

MEMORANDUM | October 22, 2014

TO U.S. Fish and Wildlife Service (Service)
FROM Industrial Economics, Incorporated (IEc)
SUBJECT Screening Analysis of the Likely Economic Impacts of Critical Habitat Designation for the Black Pinesnake

The Service intends to publish a proposed rule to designate critical habitat for the black pinesnake (*Pituophis melanoleucus lodingi*, hereafter referred to as the “pinesnake”). As part of the rulemaking process, the Service must consider the economic impacts, including costs and benefits, of the proposed rule in the context of three separate requirements:¹

- **Executive Order (EO) 12866 *Regulatory Planning and Review***, which directs Agencies to assess the costs and benefits of the regulatory action;²
- **Section 4(b)(2) of the Endangered Species Act (the Act)**, which requires the Secretary of the Interior to consider economic impacts prior to designating critical habitat;
- **Regulatory Flexibility Act (RFA)**, which requires Federal agencies to prepare and make available for public comment an initial regulatory flexibility analysis that describes the effect of a proposed rule on small entities. No initial regulatory flexibility analysis is required if the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.^{3,4}

This memorandum provides information to the Service on the likely costs and benefits of the proposed critical habitat designation to determine whether the rule meets the threshold for an economically significant rule.⁵ This memorandum also identifies the geographic areas or specific activities that could experience the greatest impacts,

¹ Additional laws and executive orders require the consideration of the distribution of impacts on vulnerable subpopulations, such as state or local governments. These requirements for distributional analysis are beyond the scope of this memorandum.

² Published September 20, 1993. As affirmed by *Executive Order 13563: Improving Regulation and Regulatory Review*. January 18, 2011.

³ 5 U.S.C. § 601 et seq.

⁴ For a discussion of the Service’s findings regarding the RFA and other relevant statutes, please refer to the preamble to the proposed rule published in the Federal Register.

⁵ For the definition of “economically significant rule,” please refer to section 3(f)(1) of EO 12866.

measured in terms of changes in social welfare, to inform the Secretary's decision under section 4(b)(2).⁶

To prepare this assessment, we rely on: (1) the draft proposed rule and associated geographic information systems (GIS) data layers; (2) the Service's incremental effects memorandum described in greater detail later in this memorandum; (3) the results of the Service's outreach efforts to other Federal agencies concerning the likely effects of critical habitat; (4) consultation data provided by the Service; and (5) data on private property values.

⁶ The discipline of welfare economics focuses on maximizing societal well-being (see Just et. al. 2004. *The Welfare Economics of Public Policy: A Practical Approach to Project and Policy Evaluation*. Edward Elgar Publishing, Cheltenham and Northampton). It measures costs and benefits in terms of the opportunity costs of employing resources for the conservation of the species and individual willingness to pay to conserve those species. Opportunity cost is the value of the benefit that could have been provided by devoting the resources to their best alternative uses. Opportunity costs differ from the measurement of accounting costs (e.g., actual expenses). Welfare economics is recognized by the U.S. Office of Management and Budget (OMB) as the appropriate tool for valuing the costs and benefits of proposed regulatory actions (OMB, "Circular A-4." September 17, 2003, available at http://www.whitehouse.gov/omb/circulars_a004_a-4).

FINDINGS OF THE SCREENING ANALYSIS

Critical habitat designation for the pinesnake is likely to generate approximately \$190,000 in section 7 compliance costs in the first year (2015) and less in subsequent years. Data limitations prevent the quantification of possible impacts on private property values resulting from the public's perception of the regulatory effect of the designation. Data limitations also prevent the quantification of benefits.

