| 8            | 10           | Forested canebrake (lower slope)                             |
| 8            | 22           | Xeric sandhill   |
| 8            | 8            | Forested canebrake   |
| 9            | 4            | Xeric sandhill   |
| 10           | 3            | Small stream forest (riparian portion of stand)              |

|  |          |  |
|--|----------|--|
| 11   | 8        | Low elevation basic mesic forest (riparian portion of stand) |
| 11   | 17       | Low elevation basic mesic forest (riparian portion of stand) |
| 13   | 7        | Small stream forest (riparian portion of stand)              |
| 13   | 10       | Small stream forest (riparian portion of stand)              |
| 13   | 30       | Springs and seeps (riparian portion of stand)                |
| 15   | 11       | Floodplain (riparian portion of stand)                       |
| 15   | 19       | Floodplain (riparian portion of stand)                       |
| <b>15</b>  | <b>8</b> | Tupelo/Cypress Swamp (riparian portion of stand)             |
| 15   | 5        | Xeric sandhill   |
| 15   | 14       | Springs and seeps (riparian portion of stand)                |
| 18   | 8        | Xeric sandhill   |
| 18   | 17       | Xeric sandhill   |
| <p><b>Rare Community types potentially occurring on Tuskegee NF are listed in Table 2.8 on Page 2-38 of the LRMP. With the exception of Xeric sandhill communities, these rare community components fall within the riparian or streamside management zone portion of the proposed treatment stands.</b></p> |          |  |

Proposed Actions emphasize upland longleaf community restoration, while maintaining mesic hardwood, xeric sandhills and other rare community components (mainly through riparian and streamside management zone protections) where they occur. Thus there will be a lower risk to Regional Forester’s Sensitive Species and locally rare plants because of the Proposed Action’s emphasis on restoring native communities, including woodland and savanna complexes.

**Woodlands, savannas and grasslands** are critical to maintaining rare plant species viability due to their present rarity on the landscape, their decline following European settlement due to fire suppression and land use conversion, and their unusual structure and species composition complexes. Several vascular plants are associated with the open, park-like structure and herbaceous layer of woodland and savanna communities. The preferred alternative will highlight this particular set of communities.

**Coastal Plain ponds and swamps and open wetlands** are critical to maintaining species viability due to their natural rarity on the landscape, their decline following European settlement due to drainage, fisheries management, and land use conversion, and the number of rare species associated with them. Forest Plan standards, Streamside Management Zone Standards, and provisions of the rare community prescription provide for optimal protection and management of all occurrences of these habitats under the Proposed Action and the action alternatives.

**Mature mesic hardwood forests** are critical to maintaining species viability because they are naturally limited to small portions of the landscape in Alabama by the combined effects of slope, aspect, soils, and natural disturbance and fire regimes. Historically, these habitats have been disproportionately converted to other land uses due to their fertility. The remaining mature mesic hardwood forests on National Forests therefore support large numbers of species of potential viability concern. These habitats are not

the target of management under the Proposed Action and the action alternatives. The Proposed Action and the action alternatives focus management treatments in upland pine stands.

Of key interest to conservation are habitats elements that are both associated with high risk to species viability, and for which management can reduce risk by improving abundance and distribution. For the Tuskegee these opportunities include **woodlands, savannas and grassland complexes, forested canebrakes, (low elevation basic) mature mesic hardwood forests, and early successional forests.**

**VII. B. 3. Regional Forester Sensitive Plant Species**

Botanical surveys were conducted in Proposed Action treatment stands during May, June and July of 2004 by the Forest Botanist/Ecologist. No federally listed species were found. Three Regional Forester’s Sensitive plant Species were found in three proposed treatment stands. One Locally Rare plant species was found to be present in one proposed treatment stand.

| Comp | Stand | Plant Species Found In Surveys | Status <sup>1</sup> | Element  |
|------|-------|--------------------------------|---------------------|--|
| 8    | 8     | Needlepalm                     | LR                  | Mature Mesic Hardwood Forests                    |
| 8    | 8     | Carolina Spider Lily           | RFSS                | Coastal Plain Ponds and Swamps and Open Wetlands |
| 8    | 10    | Sun-facing Coneflower          | RFSS                | Woodlands and Early-successional Forests         |
| 8    | 11    | Apalachicola Wild Indigo       | RFSS                | Early-successional Riparian and Open Wetlands    |

**1 – Status refers to the species’ status as a Regional Forester’s Sensitive Species (RFSS) or Locally Rare (LR).**

The majority of viability concern plant species found during surveys are associated with intact riparian or mesic communities.

**Direct Effects:** All sites were flagged and the EA contains proposals made to allow no herbicide use within stands containing rare plant species. No activities are to occur within Prescribed burning and thinning activities should be beneficial to the upland species, promoting crucial habitat needs. This may impact individuals, but is unlikely to cause a trend to federal listing.

**Indirect Effects:** Based on this information and distributional records there should be no indirect effects on the above sensitive species.

**Cumulative Effects:** Cumulative effects are those effects of future, State, local or private activities, not involving Federal activities that are reasonable expected to occur within the Federal action area subject to consultation (50 CFR, Part 402). Currently there are no known state, local or privately planned activities within or adjacent to the proposed project area which combined with the Proposed Action that would adversely affect any of the sensitive species listed above or their habitat.

**Apalachicola wild indigo (*Baptisia megacarpa*)**

This species has been ranked as an F1 and has been found on the Tuskegee. This species prefers moist shaded ravine slopes, streambanks, bluffs and rises in sandy bottoms. It is a SE coastal plain endemic, only found in southwest Georgia, north Florida and Alabama, which seems to be the center of the endemism.

It grows in light to deep shade, in fine sands or sandy loams; it is in sites that are rarely dry, receiving quite a bit of hydrological flow from the uplands, but neither do the sites commonly flood. It is normally associated with spring woodland forbs that require well-drained, moist substrates and disappear when the overstory is completely removed. It does not seem to tolerate disturbance or over-drying of the soils.

This species has a moderately high viability risk, due primarily to the scarcity on the landscape rather than any limiting factors inherently present in the habitat. Based upon this, the implementation of Alternative I **may impact individuals but is not likely to cause a trend toward federal listing or loss of viability.**

**Harper's heartleaf (*Hexastylis speciosa*)**

This species is known from less than 5 locations on the Oakmulgee. It is potentially found on Tuskegee NF. It is found in transitions from bog to baygall habitat, in bays and seepages as well as partial shade of evergreen thickets. The soils are permanently wet.

