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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

[Docket No. FWS–R4–ES–2013–0086]

[4500030114]

RIN 1018-AZ60

**Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Physaria globosa* (Short’s bladderpod), *Helianthus verticillatus* (whorled sunflower), and *Leavenworthia crassa* (fleshy-fruit gladeceess)**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service, propose to designate critical habitat for *Physaria globosa* (Short’s bladderpod), *Helianthus verticillatus* (whorled sunflower), and *Leavenworthia crassa* (fleshy-fruit gladeceess) under the Endangered Species Act of 1973, as amended (Act). If we finalize this rule as proposed, it would extend the Act’s protections to the

habitats of *Physaria globosa* (Short's bladderpod), *Helianthus verticillatus* (whorled sunflower), and *Leavenworthia crassa* (fleshy-fruit glade cress) to conserve these habitats under the Act.

**DATES:** We will accept comments received or postmarked on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES** section, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal: <http://www.regulations.gov>. In the Search field, enter Docket No. FWS-R4-ES-2013-0086, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on "Comment Now!"

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS-R4-ES-2013-0086; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042-PDM; Arlington, VA 22203.

We request that you send comments **only** by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any

personal information you provide us (see the **Information Requested** section below for more information).

The coordinates or plot points or both from which the maps are generated are included in the administrative record for this critical habitat designation and are available at <http://www.fws.gov/cookeville>, at <http://www.regulations.gov> at Docket No. FWS–R4–ES–2013–0086, and at the Tennessee Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for this critical habitat designation will also be available at the Fish and Wildlife Service website and Field Office set out above, and may also be included in the preamble and/or at <http://www.regulations.gov>.

**FOR FURTHER INFORMATION CONTACT:** Mary E. Jennings, Field Supervisor, U.S. Fish and Wildlife Service, Tennessee Ecological Services Fish and Wildlife Office, 446 Neal Street, Cookeville, TN 38501; telephone 931-528-6481. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

#### **SUPPLEMENTARY INFORMATION:**

##### **Executive Summary**

**Why we need to publish a rule.** Critical habitat shall be designated, to the maximum extent prudent and determinable, for any species determined to be an endangered or threatened species

under the Act. Designations and revisions of critical habitat can only be completed by issuing a rule. Elsewhere in today's **Federal Register**, we propose to list *Physaria globosa* (Short's bladderpod), *Helianthus verticillatus* (whorled sunflower), and *Leavenworthia crassa* (fleshy-fruit gladeceess) as endangered species under the Act.

**This rule consists of** a proposed critical habitat designation for *Physaria globosa* (Short's bladderpod), *Helianthus verticillatus* (whorled sunflower), and *Leavenworthia crassa* (fleshy-fruit gladeceess) under the Act.

**The basis for our action.** Under the Act, to the maximum extent prudent and determinable, we must designate critical habitat for a species concurrently with listing the species as endangered or threatened. These three plant species are proposed for listing as endangered, and therefore we also propose to:

- Designate approximately 373 hectares (ha) (925.5 acres (ac)) of critical habitat for Short's bladderpod in Posey County, Indiana; Clark, Franklin, and Woodford Counties, Kentucky; and Cheatham, Davidson, Dickson, Jackson, Montgomery, Smith, and Trousdale Counties, Tennessee.
- Designate approximately 624 ha (1,542 ac) of critical habitat for whorled sunflower in Cherokee County, Alabama; Floyd County, Georgia; and Madison and McNairy Counties, Tennessee.
- Designate approximately 8.4 ha (20.5 ac) of critical habitat for fleshy-fruit gladeceess in Lawrence and Morgan Counties, Alabama.

**We will seek peer review.** We are seeking comments from independent specialists to ensure that our critical habitat proposal is based on scientifically sound data and analyses. We have invited these peer reviewers to comment on our specific assumptions and conclusions in this critical habitat proposal. Because we will consider all comments and information we receive during the comment period, our final determinations may differ from this proposal.

### **Information Requested**

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible.

Therefore, we request comments or information from other concerned government agencies, the scientific community, industry, or any other interested party concerning this proposed rule. We particularly seek comments concerning:

(1) The reasons why we should or should not designate habitat as “critical habitat” under section 4 of the Act including whether there are threats to the species from human activity, the degree of which can be expected to increase due to the designation, and whether that increase in threat outweighs the benefit of designation such that the designation of critical habitat may not be prudent.

(2) Specific information on:

(a) The amount and distribution of Short’s bladderpod, whorled sunflower, or fleshy-fruit gladecress habitat;

(b) What areas, that were occupied at the time of listing (or are currently occupied) and

that contain features essential to the conservation of the species, should be included in the designation and why;

(c) Special management considerations or protection that may be needed in critical habitat areas we are proposing, including managing for the potential effects of climate change; and

(d) What areas not occupied at the time of listing are essential for the conservation of the species and why.

(3) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(4) Information on the projected and reasonably likely impacts of climate change on Short's bladderpod, whorled sunflower, fleshy-fruit gladececess, and proposed critical habitat.

(5) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation; in particular, we seek information on any impacts on small entities or families, and the benefits of including or excluding areas that exhibit these impacts.

(6) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act.

(7) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

You may submit your comments and materials concerning this proposed rule by one of

the methods listed in **ADDRESSES**. We request that you send comments **only** by the methods described in the **ADDRESSES** section.

We will post your entire comment—including your personal identifying information—on <http://www.regulations.gov>. You may request at the top of your document that we withhold personal information such as your street address, phone number, or e-mail address from public review; however, we cannot guarantee that we will be able to do so.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Tennessee Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Previous Federal Actions.**

All previous Federal actions are described in the proposed rule to list Short's bladderpod, whorled sunflower, and fleshy-fruit gladeceess as endangered species under the Act, published elsewhere in today's **Federal Register**.

### **Background**

It is our intent to discuss below only those topics directly relevant to the designation of critical habitat for Short's bladderpod, whorled sunflower, and the fleshy-fruit gladeceess. For information related to the listing of these species, see the proposed rule to list these species as endangered, published elsewhere in today's **Federal Register**.

## **Critical Habitat**

### *Background*

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographic area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features:

- (a) Essential to the conservation of the species, and
- (b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the

government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is

listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. Climate change will be a particular challenge for biodiversity because the interaction of additional

stressors associated with climate change and current stressors may push species beyond their ability to survive (Lovejoy 2005, pp. 325-326). The synergistic implications of climate change and habitat fragmentation are the most threatening facet of climate change for biodiversity (Hannah and Lovejoy 2005, p.4). Current climate change predictions for terrestrial areas in the Northern Hemisphere indicate warmer air temperatures, more intense precipitation events, and increased summer continental drying (Field *et al.* 1999, pp. 1-3; Hayhoe *et al.* 2004, p. 12422; Cayan *et al.* 2005, p. 6; Intergovernmental Panel on Climate Change (IPCC) 2007, p. 1181). Climate change may lead to increased frequency and duration of severe storms and droughts (Golladay *et al.* 2004, p. 504; McLaughlin *et al.* 2002, p. 6074; Cook *et al.* 2004, p. 1015).

We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) section 9 of the Act's prohibitions on taking any individual of the species, including taking caused by actions that affect habitat. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the

direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

### *Prudency Determination*

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist:

(1) The species is threatened by taking, collection, or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or

(2) Such designation of critical habitat would not be beneficial to the species.

There is currently no imminent threat of take attributed to collection or vandalism for any of these species (see the Factor B analysis in the proposed listing rule, published elsewhere in today's **Federal Register**), and identification and mapping of critical habitat is not expected to initiate any such threat. In the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, then a prudent finding is warranted. Here, the potential benefits of designation include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus where it would not otherwise occur because, for example, it is or has become unoccupied

or the occupancy is in question; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the species. Therefore, because we have determined that the designation of critical habitat will not likely increase the degree of threat to the species and may provide some measure of benefit, we find that designation of critical habitat is prudent for Short's bladderpod, whorled sunflower, and fleshy-fruit gladeceess.

#### *Critical Habitat Determinability*

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the three species is determinable. Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

- (i) Information sufficient to perform required analyses of the impacts of the designation is lacking, or
- (ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where these species are located. This and other information represent the best scientific data available and have led us to conclude that the designation of critical habitat is determinable for Short's bladderpod, whorled sunflower, and fleshy-fruit gladeceess.

### *Physical or Biological Features*

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

- (1) Space for individual and population growth and for normal behavior;
- (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and
- (5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

We derive the specific physical or biological features required for Short's bladderpod, whorled sunflower, and fleshy-fruit gladececrop from studies of these species' habitats, ecology, and life history as described below.

#### Space for Individual and Population Growth and for Normal Behavior

*Short's bladderpod.* This species occurs in Kentucky and Tennessee on soils and outcrops of calcareous geologic formations along the mainstem or tributaries of the Kentucky and Cumberland Rivers, respectively. The calcareous bedrock formations on which Short's

bladderpod primarily is found are limestones of Mississippian, Silurian, or Ordovician age, with siltstone or shale interbedded at some occurrences (Kentucky Geological Survey, <http://www.arcgis.com/home/item.html?id=d32dc6edbf9245cdbac3fd7e255d3974>; Moore *et al.* 1967; Wilson 1972, 1975, 1979; Wilson *et al.* 1972, 1980; Marsh *et al.* 1973; Finlayson *et al.* 1980; Kerrigan and Wilson 2002). Soils where Short's bladderpod occurs in the Kentucky and Cumberland River drainages have formed from weathering of the underlying calcareous bedrock formations, producing shallow or rocky, well-drained soils in which bedrock outcrops are common (USDA 1975, pp. 12-17; USDA 1981, pp. 46-47; USDA 1985, p. 64.; USDA 2001, pp. 19-20, 28, 59, 64; USDA 2004a, pp. 22-23, 36-37, 83, 87; USDA 2004b, pp. 21, 75, 82). The species inhabits these outcrops and soils where they occur on steeply sloped bluffs or hillsides, primarily with a south- to west-facing aspect (Shea 1993, p. 16). The combination of calcareous outcrops and shallow soils, steep slopes, and hot and dry conditions present on south- to west-facing slopes regulates the encroachment of herbaceous and woody species that exclude Short's bladderpod from vegetation communities present on more mesic sites. Where these conditions occur near the mainstem and tributaries of the Kentucky River in Kentucky and Cumberland River in Tennessee, they provide space for Short's bladderpod's individual and population growth.

Therefore, based on the above information, we identify steeply sloped hillsides or bluffs with calcareous outcrops or shallow or rocky, well-drained soils, typically on south- to west-facing aspects as an essential physical or biological feature for this species.

*Whorled sunflower.* This species occurs in remnant prairie habitats found in uplands and swales of headwater streams in the Coosa River watershed in Georgia and Alabama and in the

East Fork Forked Deer and Tuscumbia Rivers' watersheds in Tennessee. The soil types are silt loams, silty clay loams, and fine sandy loams at the sites where whorled sunflower occurs. These soils share the characteristics of being strongly to extremely acidic and having low to moderate natural fertility and low to medium organic matter content (USDA 1997, pp. 73-76; USDA 1978a, pp. 24-54; USDA 1978b, p. 20; USDA 1978c, p. 44). The silt loams occupy various land forms ranging from broad upland ridges to low stream terraces. These soils formed from weathered limestone or shale (USDA 1978a, pp. 24-54) or in alluvium (clay, silt, sand, gravel, or similar material deposited by running water) derived from loess (predominantly silt-sized sediment, which is formed by the accumulation of wind-blown dust) and are moderately well-drained to well-drained. The silty clay loams formed in alluvium or weathered limestone on floodplains, stream terraces, or upland depressions and are poorly drained. The fine sandy loams are on floodplains and are occasionally flooded during winter and early spring. Where these physical features occur within the headwaters of the Coosa River in Alabama and Georgia and the East Fork Forked Deer and Tuscumbia Rivers in Tennessee, they provide space for the whorled sunflower's individual and population growth.

Therefore, based on the information above, we identify silt loam, silty clay loam, or fine sandy loam soils on land forms including broad uplands, depressions, stream terraces, and floodplains as an essential physical or biological feature for this species.

*Fleshy-fruit gladecress*. This species is endemic to glade communities associated with limestone outcrops in Lawrence and Morgan Counties, Alabama (Rollins 1963). The terms glade and cedar glades refer to shallow-soiled, open areas that are dominated by herbaceous plants and characterized by exposed sheets of limestone or gravel, with *Juniperus virginiana*

(eastern red cedar) frequently occurring in the deeper soils along their edges (Hilton 1997, p. 1; Baskin *et al.* 1986, p. 138; Baskin and Baskin 1985, p. 1). Much of the cedar glade habitat in northern Alabama is in a degraded condition, and populations of fleshy-fruit gladecress, in many cases, persist in glade-like remnants exhibiting various degrees of disturbance including pastures, roadside rights-of-way, and cultivated or plowed fields (Hilton 1997, p. 5). The limestone outcrops, gravel, and shallow soils present in cedar glades and glade-like remnants provide space for individual and population growth of fleshy-fruit gladecress by regulating the encroachment of herbaceous and woody vegetation that would exclude fleshy-fruit gladecress from plant communities found on deeper soils.

Therefore, based on the information above, we identify shallow-soiled, open areas with exposed limestone bedrock or gravel that are dominated by herbaceous plants as an essential physical or biological feature for this species.

#### Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements

*Short's bladderpod.* Within the physical settings described above and the atypical physical setting where the species occurs in Indiana, the most vigorous (Shea 1992, p. 24) and stable (TDEC 20098, p. 1) Short's bladderpod occurrences are found in patches within forested sites where the canopy has remained relatively open over time. Overstory shading has been implicated as a factor contributing to the disappearance of Short's bladderpod from four historically occupied sites and has been identified as a limiting factor at nearly one-fifth of remaining extant occurrences. Competition or shading from invasive, nonnative, herbaceous and shrub species is a documented threat to one-third of the extant Short's bladderpod occurrences.

Therefore, based on the information above, we identify forest communities with low levels of canopy closure or openings in the canopy, in which invasive, nonnative plants are absent or are present at sufficiently low levels of abundance that would not inhibit growth or reproduction of Short's bladderpod plants, to be an essential physical or biological feature for this species.

*Whorled sunflower*. This species is found in moist, prairie-like remnants, which in a more natural condition exist as openings in woodlands and along adjacent creeks. Today, these conditions are most often found in small remnant patches or old field habitats adjacent to roadsides, railroad rights-of-way, and streams bordered by agricultural lands. Whorled sunflower grows most vigorously where there is little to no forest canopy cover, plants receive full sunlight for most of the day (Schotz 2011, p. 5) and herbaceous species that are characteristic of moist-site prairie vegetation are found.

Dominant grasses include *Schizachyrium scoparium* (little bluestem), *Sorghastrum nutans* (Indian grass), *Andropogon gerardii* (big bluestem), and *Panicum virgatum* (switch grass). Other common herbaceous associates include *Bidens bipinnata* (Spanish needles), *Carex cherokeensis* (Cherokee sedge), *Hypericum sphaerocarpum* (roundseed St. Johnswort), *Helianthus angustifolius* (swamp sunflower), *Helenium autumnale* (common sneezeweed), *Lobelia cardinalis* (cardinal flower), *Pycnanthemum virginianum* (Virginia mountainmint), *Physostegia virginiana* (obedient plant), *Saccharum giganteum* (sugarcane plumegrass), *Silphium terebinthinaceum* (prairie rosinweed), *Sporobolus heterolepis* (prairie dropseed), *Symphotrichum novae-angliae* (New England aster), (Tennessee Division of Natural Areas 2008, p. 5; Matthews et al. 2002, p. 23; Schotz 2001, p. 3). Encroachment by woody vegetation is a threat to whorled sunflower populations when left unmanaged in old fields, transportation

rights-of-way, and borders of agricultural field, as well as in densely shaded silvicultural plantations or forested sites. To prevent excessive shading or competition, these sites should be subjected to periodic disturbance or management to reduce or minimize encroachment of woody vegetation where a forest canopy is not present, or to provide low levels of canopy and midstory closure where they occur in woodlands.

Therefore, based on the information above, we identify sites in old fields, woodlands, and along streams, which receive full or partial sunlight for most of the day and where vegetation characteristics of moist prairie communities is present, to be an essential physical or biological feature for this species.

*Fleshy-fruit gladecress*. In Morgan, Lawrence, Franklin and Colbert Counties in northwestern Alabama, glades occur in association with outcrops of Bangor Limestone, typically as level areas with exposed sheets of limestone or limestone gravel interspersed with fingers of cedar-hardwood vegetation. The Bangor Limestone is often near the soil surface, and can be seen in rocky cultivated fields and as small outcroppings at the base of low-lying forested hills (Hilton 1997).

All species within the small genus *Leavenworthia* are adapted to the unique physical characteristics of glade habitats, perhaps the most important of these being a combination of shallow soil depth and the resulting tendency to maintain temporary high moisture content at or very near the surface (Rollins 1963, pp. 4–6). Typically, only a few centimeters of soil overlies the bedrock, or, in spots, the soil may be almost lacking and the surface barren. The glade habitats that support all *Leavenworthia* species are extremely wet during the late winter and early spring and become extremely dry in summer (Rollins 1963, p. 5). These glades can vary in size

from as small as a few meters to larger than 1 square kilometer (km<sup>2</sup>) (0.37 square miles (mi<sup>2</sup>)) and are characterized as having an open, sunny aspect (lacking canopy) (Quarterman 1950, p. 1; Rollins 1963, p. 5).

Fleshy-fruit gladeceess populations are restricted to well-lighted portions of limestone outcroppings. Baskin and Baskin (1988, p. 837) indicated that a high light requirement was common among the endemic plants of rock outcrop plant communities in the un-glaciated eastern United States. This obligate need for high light has been supported by field observations showing that these eastern outcrop endemics, such as fleshy-fruit gladeceess, grow on well-lighted portion of the outcrops but not in adjacent shaded forests; photosynthesize best in full sun, with a reduction in the presence of heavy shading; and compete poorly with plants that shade them (Baskin and Baskin 1988, p. 837). The most vigorous populations of fleshy-fruit gladeceess are located in areas which receive full, or near full, sunlight at the canopy level, and have limited herbaceous competition (Hilton 1997, p. 5). Under these conditions, herbaceous species commonly found in glades in association with fleshy-fruit gladeceess are listed in Table 1. Shading and competition are potential threats at the two largest populations of fleshy-fruit gladeceess (Hilton 1997, p. 68). Nonnative plants including *Ligustrum vulgare* (common privet) and *Lonicera maackii* (bush honeysuckle) are a significant threat in many glades due to the ever present disturbances that allow for their colonization (Hilton 1997, p. 68).

Table 1.—Characteristic Flora of Cedar Glade Habitat

SCIENTIFIC NAME	COMMON NAME
<b>Primary Characteristic Herbs</b>	
<i>Astragalus tennesseensis</i>	Tennessee milkvetch

<i>Leavenworthia alabamica</i>	Alabama gladecress
<i>Leavenworthia uniflora</i>	Michaux's gladecress
<i>Petalostemum</i> spp.	Prairie clover
<i>Delphinium tricorne</i>	Dwarf larkspur
<i>Arabis laevigata</i>	Smooth rockcress
<i>Schoenolirion croceum</i>	Yellow sunnybell
<i>Scutellaria parvula</i>	Small skullcap
<b>Frequent Woody Species</b>	
<i>Juniperus virginiana</i>	Eastern red cedar

Therefore, based on the information above, we identify open, sunny exposures of limestone outcrops of the Bangor formation within glade plant communities that are characterized by the species listed in Table 1 and have relatively thin, rocky soils that are classified within the Colbert or Talbot soils mapping units as an essential physical or biological feature for this species.

Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring

*Short's bladderpod.* This species likely is self-incompatible, and nearly 50 percent of extant occurrences are threatened with adverse effects associated with small populations including loss of genetic variation, inbreeding depression, and reduced availability of compatible mates. For this reason, it is essential that habitat for pollinators be conserved in close proximity

to known occurrences to increase the likelihood of pollen exchange among compatible mates. Where possible, habitat patches should be protected that would reduce fragmentation between multiple occurrences among which pollinator dispersal could facilitate gene flow.

Pollinators specific to Short's bladderpod have not been studied. Bees from the families Halictidae, Apidae, and Andrenidae were found to be the most common pollinators visiting four other species in the genus *Physaria*, and flies from the families Syrphidae, Tachinidae, and Conopidae also carried *Physaria* pollen (Edens-Meier *et al.* 2011, p. 293; Tepedino *et al.* 2012, pp. 143-145). In their study of pollinators of three species of *Physaria*, Tepedino *et al.* (2012, p. 144) estimated that maximum flight distance ranged from 100 m (330 ft) to 1.4 km (0.9 mi) for Andrenids and 40 to 100 m (130 to 330 ft) for Halictid bees. Because native, ground-nesting bees in the Andrenidae and Halictidae were the most reliable visitors and pollinators of the *Physaria* species they studied, Tepedino *et al.* (2012, p. 145) recommended avoiding physical disruption of the soil nesting substrate and its drainage patterns in sites harboring bee nests.

Short's bladderpod is thought to form soil seed banks (Dr. Carol Baskin, Professor, University of Kentucky, pers. comm., December 2012), and persistence of populations likely is dependent on formation and maintenance of this pool of dormant individuals. Sites where the species occurs should not be subjected to activities that would remove the soil seed bank. Moderate soil disturbance, however, could promote germination from the seed bank in locations where overstory shading and competition from herbaceous and shrub species have caused population declines. Positive responses have been observed following removal of competing vegetation and soil disturbance associated with grading of the roadside at the site where Short's bladderpod occurs in Indiana.

Therefore, based on the information above, we identify reproduction sites containing

extant occurrences of the species within habitat patches providing suitable pollinator habitat, and in which surface features and bladderpod seedbed are not subjected to heavy disturbance, to be an essential physical or biological feature for this species.

*Whorled sunflower.* This species is self-incompatible, and the lack of compatible mates has been suggested as a possible cause of reduced achene production in one population (Ellis *et al.* 2009, p. 1840). Degraded habitat conditions also contribute to poor individual growth and reproductive output in whorled sunflower. Where woody vegetation encroaches on whorled sunflower populations, growth and flower production are reduced. While the species can produce new stems via shoot generation from rhizomes, the production of genetically distinct individuals needed to support population growth and maintain genetic variation within the species is dependent on flowering and outcrossing of compatible mates and production of viable achenes. Therefore, based on the information above, we identify the presence of compatible mates in sites which receive full or partial sunlight for most of the day to be an essential physical or biological feature for this species.

*Fleshy-fruit gladecress.* Glades where fleshy-fruit gladecress grows have very shallow soils overlying horizontally bedded limestone. Precipitation tends to be very seasonal within the species' geographic range, with wet weather concentrated in the winter and early spring and summer (Lyons and Antonovics 1991).

Fleshy-fruit gladecress is an annual species, the seeds of which germinate in the fall, overwinter as rosettes, and commence a month-long flowering period beginning in mid-March. The first seeds mature in late April, and during most years, the plants dry and drop all of their

seeds by the end of May. *Leavenworthia* species are dormant by early summer, helping them to survive the dry period as seed; this dormancy is likely one of the major evolutionary adaptations in this genus enabling its species to endure the extreme drought conditions of late summer (Quarterman 1950, p. 5). As an annual, this species' long-term survival is dependent upon its ability to reproduce and reseed an area every year. Thus, populations decline and move toward extinction if conditions remain unsuitable for reproduction for many consecutive years.

The most vigorous populations of fleshy-fruit gladecress are located in areas which receive full, or near full, sunlight at the canopy level and have limited herbaceous competition (Hilton 1997). Rollins (1963) documented the loss of fleshy-fruit gladecress individuals caused by invading weedy species in fallow agricultural fields in northern Alabama. Under natural conditions, glades are edaphically (related to or caused by particular soil conditions) maintained through processes of drought and erosion interacting with other processes that disrupt encroachment of competing vegetation. The shallow soil, exposed rock, and frequently hot, dry summers create xeric conditions that regulate competition and shading from encroaching vegetation (Hilton 1997, p. 5; McDaniel and Lyons 1987, p. 6; Baskin et al. 1986, p. 138; Rollins 1963, p. 5).