Section 7 Costs

The economic cost of implementing the rule through section 7 of the Act will most likely be limited to additional administrative effort to consider adverse modification. This finding is based on the following factors:

- Project modifications requested to avoid adverse modification are likely to be the same as those needed to avoid jeopardy in occupied habitat;
- All proposed units are considered occupied, providing significant baseline protection;
- The proposed designation also receives baseline protection from the presence of two other listed species with similar habitat needs, including the gopher tortoise and the red-cockaded woodpecker, in all proposed units; and
- The designation of critical habitat for the dusky gopher frog in Units 3 and 4b provides a third layer of baseline protection.

According to a review of consultation records and discussions with multiple Service field offices, the additional administrative cost of addressing adverse modification during the section 7 consultation process ranges from approximately \$410 to \$9,000 per consultation. Based on the project activity identified by relevant action agencies and comparison to the consultation history for species that co-occur or share habitat with the pinesnake, the number of future formal consultations is likely to be five or less in the year immediately following the final designation (2015). In addition, up to 60 informal consultations and five technical assists could occur annually following the designation. Thus, the incremental administrative burden resulting from the designation is likely to be less than \$190,000 in 2015, the year with the highest anticipated costs.

Other Costs

- The designation of critical habitat is not expected to trigger additional requirements under state or local regulations. This conclusion is based on the awareness of state agencies of the presence of the species and the existing conservation practices undertaken for other listed species, such as the gopher tortoise, that share habitat with the pinesnake.
- The designation of critical habitat may cause landowners to perceive that private lands will be subject to use restrictions, resulting in costs. Data limitations prevent the quantification of the possible incremental reduction in property values. The total value of private, non-conserved woodland, cropland, and pastureland within the proposed designation exceeds \$100 million. However, we note that landowners in these areas are already familiar with the requirements of the Act, and substantial baseline conservation is already in place for three other federally listed species. These factors may mitigate possible incremental impacts on private property values.

Section 7 and Other Benefits

Additional section 7 efforts to conserve the pinesnake are not predicted. If public perception of the effect of critical habitat causes changes in future land use, benefits to the species and improved environmental quality may occur. Due to existing data limitations, we are unable to assess the likely magnitude of such benefits.

Geographic Distribution of Costs

Given available data, we identified the units likely to incur the largest incremental costs. Because we do not forecast costs associated with project modifications, the magnitude of section 7 costs correlates with the number of projected consultations within each unit. The highest quantified costs are anticipated in Unit 3, due to costs of consultation associated with Camp Shelby, followed by Unit 7, due to the large number of non-Federal acres located in that unit and our conservative approach to estimating consultations on non-Federal land. Costs resulting from public perception of the impact of critical habitat, if they occur, are likely to be greatest in Units 4b, 7, and 3, based on the acreage of private, non-conserved agricultural lands in those units.

SECTION 1. BACKGROUND

The pinesnake is a large, stocky snake endemic to the upland longleaf pine forests of the southeastern United States. The pinesnake currently exists in 12 counties in Mississippi (Forrest, George, Greene, Harrison, Jackson, Jones, Lamar, Lawrence, Marion, Perry, Stone, and Wayne) and three counties in Alabama (Clarke, Mobile, and Washington). The species is known to spend most of its time underground in the trunks or root channels of rotting pine stumps.⁷ The Service intends to list the species as threatened under the Act and designate critical habitat for the species.⁸

The proposed critical habitat rule would designate approximately 338,100 acres (136,824 hectares) of critical habitat across eight units, one of which is divided into two subunits, in Forrest, George, Greene, Harrison, Jones, Marion, Perry, Stone, and Wayne Counties, Mississippi, and Clarke County, Alabama. All of the proposed units are considered occupied by the species. Approximately 70 percent of the proposed designation is located on federally managed lands within the De Soto National Forest, three percent on state lands, less than one percent on local lands, and 27 percent on private lands. The Service is currently considering exclusion of the Camp Shelby Joint Forces Training Center Impact Area, which overlaps 4,647 acres of the De Soto National Forest in Unit 3, under section 4(b)(2) of the Act due to National Security Concern. Areas being considered for exclusion are considered in this screening analysis. Camp Shelby also includes 5,558 acres of state and Department of Defense (DOD) lands, in addition to the 4,647 acres located on National Forest land. The Service has exempted the 5,558 acres of state and DOD lands from critical habitat designation due to their management under the Camp Shelby integrated natural resources management plan (INRMP); these exempted acres are not considered in this analysis.⁹ Exhibit 1 provides a summary of land ownership within the proposed designation, and Exhibit 2 provides an overview map.