This species is impacted by fires coming through the landscape. However, this appears to have only a temporary impact on the species, especially since the primary reproduction is vegetative through root suckers.

Forest Plan Standards applied as mandatory mitigation to the Proposed Action (Riparian and SMZ protections), along with the focus of management treatments in upland pine stands, will adequately protect potential occurrences of this species. Based upon this and the fact that this species has not been documented on the district, not found during surveys of proposed treatment areas, the implementation of the Proposed Action will have **no impact** on Harper's heartleaf.

**Carolina spider lily (*Hymenocallis caroliniana*)**

This species was found on Tuskegee NF during botanical surveys in support of the Proposed Action. This species prefers river corridors, sandbanks, cobbles, stream scours and riparian habitat. It grows in light shade to open canopy on alluvial deposits and gravel. It has been

found on boulders and cobbles in the center of river courses. The main requirement is filtered sunlight and a constant water source.

This species has a moderately high viability risk, due primarily to the scarcity on the landscape as well as limiting factors inherently present in the habitat. However, Forest Plan Standards applied as mandatory mitigation to the Proposed Action (especially Riparian Corridor and Forest-wide SMZ Standards) should protect this species from potential effects of management. No treatments are proposed within streamchannels where this species is likely found. Prescribed fires may back into riparian areas. Implementation of the Proposed Action **may impact individuals but is not likely to cause a trend toward federal listing or loss of viability.**

### **Sun-facing coneflower (*Rudbeckia heliopsidis*)**

This species is rated as an F2 on the Tuskegee National Forest. It is an associate with longleaf pine forests, and open woodland or savannah settings as well as open early successional forest settings.

It occurs on dry sandy soils, slopes and in moderately open stands. The habitat plays a moderate to low role in limiting the viability of this species, currently at a high risk due to its lack of relative abundance, while management can mitigate this effect by playing a critical role in restoring habitat.

Regular use of fire and canopy removal, as in the Proposed Action, should prove beneficial to this species as well. Activities used to achieve this restoration may disturb individuals in the short run, but improve conditions in the long run. Because of its rarity, it is critical that proper identification and protection of known sites during project planning is completed for providing opportunities for population expansion.

Based upon this, the implementation of the Proposed Action **may impact individuals but is not likely to cause a trend toward federal listing or loss of viability**, and restoration management efforts may prove to have beneficial effects on this species.

## **VII.C. SENSITIVE AQUATIC ANIMALS**

**General Potential Management Effects** – In general, Forest Service management activities that could influence aquatic species would include actions that could increase sedimentation, siltation, or turbidity, change water flow, release toxic chemicals, adjust water chemistry or nutrient cycling, modify habitat structure, block fish passage, elevate temperatures, remove or alter streamside vegetation, or limit large woody debris. In some cases, direct effects of mechanical damage or mortality could also be within the realm of possibility. However, the Forest-wide, riparian, and streamside management zone standards of the revised Forest Plan

will minimize, if not avoid, all of these potential effects under any action alternative, including the proposed action.

For example, the revised Forest Plan contains numerous standards that will protect against sediment release during such management activities as prescribed burning, silviculture, or road and trail construction and maintenance. There could potentially be short-term and localized elevations in sediment run-off due to such Forest health activities as cutting or burning. However, such effects would be minimized to the extent that they would be cumulatively insignificant, especially when coupled with proactive restoration goals and objectives, and given the development and consideration of aquatic species and habitat conservation strategies. Also, increasing emphasis on upland and riparian forest health restoration would eventually lead to decreased background levels of sediments from erosion, a benefit to sediment sensitive aquatic species.

Likewise, Forest-wide standards and prescribed levels of activities would result in progress towards watershed restoration and consequently provide protection against adverse alterations in flow. Cumulatively there could be some alteration in run-off and hydrology due to watershed wide patterns of land use. However, under the proposed action, mitigated by Forest Plan Standards, flow-altering land uses are expected to be moderated, and on-Forest watershed conditions would continue to improve from historic conditions. The revised Forest Plan stipulates the use of protective measures and limitations on the extent and methods of vegetative removal, road and facility construction and maintenance, and soil compaction (numerous Forest-wide and watershed standards and objectives). Forest Service activities would therefore have minimal negative effects on the magnitude and duration of flood flows. Proposed actions also would have negligible effects on base levels of stream flow.

Full implementation of revised Forest Plan standards during Proposed Actions would minimize the potential for chemical contamination from Forest Service roads, equipment, and herbicide and pesticide use. The proposed actions will have minimal and eventually fully mitigated effects on stream channel structure due to standards of action applied to road and trail construction, maintenance, removal, and monitoring (USFS 2003a). Road stream crossings have the potential to indirectly affect aquatic species due to the limitations on the dispersion. However, roads are less likely to hamper movements of species that reside in larger mainstream habitat of the lower portions of the watersheds. Within these areas, bridges are in place to span the larger stream channels. But it is possible that road stream crossings within the upper tributaries are potential barriers for many aquatic species and it is not yet clear how population viability may or may not be tied to habitat availability throughout the watershed. Cumulatively, in most watersheds and for many aquatic species, the largest ongoing impact will continue to be from reservoirs downstream and on private in-holdings within Forest Service boundaries.

Forest Plan direction limits the removal of streamside vegetation to only those circumstances where it is necessary for pest control, public safety, or restoration of riparian dependant resources. New canopy openings may be created within riparian areas, but only for the restoration or enhancement of riparian dependant species. Silvicultural and prescribed burning techniques may be utilized within riparian areas in order to achieve the objective of up to 10%

of riparian areas in a non-forested condition and an additional 1-2% of riparian areas maintained as early successional forests.

Direct effects, such as mortality of juveniles or adults, are not expected to occur as a result of the proposed actions under the revised Forest Plan Standards. Direction in the revised Forest Plan will continue the current situation of limited Forest Service roads and motorized trails within the riparian and streamside management zones. Revised Forest Plan standards will minimize opportunities for mechanical damage due to vehicles or heavy equipment.

Implementation of protective standards will be monitored and adjusted as needed. Where needed to protect these species from potential adverse effects of management activities, project-level surveys would be conducted in accordance with procedures outlined in the Southern Region supplement of the Forest Service Manual (FSM 2672). Consequently, application of Forest Plan standards would minimize programmatic and project level effects and consideration of watershed restoration and species conservation priorities within project level planning would further minimize the likelihood of multiple and concurrent actions causing significant cumulative effects.