Therefore, based on this information, we identify the presence of shallow soil and exposed rock that discourage competition and shading from encroaching vegetation to be an essential physical or biological feature for this species.

#### *Primary Constituent Elements*

Under the Act and its implementing regulations, we are required to identify the physical

or biological features essential to the conservation of Short's bladderpod, whorled sunflower, and fleshy-fruit gladececrop in areas occupied at the time of listing, focusing on the features' primary constituent elements (PCEs). We consider PCEs to be those specific elements of the physical or biological features and habitat characteristics required to sustain the species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the PCEs described below are specific to these three plants.

#### Short's Bladderpod

(1) PCE 1—Bedrock formations and outcrops of calcareous limestone, sometimes with interbedded shale or siltstone, in close proximity to the mainstem or tributaries of the Kentucky and Cumberland rivers. These outcrop sites or areas of suitable bedrock geology should be located on steeply sloped hillsides or bluffs, typically on south- to west-facing aspects.

(2) PCE 2—Shallow or rocky, well-drained soils formed from the weathering of underlying calcareous bedrock formations, which are undisturbed or subjected to minimal disturbance, so as to retain habitat for ground-nesting pollinators and potential for maintenance of a soil seed bank.

(3) PCE 3—Forest communities with low levels of canopy closure or openings in the canopy to provide adequate sunlight for individual and population growth. Invasive, nonnative plants must be absent or present in sufficiently low numbers to not inhibit growth or reproduction of Short's bladderpod.

## Whorled Sunflower

(1) PCE 1—Silt loam, silty clay loam, or fine sandy loam soils on land forms including broad uplands, depressions, stream terraces, and floodplains within the headwaters of the Coosa River in Alabama and Georgia and the East Fork Forked Deer and Tusculmbia rivers in Tennessee.

(2) PCE 2—Sites in which forest canopy is absent, or where woody vegetation is present at sufficiently low densities to provide full or partial sunlight to whorled sunflower plants for most of the day, and which support vegetation characteristic of moist prairie communities. Invasive, nonnative plants must be absent or present in sufficiently low numbers to not inhibit growth or reproduction of whorled sunflower.

(3) PCE 3—Occupied sites in which a sufficient number of compatible mates are present for outcrossing and production of viable achenes to occur.

## Fleshy-fruit Gladecress

(1) PCE 1— Shallow-soiled, open areas with exposed limestone bedrock or gravel that are dominated by herbaceous vegetation characteristic of glade communities.

(2) PCE 2— Open or well-lighted areas of exposed limestone bedrock or gravel that ensure fleshy-fruit gladecress plants remain unshaded for a significant portion of the day.

(3) PCE 3— Glade habitat that is protected from both native and invasive, nonnative plants to minimize competition and shading of fleshy-fruit gladecress.

### *Special Management Considerations or Protection*

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain physical and biological features which are essential to the conservation of the species and which may require special management considerations or protection. We believe each unit included in these designations requires special management and protections.

#### Short's Bladderpod

The features essential to the conservation of Short's bladderpod may require special management considerations or protection to reduce the following threats: (1) Actions that would directly result in removal of soils or indirectly cause their loss due to increased rates of erosion; (2) building, paving, or grazing of livestock within or upslope of Short's bladderpod sites that alters water movement or causes soil erosion that results in sediment deposition in suitable habitat; (3) blasting or removal of hard rock and soil substrates; (4) dumping of trash and debris; (5) prolonged inundation of sites due to manipulation of regulated waters for flood control or other purposes; (6) indiscriminate maintenance of transportation rights-of-way, including grading, mowing, or herbicide application; and (8) shading and competition due to forest canopy closure and encroachment of invasive, nonnative plants.

Management activities that could ameliorate these threats include, but are not limited to:

(1) Avoiding areas located in or upslope of Short's bladderpod sites when planning for location

of commercial or residential development; maintenance, construction, or expansion of utility and transportation infrastructure; and access for livestock; (2) removing trash and debris that are dumped onto or upslope of Short's bladderpod sites; (3) locating suitable habitat, determining presence or absence of Short's bladderpod, and protecting or restoring as many sites or complexes of sites as possible; (4) evaluating the effects of flow regulation on Short's bladderpod occurrences within the fluctuation zone of regulated river reaches and adjusting management to avoid or minimize prolonged periods of inundation; (5) reaching out to all landowners, including private, State, and Federal landowners, to raise awareness of the plant and its habitat; (5) providing technical or financial assistance to landowners to help in the design and implementation of management actions that protect the plant and its habitat; (6) managing, including reducing, canopy cover and competition from native and invasive, nonnative plants to maintain an intact native forest community with canopy openings or low levels of canopy closure.

### Whorled Sunflower

The features essential to the conservation of whorled sunflower may require special management considerations or protection to reduce the following threats: (1) Soil disturbance due to silvicultural site preparation, timber harvest, or cultivation of row crops; (2) indiscriminate herbicide use or mowing; (3) conversion of remnant prairie habitat to agricultural or industrial forestry uses; and (4) excessive shading or competition from native woody species or invasive, nonnative plants.

Management activities that could ameliorate these threats include, but are not limited to:

(1) Avoiding areas located in close proximity to whorled sunflower sites when planning for establishing new sites for agriculture or pulpwood and timber production; (2) ensuring that herbicide use or mowing does not occur in whorled sunflower sites during the species' growing season; (3) locating suitable habitat, determining presence or absence of whorled sunflower, and protecting or restoring as many sites or complexes of sites as possible; (4) managing, including prescribed burning, mowing, and bush-hogging, to reduce canopy cover, minimize competition from native and invasive, nonnative plants, and maintain characteristic moist prairie vegetation; (5) reaching out to all landowners, including private, State, and Federal landowners, to raise awareness of the plant and its habitat; and (6) providing technical or financial assistance to landowners to help in the design and implementation of management actions that protect the plant and its habitat.

#### Fleshy-fruit Gladecress

The features essential to the conservation of fleshy-fruit gladecress may require special management considerations or protection to reduce the following threats: (1) Actions that remove the soils and alter the surface geology of the glades; (2) building or paving over the glades; (3) construction or excavation up slope that alters water movement (sheet flow or seepage) down slope to gladecress sites; (4) planting trees adjacent to the edges of an outcrop resulting in shading of the glade and accumulations of leaf litter and tree debris; (5) encroachment by nonnative and native invading trees, shrubs, and vines that shade the glade; (6) the use and timing of application of certain herbicides that can harm gladecress seedlings; and (7) access by cattle to gladecress sites where habitat and plants may be trampled.

Management activities that could ameliorate these threats include (but are not limited to): (1) Avoiding limestone glades when planning development, conversion to agriculture, and other disturbances to glade complexes; (2) avoiding above-ground construction and/or excavations in locations that would interfere with natural water movement to glade habitat sites; (3) locating suitable habitat and determining the presence or absence of the species and identifying areas with glade complexes and protecting or restoring as many complexes as possible; (4) reaching out to all landowners, including private and State landowners, to raise awareness of the plant and its specialized habitat; (5) providing technical or financial assistance to landowners to help in the design and implementation of management actions that protect the plant and its habitat; (6) avoiding pine tree plantings near glades; and (7) managing, including brush removal, to maintain an intact native glade vegetation community.

More information on the special management considerations for each critical habitat unit is provided in the individual unit descriptions below.

#### *Criteria Used To Identify Critical Habitat*

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. We review available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we also consider whether designating additional areas outside those occupied at the time of listing is necessary to ensure the conservation of the species. As discussed in more detail below, we are not currently proposing to designate any areas outside the geographical area occupied by the species because occupied areas are sufficient for the conservation of the species, and we have

no evidence that these species existed beyond their current geographical ranges in habitat types that are not represented by the critical habitat units we propose below. Below we go into more detail about the criteria used to identify critical habitat for Short's bladderpod, whorled sunflower, and fleshy-fruit gladeceess.

#### Areas Occupied by Short's Bladderpod

For the purpose of proposing critical habitat for Short's bladderpod, we define the geographical area currently occupied by the species as required by section 3(5)(A)(i) of the Act. We considered those sites to be occupied where (1) Element Occurrence Records from State conservation agencies (INHDC 2012; KNHP 2012; TNHID 2012) indicate that the species was extant at the time of proposed listing rule (i.e., is considered currently extant), and (2) we determine that forest communities are present and no evidence of substantial ground disturbance is visible from inspection of aerial photography, available through Google Earth.

#### Areas Not Occupied by Short's Bladderpod

We considered whether there were any specific areas outside the geographical area found to be occupied by Short's bladderpod that are essential for the conservation of the species as required by section 3(5)(A)(i) of the Act. First, we considered whether there was sufficient area for the conservation of the species within the occupied areas determined above. In doing so, we evaluated whether protection or management of currently occupied sites and nearby suitable habitats would provide adequate representation, redundancy, and resiliency for Short's

bladderpod conservation. The 26 extant occurrences of Short's bladderpod included in critical habitat units proposed below are distributed among habitats that are representative of those in which the species' occurred in its historical geographic range and, if conserved, should provide adequate redundancy for the species to endure localized, stochastic disturbances. While populations are small at some of these occurrences, there is sufficient habitat available to support population growth; however, some management might be necessary to improve habitat conditions and population growth rates. Conserving or restoring habitat and viable populations at all occupied sites should provide conditions necessary for successful reproduction and population growth and resiliency for the species to recover from acute demographic effects of localized disturbances. Therefore, no areas outside of the currently occupied geographical areas would be essential for the conservation of the species, and we have not proposed any additional areas.

#### Mapping Short's Bladderpod Critical Habitat

Once we determined the occupied areas, we next delineated proposed critical habitat unit boundaries based on the presence of primary constituent elements. We used data for geology (Kentucky Geological Survey, available online at <http://www.arcgis.com/home/item.html?id=d32dc6edbf9245cdbac3fd7e255d3974>; Moore I. 1967; Wilson 1972 1975, 1979; Wilson I. 1972, 1980; Marsh I. 1973; Finlayson I. 1980; Kerrigan and Wilson 2002), soils (USDA, Soil Survey Geographic Database, available online at <http://soildatamart.nrcs.usda.gov>), topographic contours, and locations of sites occupied by Short's bladderpod (INHDC 2012; KNHP 2012; TNHID 2012) as a basis for delineating units in

ArcGIS. Additionally, we used aerial photography available through Google Earth to determine vegetation cover and for three-dimensional viewing of topographic features. We delineated units around occupied sites, with boundaries determined by the combined spatial arrangement of limestone bedrock, sometimes with interbedded shale or siltstone; shallow or rocky, well-drained soils; steeply sloped topography; and forest vegetation. In order to reduce threats from adjacent land uses, we extended unit boundaries from ridge tops or bluff lines above Short's bladderpod occurrences downslope to either obvious breaks in slope gradient or to the edge of water bodies that form a unit boundary. These units typically include individual occupied sites; however, where appropriate we delineated units so that they encompass more than one occupied site and span intervening areas in which the primary constituent elements are present. We delineated units spanning multiple occupied sites in order to minimize fragmentation and provide areas for pollinator nesting and dispersal to promote gene flow among extant occurrences.

#### Areas Occupied by Whorled Sunflower

For the purpose of designating critical habitat for whorled sunflower, we defined the geographical area currently occupied by the species as required by section 3(5)(A)(i) of the Act. We define occupied areas in Georgia and Alabama as those areas where the species was present during site visits by the Service during 2012. The most recent survey data available from TNHID (2012) confirmed the presence of whorled sunflower during 2005 and 2009, at the Madison and McNairy County, Tennessee, populations, respectively. Based on inspection of aerial photography for these locations, available through Google Earth, habitat still is present at these sites and no evidence of substantial ground disturbance was apparent; thus, we consider

these sites to still be occupied by whorled sunflower.

#### Areas Not Occupied by Whorled Sunflower

We considered whether there were any specific areas outside the geographical area found to be occupied by whorled sunflower that are essential for the conservation of the species as required by section 3(5)(A)(i) of the Act. First, we considered whether there was sufficient area for the conservation of the species within the occupied areas determined above. In doing so, we evaluated whether protection or management of currently occupied sites and nearby suitable habitats would provide adequate representation, redundancy, and resiliency for whorled sunflower's conservation. The four extant populations of whorled sunflower are distributed among habitats that we believe are representative of those in which the species' occurred in its historical geographic range and, if conserved, should provide adequate redundancy for the species to endure localized, stochastic disturbances. While populations are small at most of these occurrences, there is sufficient habitat available to support population growth; however, management will be necessary to improve habitat conditions and population growth rates. Conserving or restoring habitat and viable populations at all occupied sites should provide conditions necessary for successful reproduction and population growth and resiliency for the species to recover from acute demographic effects of localized disturbances. Therefore, no areas outside of the currently occupied geographical areas would be essential for the conservation of the species, and we have not proposed any additional areas.

#### Mapping Whorled Sunflower Critical Habitat

Once we determined the occupied areas, we next delineated proposed critical habitat unit boundaries based on the presence of primary constituent elements. We used data for soils (USDA, Soil Survey Geographic Database, available online at <http://soildatamart.nrcs.usda.gov>) and locations of sites occupied by whorled sunflower as a basis for delineating units in ArcGIS. Additionally, we used aerial photography available through Google Earth to determine vegetation cover and for three-dimensional viewing of topographic features. We delineated units around occupied sites, with boundaries determined by the spatial arrangement of suitable soils (described above in PCE 1 for whorled sunflower) and to provide opportunities for minimizing fragmentation among subpopulations by restoring characteristic prairie vegetation in areas currently used for agricultural or industrial forestry purposes.

#### Areas Occupied by Fleshy-fruit Gladecress

For the purpose of designating critical habitat for fleshy-fruit gladecress, we defined the geographical area currently occupied by the species as required by section 3(5)(A)(i) of the Act. We define occupied areas as those where recent surveys in 2011 confirmed the species was present (Shotz 2012, pers. comm.).

#### Areas Not Occupied by Fleshy-fruit Gladecress

We considered whether there were any specific areas outside the geographical area found to be occupied by the fleshy-fruit gladecress that are essential for the conservation of the species

as required by section 3(5)(A)(ii) of the Act. First, we evaluated whether there was sufficient area for the conservation of the species within the occupied areas determined as described above. To guide what would be considered needed for the species' conservation, we evaluated the six sites where the species is known to occur. Currently occupied sites are distributed across the historical range of the species and are representative of the landscape settings and soil types that have been documented at gladecress occurrences. Five of the six units proposed within occupied areas contain suitable habitat (with special management) for natural expansion of existing populations or possible future augmentation if determined necessary during future recovery planning and implementation. Therefore, no areas outside of the currently occupied geographical areas would be essential for the conservation of the species, and we have not proposed any additional areas.

#### Mapping Fleshy-fruit Gladecress Critical Habitat

Once we determined the occupied areas, we next delineated proposed critical habitat unit boundaries based on the presence of primary constituent elements. We used various GIS layers, soil surveys, aerial photography, and known locations of the extant and historical populations. We used ArcGIS to delineate units around occupied sites, encompassing adjacent areas where the primary constituent elements were present to provide suitable habitat for natural expansion of the populations. The six units in the proposed designation include the species' entire historical range. All of the units contain the primary constituent elements essential for the conservation of fleshy-fruit gladecress.

When determining proposed critical habitat boundaries for all three species, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features necessary for the three plants. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in adjacent critical habitat.

We are proposing for designation of critical habitat lands that we have determined are occupied at the time of listing and contain sufficient elements of physical or biological features to support life-history processes essential for the conservation of Short's bladderpod, whorled sunflower, or fleshy-fruit gladeceess. Some units contain all of the identified elements of physical or biological features and support multiple life-history processes. Some units contain only some elements of the physical or biological features necessary to support the use of that particular habitat by Short's bladderpod, whorled sunflower, or fleshy-fruit gladeceess.

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the **Proposed Regulation Promulgation** section. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on

<http://www.regulations.gov> at Docket No. FWS–R4–ES–2013–0086, on our Internet site at <http://www.fws.gov/cookeville>, and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

### **Proposed Critical Habitat Designation**

#### *Short’s Bladderpod*

We are proposing 20 units as critical habitat for Short’s bladderpod. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for Short’s bladderpod. All these units are occupied at the time of listing. The areas we propose as critical habitat are: (1) Kings and Queens Bluff, (2) Lock B Road, (3) Jarrel Ridge Road, (4) Cheatham Lake, (5) Harpeth River, (6) Montgomery Bell Bridge, (7) Nashville and Western Railroad, (8) River Trace, (9) Old Hickory Lake, (10) Coleman-Winston Bridge, (11) Cordell Hull Reservoir, (12) Funns Branch, (13) Wartrace Creek, (14) Camp Pleasant Branch, (15) Kentucky River, (16) Owenton Road, (17) Little Benson Creek, (18) Boone Creek, (19) Delaney Ferry Road, and (20) Bonebank Road. The approximate area of each proposed critical habitat unit, broken down by land ownership, is shown in Table 2.

TABLE 2. Proposed critical habitat units for Short’s bladderpod.

Critical Habitat Unit	Private ha (ac)	State/Local ha (ac)	Federal ha (ac)	Size of Unit ha (ac)
1. Kings and Queens Bluff	7.6 (18.9)		3.0 (7.3)*	7.6 (18.9)
2. Lock B Road	10.1 (25.0)		0.3 (0.8)*	10.1 (25.0)
3. Jarrel Ridge Road	5.2 (12.8)		0.4 (1.1)*	5.2 (12.8)
4. Cheatham Lake	19.1 (47.2)	3.4 (8.3)	4.9 (12.0)	27.3 (67.5)
5. Harpeth River	8.2 (20.3)		17.3 (42.8)	25.5 (63.1)

Critical Habitat Unit	Private ha (ac)	State/Local ha (ac)	Federal ha (ac)	Size of Unit ha (ac)
6. Montgomery Bell Bridge	2.1 (5.3)		9.0 (22.3)	11.2 (27.7)
7. Nashville and Western Railroad	20.8 (51.4)	8.1 (20.0)	1.5 (3.8)	30.5 (75.3)
8. River Trace	42.8 (105.7)		5.6 (13.8)*	42.8 (105.7)
9. Old Hickory Lake	1.9 (4.8)		2.9 (7.1)	4.8 (11.9)
10. Coleman-Winston Bridge	4.1 (10.1)		3.3 (8.1)	7.4 (18.2)
11. Cordell Hull Reservoir			12.3 (34.2)	12.3 (34.2)
12. Funns Branch			20.8 (51.3)	20.8 (51.3)
13. Wartrace Creek			37.5 (92.6)	37.5 (92.6)
14. Camp Pleasant Branch	17.4 (42.9)			17.4 (42.9)
15. Kentucky River	83.7 (206.7)	9.4 (23.3)		93.1 (230.0)
16. Owenton Road	1.3 (3.3)	1.5 (3.7)		2.8 (7.0)
17. Little Benson Creek	9.4 (23.3)			9.4 (23.3)
18. Boone Creek	5.0 (12.4)			5.0 (12.4)
19. Delaney Ferry Road	0.6 (1.4)			0.6 (1.4)
20. Bonebank Road		1.7 (4.3)		1.7 (4.3)
TOTAL	239.3 (591.5)	24.1 (59.6)	118.8 (297.2)	373.0 (925.5)

Note: Area sizes may not sum due to rounding.

\* Indicates U.S. Army Corps of Engineers easements, which are not added to Size of Unit because these lands are included in ha (ac) figure given for the private lands on which easements are held.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for Short's bladderpod, below. All of the proposed critical habitat units are currently occupied and, except as specified below, contain all of the primary constituent elements of the physical and biological features essential to the conservation of the species.

#### Unit 1: Kings and Queens Bluff

Unit 1 consists of 7.6 ha (18.9 ac) of private land, but the U.S. Army Corps of Engineers (Corps of Engineers) holds flood easements on approximately 40 percent of this land. This unit

is located in Montgomery County, Tennessee, on a bluff on the right descending bank of the Cumberland River within the city limits of Clarksville, approximately 0.16 km (0.10 mi) south of the intersection of State Route 12 (Ashland City Road) and Queens Bluff Way. Beginning approximately 0.28 km (0.18 mi) south of the easternmost intersection of Ashland City Road (US-41a Bypass) and Queens Bluff Road, this unit parallels the Cumberland River in a downstream direction for approximately 1.7 km (1.1 mi).

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading and competition due to encroachment of native and invasive, nonnative plants.

#### Unit 2: Lock B Road

Unit 2 consists of 10.1 ha (25.0 ac) of privately owned land, but the Corps of Engineers holds flood easements on approximately 3 percent of this land. This unit is located in Montgomery County, Tennessee, approximately 6.9 km (4.3 mi) south of the city limits of Clarksville, on a hillside that lies to the east and west of Lock B Road North, beginning approximately 0.8 km (0.5 mi) south of its junction with Gholson Road and continuing south for approximately 0.4 km (0.25 mi), at which point Lock B Road North veers to the southwest. From this point, this unit continues south for approximately 1.0 km (0.6 mi) along the hillside that is east of Lock B Road North. The features essential to the conservation of the species in

this unit may require special management considerations or protection to address threats related to potential right-of-way construction or maintenance using herbicides or mechanized equipment along Lock B Road North or the Illinois Central Railroad, both of which traverse portions of the unit, and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 3: Jarrel Ridge Road

Unit 3 consists of 5.2 ha (12.8 ac) of privately owned lands, but the Corps of Engineers holds flood easements on approximately 8 percent of this land. This unit is located in Montgomery County, Tennessee, approximately 10 km south of the city limit of Clarksville, on a hillside that lies west and north of the southern terminus of Jarrel Ridge Road.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along Jarrel Ridge Road at the unit boundary or the Illinois Central Railroad, which traverses the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 4: Cheatham Lake

Unit 4 consists of 27.3 ha (67.5 ac) of privately owned, local government, and federal

lands. This unit is located in Cheatham County, Tennessee, approximately 9.0 km (5.6 mi) west-northwest of the city limits of the town of Ashland City, on a series of hillsides that begins approximately 0.8 km (0.5 mi) northeast of the junction of Beech Grove Road and Cheatham Dam Road and arcs in a southeasterly direction for approximately 2.2 km (1.4 mi). Here, the unit crosses Cheatham Dam Road, and continues for approximately 2.2 km in a southeasterly arc to its eastern boundary on the right descending bank of the Cumberland River, approximately 0.18 km (0.11 mi) south of Kimbrough Road. The land within this unit is approximately 70 percent privately owned, 12 percent owned by Ashland City, and 18 percent owned by the Corps of Engineers.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along the Illinois Central Railroad, which traverses the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 5: Harpeth River

Unit 5 consists of 25.5 ha (63.1 ac) of privately owned and federal land in Cheatham County, Tennessee. This unit is located approximately 5 km (3.1 mi) west of the city limits of the town of Ashland City, on the west slope of a hillside and associated bluffs that begin on the point of land formed by the confluence of Cumberland and Harpeth rivers and extend upstream

along the right descending bank of the Harpeth River, reaching the unit's southernmost boundary approximately 0.6 km (0.4 mi) east of SR-49, where it crosses the Harpeth River. The land within this unit is approximately 32 percent privately owned, and 68 percent is owned by the Corps of Engineers.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 6: Montgomery Bell Bridge

Unit 6 consists of 11.2 ha (27.7 ac) of privately owned and federal land in Cheatham and Dickson Counties, Tennessee. This unit is located approximately 5.5 km (3.4 mi) west of the city limits of the town of Ashland City, on a hillside and bluffs on the left descending bank of the Harpeth River that begin approximately 0.4 km (0.27 mi) east of the Montgomery Bell Bridge, where SR-49 crosses the river and bisects the unit, and parallels the river in an upstream direction for approximately 1.8 km (1.1 mi). The land within this unit is approximately 19 percent privately owned, and 81 percent is owned by the Corps of Engineers.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or

commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 7: Nashville and Western Railroad

Unit 7 consists of 30.5 ha (75.3 ac) of privately owned, local government, and federal land in Cheatham County, Tennessee. This unit is located along the southwest city limit of the town of Ashland City, on hillsides and bluffs that begin approximately 0.26 km (0.16 mi) east of the confluence of Marrowbone Creek and the Cumberland River and extend upstream on the right descending bank of the Cumberland River for approximately 2.3 km (1.4 mi). Here, the unit continues in a southeasterly direction for approximately 0.9 km (0.5 mi) from the point where the river veers away from the hillside and bluffs. The land within this unit is approximately 68 percent privately owned, 27 percent owned by the Cheatham County Rail Association, and 5 percent owned by the Corps of Engineers.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along the Nashville and Western Railroad, which traverses the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

## Unit 8: River Trace

Unit 8 consists of 42.8 ha (105.7 ac) of privately owned land, with the exception of the River Trace road right-of-way. The Corps of Engineers holds flood easements on approximately 13 percent of the lands within the unit. This unit is located in Davidson and Cheatham Counties, Tennessee, on hillsides and bluffs approximately 0.9 km (0.6 mi) southeast of the city limit of the town of Ashland City, beginning at the western extent of River Trace and extending along both sides of this road in a southeasterly direction for a distance of approximately 2.3 km (1.4 mi). Here, the unit leaves River Trace and continues along the hillside and bluffs on the right descending bank of the Cumberland River in an upstream direction for approximately 2.1 km (1.3 mi).