Because the pinesnake is not yet listed under the Act, no consultations have been conducted for the species. However, review of the draft proposed rule and the Service's incremental effects memorandum identified the following economic activities that may affect the pinesnake and its habitat:

- (1) Timber management (e.g., clear-cutting, site preparation involving ground disturbance, and conversion to densely stocked pine plantations);
- (2) Agricultural conversion;
- (3) Residential and commercial development;
- (4) Transportation construction activities; and
- (5) Utility activities.¹⁰

⁷ U.S. Fish and Wildlife Service. June 3, 2014. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Black Pinesnake. (p. 3)

⁸ U.S. Fish and Wildlife Service. July 15, 2014. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Black Pinesnake; Draft Proposed Rule.

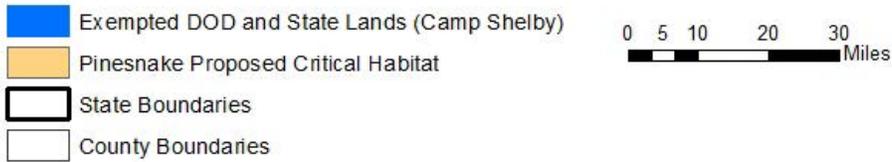
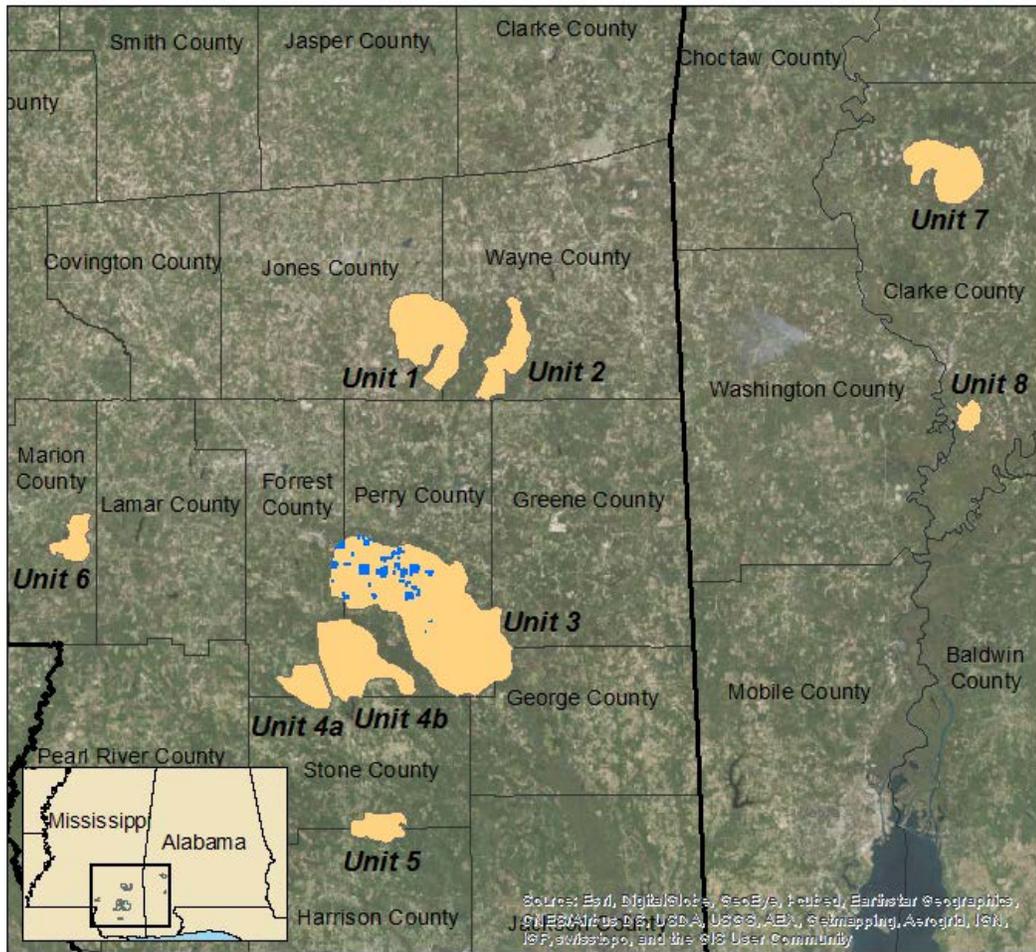
⁹ *Ibid.*