The revised Forest Plan Standards provide opportunities for proactive habitat restoration and aquatic species protection through consolidation of Forest ownership, contributions to recovery and conservation, participation in population and habitat enhancements and restoration, and commitment to ongoing surveys and monitoring. Forest-wide standards and prescribed levels of activities in the Proposed Action would continue progress towards watershed, riparian corridor, and aquatic habitat restoration. Watershed and native ecosystem restoration will lead to long-term reductions in erosion and sediment run-off into aquatic habitats. Restoration of native ecosystems and riparian corridors will generally lead to reduced siltation, improved habitat stability and complexity, decreasing water temperatures, and greater availability of large woody debris. Increasing emphasis on native ecosystem and habitat restoration and removal of barriers to aquatic species movements will be afforded through implementation of revised Forest Plan goals and objectives, achieved by project-level proposed actions. Therefore, Proposed Action implementation should be of benefit to the population viability of most aquatic species.

Species-specific effects are discussed in greater detail in the following sections organized alphabetically by scientific name within each of the major aquatic species taxonomic groups (amphibians, reptiles, fish, crayfish, mussels, snails, insects). Species evaluated are compiled from the Revised Forest Plan biological evaluation (USFS 2003e) of Regional Forester's Species and from the 2001 Regional Forester's Sensitive Species List (USFS 2001) adapted to only those species known or likely to occur on Tuskegee National Forest.

**Crystal darter (*Crystallaria asperella*)**

**Distribution, Status, and Trend**—The crystal darter is considered as at risk of population decline (“threatened”) according to the BE for the Forest and Land Management Plan Revision.

Globally the species is ranked as “vulnerable” (G3); within Alabama, the species is ranked as “vulnerable” (S3) (NatureServe 2003). This species has been identified as a priority 3 species of moderate concern (i.e. limited info &/or research needed) within the State of Alabama according to the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Crystal darters were once distributed throughout the Mississippi River basin and portions of the Mobile River Basin. It may also have historically occurred through smaller coastal river systems along the Gulf Coast. Today, it is thought to be extirpated from much of the upper Mississippi River basin in Ohio, Indiana, and Illinois, and the Coosa River in Alabama. It has also declined in occurrences within the Tombigbee, Black Warrior and Alabama Rivers. Currently, the species potentially inhabits six watersheds associated with the Conecuh and Tuskegee National Forests and the Oakmulgee Division of the Talladega National Forest (Table C.1). Crystal darters are not known to occur, but may be historic on several other National Forests within the southeast and Midwest. The National Forests represent approximately 5 percent of the species’ range within the State of Alabama. Crystal darters are generally disjunct in their distribution and rare in their abundance.

**Table C.1. Conditions of watersheds potentially supporting crystal darters in or within five miles of the Tuskegee National Forest.**

| Forest   | HUC code   | Watershed | Watershed Conditions |    |    |         |                | Viability    |              |                |  |
|----------|------------|-----------|----------------------|----|----|---------|----------------|--------------|--------------|----------------|--|
|          |            |           | FS                   | ag | an | Density | g <sup>1</sup> | <sup>2</sup> | <sup>3</sup> | <sup>4</sup> k |  |
| Tuskegee | 3150110070 | Uphapee   | 10                   | 38 | 5  | H       | A              | R            |              | SF             |  |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Crystal darters primarily inhabit deep (>60 cm) flowing currents over “clean” (i.e. relatively silt-free) sand-gravel substrates within depositional bars of small to medium rivers. Crystal darters are often found in association with large gravel where it is known to bury itself and hide during the day. They primarily reside within main river channels; however, they move into tributaries during flood events. At night, crystal darters may also move laterally into shallower waters. Diet includes a variety of aquatic insects. Spawning occurs in early spring. Crystal darters are thus sensitive to sedimentation, point-source pollution, altered flows, and barriers. According to the recent assessment of National Forest watersheds (RLRMP), Uphapee watershed exhibits combinations of indicators of potential impairment for sediment and water flow, with limited opportunities for National Forest management to improve conditions. Overall watershed conditions are rated as “average”.

**Potential Management Effects**— Potential Forest Service management activities that could influence crystal darters include any actions that could increase siltation, change water flow, release toxic chemicals, adjust water chemistry or nutrient cycling, or block fish passage. As discussed in the general effects section, such effects are unlikely given the protection measures that will be applied as Standards under the revised Forest Plan. There could potentially be short-term and localized elevations in sediment run-off due to such Forest health activities as

cutting or burning; however, mandatory application of Forest Plan standards would minimize the extent and magnitude of effects and full consideration of watershed restoration and species conservation priorities within project planning would further minimize the likelihood of multiple concurrent actions causing significant cumulative adverse effects. Existing watershed conditions would be expected to continue or improve. Therefore, Proposed Action implementation is unlikely to contribute to adverse impacts on this species.

Likewise, Forest-wide standards and proposed levels of activities would result in progress towards watershed and riparian corridor restoration. In all watersheds, implementation of the riparian prescription and streamside management zone standards is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in the Uphapee watershed. Moreover, Uphapee is an important watershed for several aquatic T&E species. However, overall watershed conditions are not likely to improve in Uphapee watershed, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service actions, off-Forest activities will undoubtedly continue to contribute to various forms of habitat degradation. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals, but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the crystal darter** because 1) Forest Plan standards applied as mandatory mitigations to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore watersheds and habitat, improve water quality, and remove barriers to movements, resulting in conservation of the species.

### **Goldstripe darter (*Etheostoma parvpinne*)**

**Distribution, Status, and Trend**—The goldstripe darter is considered “currently stable” according to RLRMP Biological Evaluation. Globally the species is ranked as “critically imperiled” (G1); within Alabama, the species is ranked as “critically imperiled” (S1) (NatureServe 2003). This species is ranked as a Priority 2 (High Conservation Concern) species in the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Goldstripe darters range throughout Gulf coast drainages from Texas to Florida and north into the lower Mississippi River basin. Within Alabama, it is distributed primarily below the fall line within the Mobile River basin and coastal drainages; however it is found in disjunct occurrences above the fall line, including within Clear Creek of the upper Black Warrior River basin. Currently, the species potentially inhabits 13 watersheds associated with the Conecuh, Bankhead, and Tuskegee National Forests and the Oakmulgee Division of the Talladega

National Forest (Table C.2). Goldstripe darters could possibly also occur on the Apalachicola and DeSoto National Forests in Florida and Mississippi. The National Forests represent approximately 10 percent of the species' range within the State of Alabama. Goldstripe darters are generally scattered in their distribution and rare in abundance.