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along River Trace or the Nashville and Western Railroad, both of which traverse the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

## Unit 9: Old Hickory Lake

Unit 9 consists of 4.8 ha (11.9 ac) of privately owned and federal lands in Trousdale County, Tennessee. This unit is located approximately 3.5 km (2.2 mi) west of the southern city

limits of the town of Hartsville and 0.5 km (0.3 mi) south of Oldham Road, on a hillside and bluffs on the right descending bank of the Cumberland River. Beginning approximately 0.4 km (0.25 mi) downstream of the mouth of Second Creek, this unit parallels the Cumberland River in a downstream direction for approximately 0.7 km (0.4 mi). The land within this unit is approximately 40 percent privately owned, and 60 percent is owned by the Corps of Engineers.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 10: Coleman-Winston Bridge

Unit 10 consists of 7.4 ha (18.2 ac) of privately owned and federal lands in Trousdale County, Tennessee. The unit is located at the southern city limit of the town of Hartsville, on a hillside and bluffs overlooking the Cumberland River. Beginning on the right descending bank approximately 0.5 km (0.3 mi) east of SR-141, which bisects the unit where it crosses the Cumberland River at the Coleman-Winston Bridge, this unit parallels the river in a downstream direction for approximately 1.1 km (0.7 mi). The land within this unit is approximately 55 percent privately owned, and 45 percent is owned by the Corps of Engineers.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged

inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along SR-141, which bisects the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 11: Cordell Hull Reservoir

Unit 11 consists of 12.3 ha (34.2 ac) of federal lands in Smith County, Tennessee. This unit is located approximately 4.3 km (2.7 mi) north of the city limits of the town of Carthage, on hillsides and bluffs on the right descending bank of the Cumberland River. Beginning approximately 2.0 km (1.25 mi) upstream of the Cordell Hull Dam, this unit parallels the river in an upstream direction for approximately 0.6 km (0.4 mi), where it crosses a 0.3-km (0.2-mi) expanse of open water, and then continues paralleling the river for a distance of 1.2 km (0.7 mi). All of the land within this unit is owned by the Corps of Engineers, and the open water is not included in the area of the unit reported above.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading or competition due to encroachment of native and invasive, nonnative plants.

## Unit 12: Funns Branch

Unit 12 consists of 20.8 ha (51.3 ac) of federal lands in Jackson County, Tennessee. This unit is located approximately 12.1 km (7.5 mi) southwest of the city limits of the town of Gainesboro, on hillsides and bluffs on the right descending bank of the Cumberland River. Beginning approximately 0.4 km (0.2) mi upstream of the mouth of Funns Branch, this unit parallels the river in an upstream direction for approximately 1.0 km (0.65 mi) where it crosses a 0.3-km (0.2-mi) expanse of open water, and then continues paralleling the river for a distance of approximately 1.0 km (0.64 mi). All of the land within this unit is owned by the Corps of Engineers, and the open water is not included in the area of the unit reported above.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading or competition due to encroachment of native and invasive, nonnative plants.

## Unit 13: Wartrace Creek

Unit 13 consists of 37.5 ha (92.6 ac) of federal lands in Jackson County, Tennessee. This unit is located approximately 7.7 km (4.8 mi) west of the city limits of the town of Gainesboro, on hillsides and bluffs on the right descending bank of the Cumberland River. Beginning at the mouth of Indian Creek, this unit parallels the river in a downstream direction for approximately

1.6 km (1.0 mi), where it crosses the mouth of Wartrace Creek, and then continues paralleling the river for a distance of 2.5 km (1.5 mi). All of the land within this unit is owned by the Corps of Engineers, and areas of open water are not included in the area of the unit reported above.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 14: Camp Pleasant Branch

Unit 14 consists of 17.4 ha (42.9 ac) of privately owned lands in Franklin County, Kentucky. This unit is located approximately 8.3 km (5.8 mi) north of the city limits of Frankfort, on hillsides near Camp Pleasant Branch, a tributary to Elkhorn Creek. Beginning approximately 0.29 km (0.18 mi) west of the intersection of Indian Gap Road and Camp Pleasant Road, the unit begins in a hollow north of Indian Gap Road and extends to the east and north along hillsides above the right descending bank of Camp Pleasant Branch for approximately 0.75 km (0.5 mi) to the intersection of Camp Pleasant Road and Gregory Woods Road. Here the unit crosses Gregory Woods Road and extends north for a distance of approximately 0.58 km (0.36 mi), encompassing the hillside to the east of the road.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to changes in land use,

including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along Indian Gap Road, Camp Pleasant Road, or Gregory Woods Road, which are adjacent to the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 15: Kentucky River

This unit consists of 93.1 ha (230.0 ac) of privately owned and State land in Franklin County, Kentucky. This unit begins within the northwestern city limit of Frankfort, on a hillside that parallels U.S.-421 on its east side from approximately 0.21 km (0.13 mi) southeast of its junction with Clifty Drive to approximately 0.23 km (0.15 mi) northwest of its junction with U.S.-127. Here the unit follows the topography of the hillside as it turns away from the road to the east, leaving the city limits, and then arcs to the northeast, before abruptly turning back in a westerly direction. From this point, the hillside and this unit extend in a westerly direction for approximately 0.7 km (0.4 mi) and then parallel the Kentucky River in a downstream direction in an arc approximately 5.3 km (3.3 mi) in length on its left descending bank, encompassing hillsides in two hollows that extend from the river to the west. Approximately 90 percent of the land in this unit is privately owned, and the Commonwealth of Kentucky owns approximately 10 percent, which is part of a State nature preserve.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to erosion or prolonged inundation due to water level manipulation; changes in land use, including residential or

commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment along U.S. -421, where it parallels the unit; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 16: Owenton Road

Unit 16 consists of 2.8 ha (7.0 acres) of privately owned and City of Frankfort municipal park lands in Franklin County, Kentucky. The unit is located approximately 0.1 km (0.08 mi) north of the city limits of Frankfort on a hill that is adjacent to and west of U.S.-127 (Owenton Road), approximately 0.6 km (0.4 mi) north of the intersection of U.S.-127 and U.S.-421. The land within this unit is approximately 46 percent privately owned, and 54 percent is owned by the City of Frankfort.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment on U.S.-127; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 17: Little Benson Creek

Unit 17 consists of 9.4 ha (23.3 ac) of privately owned lands in Franklin County,

Kentucky, located within the city limits of Frankfort. Beginning approximately 1.1 km (0.7 mi) south of the intersection of Mills Lane and Ninevah Road, this unit lies on a hillside on the east side of Ninevah Road and extends to the south for approximately 0.5 km (0.3 mi), where it crosses Ninevah Road and follows a hillside that parallels Ninevah Road for approximately 1.0 km (0.65 mi) on its west side.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to changes in land use, including residential or commercial construction, which could cause removal of forest vegetation or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment on Ninevah Road; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 18: Boone Creek

Unit 18 consists of 5.0 ha (12.4 ac) of privately owned lands in Clark County, Kentucky. This unit is located approximately 13.2 km (8.2 mi) southwest of the city limits of Winchester, and begins adjacent to Grimes Mill Road approximately 0.17 km north of the Fayette and Clark County line. From here, the unit extends on a hillside to the east for a distance of approximately 0.21 km (0.13 mi), where the unit and hillside then parallel a bend in Boone Creek on its left descending bank for a distance of approximately 0.68 km (0.42 mi).

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats related to changes in land use, including residential or commercial construction, which could cause removal of forest vegetation

or soils or soil loss due to erosion; potential right-of-way construction or maintenance using herbicides or mechanized equipment on Grimes Road; and shading or competition due to encroachment of native and invasive, nonnative plants.

#### Unit 19: Delaney Ferry Road

Unit 19 consists of 0.6 ha (1.4 ac) of privately owned lands in Woodford County, Kentucky. This unit is located approximately 7.8 km (4.8 mi) south of the city of Versailles. Beginning approximately 2.1 km (1.3 mi) east of the intersection of Troy Pike and Delaney Ferry Road, this unit extends approximately 0.08 km (0.05 mi) northeast along Delaney Ferry Road, where the unit boundary turns to the northwest for approximately 0.08 km (0.05 mi). From this northeast corner of the unit, the boundary extends to the southwest approximately 0.05 km (0.03 mi), where it turns to the southeast, paralleling a driveway for 0.05 km (0.03 mi) before turning to the southwest for approximately 0.03 km (0.02 mi). From this point the unit boundary turns to the southeast for approximately 0.05 km (0.03 mi), returning to the starting point.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of shading or competition due to encroachment of native and invasive, nonnative plants. The current landowner manages encroaching vegetation to prevent shading and competition where Short's bladderpod occurs within the unit.

#### Unit 20: Bonebank Road

Unit 20 consists of 1.7 ha (4.3 ac) of lands in Posey County, Indiana, which are owned by the Indiana Department Natural Resources. This unit is located approximately 13 km (8.1 mi) southwest of the city limits of Mt. Vernon, beginning at the intersection of Graddy Road and Bonebank Road and paralleling Bonebank Road on its west side for a distance 0.73 km (0.45 mi) north of the intersection. The surface geology at this site—Quaternary glacial outwash—and soils are markedly different from other sites on calcareous geology throughout the rest of the species' range. However, this site supports an occurrence that has numbered in the hundreds to more than a thousand individuals in the past, and the PCE of forest vegetation with canopy openings (PCE 3) is present at the road edge.

The feature essential to the conservation of the species in this unit may require special management considerations or protection to address threats of shading or competition due to encroachment of native and invasive, nonnative plants.

### *Whorled Sunflower*

We are proposing four units as critical habitat for whorled sunflower. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for whorled sunflower. All these units are occupied at the time of listing. The four areas we propose as critical habitat are: (1) Mud Creek, (2) Coosa Valley Prairie, (2) Prairie Branch, and (4) Pinson. The approximate area of each proposed critical habitat unit is shown in Table 3. All of the proposed critical habitat units for this species are located entirely on privately owned land.

TABLE 3. Proposed Critical Habitat Units for whorled sunflower.

Critical Habitat Unit	County, State	Hectares	Acres
1. Mud Creek	Cherokee, Alabama	210.6	520.4
2. Coosa Valley Prairie	Floyd, Georgia	366.9	906.5
3. Prairie Branch	McNairy, Tennessee	6.0	14.9
4. Pinson	Madison, Tennessee	40.7	100.5
TOTAL		624.2	1,542.3

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for whorled sunflower, below.

#### Unit 1: Mud Creek

Unit 1 consists of 210.6 ha (520.4 ac) in Cherokee County, Alabama, located approximately 11.6 km (7.2 mi) southeast of the city limits of Cedar Bluff. The unit begins approximately 0.06 km (0.04 mi) north of the junction of CR-164 and CR-29 and extends in a northerly direction to encompass much of the drainage area of an unnamed tributary to Mud Creek and to the northeast to encompass much of the drainage area of a second unnamed tributary to Mud Creek. The easternmost boundary of this unit is adjacent to CR-101, from approximately 1.0 km (0.6 mi) to 1.4 km (0.9 mi) north of its junction with CR-164. Silt loam and silty clay loam soils are present throughout the unit, spanning broad uplands, and terraces and flood plains of headwater streams in the Coosa River watershed (PCE 1).

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of soil disturbance due to

silvicultural site preparation or timber harvest; indiscriminate herbicide use or mowing for silvicultural purposes or road right-of-way maintenance; conversion of remnant prairie habitat to agricultural or industrial forestry uses; and excessive shading or competition from native woody species or invasive, nonnative plants.

## Unit 2: Coosa Valley Prairie

Unit 2 consists of 366.9 ha (906.5 ac) of privately owned lands in Floyd County, Georgia, located approximately 4.5 km (2.8 mi) northwest of the city limits of Cave Spring. This unit corresponds to the boundary of The Nature Conservancy's conservation easement on lands owned by The Campbell Group, a site commonly referred to as the Coosa Valley Prairie. The northern boundary of this unit follows Jefferson Road for approximately 1.4 km (0.9 mi) in a southeasterly direction, beginning approximately 1.7 km (1.0 mi) east of the Alabama–Georgia State line. From the eastern extent on Jefferson Road, the unit boundary follows an unnamed dirt road south for a distance of approximately 1.5 km (0.9 mi), where the boundary turns to the west and south before turning back to the north and again to the west, reaching the Alabama–Georgia State line. Here, the unit follows the State line in a northwest direction for approximately 0.8 km (0.5 mi) before turning east and following an unnamed dirt road in a northeasterly direction for approximately 2.7 km (1.7 mi) and reuniting with the northern boundary on Jefferson Road. Silt loam and silty clay loam soils are present throughout the unit, spanning broad uplands, depressions, and terraces and flood plains of headwater streams in the Coosa River watershed (PCE 1). Prairie openings and woodlands with low levels of canopy cover (PCE 2) are present throughout much of the unit. While Ellis and McCauley (2009, pp. 1837-1838) found very few

viable achenes and low germination rates at this site, whorled sunflower has responded favorably to habitat management efforts by increasing in numbers, and there likely are now a sufficient number of compatible mates for production of viable achenes (PCE 3) at this site.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of soil disturbance due to silvicultural site preparation or timber harvest; indiscriminate herbicide use or mowing for silvicultural purposes or road right-of-way maintenance; conversion of remnant prairie habitat to agricultural or industrial forestry uses, and excessive shading or competition from native woody species or invasive, nonnative plants.

### Unit 3: Prairie Branch

Unit 3 consists of 6.0 ha (14.9 ac) of privately owned land in McNairy County, Tennessee, and is located approximately 0.6 km (0.5 mi) south of the easternmost city limit of Ramer. This unit is located along Prairie Branch, a tributary to Muddy Creek, beginning approximately 0.42 km (0.26 mi) upstream of the point where it passes under Mt. Vernon Road and extending downstream for approximately 2.0 km (1.2 mi). Within this reach, the critical habitat unit extends forms a buffer extending 15 m (50 ft) upslope from the tops of the banks on both sides of Prairie Branch. Sandy loam soils (PCE 1) are present throughout the unit, as are small patches of vegetation containing whorled sunflower and other wet prairie species (PCE 2).

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of soil disturbance due to agricultural practices; indiscriminate herbicide use or mowing for road or railroad right-of-way maintenance;

conversion of remnant prairie habitat to agricultural uses; and competition from invasive, nonnative plants.

#### Unit 4: Pinson

Unit 4 consists of 40.7 ha (100.5 ac) of privately owned land in Madison County, Tennessee, and is located approximately 4.1 km (2.5 mi) northwest of the city limits of Henderson, Tennessee. Beginning approximately 0.7 km southeast of the junction of U.S.-45 and Bear Creek Road, this unit extends approximately 0.08 km (0.05 mi) northeast of U.S.-45, crossing a railroad track, and then turns in a southeasterly direction, paralleling the track for a distance of approximately 0.5 km (0.3 mi). From this corner, the unit boundary turns southwest for a distance of approximately 0.79 km (0.49 mi), and then turns to the northwest for a distance of approximately 0.65 km (0.4 mi). From this corner, the unit boundary turns to the northeast for a distance of approximately 0.63 km (0.39 mi). Silt loam soils (PCE 1) are present throughout the unit, small patches of vegetation containing whorled sunflower and wet prairie species (PCE 2) are present, and a sufficient number of compatible mates are present for the production of a limited number of viable achenes (PCE 3) (Ellis and McCauley 2009, p. 1838).

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of soil disturbance due to agricultural practices; indiscriminate herbicide use or mowing road or railroad right-of-way maintenance; conversion of remnant prairie habitat to agricultural uses; and excessive shading or competition from native woody species or invasive, nonnative plants. Much of the land within this unit has been converted to agricultural uses, but is included because of the potential for decreasing

fragmentation among the subpopulations that are present in this unit by restoring suitable vegetation within previously converted lands.

*Fleshy-fruit Gladecress*

We are proposing six units as critical habitat for fleshy-fruit gladecress. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for fleshy-fruit gladecress. All these units are occupied at the time of listing. The six areas we propose as critical habitat are: (1) Bluebird Glades; (2) Stover Branch Glades; (3) Indian Tomb Hollow Glade; (4) Cedar Plains South; (5) Cedar Plains North; and (6) Massey Glade. The approximate area of each proposed critical habitat unit is shown in Table 4.

TABLE 4. Proposed Critical Habitat Units for Fleshy-fruit Gladecress

Critical Habitat Unit	County	Ownership	Hectares	Acres
1. Bluebird Glades	Lawrence	Private	0.2	0.5
2. Stover Branch Glades	Lawrence	Private	3.2	7.8
3. Indian Tomb Hollow Glade	Lawrence	Federal	0.5	1.1
4. Cedar Plains South	Morgan	Private	0.04	0.1
5. Cedar Plains North	Morgan	Private	1.7	4.2
6. Massey Glade	Morgan	Private	2.75	6.8
TOTAL			8.4	20.5

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for fleshy-fruit glade cress, below.

#### Unit 1: Bluebird Glades

Unit 1 consists of 0.2 ha (0.5 ac) of privately owned land located in southeast Lawrence County, Alabama. The unit contains two subpopulations and is located along Alabama State Route 157 approximately 3.5 km (2.2 mi) southeast of the intersections of State Routes 36 and 157, approximately 3.7 km (2.3 mi) southwest of Danville, Alabama. These plants are located within a highly disturbed, limestone glade within a former mobile home site. Well-lighted, open areas (PCE 2), with shallow soils and exposed limestone bedrock or gravel that are dominated by characteristic glade vegetation (PCE 1), are present within the unit.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of the invasion of exotic species into open glades and possible changes in land use, including road widening or development. Due to human-derived disturbances, exotic species, most notably Chinese privet and Japanese honeysuckle, threaten this site (Schotz 2009, pp. 13-14).

#### Unit 2: Stover Branch Glades

Unit 2 consists of 3.2 ha (7.8 ac) of privately owned land located in southeast Lawrence County, Alabama. The unit contains two subpopulations; one subpopulation is located on the southwest side of County Road 203 approximately 1.4 km (0.9 mi) south-southeast of Alabama

State Route 157, and one subpopulation is located along the southwest side of State Route 157, approximately 1.6 to 2.1 km (1 to 1.3 mi) southeast of State Route 36, in Speake, Alabama.

These subpopulations are located within a pasture and are actively maintained by livestock grazing. Well-lighted, open areas (PCE 2), with shallow soils and exposed limestone bedrock or gravel that are dominated by characteristic glade vegetation (PCE 1), are present within the unit.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of invasive species into open glades and incompatible livestock grazing. Invasive species encroachment and continuous livestock grazing during the plant's reproductive cycle constitute ongoing threats to this site (Schotz 2009, pp. 15-16).

### Unit 3: Indian Tomb Hollow Glade

Unit 3 consists of 0.5 ha (1.1 ac) of federally owned land located within the Bankhead National Forest in Lawrence County, Alabama. The unit is located on the west and northwest side of County Road 86 at a point roughly 4.5 km (2.8 mi) south of State Route 36 near Speake, Alabama. Habitat in this unit consists of a relatively small glade characterized by a flat limestone outcrop that is heavily buffered by nearly impenetrable tangles of eastern red cedar and upland swamp privet. Well-lighted, open areas (PCE 2), with shallow soils and exposed limestone bedrock or gravel that are dominated by characteristic glade vegetation (PCE 1), are present within the unit. The U.S. Forest Service provides management to control encroachment of invasive species (PCE 3).

The features essential to the conservation of the species in this unit may require special

management considerations or protection to address threats of the invasion of exotic species into open glade and damage from vehicles. Moderate encroachment of exotic species, most notably Chinese privet and Japanese honeysuckle, threatens this site along the glade periphery (Schotz 2009, pp. 18-19). This site also shows minimal incidence of trash disposal and damage from recreational vehicles.

#### Unit 4: Cedar Plains South

Unit 4 consists of 0.04 ha (0.1 ac) of privately owned land located in Morgan County, Alabama. This unit is located on Cedar Plains Road, 1.2 km (0.75 mi) south of County Road 55 and approximately 8 km (5 mi) west of the junction of U.S. Highway 31 and County Road 55 in Falkville. This population represents an excellent landscape context but contains the smallest number of plants of any of the known occurrences. Habitat in this unit consists of a well-lighted limestone glade opening (PCE 2) located within a limestone forest primarily comprised of eastern red cedar and various other hardwoods. Herbaceous vegetation characteristic of glade communities is present within the well-lighted glade (PCE 1), and competition and shading from native and invasive, nonnative plants are currently not a threat to the habitat in this unit (PCE 3). The features essential to the conservation of the species in this unit may require special management considerations or protections to prevent future adverse effects due to competition and shading caused by encroachment of native and invasive, nonnative plants.

#### Unit 5: Cedar Plains North

Unit 5 consists of 1.7 ha (4.2 ac) of privately owned land located in Morgan County, Alabama. This unit is located on Cedar Plains Road, from 0.6 to 1 km (0.4 to 0.6 mi) north of County Road 55, approximately 8 km (5 mi) west of the junction of U.S. Highway 31 and County Road 55 in Falkville. These populations are located within a pasture and are actively maintained by livestock grazing. Well-lighted, open areas (PCE 2), with shallow soils and exposed limestone bedrock or gravel that are dominated by characteristic glade vegetation (PCE 1), are present within the unit. This glade complex, although subjected to ongoing agricultural interests, represents the greatest concentration of plants currently known for the species.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of invasive species into open glades and incompatible livestock grazing. Invasive species encroachment and continuous livestock grazing during the plant's reproductive cycle constitute ongoing threats to this site (Schotz 2009, pp. 23-24).

#### Unit 6: Massey Glade

Unit 6 consists of 2.75 ha (6.8 ac) of privately owned land located in Morgan County, Alabama. This unit is located on County Road 55, 0.3 to 0.6 km (0.2 to 0.4 mi) west of Cedar Plains Road, approximately 8.3 km (5.2 mi) west of the junction of U.S. Highway 31 and County Road 55 in Falkville. This population is located within a highly disturbed complex of limestone pavement barrens scattered in an actively utilized pasture and within the yards and fields of nearby homes. Well-lighted, open areas (PCE 2), with shallow soils and exposed limestone bedrock or gravel that are dominated by characteristic glade vegetation (PCE 1), are present

within the unit.

The features essential to the conservation of the species in this unit may require special management considerations or protection to address threats of invasive species into open glades and incompatible livestock grazing. Invasive species encroachment and continuous livestock grazing during the plant's reproductive cycle constitute ongoing threats to this site (Schotz 2009, pp. 25-26).

## **Effects of Critical Habitat Designation**

### *Section 7 Consultation*

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5<sup>th</sup> and 9<sup>th</sup> Circuit Courts of Appeals have invalidated our regulatory definition of "destruction or adverse modification" (50 CFR 402.02) (see *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F. 3d 1059 (9<sup>th</sup> Cir. 2004) and *Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434 (5<sup>th</sup> Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical

habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

- (1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or
- (2) A biological opinion for Federal actions that may affect and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat.