¹⁰ U.S. Fish and Wildlife Service. June 3, 2014. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Black Pinesnake (p. 14); and U.S. Fish and Wildlife Service. July 15, 2014. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Black Pinesnake; Draft Proposed Rule.

EXHIBIT 1. SUMMARY OF PROPOSED CRITICAL HABITAT DESIGNATION FOR THE PINESNAKE

UNIT	COUNTY	OWNERSHIP (ACRES)				TOTAL AREA (ACRES)
		FEDERAL	STATE	LOCAL	PRIVATE	
MISSISSIPPI						
1 - Ovett	Jones, Wayne	40,637	0	0	6,540	47,177
2 - Pineywoods Creek	Perry, Wayne	17,744	0	0	4,645	22,389
3 - Cypress Creek	Perry, Greene, George, Forrest	131,045	1,768	41	12,289	145,143
4A - Maxie	Forrest, Stone	8,883	0	0	6,334	15,217
4B - Maxie	Forrest, Perry, Stone	28,233	0	0	16,078	44,311
5 - Howison	Stone, Harrison	9,371	0	640	2,938	12,949
6 - Marion County WMA	Marion	0	5,587	0	6,270	11,857
ALABAMA						
7- Scotch WMA	Clarke	0	0	0	33,395	33,395
8 - Fred T. Stimpson WMA	Clarke	0	2,547	0	3,114	5,661
Total Area		235,915	9,902	681	91,603	338,100
Source: U.S. Fish and Wildlife Service. July 15, 2014. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Black Pinesnake; Draft Proposed Rule. Note: Totals may not sum due to rounding.						

EXHIBIT 2. OVERVIEW MAP OF PROPOSED PINESNAKE CRITICAL HABITAT



Sources:

1. US Fish and Wildlife Service, Jackson, MS Field Office
2. Environmental Systems Research Institute (ESRI), Redlands, California, USA

Note:

Exempted DOD and State Lands (Camp Shelby), shown in blue in this map, represent exempted lands, not lands currently being considered for exclusion. The portion of Camp Shelby that falls in USFS lands is considered in the screening analysis because these lands were not exempted.

SECTION 2. FRAMEWORK

Guidelines issued by the U.S. Office of Management and Budget (OMB) for the economic analysis of regulations direct Federal agencies to measure the costs and benefits of a regulatory action against a baseline (i.e., costs and benefits that are “incremental” to the baseline). OMB defines the baseline as the “best assessment of the way the world would look absent the proposed action.”¹¹ In other words, the baseline includes any existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users affected by the designation of critical habitat. The baseline includes the economic impacts of listing the species under the Act, even if the listing occurs concurrently with critical habitat designation. Impacts that are incremental to the baseline (i.e., occurring over and above existing constraints) are those that are solely attributable to the designation of critical habitat. This screening analysis focuses on the likely incremental effects of the critical habitat designation.