**Table C.2. Conditions of watersheds potentially supporting goldstripe darters in or within five miles of the Tuskegee National Forests.**

| Forest   | HUC code   | Watershed | Watershed Conditions |      |     |              |                      | Viability           |     |                   |
|----------|------------|-----------|----------------------|------|-----|--------------|----------------------|---------------------|-----|-------------------|
|          |            |           | % FS                 | % ag | %un | Road Density | Ratting <sup>1</sup> | Status <sup>2</sup> | Ran | Risk <sup>4</sup> |
| Tuskegee | 3150110050 | Chewacla  | 1                    | 24   | 7   | L            | A                    | R                   |     | SPF               |
|          | 3150110070 | Uphapee   | 10                   | 38   | 5   | H            | A                    | R                   |     | SF                |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Goldstripe darters primarily inhabit clear sluggish currents over gravel, sand, or clay substrates within runs, pools, or riffles of small streams. Goldstripe darters are thus considered to be sensitive to siltation, turbidity, fluctuations in water temperature, point source pollution, altered flows, loss of aquatic or riparian vegetation, or loss of large woody debris. Chewacla and Uphapee watersheds exhibit combinations of indicators of potential impairment for sediment, point source pollution, and water flow, with limited opportunities for National Forest management to improve conditions. Therefore, Proposed Action implementation with Forest Plan Standards as mandatory mitigations, may affect individuals, but effects are not likely to be of a magnitude or duration to adversely affect the viability of the species.

**Potential Management Effects**— Potential Forest Service management activities that could influence goldstripe darters include any actions that could cause excessive siltation, increased turbidity, change water flow, release toxic chemicals, adjust water chemistry or nutrient cycling, modify habitat structure, block fish passage, elevate temperatures, remove or alter streamside vegetation, or limit large woody debris. As discussed in the general effects section, such effects are unlikely given the protection measures that will be applied under the revised Forest Plan. There could potentially be short-term and localized elevations in sediment run-off due to such Forest health activities as cutting or burning; however, application of Forest Plan standards would minimize the extent and magnitude of effects and full consideration of watershed restoration and species conservation priorities within project planning would further minimize the likelihood of multiple concurrent actions causing significant cumulative adverse effects. Existing average watershed conditions would be expected to continue or improve.

Likewise, Forest-wide standards and proposed levels of activities would result in progress towards watershed and riparian corridor restoration. In all watersheds, implementation of the riparian prescription and streamside management zone standards is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee Creek.

Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of habitat would likely be identified as a high priority when a conservation strategy is developed according to revised Forest Plan objectives. However, overall watershed conditions are not likely to improve in the Chewacla watershed, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service actions, off-Forest activities will undoubtedly continue to contribute to various forms of habitat degradation. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals, but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the goldstripe darter** because 1) Forest Plan standards applied as mandatory mitigation to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate potential negative effects of the proposed action so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore native ecosystems, watersheds and habitat, improve water quality, resulting in conservation of the species.

**Backwater darter (*Etheostoma zonifer*)**

**Distribution, Status, and Trend**—The backwater darter is considered “currently stable” according to RLRMP BE. Globally the species is ranked as “vulnerable” (G3G4); within Alabama, the species is ranked as “vulnerable” (S3) (NatureServe 2003). This species has been identified as a priority 3 species of moderate concern (i.e. limited info &/or research needed) within the State of Alabama according to the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Backwater darters are distributed below the fall line within the Alabama and Tombigbee River drainages of Alabama and Mississippi, and also in the Cowikee Creek and Chattahoochee River systems in Georgia. There are over 50 definable extant populations. Currently, the species potentially inhabits four watersheds associated with the Tuskegee National Forest (Table C.3). The National Forests in Alabama, cumulatively, represent approximately 10 percent of the species’ range within the State of Alabama. Backwater darters are endemic and limited in their distribution. Where found, they are rare and low in abundance.

**Table C.3. Conditions of watersheds potentially supporting backwater darters in or within five miles of the Tuskegee National Forest.**

| Forest   | HUC code   | Watershed | Watershed Conditions |      |        |              |                     | Viability           |                   |                   |
|----------|------------|-----------|----------------------|------|--------|--------------|---------------------|---------------------|-------------------|-------------------|
|          |            |           | % FS                 | % ag | %urban | Road Density | Rating <sup>1</sup> | Status <sup>2</sup> | Rank <sup>3</sup> | Risk <sup>4</sup> |
| Tuskegee | 3150110050 | Chewacla  | 1                    | 24   | 7      | L            | A                   | R                   |                   | SPF               |
|          | 3150110070 | Uphapee   | 10                   | 38   | 5      | H            | A                   | R                   |                   | SF                |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Backwater darters primarily inhabit turbid sluggish to stagnant currents over muddy substrates within runs and adjacent pools of small streams. This species is found in greatest abundance in association with high turbidity, high conductivity, and little to no aquatic vegetation. Backwater darters spawn March through June, depositing single eggs on small, submerged twigs and roots. Backwater darters are considered to be sensitive to loss of woody debris. Chewacla and Uphapee watersheds exhibit combinations of indicators of potential impairment for sediment, point source pollution, and water flow, with limited opportunities for National Forest management to improve conditions (Table C.3). Overall watershed conditions are rated as “average”.

**Potential Management Effects**— Potential Forest Service management activities that could influence backwater darters include any actions that could modify habitat structure, remove or alter streamside vegetation, or limit large woody debris. As discussed in the general effects section, such effects are unlikely given the protection measures that will be applied under the revised Forest Plan. Existing average watershed conditions would be expected to continue or improve. Therefore, proposed action implementation under Forest Plan Standards is unlikely to contribute to adverse impacts and may benefit this species.

Likewise, Forest-wide standards and proposed levels of activities would result in progress towards watershed and riparian corridor restoration. Implementation of the riparian prescription and streamside management zone standards is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee Creek. Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of habitat is a high priority. However, overall watershed conditions are not likely to improve in Chewacla watershed, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service actions, off-Forest activities will undoubtedly continue to contribute to various forms of habitat degradation. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the backwater darter** because 1) Forest Plan standards applied as mandatory mitigations to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore watersheds and habitat, improve water quality, and remove barriers to movements, resulting in conservation of the species.