We define “reasonable and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during consultation that:

- (1) Can be implemented in a manner consistent with the intended purpose of the action,
- (2) Can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction,
- (3) Are economically and technologically feasible, and
- (4) Would, in the Director’s opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency’s discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

*Application of the “Adverse Modification” Standard*

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for Short's bladderpod, whorled sunflower, or fleshy-fruit gladeceess. As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for Short's bladderpod, whorled sunflower, or fleshy-fruit gladeceess. These activities include, but are not limited to:

#### Short's bladderpod

(1) Actions that would remove, severely alter, or inundate portions of bedrock formations or outcrops of calcareous limestones and interbedded shales or siltstones (geologic substrates). Actions that could remove or severely alter geologic substrates include, but are not limited to, construction of bridges, buildings, quarries, roads, railroad tracks, or interstate pipelines and associated structures. These actions could directly remove or result in alteration of geologic substrates due to blasting with explosive charges and removal or disturbance by heavy machinery. Construction of new dams or raising elevations of existing dams downstream of a

critical habitat unit could inundate geologic substrates.

(2) Actions that would remove, severely alter, or increase erosion of soils. Such activities could include construction of bridges, buildings, quarries, roads, railroad tracks, or interstate pipelines and associated structures; maintenance of transportation rights-of-way; removal of woody vegetation; and reservoir management. Construction activities could directly remove soils during the course of grading and site preparation. Establishing a quarry would involve removal of the overburden, including soils, prior to excavating the geologic substrate for a quarry. Transportation right-of-way maintenance that involved grading or use of heavy equipment to remove vegetation could cause removal, alteration, or erosion of soils. Removal of woody vegetation, if done excessively, could result in soil erosion on the steeply sloped sites in most critical habitat units. Reservoir management that caused frequent changes in reservoir stage could lead to soil erosion, especially at lower elevations of hillside and bluff habitats. Removal or erosion of soils could lead to the loss or reduction of seed banks formed by Short's bladderpod. Soil alteration due to grading or other disturbance could cause soils to be overturned, resulting in burial of seed banks formed by Short's bladderpod.

(3) Actions that would result in removal of forest communities, promote development of woody vegetation with high stocking densities that cause excessive shading and a lack of forest gaps, or introduce invasive, nonnative plants into critical habitat. Such activities could include timber harvest that severely reduces or completely removes forest canopy; mechanical or chemical vegetation management for transportation right-of-way maintenance; and introduction of invasive, nonnative herbaceous and woody plants. Timber harvest that severely reduces or completely removes forest canopy cover would promote forest regeneration characterized by high stem densities and lack of a diverse age structure, which could cause excessive shading.

Mechanical or chemical vegetation management for transportation right-of-way maintenance potentially could be beneficial for Short's bladderpod if well-planned and carefully executed. However, indiscriminate use of chemical or mechanical methods for vegetation control could cause complete removal of the forest canopy, which would promote regeneration characterized by high stem densities and lack of a diverse age structure, potentially leading to excessive shading. Introducing invasive, nonnative herbaceous and woody plants could lead to excessive shading and competition. Such species include, but are not limited to *Lonicera maackii* (bush honeysuckle), *L. japonica* (Japanese honeysuckle), *Ailanthus altissima* (tree-of-heaven), *Ligustrum vulgare* and *L. sinense* (privet), *Lespedeza cuneata* (sericea lespedeza), and *Lespedeza bicolor* (bicolor lespedeza). The effects of the activities described above would eventually prevent Short's bladderpod from receiving adequate light for growth and reproduction.

#### Whorled Sunflower

(1) Actions that would remove, severely alter, or increase erosion of soils. Such activities could include clearing, disking, plowing, and harvesting of row crop fields; site preparation, operation of heavy equipment, and construction and maintenance of log landings, loading decks, skid trails, and haul roads for silvicultural activities; and maintenance of transportation rights-of-way. These activities could result in the removal of soils, which would remove any whorled sunflower plants, rhizomes, or seeds present in the soil. These activities also could cause soil compaction, which could limit root and rhizome development or reduce water infiltration, or lead to increased soil erosion and loss of organic matter and nutrients.

(2) Actions that would promote encroachment of woody species into old fields, prairie

remnants, or woodlands with herbaceous vegetation that is characteristic of moist prairie remnants. Such activities could include the planting of forest stands with high stem densities; planting forested stream buffers; or neglecting to conduct periodic mechanical disturbance, herbicide application, or prescribed burning. Planting forest stands with high stem densities or planting forested stream buffers would eventually lead to development of a canopy that would prevent whorled sunflower from receiving adequate light for growth and reproduction. Neglecting to conduct periodic management in suitable habitat, such as mechanical disturbance, careful herbicide application, or prescribed burning, would lead to encroachment by shrubs or trees that would eventually prevent whorled sunflower from receiving adequate light for growth and reproduction.

(3) Actions that cause mortality of whorled sunflower plants or that disrupt growth and prevent individuals from producing flowers. Such activities could include indiscriminate herbicide application or mowing for transportation right-of-way maintenance, agriculture, or silviculture, or actions described above that cause removal of soils and plant parts they contain. Herbicide application or removal of soil and any plant parts contained therein could result in direct mortality of individual whorled sunflower plants. Poorly timed mowing could disrupt growth and prevent flower production. Either of these activities could permanently or temporarily reduce the number of compatible mates within a population, reducing the potential for viable achene production to occur.

#### Fleshy-fruit Gladecress

(1) Actions that would remove, severely alter, or significantly reduce limestone outcrops.

Such activities could include, but are not limited to, construction of interstate pipelines and associated structures that are regulated by the Federal Energy Regulatory Commission; U.S. Army Corps of Engineers-issued Clean Water Act section 404 and River and Harbors Act section 10 permits for wetland crossings for linear projects (pipelines, transmission lines, and roads); road development (expansions and improvements) funded by the Federal Highway Administration; and U.S. Department of Agriculture funding and technical assistance for conversion of glades and surroundings to pine plantations or for brush control programs involving herbicide applications. These actions could directly eliminate a site or alter the hydrology, open sunny aspect, and substrate conditions, reducing suitability of a location to a point that it no longer provides the environment necessary to sustain the species. In the case of some types of herbicide applications, the habitat may become unsuitable for germination and successful growth of seedlings. These activities would permanently alter the habitat that fleshy-fruit gladececess is dependent on to complete its life cycle.

(2) Actions that would significantly alter natural flora, including disturbance activities such as digging, disking, blading or construction work; introduction of nonnative species for erosion control along rights-of-way or in other areas; and a lack of management of nonnative or native woody species.

## **Exemptions**

### *Application of Section 4(a)(3) of the Act*

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each

military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

- (1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;
- (2) A statement of goals and priorities;
- (3) A detailed description of management actions to be implemented to provide for these ecological needs; and
- (4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: “The Secretary shall not designate as critical habitat any lands or other geographic areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.”

There are no Department of Defense lands with a completed INRMP within the proposed

critical habitat designation.

## **Exclusions**

### *Application of Section 4(b)(2) of the Act*

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

### Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we are preparing an analysis of the economic impacts of the proposed critical habitat designation and related factors.

We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek public review and comment. At that time, copies of the draft economic analysis will be available for downloading from the Internet at <http://www.regulations.gov> under Docket No. FWS-R4-ES-2013-0086, or by contacting the Tennessee Ecological Services Fish and Wildlife Office directly (see **FOR FURTHER INFORMATION CONTACT** section). During the development of a final designation, we will consider economic impacts, public comments, and other new information, and areas may be excluded from the final critical habitat designation under section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19.

#### National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense where a national security impact might exist. In preparing this proposal, we have determined that no lands within the proposed designation of critical habitat for the whorled sunflower and fleshy-fruit gladecegrass are owned or managed by the Department of Defense. The Department of Defense owns or manages land, adjacent to Corps of Engineers reservoirs, where critical habitat is proposed for Short's bladderpod. However, we anticipate no impact on national security from designating this land as critical habitat. Consequently, the Secretary does not propose to exercise his discretion to exclude any areas from the final designation based on impacts on national security.

#### Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors, including whether the landowners have developed any HCPs or other management plans for the area, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

In preparing this proposal, we have determined that there are currently no HCPs or other management plans for the Short's bladderpod, whorled sunflower, nor fleshy-fruit gladeceess, and the proposed designation does not include any tribal lands or trust resources. We anticipate no impact on tribal lands, partnerships, or HCPs from this proposed critical habitat designation. Accordingly, the Secretary does not propose to exercise her discretion to exclude any areas from the final designation based on other relevant impacts.

### **Peer Review**

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our critical habitat designation is based on scientifically sound data, and analyses. We have invited these peer reviewers to comment during this public comment period on our proposed designation of critical habitat for these species.

We will consider all comments and information we receive during this comment period on this proposed rule during our preparation of a final determination. Accordingly, the final decision may differ from this proposal.

## **Public Hearings**

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in the **FOR FURTHER INFORMATION CONTACT** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

## **Required Determinations**

### *Regulatory Planning and Review (Executive Orders 12866 and 13563)*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty,

and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents;

and small businesses (13 CFR 121.201). Small businesses include such businesses as manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and forestry and logging operations with fewer than 500 employees and annual business less than \$7 million. To determine whether small entities may be affected, we will consider the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

Importantly, the incremental impacts of a rule must be *both* significant and substantial to prevent certification of the rule under the RFA and to require the preparation of an initial regulatory flexibility analysis. If a substantial number of small entities are affected by the proposed critical habitat designation, but the per-entity economic impact is not significant, the Service may certify. Likewise, if the per-entity economic impact is likely to be significant, but the number of affected entities is not substantial, the Service may also certify.

Under the RFA, as amended, and following recent court decisions, Federal agencies are only required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself, and not the potential impacts to indirectly affected entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried by the agency is not likely to adversely modify critical habitat. Therefore, only Federal action agencies are directly subject to the specific

regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Under these circumstances, it is our position that only Federal action agencies will be directly regulated by this designation. Therefore, because Federal agencies are not small entities, the Service may certify that the proposed critical habitat rule will not have a significant economic impact on a substantial number of small entities.

We acknowledge, however, that in some cases, third-party proponents of the action subject to permitting or funding may participate in a section 7 consultation, and thus may be indirectly affected. We believe it is good policy to assess these impacts if we have sufficient data before us to complete the necessary analysis, whether or not this analysis is strictly required by the RFA. While this regulation does not directly regulate these entities, in our draft economic analysis we will conduct a brief evaluation of the potential number of third parties participating in consultations on an annual basis in order to ensure a more complete examination of the incremental effects of this proposed rule in the context of the RFA.

In conclusion, we believe that, based on our interpretation of directly regulated entities under the RFA and relevant case law, this designation of critical habitat will only directly regulate Federal agencies which are not by definition small business entities. As such, certify that, if promulgated, this designation of critical habitat would not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required. However, though not necessarily required by the RFA, in our draft economic analysis for this proposal we will consider and evaluate the potential effects to third parties that may be involved with consultations with Federal action agencies related to this action.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We do not expect the designation of this proposed critical habitat to significantly affect energy supplies, distribution, or use, because: (1) Areas where critical habitat is being proposed for whorled sunflower and fleshy-fruit gladecegrass are not presently used for energy production, and (2) areas where critical habitat is being proposed for Short's bladderpod are not adversely affected as a result of hydropower generation by the Corps of Engineers. The authorized project purposes for Cheatham, Old Hickory, and Cordell Hull dams are navigation and hydropower. The overall reservoir system serves multiple purposes, including flood control, hydropower, navigation, recreation, water supply, and water quality. The preferred method of releasing water from these reservoirs is through hydropower turbines, and, to the extent possible, release schedules are developed to best meet peak power demands. However, storage capacity in these reservoirs constrains the upper limit at which reservoir stage can be maintained, sometimes requiring the Corps of Engineers to release water through spillways in addition to hydropower turbines, and limits the extent to which the lower elevations within proposed critical habitat units adjacent to these reservoirs are inundated or subjected to erosion due to stage fluctuation that could adversely modify features essential to the conservation of Short's bladderpod. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we conduct our economic analysis, and review and revise this assessment as warranted.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)-(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments. The majority of lands being proposed for critical habitat designation are privately owned or owned by the Federal government, although Ashland City, Tennessee, and Frankfort, Kentucky, own small portions of lands proposed as critical habitat for Short's bladderpod. Small governments will be affected only to the extent that any programs having Federal funds, permits, or other authorized activities must ensure that their actions will not adversely affect the critical habitat. Therefore, a Small Government Agency Plan is not required. However, we will further evaluate these issues as we conduct our economic analysis, and review and revise this assessment as warranted.

*Takings—Executive Order 12630*

In accordance with Executive Order 12630 (“Government Actions and Interference with Constitutionally Protected Private Property Rights”), we have analyzed the potential takings implications of designating critical habitat for the Short’s bladderpod, whorled sunflower, and fleshy-fruit gladeceess in takings implications assessments. Based on the best available information, the takings implications assessments conclude that the designations of critical habitat for the Short’s bladderpod, whorled sunflower, and fleshy-fruit gladeceess do not pose significant takings implications. However, we will further evaluate this issue as we develop our final designation, and review and revise this assessment as warranted.

*Federalism—Executive Order 13132*

In accordance with Executive Order 13132 (Federalism), this proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this proposed critical habitat designation with appropriate State resource agencies in Alabama, Georgia, Indiana, Kentucky, and Tennessee. The designation of critical habitat in areas currently occupied by Short’s bladderpod, whorled sunflower, and fleshy-fruit gladeceess imposes no additional restrictions to those that would be put in place by the listing of the species and, therefore, has little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments because the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features necessary to the conservation of the species are specifically identified. This information does not alter

where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

#### *Civil Justice Reform—Executive Order 12988*

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, the rule identifies the elements of physical or biological features essential to the conservation of the species. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested public to obtain more detailed location information, if desired.

#### *Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

*National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

*Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to

communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes.

We determined that there are no tribal lands occupied by Short's bladderpod, whorled sunflower, or fleshy-fruit gladecress at the time of listing that contain the features essential for conservation of the species, and no tribal lands unoccupied by these species that are essential for the conservation of the species. Therefore, we are not proposing to designate critical habitat for the Short's bladderpod, whorled sunflower, or fleshy-fruit gladecress on tribal lands.

#### *Clarity of the Rule*

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in the **ADDRESSES** section. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

### **References Cited**

A complete list of references cited in this rulemaking is available on the Internet at <http://www.regulations.gov> under Docket No. FWS-R4-ES-2013-0086 and upon request from the Tennessee Ecological Services Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Authors**

The primary authors of this package are the staff members of the Tennessee and Alabama Ecological Services Field Offices.

### **List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

### **Proposed Regulation Promulgation**

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

**PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS**

1. The authority citation for part 17 continues to read as follows:

**Authority:** 16 U.S.C. 1361–1407; 1531–1544; 4201–4245, unless otherwise noted.

2. Amend § 17.96 paragraph (a) as follows:

a. By adding an entry in alphabetical order under Family Asteraceae for “*Helianthus verticillatus* (whorled sunflower)”; and

b. By adding entries in alphabetical order under Family Brassicaceae for “*Leavenworthia crassa* (fleshy-fruit glade cress)” and “*Physaria globosa* (Short’s bladderpod)”.

The additions read as follows:

**§ 17.96 Critical habitat—plants.**

\* \* \* \* \*

(a) *Flowering plants.*

\* \* \* \* \*

Family Asteraceae: *Helianthus verticillatus* (whorled sunflower)

(1) Critical habitat units are depicted for Cherokee County, Alabama; Floyd County, Georgia; and Madison and McNairy Counties, Tennessee, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of whorled sunflower consist of three

components:

(i) Silt loam, silty clay loam, or fine sandy loam soils on land forms including broad uplands, depressions, stream terraces, and floodplains within the headwaters of the Coosa River in Alabama and Georgia and the East Fork Forked Deer and Tuscumbia rivers in Tennessee.

(ii) Sites in which forest canopy is absent, or where woody vegetation is present at sufficiently low densities to provide full or partial sunlight to whorled sunflower plants for most of the day, and which support vegetation characteristic of moist prairie communities. Invasive, nonnative plants must be absent or present in sufficiently low numbers to not inhibit growth or reproduction of whorled sunflower.

(iii) Occupied sites in which a sufficient number of compatible mates are present for outcrossing and production of viable achenes to occur.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) *Critical habitat map units.* Data layers defining map units were created on a base of Bing Maps digital aerial photography supplied by the Harris Corporation, Earthstar Geographics LLC, and the Microsoft Corporation. Critical habitat units were then mapped using the USA Contiguous Albers Equal Area Projection with a NAD 83 datum. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points

or both on which each map is based are available to the public at the Service's Internet site at <http://www.fws.gov/cookeville>, at <http://www.regulations.gov> at Docket No. FWS-R4-ES-2013-0086, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

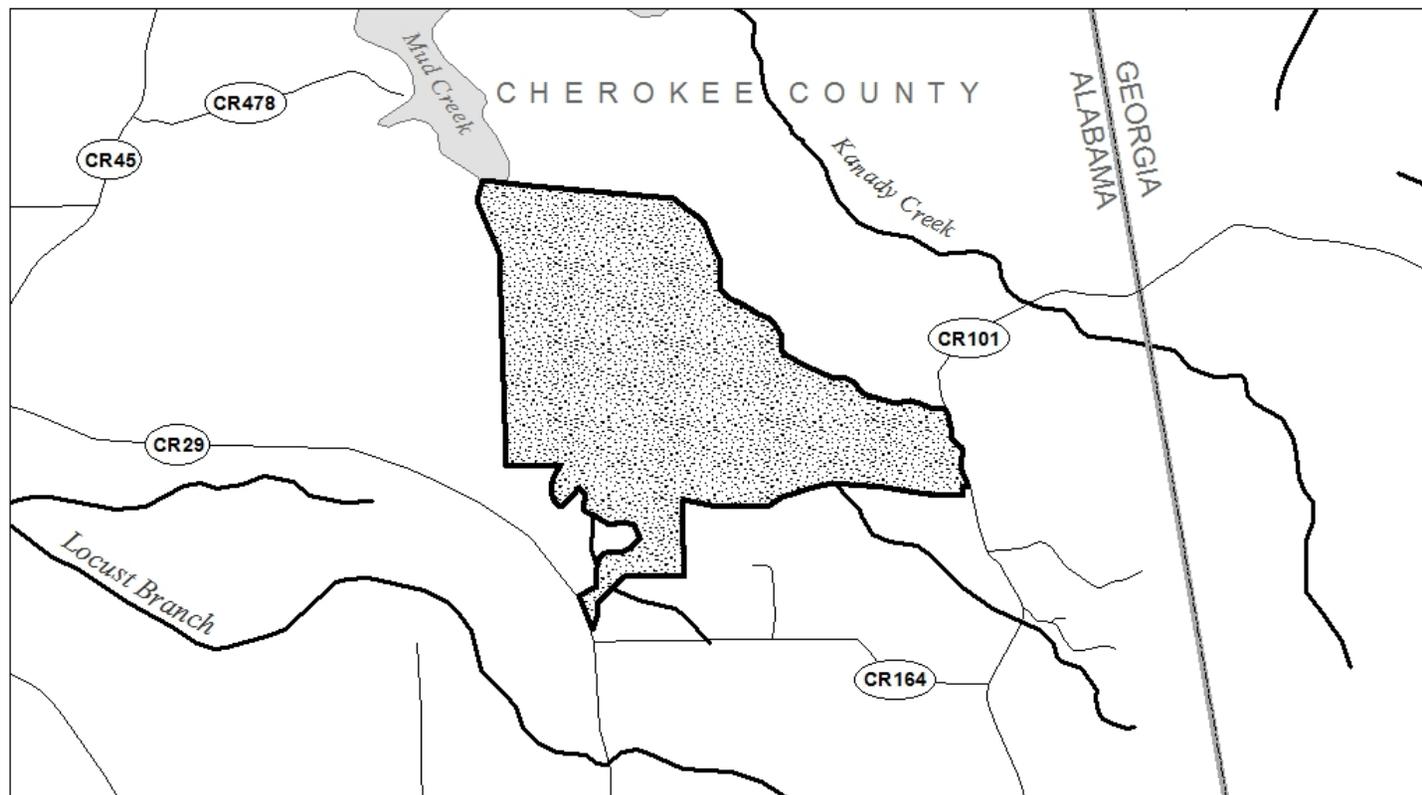
(5) Index map follows:

### Index Map of Critical Habitat Locations for the Whorled Sunflower in Alabama, Georgia and Tennessee

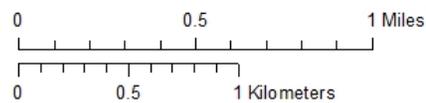


(6) Unit 1: Mud Creek, Cherokee County, Alabama. Map of Unit 1 follows:

# Unit 1: Mud Creek, Whorled Sunflower Critical Habitat

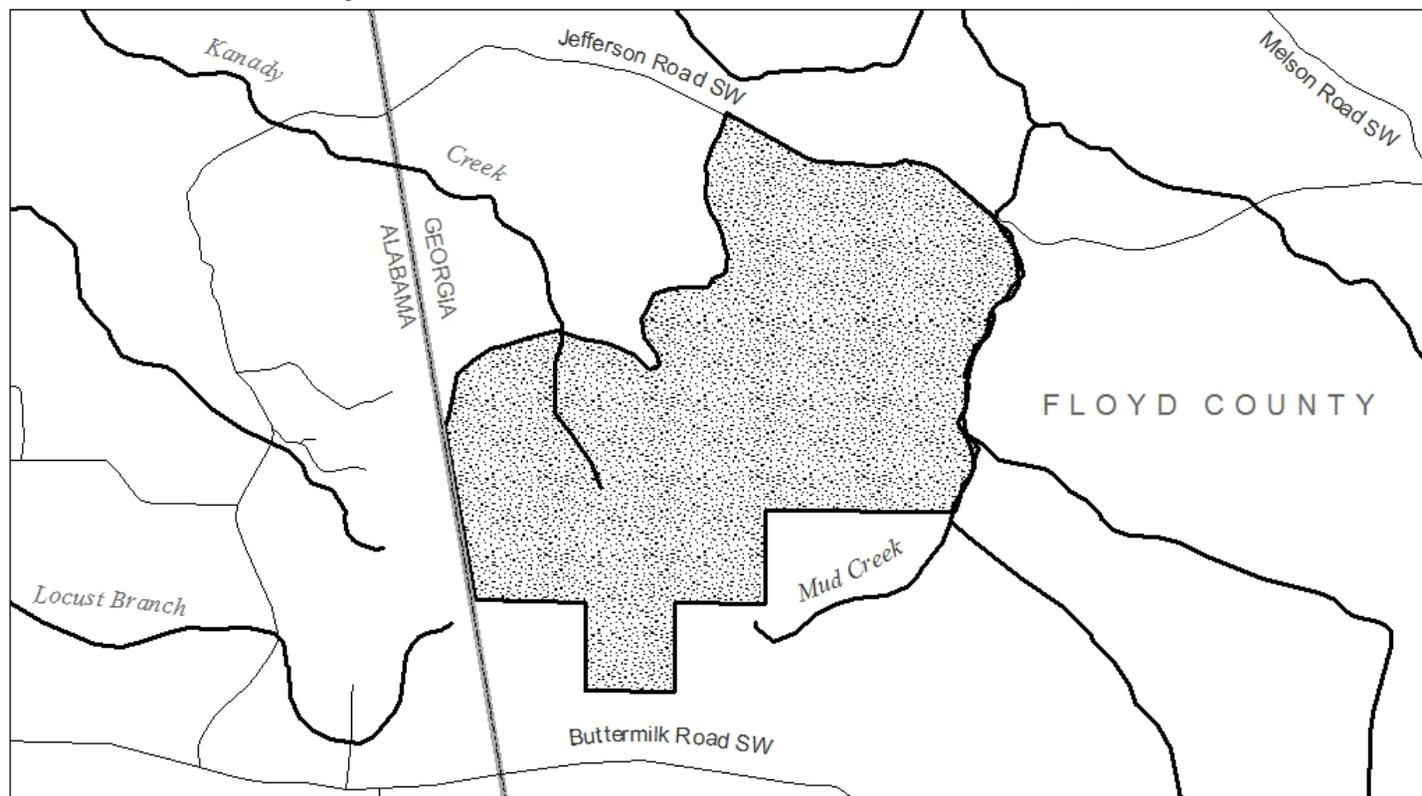


 Critical Habitat

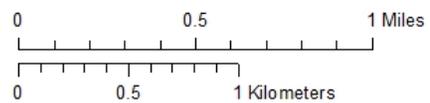


(7) Unit 2: Coosa Valley Prairie, Floyd County, Georgia. Map of Unit 2 follows:

## Unit 2: Coosa Valley Prairie, Whorled Sunflower Critical Habitat

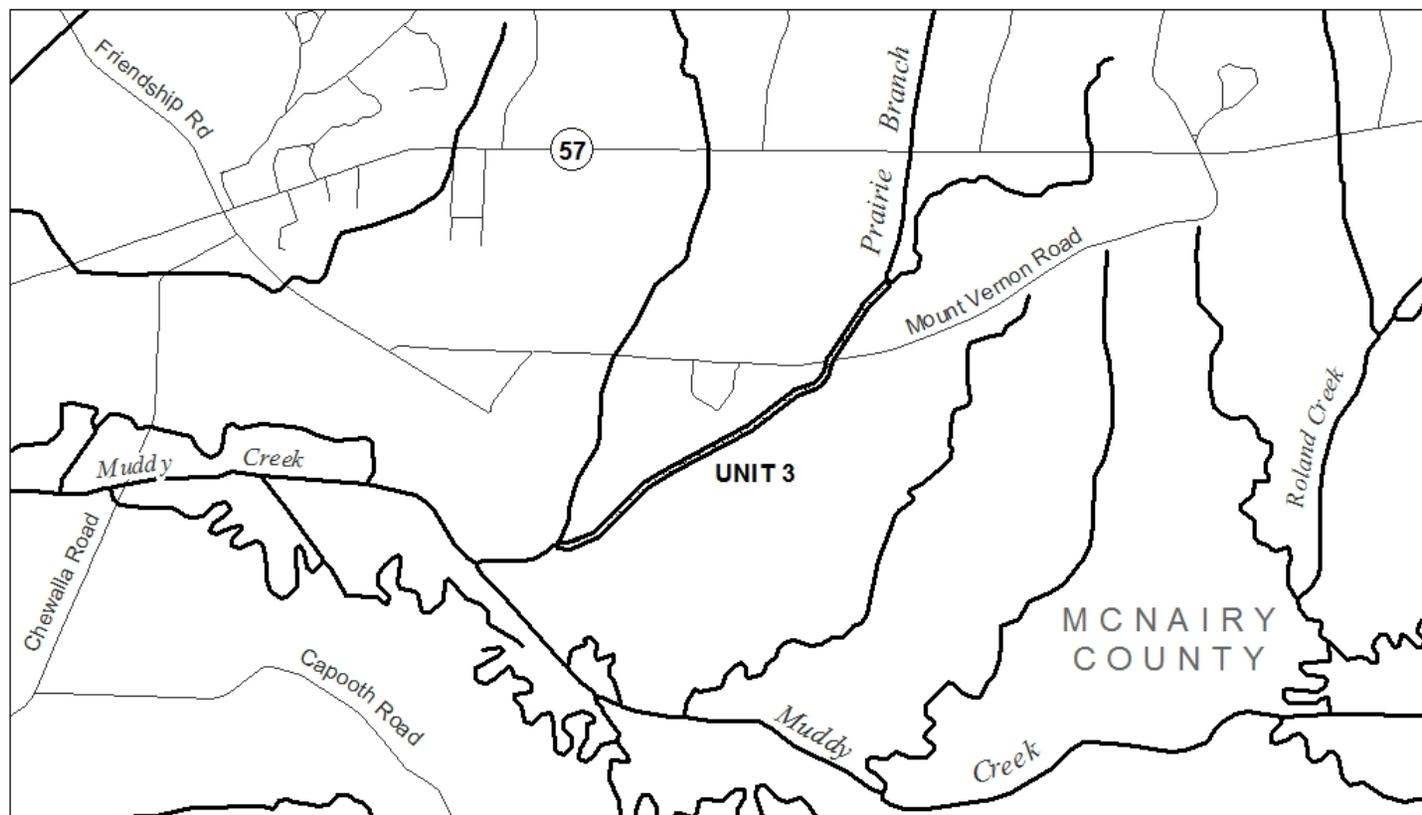


 Critical Habitat

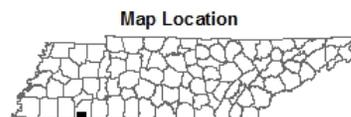
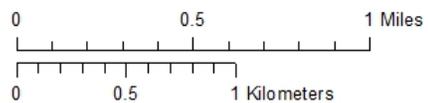


(8) Unit 3: Prairie Branch, McNairy County, Tennessee. Map of Unit 3 follows:

### Unit 3: Prairie Branch, Whorled Sunflower Critical Habitat

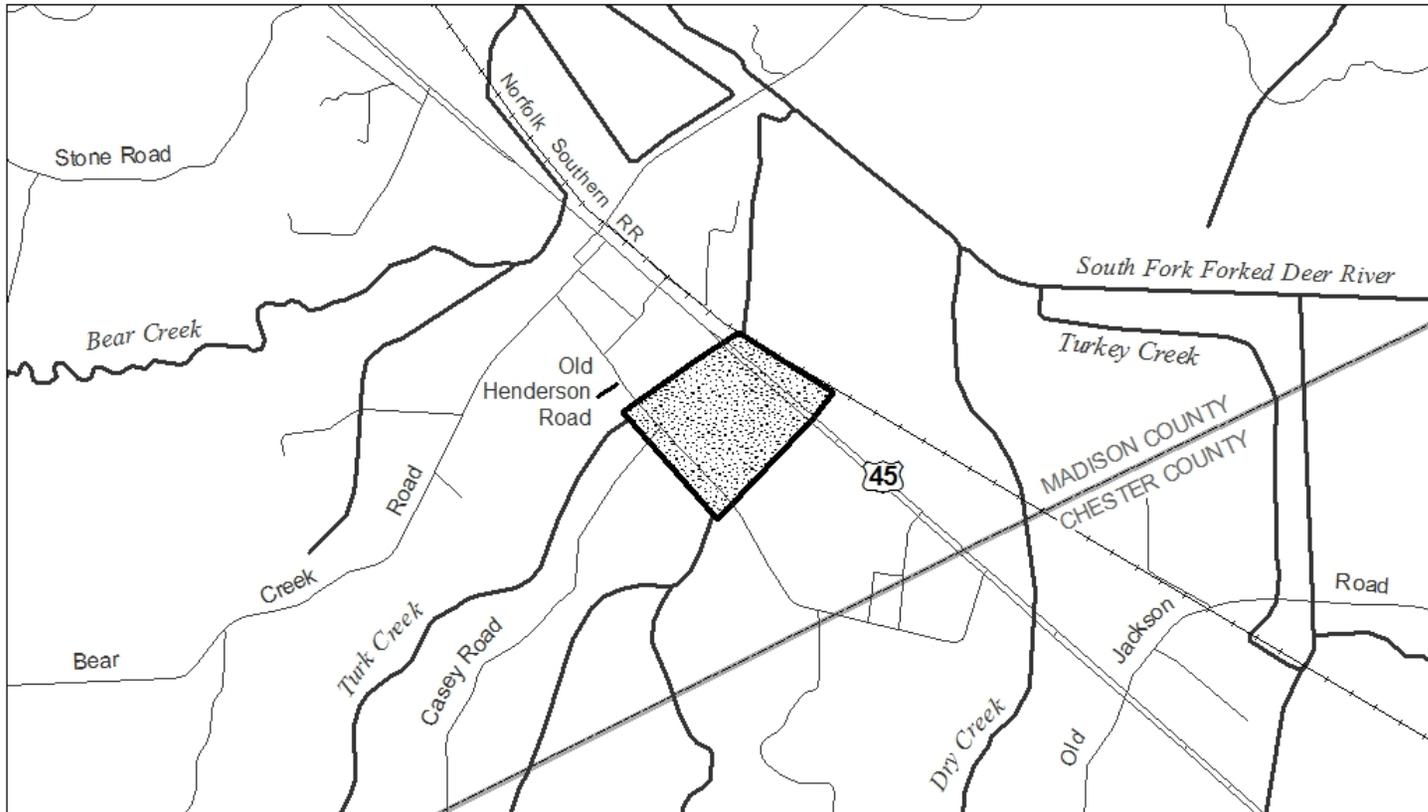


 Critical Habitat

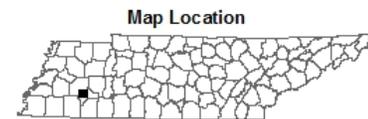
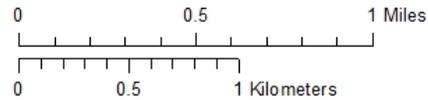


(9) Unit 4: Pinson, Madison County, Tennessee. Map of Unit 4 follows:

## Unit 4: Pinson, Whorled Sunflower Critical Habitat



 Critical Habitat



\* \* \* \* \*

Family Brassicaceae: *Leavenworthia crassa* (fleshy-fruit gladeceess)

(1) Critical habitat units are depicted for Lawrence and Morgan Counties, Alabama, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of fleshy-fruit gladeceess consist of three components:

(i) Shallow-soiled, open areas with exposed limestone bedrock or gravel that are dominated by herbaceous vegetation characteristic of glade communities.

(ii) Open or well-lighted areas of exposed limestone bedrock or gravel that ensure fleshy-fruit gladeceess plants remain unshaded for a significant portion of the day.

(iii) Glade habitat that is protected from both native and invasive, nonnative plants to minimize competition and shading of fleshy-fruit gladeceess.

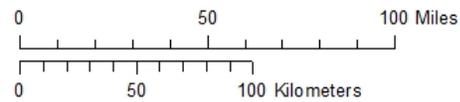
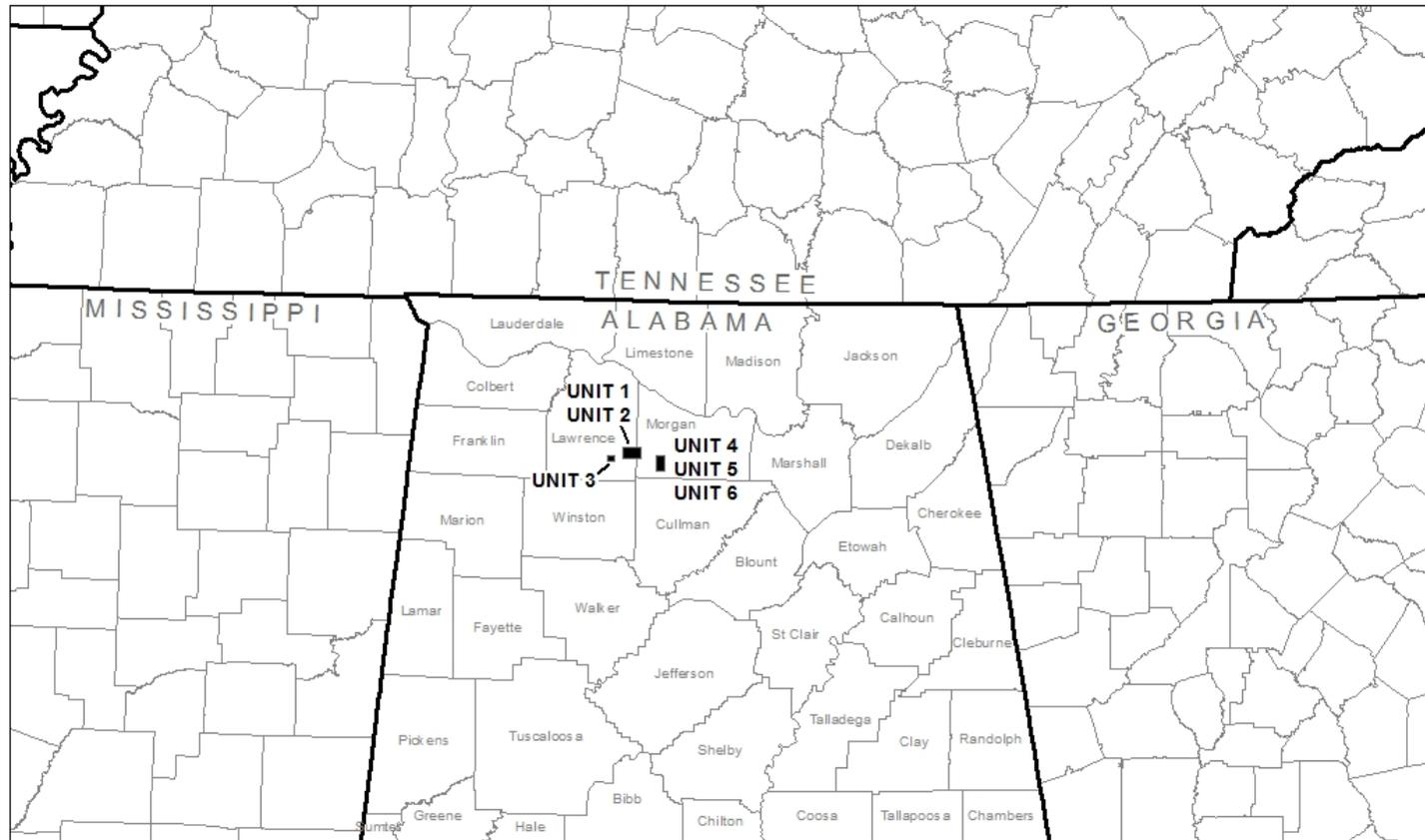
(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) *Critical habitat map units.* Data layers defining map units were created on a base of Bing Maps digital aerial photography supplied by the Harris Corporation,

Earthstar Geographics LLC, and the Microsoft Corporation. Critical habitat units were then mapped using the USA Contiguous Albers Equal Area Projection with a NAD 83 datum. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's Internet site at <http://www.fws.gov/cookeville>, at <http://www.regulations.gov> at Docket No. FWS-R4-ES-2013-0086, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) Index map follows:

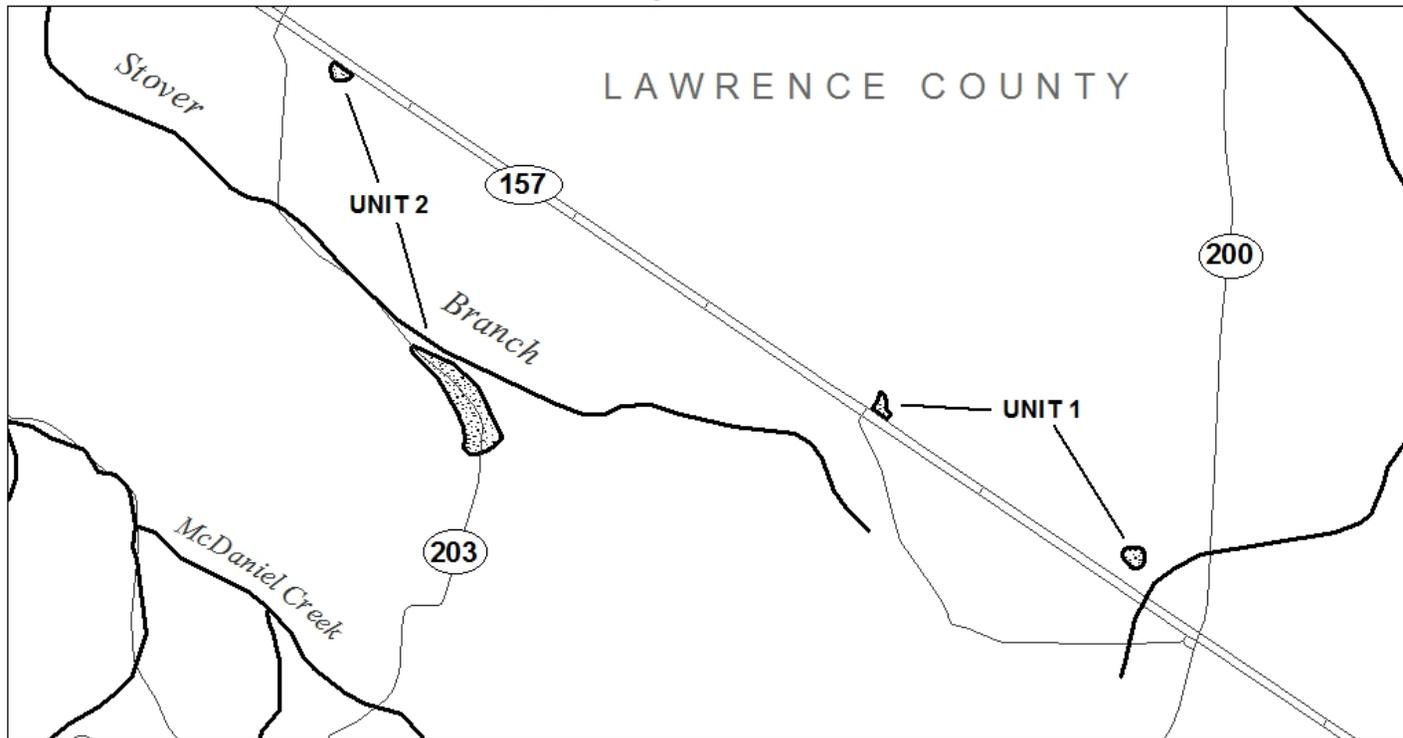
# Index Map of Critical Habitat Locations for the Fleshyfruit Gladecress in Alabama



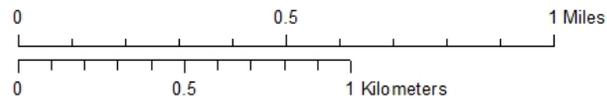
(6) Unit 1: Bluebird Glades, Lawrence County, Alabama. Map of Units 1 and 2

follows:

Unit 1: Bluebird Glades, Fleshyfruit Gladecress Critical Habitat  
Unit 2: Stover Branch Glades, Fleshyfruit Gladecress Critical Habitat



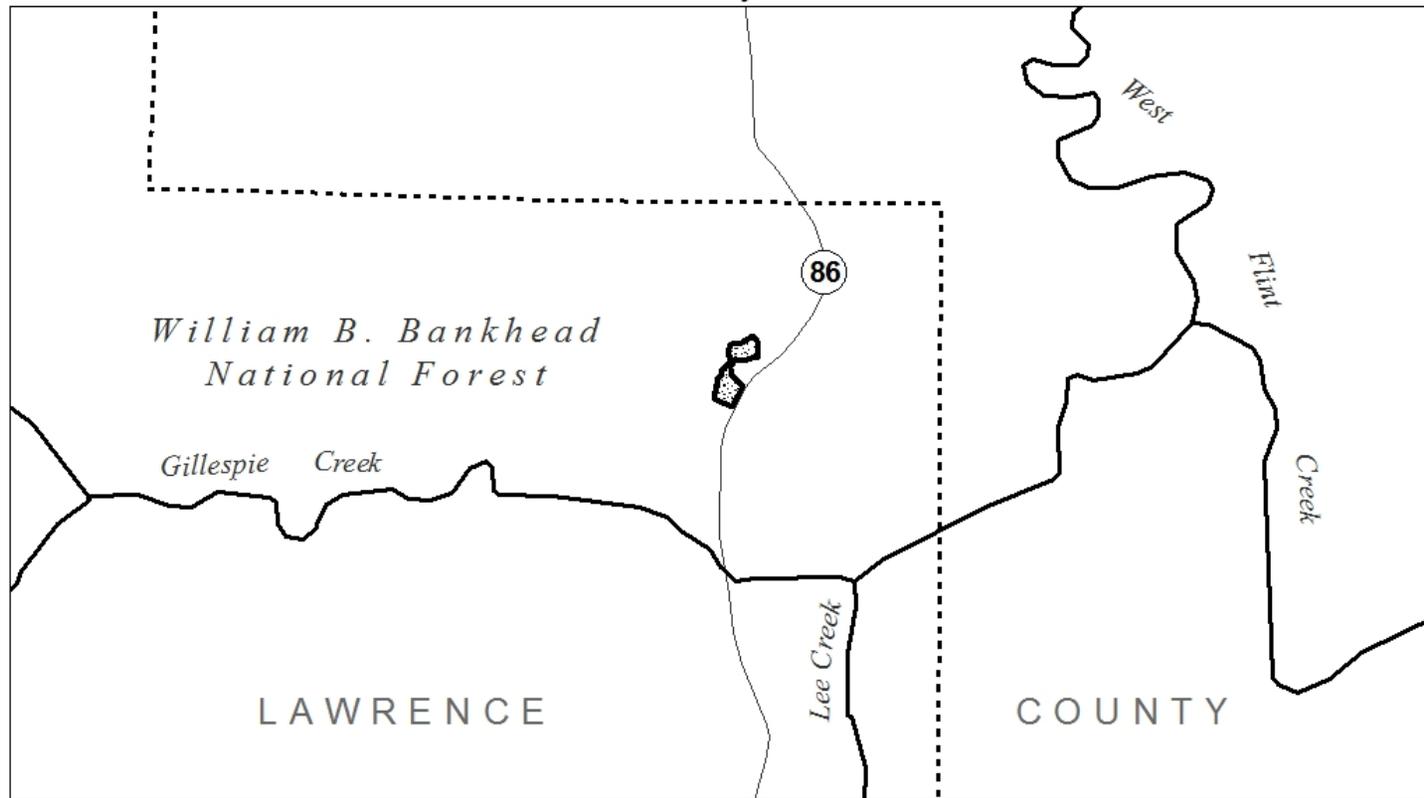
 Critical Habitat



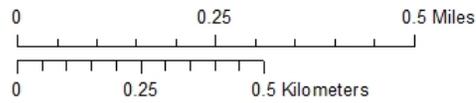
(7) Unit 2: Stover Branch Glades, Lawrence County, Alabama. Map of Unit 2 is provided at paragraph (6) of this entry.