We consider incremental effects of the designation in two key categories: 1) those that may be generated by section 7 of the Act; and 2) other types of impacts outside of the context of section 7:

- **Incremental section 7 impacts:** Activities with a Federal nexus that may affect listed species are subject to section 7 consultation to consider whether actions may jeopardize the existence of the species, even absent critical habitat.¹² As part of these consultations, critical habitat triggers an additional analysis evaluating whether an action will diminish the recovery potential or conservation value of the designated area. Specifically, following the designation, Federal agencies must also consider the potential for activities to result in the destruction or adverse modification of critical habitat. These consultations are the regulatory mechanism through which critical habitat rules are implemented. Any time and effort spent on this additional analysis, as well as the costs and benefits of implementing any recommendations resulting from this review, are economic impacts of the critical habitat designation.
- **Other incremental impacts:** Critical habitat may also trigger additional regulatory changes. For example, the designation may cause other Federal, state, or local permitting or regulatory agencies to expand or change standards or requirements. Regulatory uncertainty generated by critical habitat may also have impacts. For example, landowners or buyers may perceive that the rule will restrict land or water use activities in some way and therefore value the use of the land less than they would have absent critical habitat. This is a perception, or stigma, effect of critical habitat on markets.

SECTION 3. SECTION 7 COSTS OF THE CRITICAL HABITAT RULE

In this section, we discuss the likelihood that the designation of critical habitat will result in incremental costs through the section 7 consultation process. In the baseline, section 7 of the Act requires Federal agencies to consult with the Service to ensure that their

¹¹ OMB, “Circular A-4,” p. 15. September 17, 2003, available at http://www.whitehouse.gov/omb/circulars_a004_a-4. Circular A-4 provides “guidance to Federal Agencies on the development of regulatory analysis as required under Section 6(a)(3)(c) of Executive Order 12866...” (p. 1).

¹² A Federal nexus exists for activities authorized, funded, or carried out by a Federal agency.

actions will not jeopardize the pinesnake. Once critical habitat is designated, section 7 also requires Federal agencies to ensure that their actions will not adversely modify critical habitat. Because all areas proposed for critical habitat designation are considered occupied by the pinesnake, a key focus of this screening analysis is whether the designation of critical habitat would trigger project modifications to avoid adverse effects to critical habitat that would be above and beyond any modifications triggered by adverse effects to the species itself.

Incremental costs associated with section 7 consultations for the pinesnake are likely limited to administrative costs. This conclusion is based on multiple factors:

1. **The listing of the pinesnake provides substantial baseline protection.**
 - **All projects with a Federal nexus will be subject to section 7 requirements regardless of whether critical habitat is designated.** All proposed units are considered occupied by the species. Therefore, any activities with a Federal nexus will be subject to section 7 consultation requirements regardless of critical habitat designation.¹³
 - **Possible project modifications are unlikely to be affected by the designation of critical habitat.** In its incremental effects memorandum, the Service states that “[t]he results of consultation under the adverse modification and jeopardy standards are likely to be similar because the physical and biological features that define critical habitat are also essential for the survival of the black pinesnake.”¹⁴ That is, because the existence of the species is closely tied to the health of its habitat, the project modifications the Service would recommend to avoid jeopardy to the species would include habitat-related protections that would also avoid adverse modification of critical habitat. Thus, the designation of critical habitat is unlikely to generate recommendations for additional project modifications.
2. **The presence of other listed species provides additional baseline protection.** Two listed species with habitat needs similar to those of the pinesnake - the gopher tortoise (*Gopherus polyphemus*) and the red-cockaded woodpecker (*Picoides borealis*) – also occupy proposed critical habitat for the pinesnake. Of particular importance, the range of the gopher tortoise encompasses all proposed

¹³ In the proposed listing rule for the pinesnake, the Service also proposed a special rule under section 4(d) of the Act that would exempt from the prohibitions in 50 CFR 17.32 take of the species incidental to certain land use activities necessary for the conservation of the pinesnake. The proposed special rule will not affect the number of consultations likely to result from the designation of critical habitat because the 4(d) rule does not alter project proponents’ requirement to consult with the Service under section 7 of the Act. However, by identifying land uses that would have a net beneficial effect on the species, the proposed special rule may result in a streamlined section 7 consultation process, and an associated reduction in per-consultation administrative costs, for these activities. (Source: U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on October 8, 2014; and U.S. Fish and Wildlife Service. October 10, 2014. Endangered and Threatened Wildlife and Plants. Threatened Species Status for the Black Pinesnake. Proposed Rule. 79 FR 60406.)