**Skygazer shiner (*Notropis uranoscopus*)**

**Distribution, Status, and Trend**—The skygazer shiner is considered “currently stable” according to the Revised Land and Resource Management Plan Biological Evaluation. Globally the species is ranked as “imperiled” (G2); within Alabama, the species is ranked as “imperiled” (S2) (NatureServe 2003). This species is ranked as a Priority 2 (High Conservation Concern) species in the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Skygazer shiners are endemic to the Mobile River basin generally below the fall line in Alabama. Currently, the species potentially inhabits six watersheds associated with the Tuskegee National Forest and the Oakmulgee Division of the Talladega National Forest (Table C.4). Skygazer shiners are not known to occur on any other National Forest management units within the southeast or elsewhere in the United States. The National Forests represent approximately 5 percent of the species’ range within the State of Alabama. Skygazer shiners are endemic and limited in their distribution. Where encountered, they are generally found in moderate to high abundance.

**Table C.4. Conditions of watersheds potentially supporting skygazer shiners in or within five miles of the Tuskegee National Forest.**

| Forest   | HUC code   | Watershed | Watershed Conditions |      |         |              |                     | Viability           |                   |                   |
|----------|------------|-----------|----------------------|------|---------|--------------|---------------------|---------------------|-------------------|-------------------|
|          |            |           | % FS                 | % ag | % urban | Road Density | Rating <sup>1</sup> | Status <sup>2</sup> | Rank <sup>3</sup> | Risk <sup>4</sup> |
| Tuskegee | 3150110050 | Chewacla  | 1                    | 24   | 7       | L            | A                   | A                   |                   | SPF               |
|          | 3150110070 | Uphapee   | 10                   | 38   | 5       | H            | A                   | A                   |                   | <u>S</u> F        |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Skygazer shiners primarily inhabit shallow moderate to swift currents over sand-gravel substrates within shoals of large streams and rivers. Skygazer shiners are considered to be sensitive to siltation, point source pollution, and altered flows. The Chewacla and Uphapee watersheds exhibit combinations of indicators of potential impairment for sediment, point source pollution, and water flow, with limited opportunities for National Forest management to improve conditions (Table C.4). Overall watershed conditions are rated as “average” in the two watersheds.

**Potential Management Effects**— Potential Forest Service management activities that could influence skygazer shiners include any actions that could increase siltation, change water flow, release toxic chemicals, adjust water chemistry or nutrient cycling, modify habitat structure, or block fish passage. As discussed in the general effects section, such effects are unlikely given the protection measures that will be applied under the revised Forest Plan. There could potentially be short-term and localized elevations in sediment run-off due to such Forest health

activities as cutting or burning; however, mandatory application of Forest Plan standards would minimize the extent and magnitude of effects and full consideration of watershed restoration and species conservation priorities within project planning would further minimize the likelihood of multiple concurrent actions causing significant cumulative adverse effects. Existing average watershed conditions would be expected to continue or improve. Therefore, proposed action implementation may affect individuals, but effects are not likely to be of a magnitude or duration to adversely affect the viability of the species.

Likewise, Forest-wide standards and prescribed levels of activities would result in progress towards watershed and riparian corridor restoration. Restoration of native ecosystems and riparian corridors will generally lead to greater sediment and nutrient run-off buffering, reduced siltation, improved habitat stability and complexity, decreasing water temperatures, and greater availability of large woody debris. In all watersheds, implementation of the riparian prescription and streamside management zone standards is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee Creek. Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of habitat is a high priority. However, overall watershed conditions are not likely to improve in Chewacla watershed, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service actions, off-Forest land management activities will undoubtedly continue to contribute to various forms of habitat degradation. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals, but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the skygazer shiner** because 1) Forest Plan standards applied as mandatory mitigations to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) proposed action fosters actions that will restore watersheds and habitat and improve water quality, resulting in conservation of the species.

### **Freckled darter (*Percina lenticula*)**

**Distribution, Status, and Trend**—The freckled darter is considered at risk of population decline (“threatened”) according to Warren et al. (2000). Globally the species is ranked as “imperiled” (G2); within Alabama, the species is ranked as “vulnerable” (S3) (NatureServe 2003). This species has been identified as a priority 3 species of moderate concern (i.e. limited info &/or fairly secure) within the State of Alabama according to the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Freckled darters range from the Pearl River in Mississippi east to the Mobile River basin in Alabama, Mississippi, and Georgia. Historically, freckled darters probably ranged throughout

these drainages; however, their range is now limited to less than 20 extant populations within the Tombigbee, Cahaba, Tallapoosa, and Coosa River systems. Currently, the species potentially inhabits seven watersheds associated with the main and Oakmulgee Divisions of the Talladega National Forest and the Tuskegee National Forest (Table C.5). Freckled darters also occur on the Chattahoochee National Forest in Georgia. The National Forests represent approximately 10 percent of the species’ range within the State of Alabama. Freckled darters are generally clumped in their distribution. Where encountered, they are generally rare and in low abundance (ACDNR 2004).

**Table C.5. Conditions of watersheds potentially supporting freckled darters in or within five miles of the Tuskegee National Forest.**

| Forest   | HUC code   | Watershed | Watershed Conditions |    |          |         |   | Viability  |          |           |
|----------|------------|-----------|----------------------|----|----------|---------|---|------------|----------|-----------|
|          |            |           | FS                   | ag | rba<br>n | Density | g | Stat<br>us | Ran<br>k | Risk      |
| Tuskegee | 3150110050 | Chewacla  | 1                    | 24 | 7        | L       | A | S          |          | SPF       |
|          | 3150110070 | Uphapee   | 10                   | 38 | 5        | H       | A | S          |          | <u>SF</u> |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Freckled darters primarily inhabit deep swift currents over sand substrates within runs and rapids of main channel large streams and rivers. Freckled darters are considered to be sensitive to point source pollution, altered flows, and loss of large woody debris. According to the recent assessment of National Forest watersheds (Leftwich 2003), Chewacla and Uphapee exhibit combinations of indicators of potential impairment for sediment, point source pollution, and water flow, with limited opportunities for National Forest management to improve conditions. Watershed condition ratings (Clingenpeel 2003) are “average” in both watersheds of the Tuskegee. Proposed Action implementation is not expected to alter these conditions.