(8) Unit 3: Indian Tomb Hollow Glade, Lawrence County, Alabama. Map of Unit 3 follows:

### Unit 3: Indian Tomb Hollow Glade, Fleshyfruit Gladecress Critical Habitat



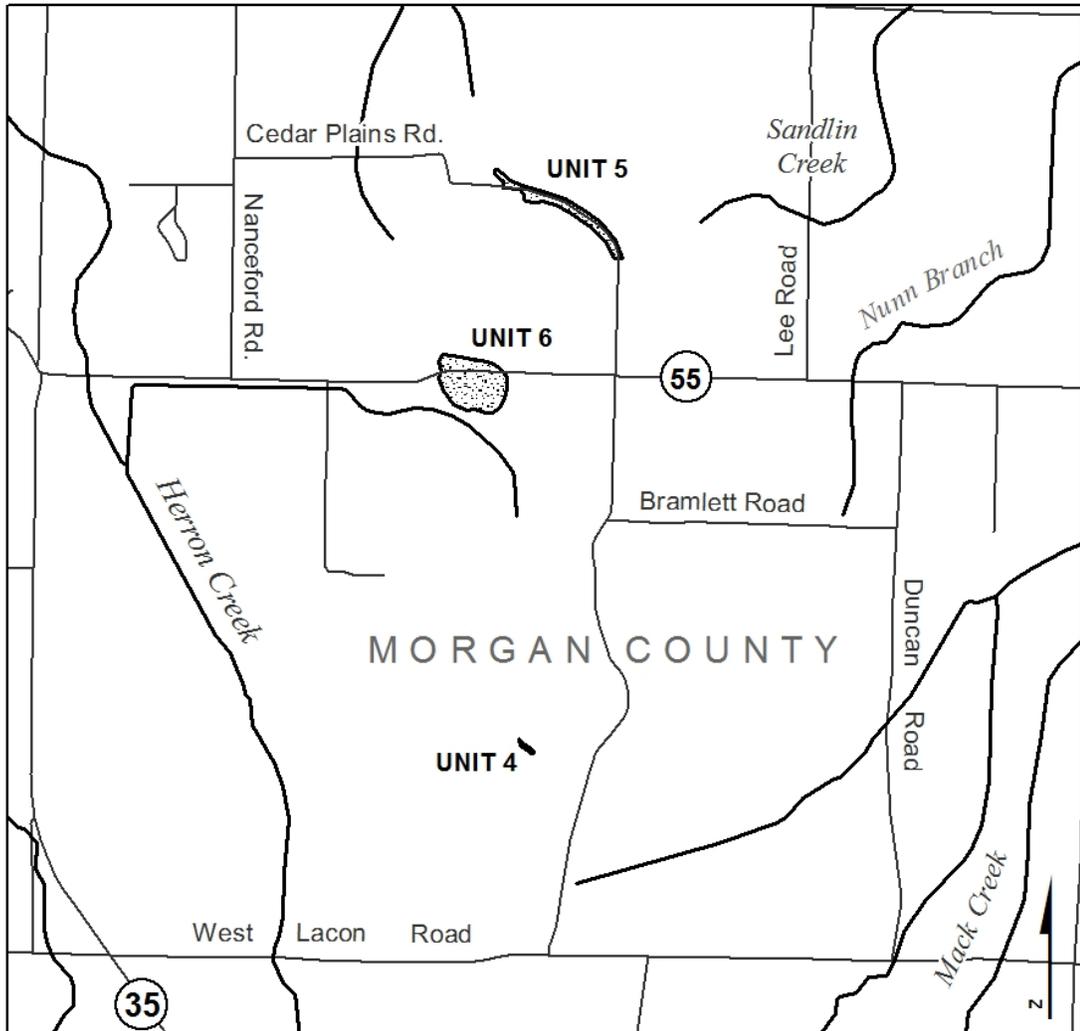
-  Critical Habitat
-  National Forest



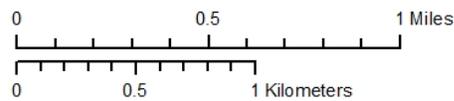
(9) Unit 4: Cedar Plains South, Morgan County, Alabama. Map of Units 4, 5, and

6 follows:

Unit 4: Cedar Plains South, Fleshyfruit Gladecress Critical Habitat  
 Unit 5: Cedar Plains North, Fleshyfruit Gladecress Critical Habitat  
 Unit 6: Massey Glade, Fleshyfruit Gladecress Critical Habitat



Critical Habitat



Map Location

(10) Unit 5: Cedar Plains North, Morgan County, Alabama. Map of Unit 5 is provided at paragraph (8) of this entry.

(11) Unit 6: Massey Glade, Morgan County, Alabama. Map of Unit 6 is provided at paragraph (8) of this entry.

\* \* \* \* \*

Family Brassicaceae: *Physaria globosa* (Short's bladderpod)

(1) Critical habitat units are depicted for Posey County, Indiana; Clark, Franklin, and Woodford Counties, Kentucky; and Cheatham, Davidson, Dickson, Jackson, Montgomery, Smith, and Trousdale Counties, Tennessee, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of Short's bladderpod consist of three components:

(i) Bedrock formations and outcrops of calcareous limestone, sometimes with interbedded shale or siltstone, in close proximity to the mainstem or tributaries of the Kentucky and Cumberland rivers. These outcrop sites or areas of suitable bedrock geology should be located on steeply sloped hillsides or bluffs, typically on south- to west-facing aspects.

(ii) Shallow or rocky, well-drained soils formed from the weathering of

underlying calcareous bedrock formations, which are undisturbed or subjected to minimal disturbance, so as to retain habitat for ground-nesting pollinators and potential for maintenance of a soil seed bank.

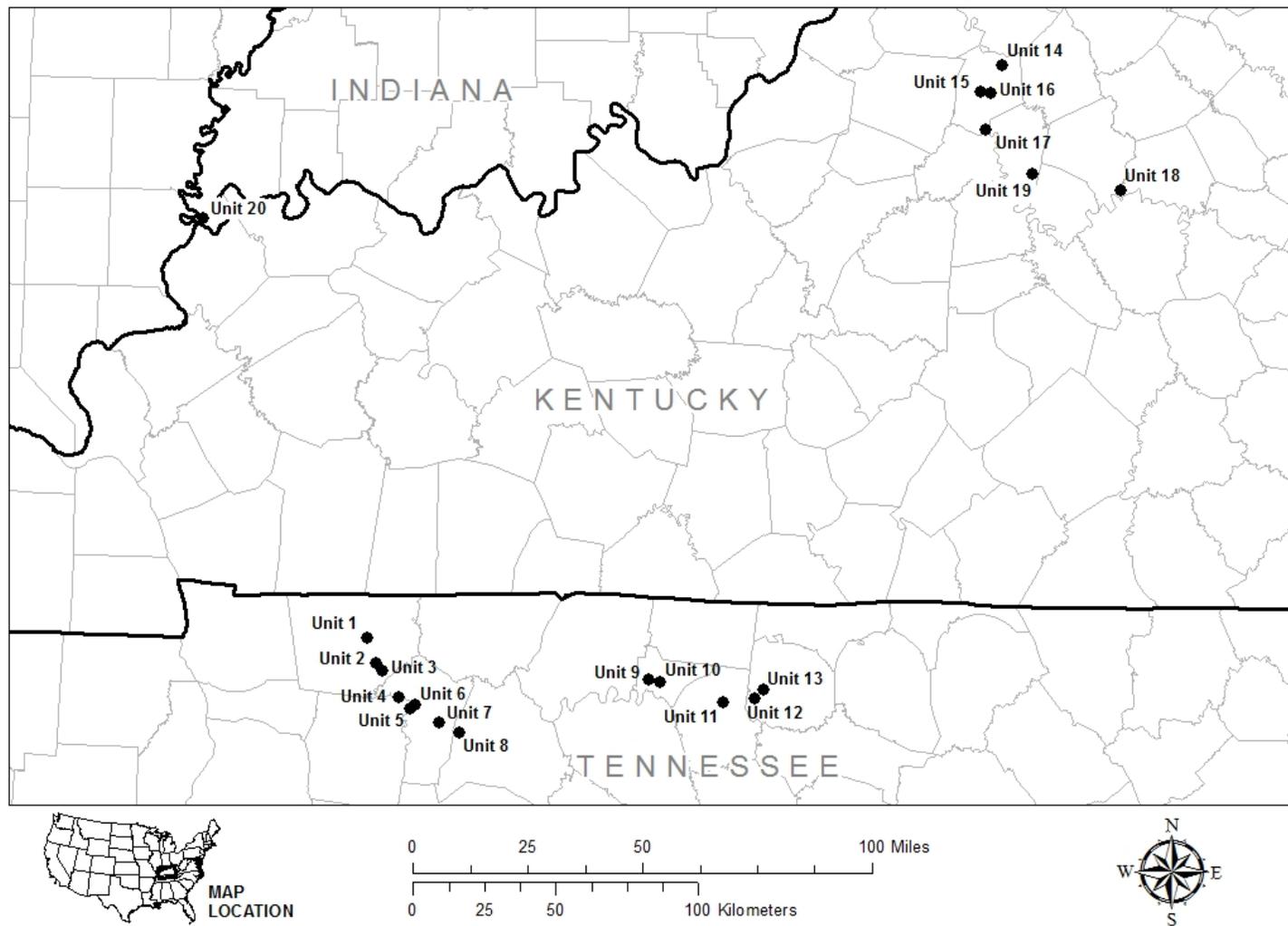
(iii) Forest communities with low levels of canopy closure or openings in the canopy to provide adequate sunlight for individual and population growth. Invasive, nonnative plants must be absent or present in sufficiently low numbers to not inhibit growth or reproduction of Short's bladderpod.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) *Critical habitat map units.* Data layers defining map units were created on a base of Bing Maps digital aerial photography supplied by the Harris Corporation, Earthstar Geographics LLC, and the Microsoft Corporation. Critical habitat units were then mapped using the USA Contiguous Albers Equal Area Projection with a NAD 83 datum. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's Internet site at <http://www.fws.gov/cookeville>, at <http://www.regulations.gov> at Docket No. FWS-R4-ES-2013-0086, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) Index map follows:

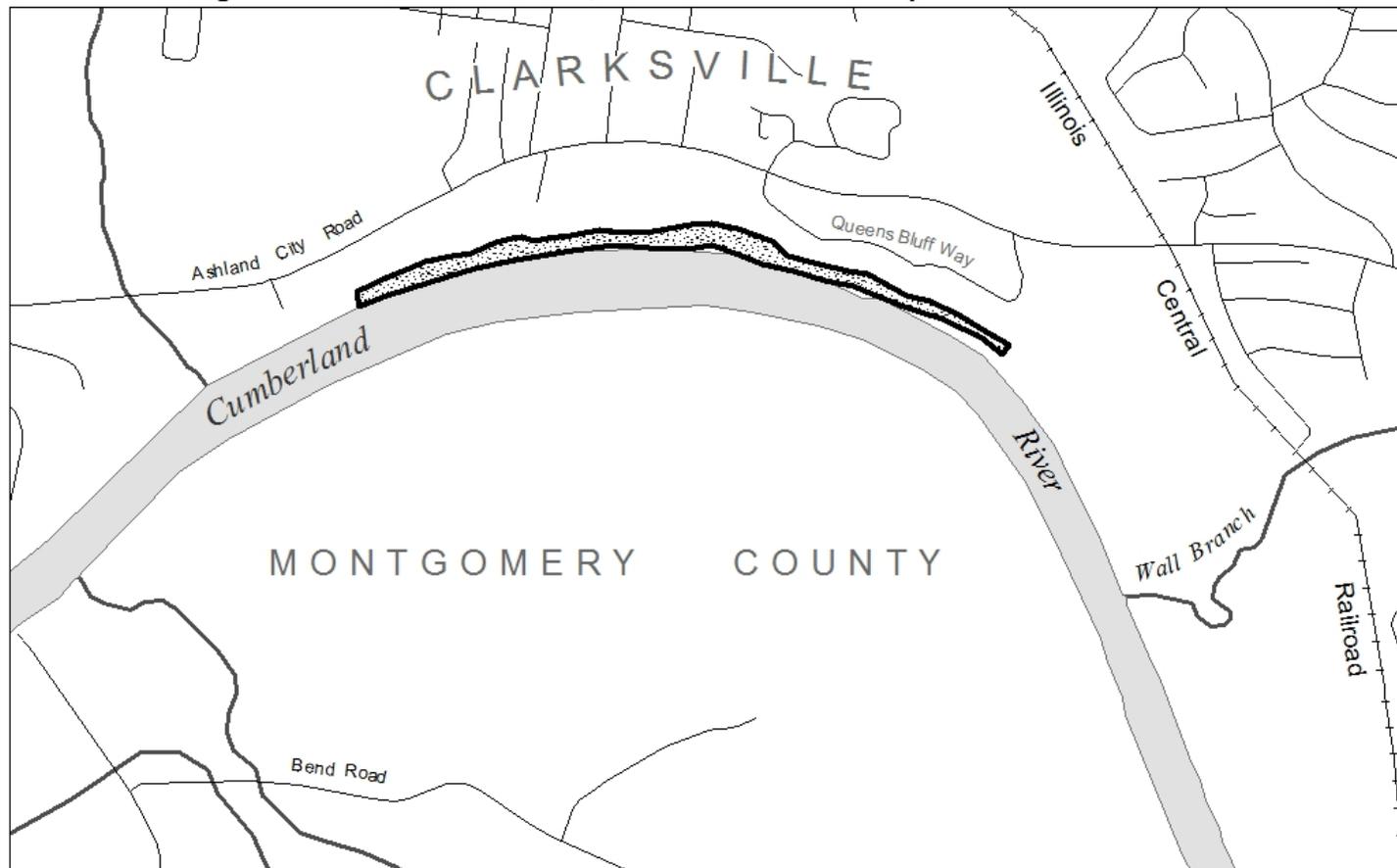
Index Map of Critical Habitat Locations for Short's bladderpod in Indiana, Kentucky, and Tennessee



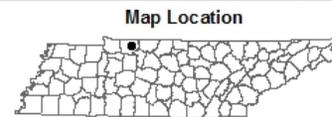
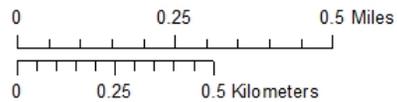
(6) Unit 1: Kings and Queens Bluff, Montgomery County, Tennessee. Map of

Unit 1 follows:

# Unit 1: King and Queens Bluff, Short's Bladderpod Critical Habitat



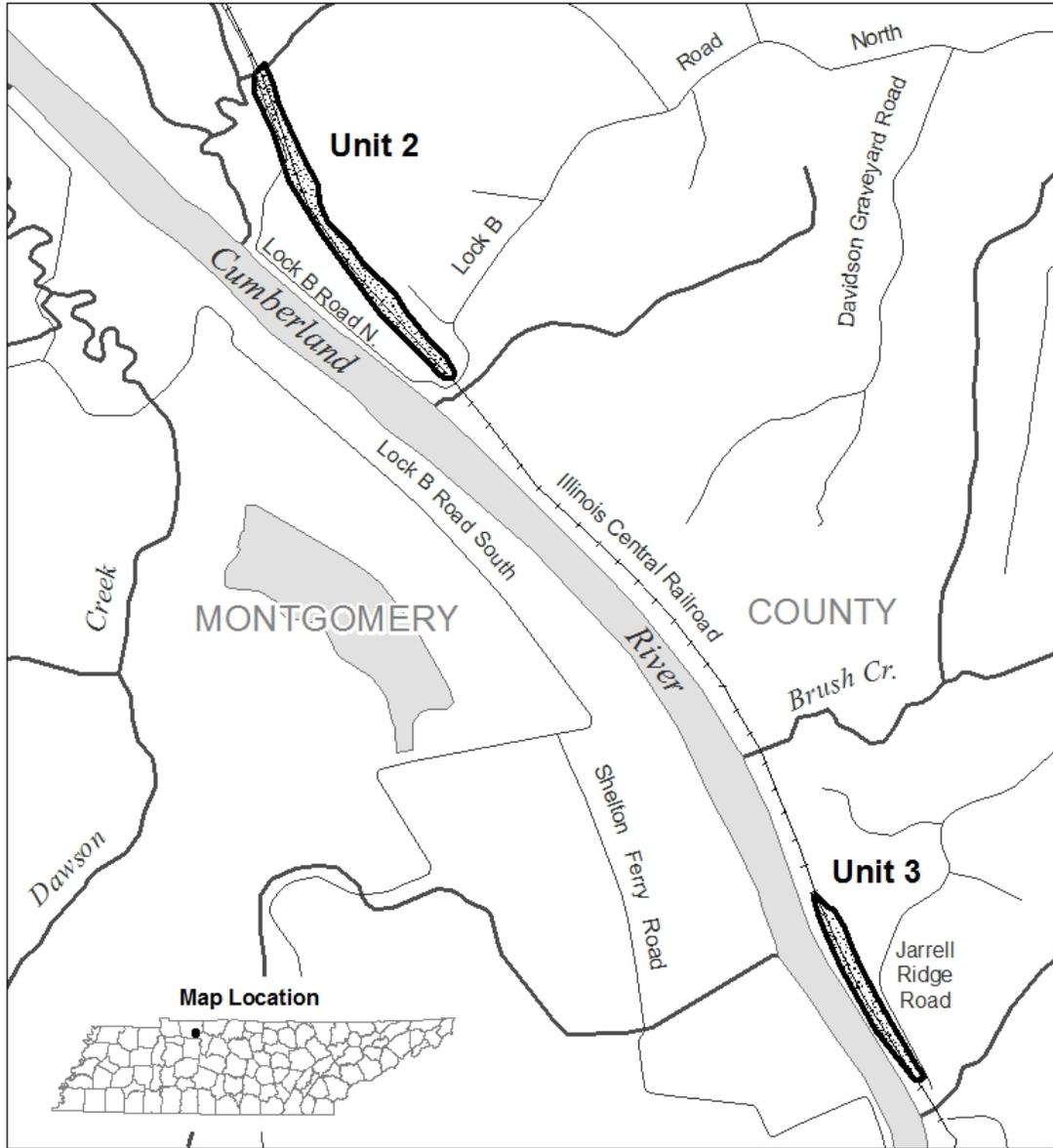
 Critical Habitat



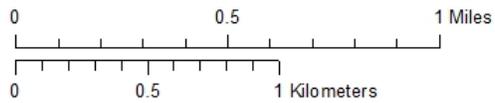
(7) Unit 2: Lock B Road, Montgomery County, Tennessee. Map of Units 2 and 3

follows:

Unit 2: Lock B Road, Short's Bladderpod Critical Habitat  
Unit 3: Jarrell Ridge Road, Short's Bladderpod Critical Habitat



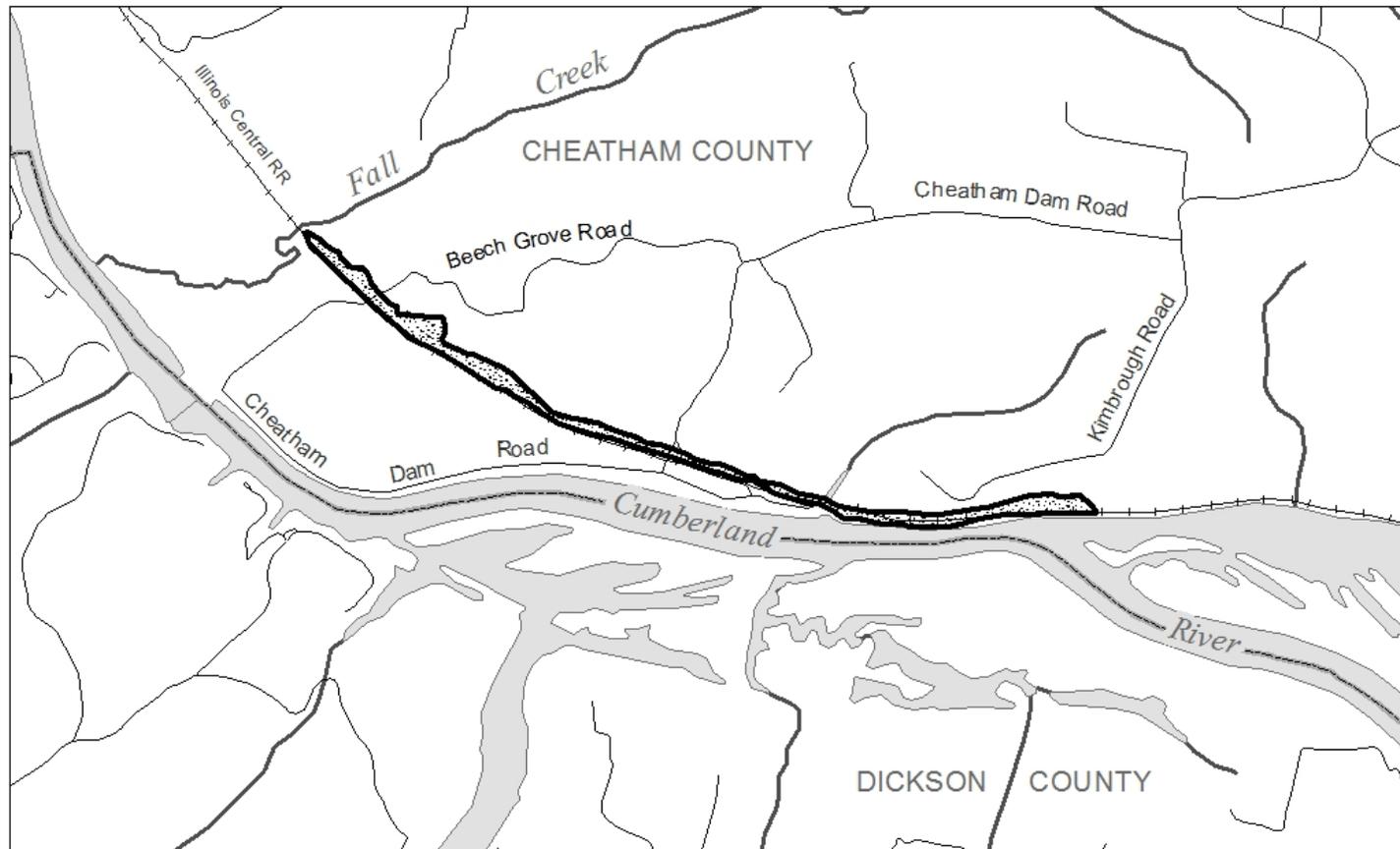
Critical Habitat



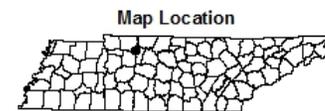
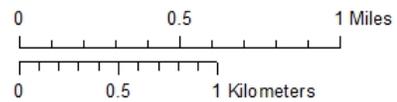
(8) Unit 3: Jarrel Ridge Road, Montgomery County, Tennessee. Map of Unit 3 is provided at paragraph (7) of this entry.