¹⁴ U.S. Fish and Wildlife Service. June 3, 2014. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Black Pinesnake. (p. 10)

piresnake critical habitat.¹⁵ In addition, the range of the red-cockaded woodpecker extends throughout the De Soto National Forest and overlaps proposed Units 1 through 5 for the pinesnake.¹⁶ As described in the Service's incremental effects memorandum, protection provided to these species will also benefit the pinesnake.¹⁷

- 3. Designated critical habitat already exists in two of the proposed critical habitat units.** Approximately 74 acres of Units 3 and 4b overlap designated critical habitat for the dusky gopher frog (*Rana sevosa*).¹⁸ Although the area is not currently occupied by the dusky gopher frog, efforts to protect dusky gopher frog critical habitat will also benefit the pinesnake.

Thus, based on the substantial baseline protections afforded the pinesnake, we do not forecast any incremental costs associated with project modifications. When section 7 consultations occur, costs are likely to be limited to the additional administrative effort to consider adverse modification during the consultation process.¹⁹

LIKELY MAGNITUDE OF INCREMENTAL COSTS

In the following sections, we provide information on the likely frequency of consultation activity to gauge the magnitude of administrative costs. We consider multiple data sources in this evaluation. First, we consider information from the Service and the Forest Service (USFS) regarding specific projects that may require future consultation for the pinesnake. Next, we consider the historical consultation rate for species that co-occur or share habitat with the pinesnake. Finally, we evaluate detailed information on conservation expenditures provided by the U.S. Army Corps of Engineers (Corps), a key Federal agency likely to initiate consultations on non-Federal lands. We find that incremental administrative costs are likely to be approximately \$190,000 in the first year and lower in subsequent years.

Project Information from Federal Agencies

In the process of developing the proposed rule, the Service requested information from Federal agencies that are expected to consult on the pinesnake. These agencies included the Federal Energy Regulatory Commission (FERC), Federal Highway Administration (FHWA), Department of Transportation (DOT), National Aeronautics and Space Administration (NASA), Department of Agriculture (USDA), the Corps, DOD, and USFS. Of these agencies, only USFS provided information regarding planned projects and the likely consultation rate.

¹⁵ The range of the gopher tortoise encompasses the entirety of the proposed designation of critical habitat for the pinesnake, including lands in both Mississippi and Alabama. However, the gopher tortoise remains a candidate for listing under the Act in the eastern portion of its range, which includes proposed Units 7 and 8 in Clarke County, Alabama.

¹⁶ U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on September 2, 2014, and October 8, 2014; and U.S. Fish and Wildlife Service. June 3, 2014. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Black Pinesnake. (p. 7)

¹⁷ *Ibid.*

¹⁸ Acreage reflects values obtained from GIS analysis. (U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Geographic Information Systems (GIS) shapefiles of the boundaries of proposed critical habitat provide via email communication on August 18, 2014.)

¹⁹ As discussed in the next section, our research suggests the additional per-consultation administrative effort is likely to be minor. Thus, these efforts are unlikely to result in measurable time delays.