**Potential Management Effects**— Potential Forest Service management activities that could influence freckled darters include any actions that could increase sedimentation, siltation, or turbidity, change water flow, release toxic chemicals, adjust water chemistry or nutrient cycling, modify habitat structure, block fish passage, elevate temperatures, remove or alter streamside vegetation, or limit large woody debris. As discussed in the general effects section, such effects are unlikely under the Proposed Action given the Forest-wide and prescription-level Standards applied as mandatory protection measures. There could potentially be short-term and localized elevations in sediment run-off due to Proposed Action activities as cutting or burning; however, application of Forest Plan standards would minimize the extent and magnitude of effects and full consideration of watershed restoration and species conservation priorities within project planning would further minimize the likelihood of multiple concurrent actions causing significant cumulative adverse effects. Forest Service activities will not contribute to further watershed degradation, and may at least locally improve conditions.

Therefore, Proposed Action implementation may affect individuals, but effects are not likely to be of a magnitude or duration to adversely affect the viability of the species.

Likewise, Forest-wide standards and proposed action activities would result in progress towards watershed and riparian corridor restoration. Restoration of native ecosystems will generally lead to greater sediment and nutrient run-off buffering, reduced siltation, improved habitat stability and complexity, decreasing water temperatures, and greater availability of large woody debris. Implementation of the riparian prescription and streamside management zone standards is expected to improve watershed conditions. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee Creek. Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of native ecosystems has been identified as a high priority. However, overall watershed conditions are not likely to improve in the Uphapee and Chewacla watersheds, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service proposed actions, off-Forest silviculture, agriculture, and development will undoubtedly continue to contribute to various forms of habitat degradation. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals, but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the freckled darter** because 1) Forest Plan standards applied as mandatory mitigations to the proposed actions will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore watersheds and habitat, improve water quality, and remove barriers to movements, resulting in conservation of the species.

### **Rayed creekshell (*Anodontoides radiatus*)**

**Distribution, Status, and Trend**—The rayed creekshell is considered at risk of population decline according to the Revised Forest Land and Resource Management Plan biological evaluation. Globally the species is ranked as “vulnerable” (G3); within Alabama, the species is ranked as “critically imperiled” (S1S2) (NatureServe 2003). This species is ranked as a Priority 2 (High Conservation Concern) species in the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Rayed creekshells range throughout the Mobile River basin in Alabama, Mississippi, Georgia, and Tennessee and historically was in the Escambia River basin of Florida and Alabama (NatureServe 2003). Currently, the species potentially inhabits five watersheds associated with the Conecuh and Tuskegee National Forests and the Oakmulgee Division of the Talladega National Forest (Table C.6). The National Forests represent approximately 10 percent of the species’ range within the State of Alabama. Rayed creekshells are generally widespread in their distribution and locally common.

**Table C.6. Conditions of watersheds potentially supporting rayed creekshells in or within five miles of the Tuskegee National Forest.**

| Forest   | HUC code   | Watershed | Watershed Conditions |    |           |      |       | Viability |     |                   |
|----------|------------|-----------|----------------------|----|-----------|------|-------|-----------|-----|-------------------|
|          |            |           | %                    | %  | %u<br>rba | Road | Ratin | Status    | Ran | Risk <sup>4</sup> |
| Tuskegee | 3150110070 | Uphapee   | 10                   | 38 | 5         | H    | A     | L         |     | SF                |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Rayed creekshells primarily inhabit low to moderate gradient sluggish currents over mud-sand or gravel substrates within pools and riffles of small headwater streams and large rivers (ACDNR 2003, NatureServe 2003). Freshwater mussels are filter feeders taking organic detritus, diatoms, phytoplankton, and zooplankton from the water column. Rayed creekshells are thus considered to be sensitive to siltation, point source pollution, channel alterations, and altered flows (NatureServe 2003). According to the recent assessment of National Forest watersheds (Leftwich 2003), the Uphapee watershed shows indicators of potential impairment for sediment and water flow, with limited opportunities for National Forest management to improve conditions (Table C.6). The Uphapee overall watershed condition is rated as “average” (Clingenpeel 2003), a condition that will most likely continue under the proposed action.

**Potential Management Effects**— Potential Forest Service management activities that could influence rayed creekshells include any actions that could increase sedimentation, siltation, or turbidity, change water flow, release toxic chemicals, modify habitat structure, or block fish passage. As discussed in the general effects section, such effects are unlikely given the protection measures that will be applied under the proposed action, mitigated by mandatory Forest-wide and prescription level standards. There could potentially be short-term and localized elevations in sediment run-off due to such Forest health activities as cutting or burning; however, application of Forest Plan standards would minimize the extent and magnitude of effects and full consideration of watershed restoration and species conservation priorities within project planning would further minimize the likelihood of multiple concurrent actions causing significant cumulative adverse effects. Existing average watershed conditions would be expected to continue or improve. Therefore, Proposed Action implementation may affect individuals, but effects are not likely to be of a magnitude or duration to adversely affect the viability of the species.

Likewise, Forest-wide standards and prescribed levels of activities would result in progress towards watershed and native ecosystem restoration. Restoration of native ecosystems will generally lead to greater sediment and nutrient run-off buffering, reduced siltation, improved habitat stability and complexity, decreasing water temperatures, and greater availability of large woody debris. In all watersheds, implementation of the riparian prescription and

streamside management zone standards is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee Creek. Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of native ecosystems has been identified as a high priority. However, overall watershed conditions are not likely to improve, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service proposed actions, off-Forest silviculture, agriculture, and development will undoubtedly continue to contribute to various forms of habitat degradation, particularly within Chewacla and Uphapee where excessive siltation and altered flows has been identified as high viability concerns for aquatic species. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals, but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the rayed creekshell** because 1) Forest Plan standards applied as mandatory mitigations to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore watersheds and habitat, improve water quality, and remove barriers to movements, resulting in conservation of the species.

**Alabama heelsplitter (*Lasmigona complanta alabamensis*)**

**Distribution, Status, and Trend**—The Alabama heelsplitter is considered at risk of population decline according to the Revised Forest Land and Resource Management Plan biological evaluation of this species. Globally the species is ranked as “imperiled” (G2T2T3); within Alabama, the species is ranked as “critically imperiled” (S1) (NatureServe 2003). This species has been identified as a priority 3 species of moderate concern (i.e. limited info &/or fairly secure) within the State of Alabama according to the recently published *Alabama Wildlife* publication (Mirarchi, et. al. 2004).