(9) Unit 4: Cheatham Lake, Cheatham County, Tennessee. Map of Unit 4 follows:

## Unit 4: Cheatham Lake, Short's Bladderpod Critical Habitat



 Critical Habitat

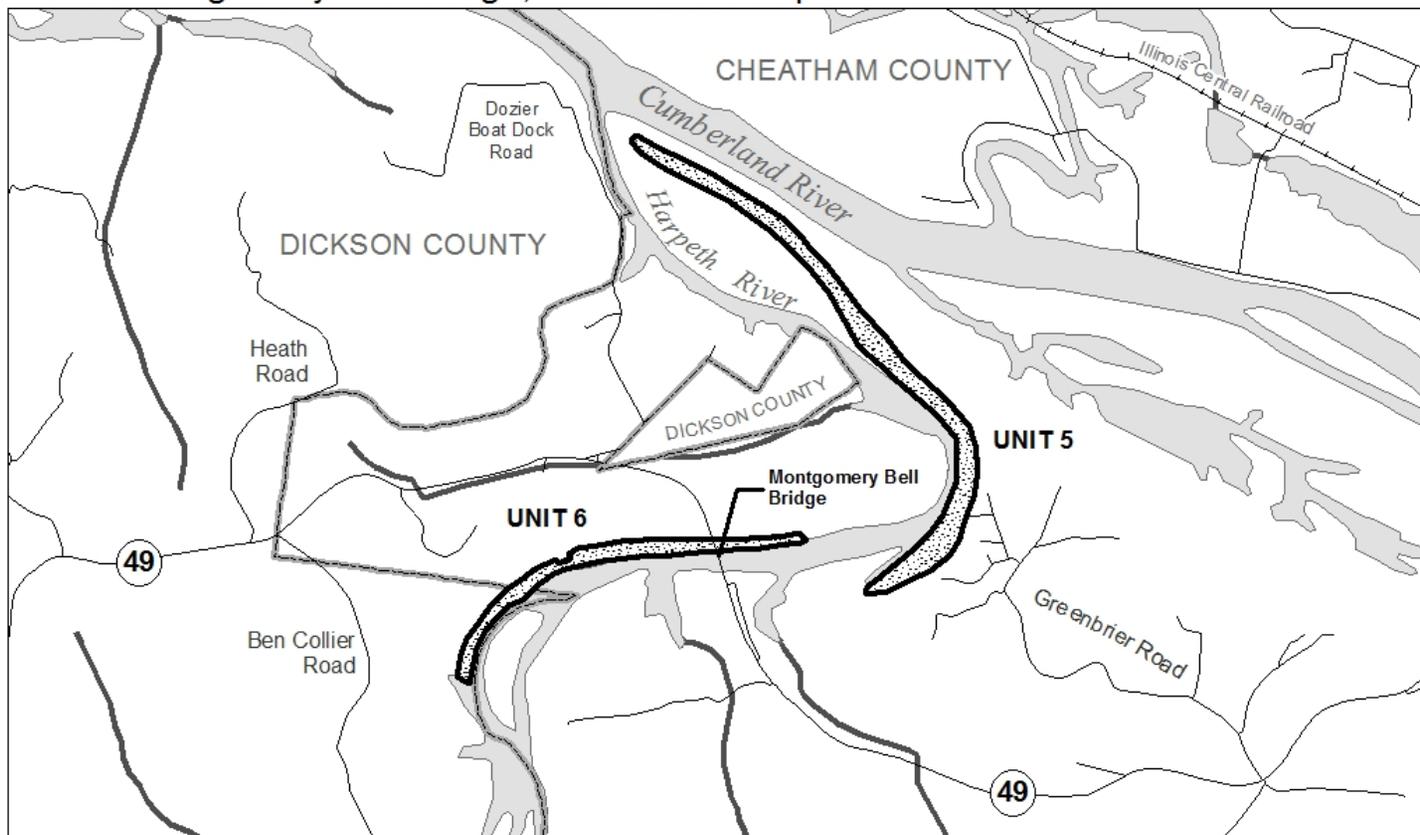


(10) Unit 5: Harpeth River, Cheatham County, Tennessee. Map of Units 5 and 6

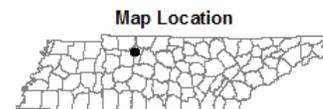
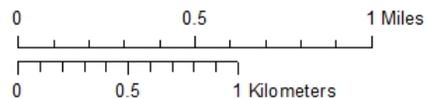
follows:

Unit 5: Harpeth River, Short's Bladderpod Critical Habitat

Unit 6: Montgomery Bell Bridge, Short's Bladderpod Critical Habitat



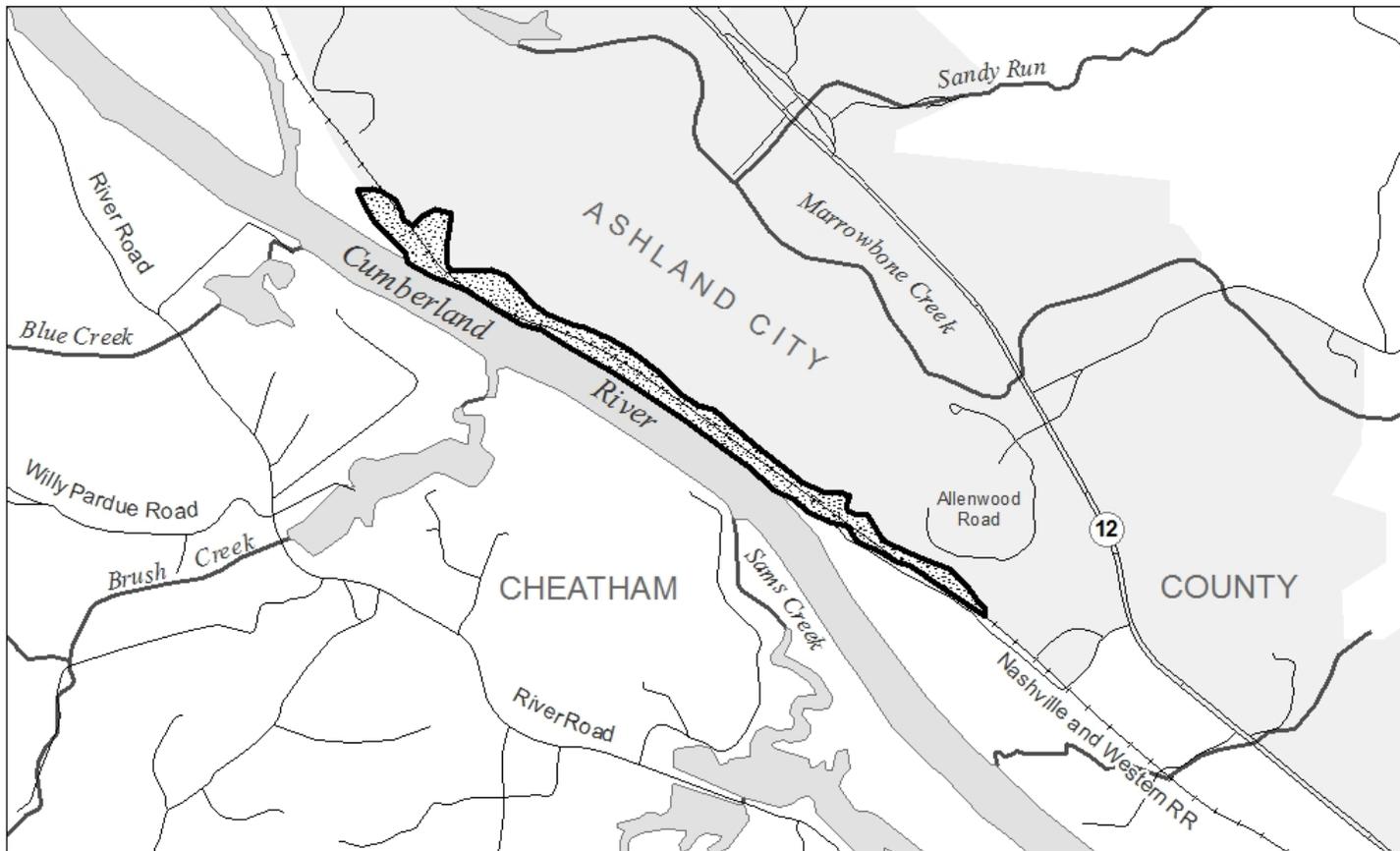
Critical Habitat



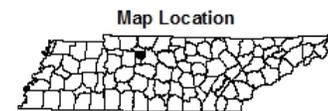
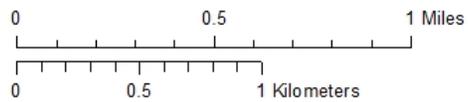
(11) Unit 6: Montgomery Bell Bridge, Cheatham and Dickson Counties, Tennessee. Map of Unit 6 is provided at paragraph (10) of this entry.

(12) Unit 7: Nashville and Western Railroad, Cheatham County, Tennessee. Map of Unit 7 follows:

## Unit 7: Nashville and Western Railroad, Short's Bladderpod Critical Habitat



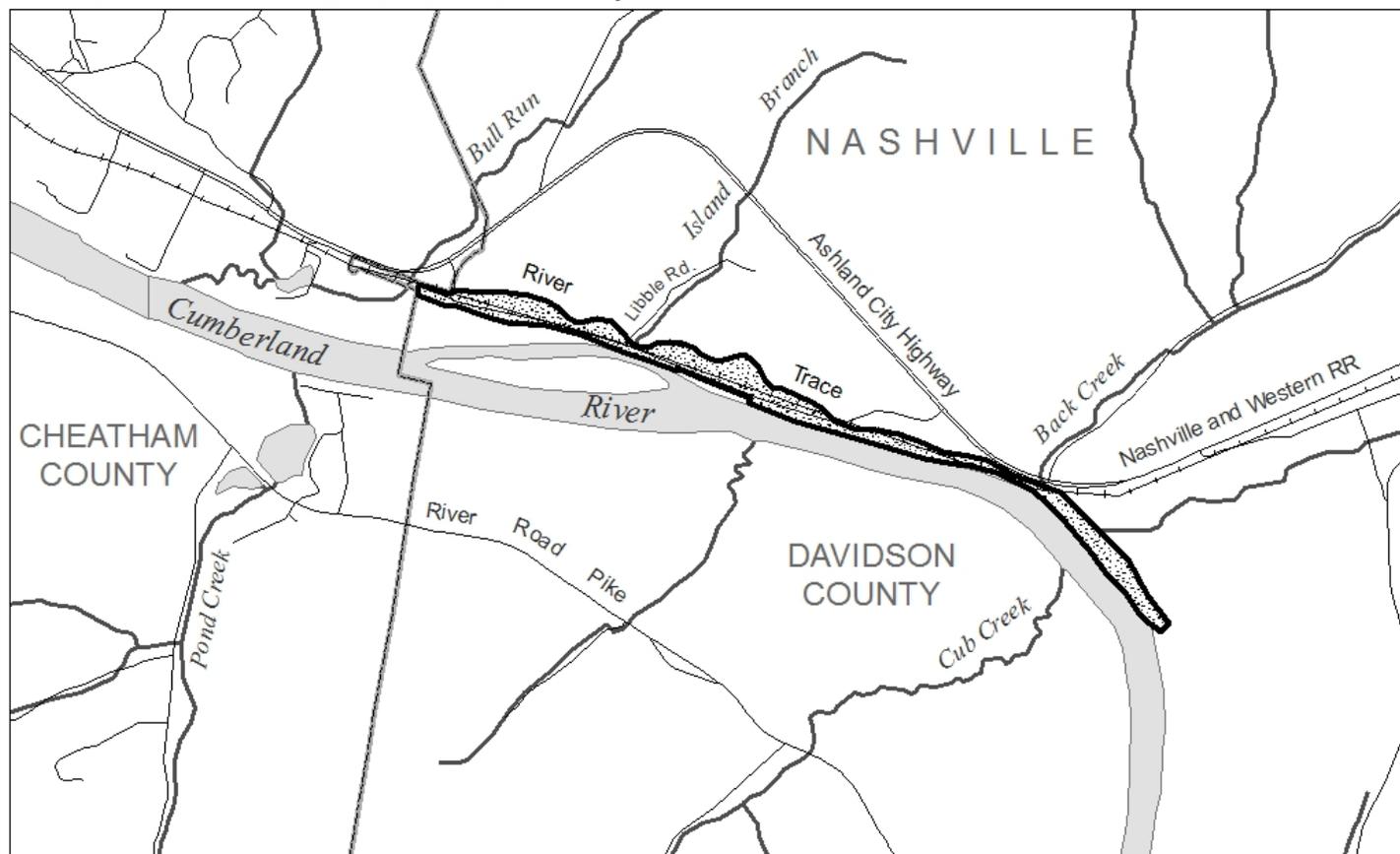
 Critical Habitat



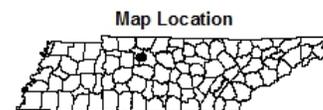
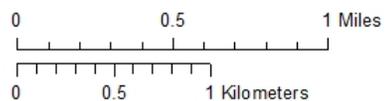
(13) Unit 8: River Trace, Cheatham and Davidson Counties, Tennessee. Map of

Unit 8 follows:

## Unit 8: River Trace, Short's Bladderpod Critical Habitat



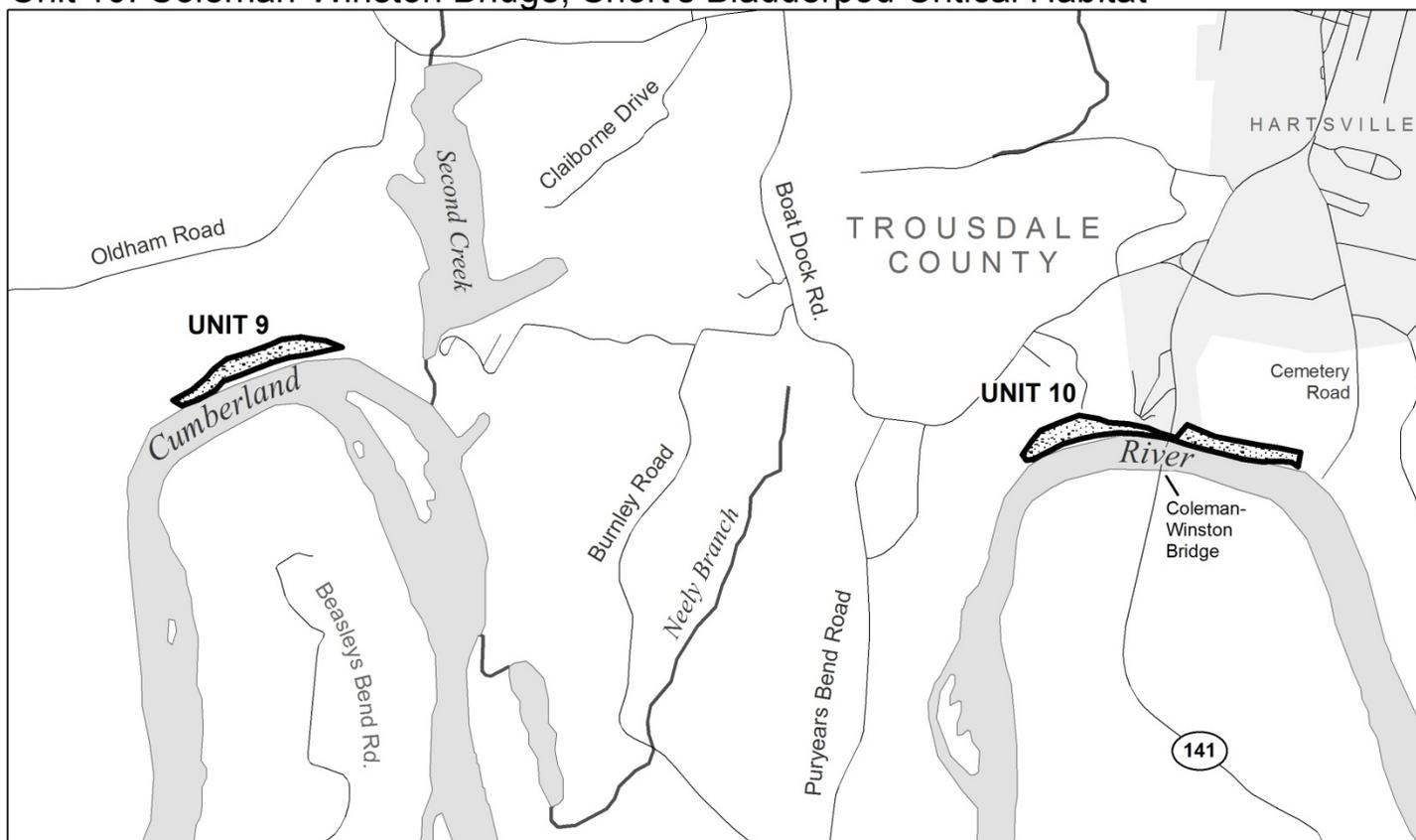
Critical Habitat



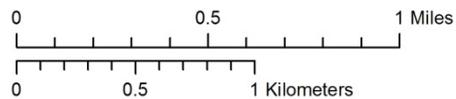
(14) Unit 9: Old Hickory Lake, Trousdale County, Tennessee. Map of Units 9 and 10 follows:

Unit 9: Old Hickory Lake, Short's Bladderpod Critical Habitat

Unit 10: Coleman-Winston Bridge, Short's Bladderpod Critical Habitat



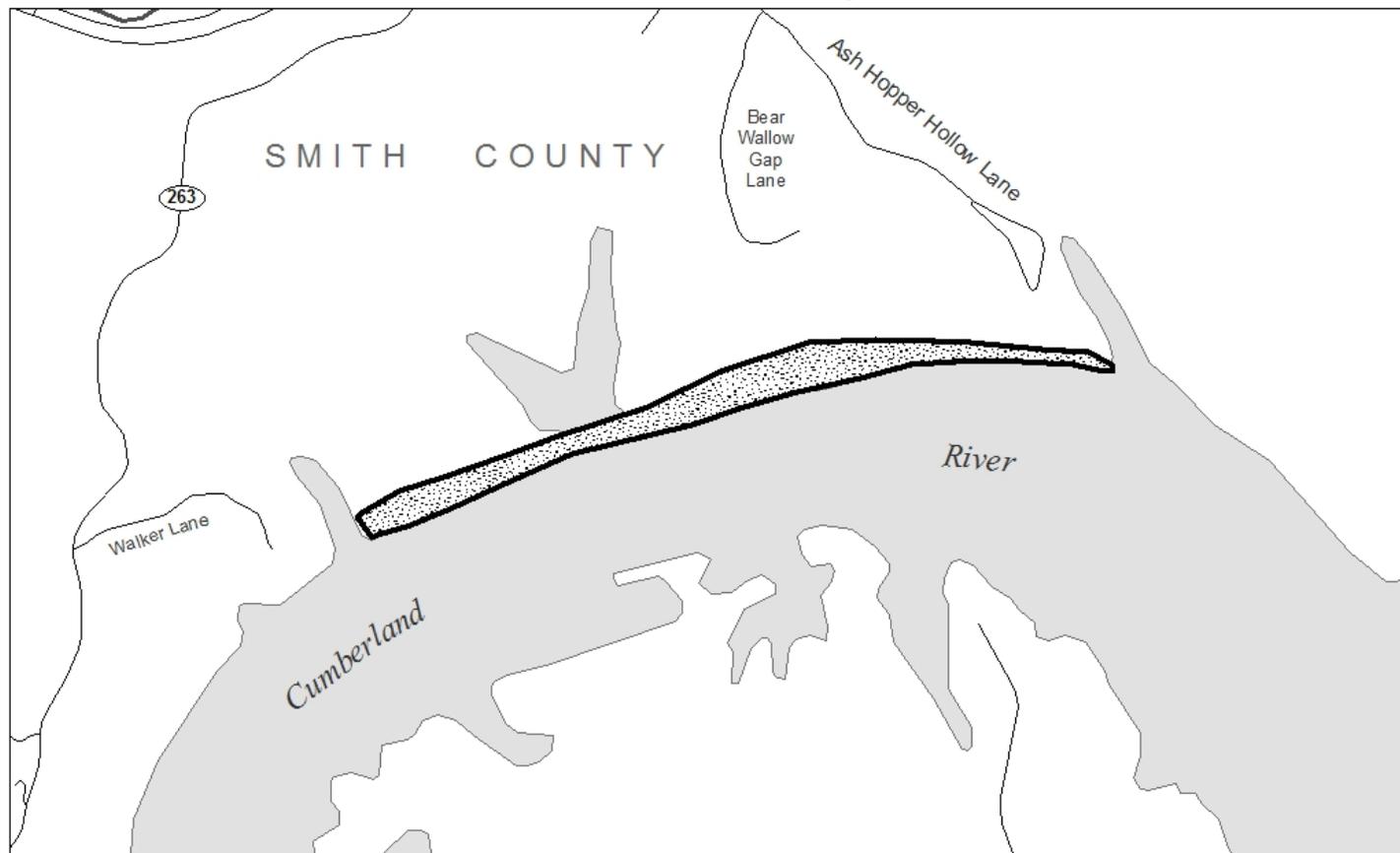
 Critical Habitat



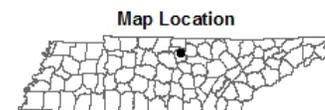
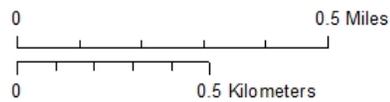
(15) Unit 10: Coleman-Winston Bridge, Trousdale County, Tennessee. Map of Unit 10 is provided at paragraph (14) of this entry.

(16) Unit 11: Cordell Hull Reservoir, Smith County, Tennessee. Map of Unit 11 follows:

# Unit 11: Cordell Hull Reservoir, Short's Bladderpod Critical Habitat



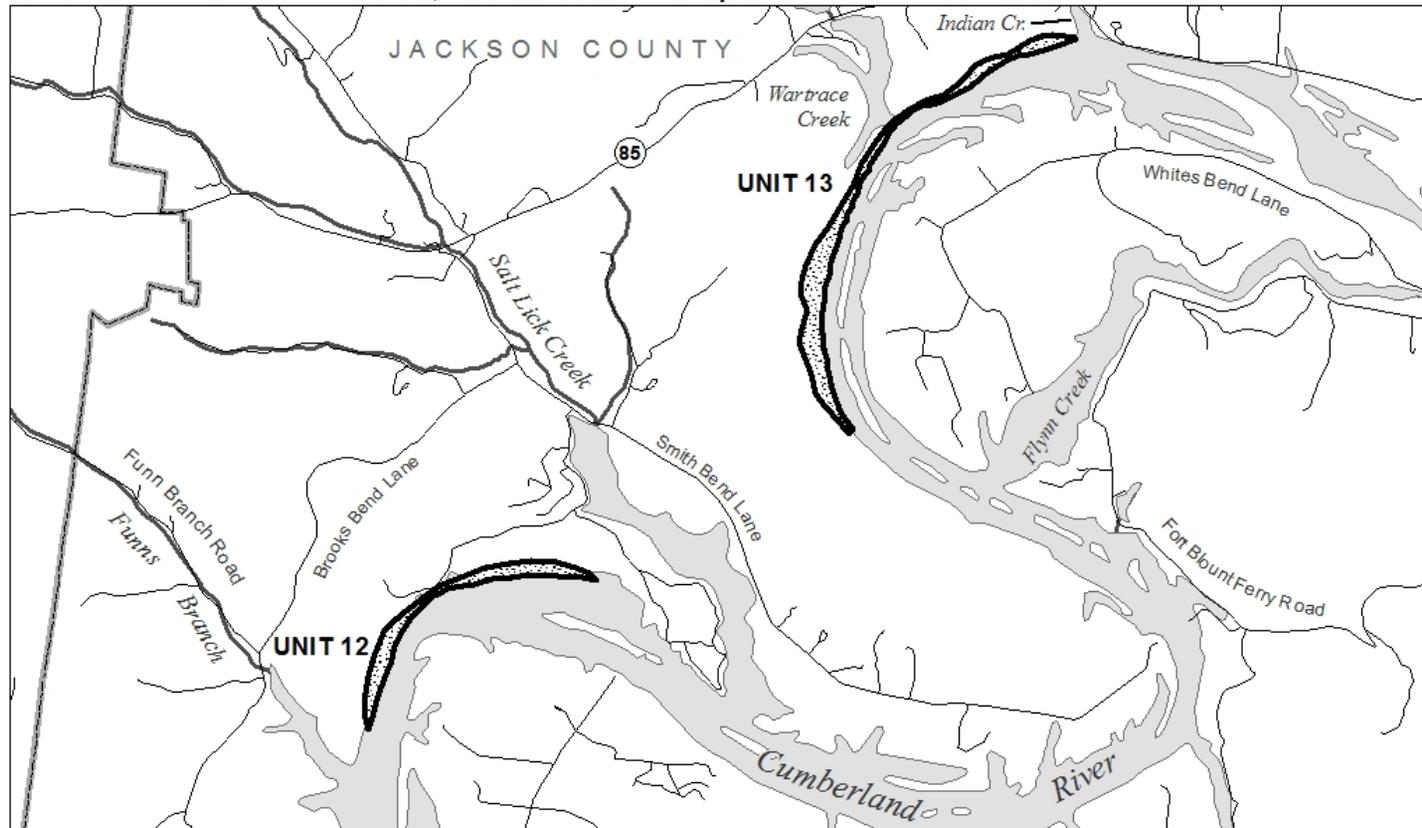
 Critical Habitat



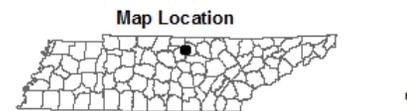
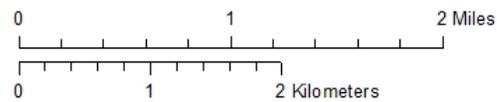
(17) Unit 12: Funns Branch, Jackson County, Tennessee. Map of Units 12 and 13

follows:

Unit 12: Funns Branch, Short's Bladderpod Critical Habitat  
Unit 13: Wartrace Creek, Short's Bladderpod Critical Habitat



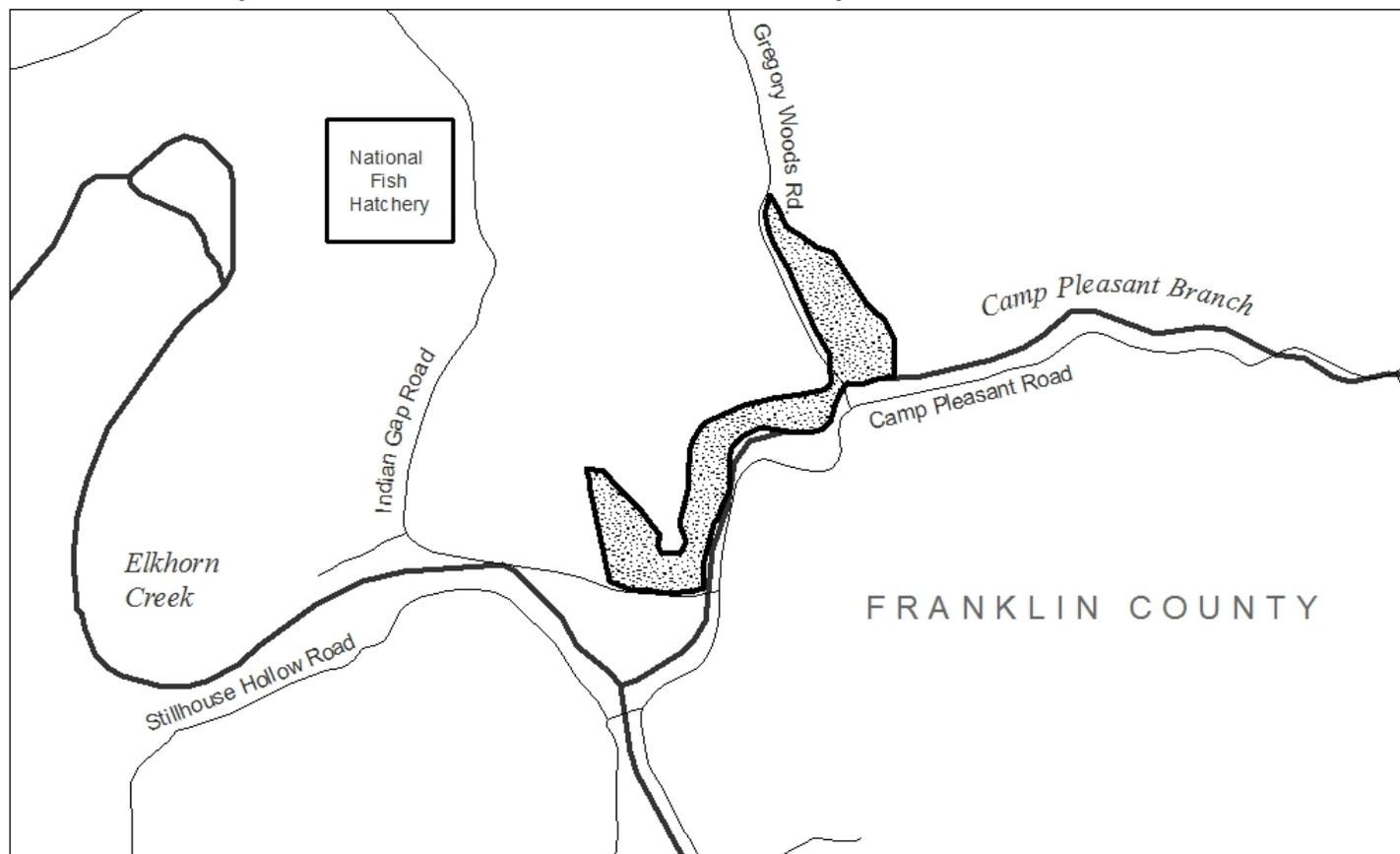
 Critical Habitat



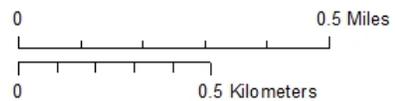
(18) Unit 13: Wartrace Creek, Jackson County, Tennessee. Map of Unit 13 is provided at paragraph (17) of this entry.