Alabama heelsplitters are endemic to the Mobile River basin in Alabama, Georgia, and Mississippi. Within Alabama, it is found in the Cahaba, middle Alabama, Sipsey and Locust Fork drainages. Historically, Alabama heelsplitters ranged throughout most of the Mobile River tributaries. Currently, the species potentially inhabits three watersheds associated with the Tuskegee National Forest and the Oakmulgee Division of the Talladega National Forest (Table C.7). The National Forests represent less than 5 percent of the species’ range within the State of Alabama. Alabama heelsplitters are generally scattered in their distribution. Where encountered, they are fairly common (ACDNR 2004).

**Table C.7. Conditions of watersheds potentially supporting Alabama heelsplitters in or within five miles of the Tuskegee National Forest.**

| Forest | HUC code | Watershed | Watershed Conditions | Viability |
|--------|----------|-----------|----------------------|-----------|
|--------|----------|-----------|----------------------|-----------|

|          |            |          | %<br>FS | %<br>ag | %u<br>n | Road<br>Density | Ratin<br>g <sup>1</sup> | Status<br><sup>2</sup> | Ran<br>k <sup>3</sup> | Risk <sup>4</sup> |
|----------|------------|----------|---------|---------|---------|-----------------|-------------------------|------------------------|-----------------------|-------------------|
| Tuskegee | 3150110050 | Chewacla | 1       | 24      | 7       | L               | A                       | C                      |                       | SPF               |
|          | 3150110070 | Uphapee  | 10      | 38      | 5       | H               | A                       | C                      |                       | SF                |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average  
<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near  
<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)  
<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Information is lacking on this species (NatureServe 2003). Presumably this species inhabits tributary streams and small to medium sized rivers. Freshwater mussels are filter feeders taking organic detritus, diatoms, phytoplankton, and zooplankton from the water column. Alabama heelsplitters are considered to be sensitive to siltation, point source pollution, and altered flows. According to the recent assessment of National Forest watersheds (Leftwich 2003), Chewacla and Uphapee watersheds exhibit combinations of indicators of potential impairment for sediment, point source pollution, and water flow, with limited opportunities for National Forest management to improve conditions (Table C.7). These two watersheds Overall watershed conditions are rated as “average” (Clingenpeel 2003), a condition that will most likely continue under the proposed action.

**Potential Management Effects**— Potential Forest Service management activities that could influence Alabama heelsplitters include any actions that could increase sedimentation, siltation, or turbidity, change water flow, release toxic chemicals, adjust water chemistry or nutrient cycling, modify habitat structure, or block fish passage. As discussed in the general effects section, such effects are unlikely given the protection measures that will be applied under the proposed action. There could potentially be short-term and localized elevations in sediment run-off due to such Forest health activities as cutting or burning; however, application of Forest Plan standards as mandatory mitigation of the Proposed Action would minimize the extent and magnitude of effects and full consideration of watershed restoration and species conservation priorities within project planning would further minimize the likelihood of multiple concurrent actions causing significant cumulative adverse effects. Existing watershed conditions would be expected to continue or improve. Therefore, Proposed Action implementation may affect individuals, but effects are not likely to be of a magnitude or duration to adversely affect the viability of the species.

Likewise, Forest-wide standards and prescribed levels of activities would result in progress towards watershed and native ecosystem restoration. Restoration of native ecosystems will generally lead to greater sediment and nutrient run-off buffering, reduced siltation, improved habitat stability and complexity, decreasing water temperatures, and greater availability of large woody debris. In all watersheds, implementation of the riparian prescription and streamside management zone standards while restoring native ecosystems is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee

Creek. Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of native ecosystems has been identified as a high priority. However, overall watershed conditions are not likely to improve in the Chewacla and Uphapee watersheds, as these risk conditions will continue to be caused by off-Forest factors beyond Forest Service control. Regardless of Forest Service proposed actions, off-Forest silviculture, agriculture, and development will undoubtedly continue to contribute to various forms of habitat degradation, particularly within Chewacla and Uphapee watersheds where excessive siltation and altered flows have been identified as high viability concerns for aquatic species. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **may impact individuals, but is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the Alabama heelsplitter** because 1) Forest Plan standards applied as mandatory mitigations to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore watersheds and habitat, improve water quality, and remove barriers to movements, resulting in conservation of the species.

**Smokey showdragon (*Neurocordulia molesta*)**

**Distribution, Status, and Trend**—This species was evaluated in the Revised Forest Land and Resource Management Plan biological evaluation. Globally this dragonfly species is ranked as “vulnerable” (G3G4); within Alabama, the species is ranked as “vulnerable” (S3) (NatureServe 2003).

Smokey showdragons range across eastern North America (NatureServe 2003). Within Alabama they are known from Baldwin, Colbert, Elmore, Greene, Jackson, Lauderdale, Monroe, Perry, Sumter, and Tuscaloosa Counties. They have been collected on the Tuskegee National Forest. Currently, the species potentially inhabits two watersheds associated with the Tuskegee National Forest (Table C.8). Smokey showdragons may occur on several other National Forest management units elsewhere in the United States. The National Forests represent an unknown percent of the species’ range within the State of Alabama. Smokey showdragons are generally uncommon in their abundance but they may be locally common within some areas.

**Table C.8. Conditions of watersheds potentially supporting smokey showdragons in or within five miles of the National Forests in Alabama.**

| Forest   | HUC code   | Watershed | Watershed Conditions |      |      |              |                     | Viability           |                    |                   |
|----------|------------|-----------|----------------------|------|------|--------------|---------------------|---------------------|--------------------|-------------------|
|          |            |           | % FS                 | % ag | %u n | Road Density | Ratinf <sup>1</sup> | Status <sup>2</sup> | Ran k <sup>3</sup> | Risk <sup>4</sup> |
| Tuskegee | 3150110050 | Chewacla  | 1                    | 24   | 7    | L            | A                   | p                   | F1                 | SPF               |
|          | 3150110070 | Uphapee   | 10                   | 38   | 5    | H            | A                   | U                   |                    | SF                |

<sup>1</sup> Based on sediment load relative to other NF watersheds: E= excellent, A= average, BA= below average

<sup>2</sup> H= historical, P= potential, A= abundant, C= common, L= locally rare, U= uncommon, R= rare, S= sparse, N= near

<sup>3</sup> Terrestrial Rank: F1= critically imperiled (very high risk), F2= imperiled (high risk), F3= vulnerable (moderate risk)

<sup>4</sup> Sources of potential impairment and moderate-high risk: S= sediment, P= point-source pollution, T= thermal, F = flow

**Habitat Relationships and Limiting Factors**—Smokey showdragons primarily inhabit large streams and rivers (NatureServe 2003). This species is found in greatest abundance in association with rocks and large woody debris (NatureServe 2003). They are intolerant of pollution, and insecticides. Most dragonfly species require ample aquatic and emergent vegetation during their aquatic phase. Dragonflies generally complete a multi-year life cycle including variable periods as terrestrial flying adults; during this period they may forage away from aquatic habitats within forested floodplains, forest edges, or upland ridges. Some species also require a patchwork of open and forested areas, favoring forest edges and sunny patches over streams. Population viability may be dependant on connective corridors of quality riparian and terrestrial habitats. Consequently, smokey showdragons may be sensitive to point source pollution, reduction in large woody debris, or loss or modification of aquatic or riparian vegetation (NatureServe 2003). According to the recent assessment of National Forest watersheds (Leftwich 2003), both Chewacla and Uphapee watersheds exhibit combinations of indicators of potential impairment for sediment, point source pollution, and water flow with limited opportunities for National Forest management to improve conditions. Overall watershed conditions are rated as “average” in both of the watersheds (Clingenpeel 2003) and these conditions will most likely continue under the proposed action.

**Potential Management Effects**— Potential Forest Service management activities that could influence smokey showdragons include any actions that could release toxic chemicals, remove or alter aquatic and riparian vegetation, or limit large woody debris. As discussed in the general effects section, such effects are unlikely given the mandatory protection measures that will be applied to the Proposed Action under the revised Forest Plan. Existing watershed conditions would be expected to continue or improve. Also, the strengthened riparian (prescription 12) and rare community (prescription 9F) standards would provide additional protection for the river channel and terrace habitats important to this species. Species viability risks will remain constant, primarily due to the rarity of the supporting habitats and the continued elevated risks to off-Forest habitats. Therefore, Proposed Action implementation is unlikely to contribute to adverse impacts and may benefit this species.

Likewise, Forest-wide standards and prescribed levels of activities would result in progress towards watershed and native ecosystem restoration. Restoration of native ecosystems will generally lead to greater sediment and nutrient run-off buffering, reduced siltation, improved habitat stability and complexity, decreasing water temperatures, and greater availability of large woody debris. In all watersheds, implementation of the riparian prescription and streamside management zone standards is expected to improve conditions at local sites where this species occurs. Forest Service restoration activities may also be able to influence and contribute to improved watershed conditions in Uphapee Creek. Moreover, Uphapee is an important watershed for several aquatic T&E species and consequently, protection and restoration of native ecosystems has been identified as a high priority. However, overall

watershed conditions are not likely to improve in the Chewacla watershed, as these conditions will continue to be caused by off-Forest factors beyond Forest Service control. Cumulatively, many of the habitats on private lands are currently in a degraded state, making presence of quality habitats on National Forest land increasingly important to this species.

**Determination and Rationale**—Overall, implementation of the Proposed Action **is likely to be beneficial and is not likely to cause a trend towards federal listing or loss of viability for the smokey showdragon** because 1) Forest Plan standards applied as mandatory mitigation to the Proposed Action will provide protective measures which will avoid or minimize and fully mitigate negative effects so that they are insignificant and discountable to the viability of the populations and the species, and 2) Forest Plan direction encourages actions that will restore watersheds and habitat, and improve water quality, resulting in conservation of the species.

**VIII. CONSOLIDATED LIST OF SENSITIVE SPECIES WITH DETERMINATIONS**

**Table VIII.1. Determinations for Tuskegee Longleaf Restoration Project - Terrestrial Animals.**

| Scientific Name                       | Common Name                | Determination of Effects   |
|---------------------------------------|----------------------------|--|
| <i>Pituophis melanoleucus mugitus</i> | Florida pine snake         | may impact individuals but not likely to cause a trend toward listing or a loss of viability |
| <i>Ursus americanus floridanus</i>    | Florida black bear         | Beneficial effects   |
| <i>Corynorhinus rafinesquii</i>       | Rafinesque's big-eared bat | may impact individuals but not likely to cause a trend toward listing or a loss of viability |
| <i>Myotis austroriparius</i>          | Southeastern myotis        | may impact individuals but not likely to cause a trend toward listing or a loss of viability |
| <i>Aimophila aestivalis</i>           | Bachman's sparrow          | may impact individuals but not likely to cause a trend toward listing or a loss of viability |

**Table VIII.2. Determinations for Tuskegee Longleaf Restoration Project - Plants.**

| Scientific Name                                 | Common Name              | Determination of Effects   |
|---|--------------------------|--|
| <i>Baptisia megacarpa</i>                       | Apalachicola wild indigo | may impact individuals but not likely to cause a trend toward listing or a loss of viability                     |
| <i>Hexastylis speciosa</i>                      | Harper's heartleaf       | No impact  |
| <i>Hymenocallis caroliniana</i> (=H. coronaria) | Carolina spider lily     | may impact individuals but not likely to cause a trend toward listing or a loss of viability                     |
| <i>Rudbeckia heliopsidis</i>                    | Sunfacing coneflower     | may impact individuals but not likely to cause a trend toward listing or a loss of viability; beneficial effects |

**Table VIII.3. Determinations for Tuskegee Longleaf Restoration Project - Aquatic Animals.**

| Scientific Name               | Common Name       | Determination of Effects   |
|-------------------------------|-------------------|--|
| <i>Crystallaria asperella</i> | Crystal darter    | may impact individuals but not likely to cause a trend toward listing or a loss of viability |
| <i>Etheostoma parvapiinne</i> | Goldstripe darter | may impact individuals but not likely to cause a trend toward listing or a loss of viability |

| Scientific Name                        | Common Name          | Determination of Effects  |
|--|----------------------|---|
| <i>Etheostoma zonifer</i>              | Backwater darter     | <b>beneficial impacts</b>   |
| <i>Notropis uranoscopus</i>            | Skygazer shiner      | <b>may impact individuals but not likely to cause a trend toward listing or a loss of viability</b> |
| <i>Percina lenticula</i>               | Freckled darter      | <b>may impact individuals but not likely to cause a trend toward listing or a loss of viability</b> |
| <i>Anodontooides radiatus</i>          | Rayed creekshell     | <b>may impact individuals but not likely to cause a trend toward listing or a loss of viability</b> |
| <i>Lasmigona complanta alabamensis</i> | Alabama heelsplitter | <b>may impact individuals but not likely to cause a trend toward listing or a loss of viability</b> |
| <i>Neurocordulia molesta</i>           | Smokey showdragon    | <b>may impact individuals but not likely to cause a trend toward listing or a loss of viability</b> |

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