(19) Unit 14: Camp Pleasant Branch, Franklin County, Kentucky. Map of Unit 14 follows:

## Unit 14: Camp Pleasant Branch, Short's Bladderpod Critical Habitat



 Critical Habitat



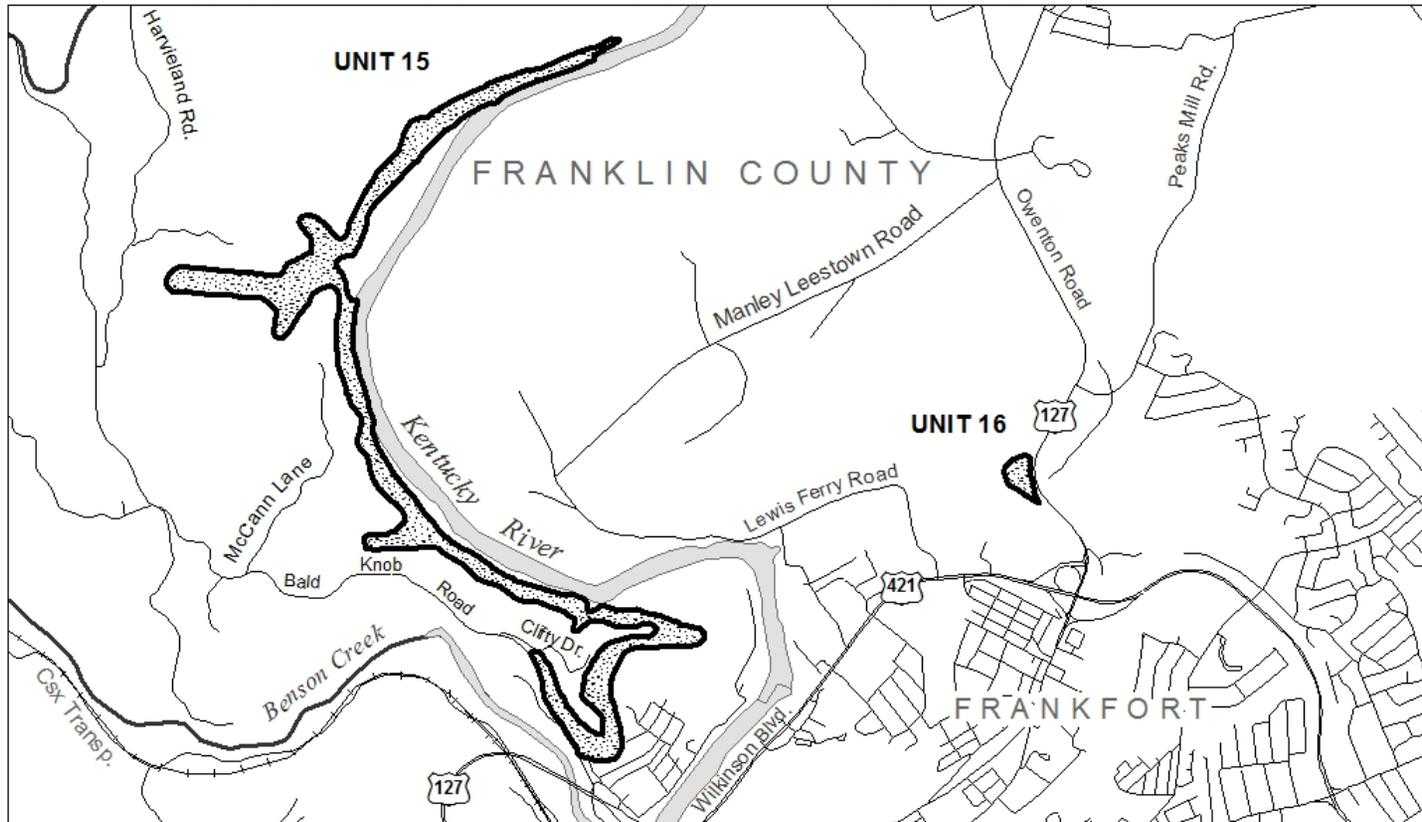
Map Location



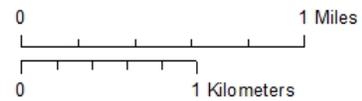
(20) Unit 15: Kentucky River, Franklin County, Kentucky. Map of Units 15 and

16 follows:

Unit 15: Kentucky River, Short's Bladderpod Critical Habitat  
Unit 16: Owenton Road, Short's Bladderpod Critical Habitat



 Critical Habitat



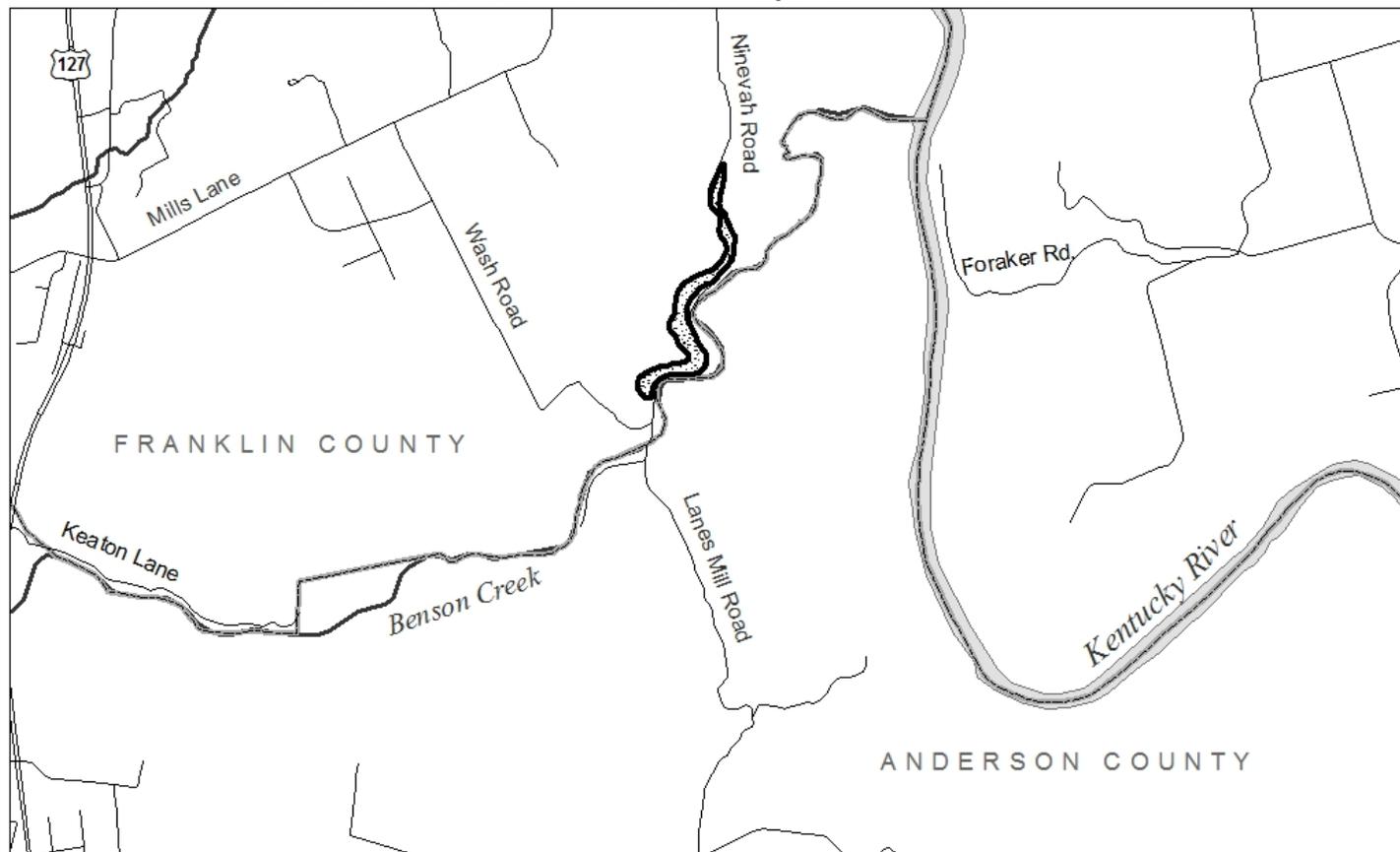
Map Location



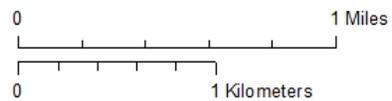
(21) Unit 16: Owenton Road, Franklin County, Kentucky. Map of Unit 16 is provided at paragraph (20) of this entry.

(22) Unit 17: Little Benson Creek, Franklin County, Kentucky. Map of Unit 17 follows:

## Unit 17: Little Benson Creek, Short's Bladderpod Critical Habitat

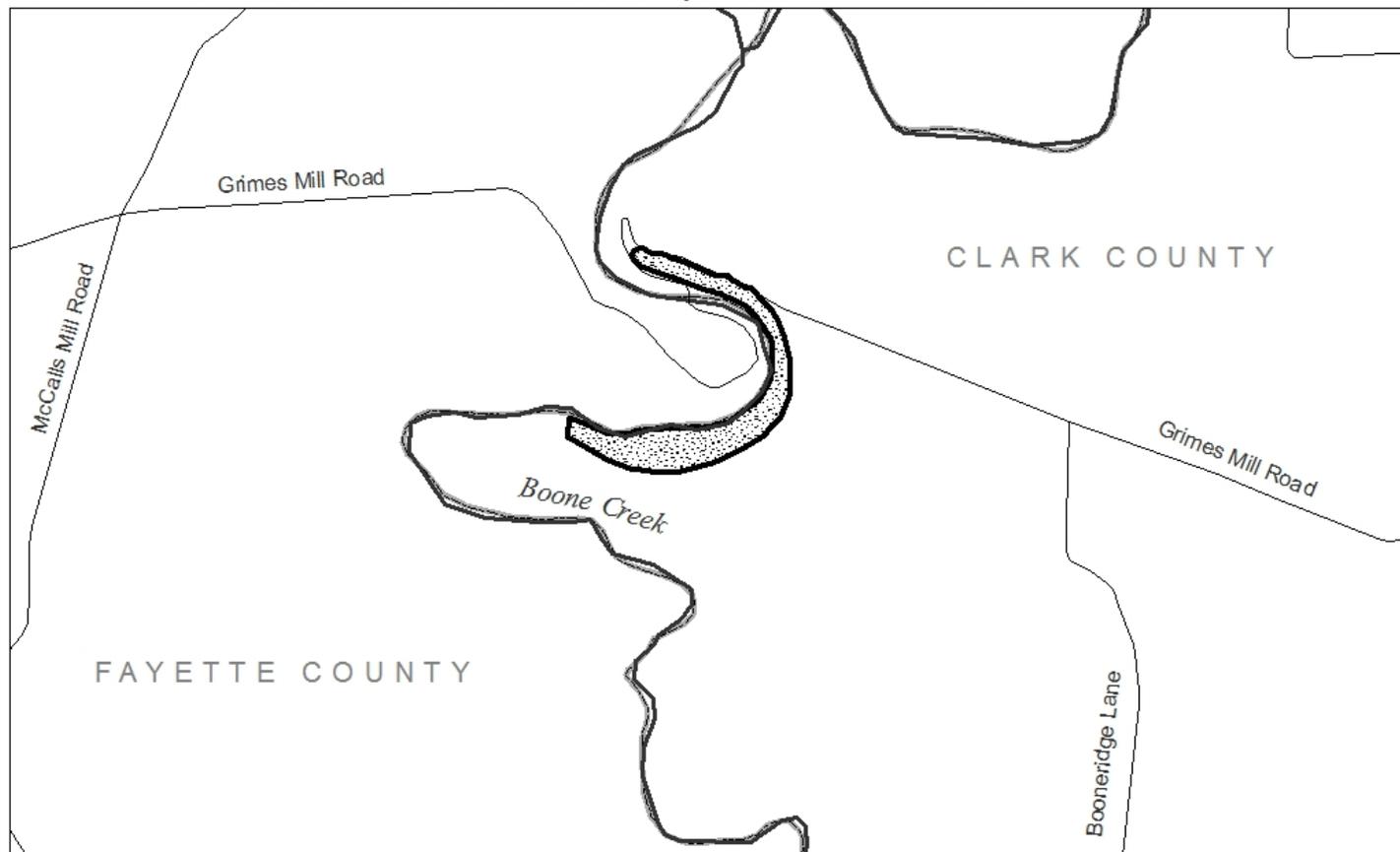


 Critical Habitat

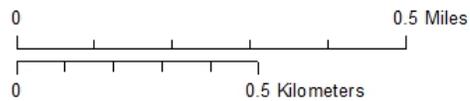


(23) Unit 18: Boone Creek, Clark County, Kentucky. Map of Unit 18 follows:

## Units 18: Boone Creek, Short's Bladderpod Critical Habitat



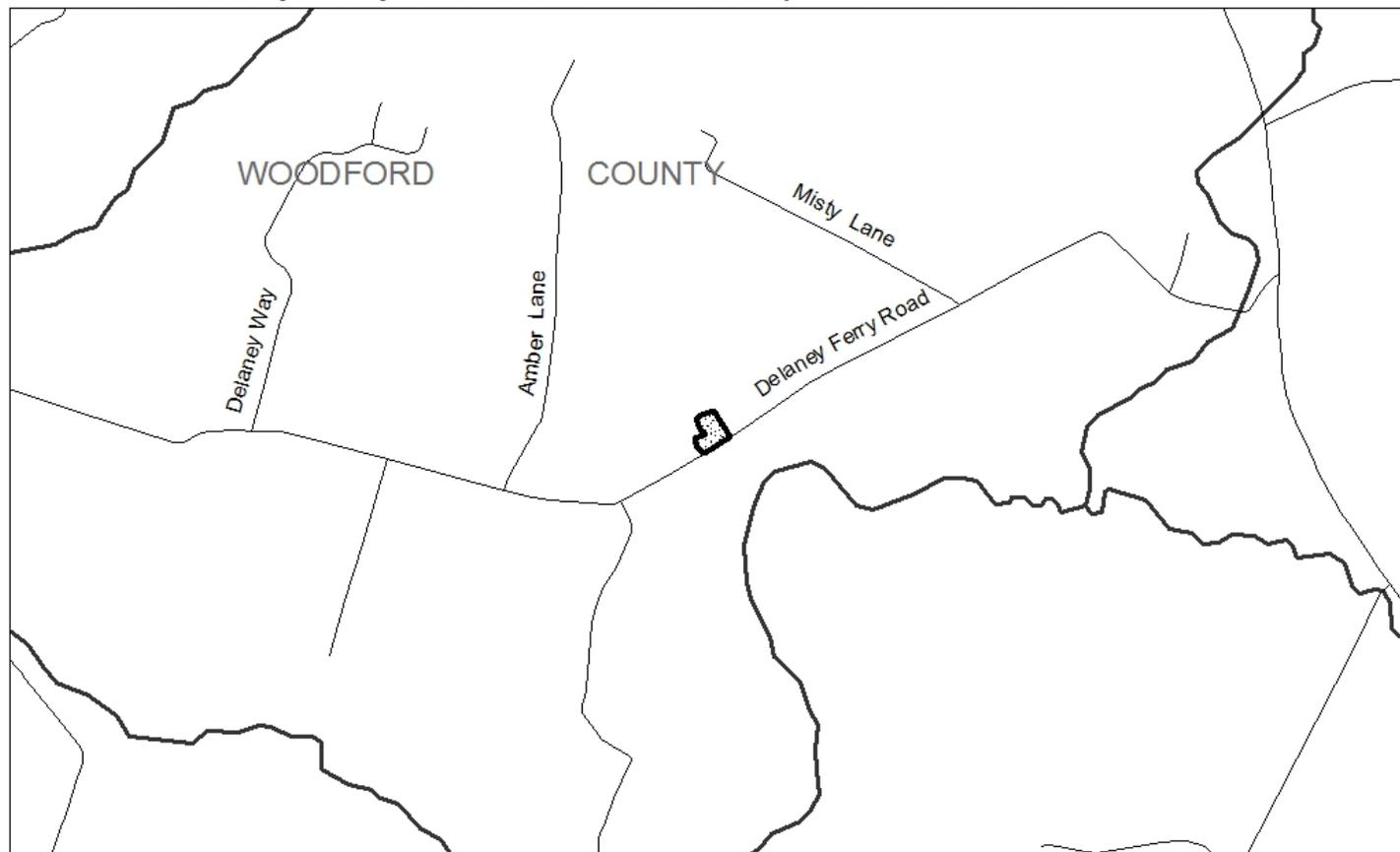
 Critical Habitat



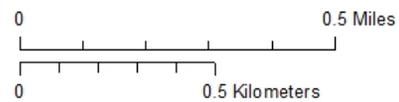
(24) Unit 19: Delaney Ferry Road, Woodford County, Kentucky. Map of Unit 19

follows:

# Unit 19: Delaney Ferry Road, Short's Bladderpod Critical Habitat

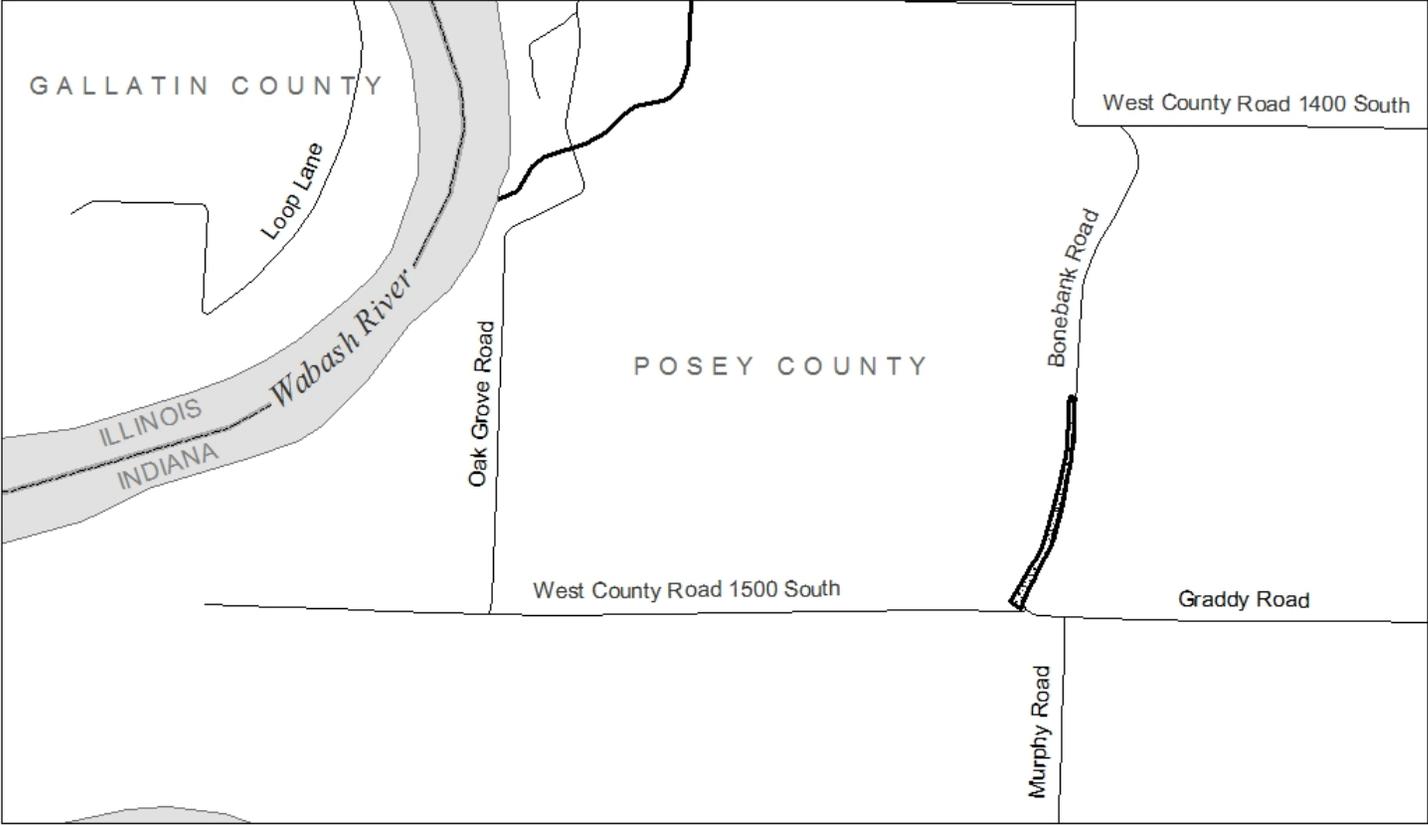


 Critical Habitat

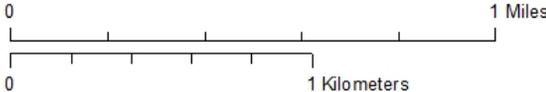


(25) Unit 20: Bonebank Road, Posey County, Indiana. Map of Unit 20 follows:

Unit 20: Bonebank Road, Short's Bladderpod Critical Habitat



 Critical Habitat



\* \* \* \* \*

Dated: July 19, 2013

Rachel Jacobson

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks

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