USFS identified five ongoing activities that may require reinitiation of section 7 consultation following the designation of pinesnake critical habitat. Two of these activities are described in the Service's incremental effects memorandum: forest management according to the De Soto National Forest Land and Resource Management Plan (LRMP), and Camp Shelby operations under a USFS special use permit. The LRMP underwent formal consultation in 2014. Although the LRMP does not explicitly address conservation of the pinesnake or its habitat, the LRMP includes conservation practices to benefit the gopher tortoise, red-cockaded woodpecker, and dusky gopher frog critical habitat that will also provide baseline protection to the pinesnake and its habitat. The Service expects that it would reinitiate consultation on the environmental impact statement (EIS) for the LRMP to consider the listing of the pinesnake and its critical habitat. However, the Service does not anticipate requesting major changes to the conservation practices currently included in the LRMP.²⁰ Similarly, the EIS for the Camp Shelby special use permit underwent formal consultation in 2007 but does not explicitly address conservation of the pinesnake or its habitat. The Service also expects to reinitiate formal consultation on the Camp Shelby EIS.²¹ We assume that these two reinitiations would likely occur in 2015, immediately following the designation of critical habitat.

USFS identified three additional landscape-level environmental assessments that may require reinitiation of consultation following pinesnake critical habitat designation. These environmental assessments are associated with ecosystem restoration, habitat improvement, and integrated pest management activities.²² We assume that all three assessments would require reinitiation of formal consultation in 2015 to consider the pinesnake and its habitat.

USFS also expects to consult with the Service for other activities that regularly occur throughout pinesnake critical habitat.²³ These activities may include transportation and utility construction and maintenance and recreational event permitting, among others.²⁴ Because the proposed designation is entirely encompassed by the range of the gopher tortoise, USFS expects that the future consultation rate for the pinesnake will be similar to the historical consultation rate for the gopher tortoise.²⁵ The historical consultation rate used in this analysis is described in the following section.²⁶

In addition to the projects described by USFS, we consider the potential for incremental costs associated with a draft Candidate Conservation Agreement (CCA) for the pinesnake that is currently being developed by the Mississippi Army National Guard, USFS, the Service, and the Mississippi Department of Wildlife, Fisheries, and Parks. The goal of the CCA is to reduce threats to the species throughout the De Soto National Forest and Camp

²⁰ U.S. Fish and Wildlife Service. June 3, 2014. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Black Pinesnake. (p. 7)

²¹ U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on September 5, 2014.

²² Thriffley, Tate. Ecologist, De Soto National Forest. Personal communication on September 4, 2014.

²³ *Ibid.*

²⁴ U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Consultation history provided via email communication on October 10, 2014.

²⁵ Thriffley, Tate. Ecologist, De Soto National Forest. Personal communication on September 4, 2014.

²⁶ To be conservative (i.e., more likely to overstate than understate the historical consultation rate) the Service also provides data on the number and frequency of consultations for the red-cockaded woodpecker and the dusky gopher frog that occurred in the areas proximate to proposed critical habitat for the pinesnake (see discussion in the following section).

Shelby to improve the species' conservation status.²⁷ Because the objectives of the CCA are focused on providing direct conservation benefit to the species, we assume that the CCA would have been developed even absent the proposal to designate critical habitat and thus does not represent an incremental effect of the proposed rule. Communication with the Service indicates that the CCA is not expected to undergo section 7 consultation.²⁸ Thus, we do not include the CCA in our consultation forecast.

Historical Consultation Rate

Because the pinesnake is not yet listed under the Act, we also rely on the historical consultation rate for species that co-occur or share habitat with the pinesnake to inform the likely future rate of consultation for the pinesnake. As described in Section 2, the area proposed as pinesnake critical habitat is occupied by two federally listed species with similar habitat needs (gopher tortoise and red-cockaded woodpecker) and overlaps unoccupied, designated critical habitat for a third federally listed species (dusky gopher frog). The range of the gopher tortoise encompasses the entire extent of proposed pinesnake critical habitat.²⁹ The gopher tortoise was listed as a threatened species under the Act in 1987, and therefore has a substantial consultation history.³⁰

The Service provided data describing the number of formal and informal consultations and technical assists that have occurred since 2009 in the area surrounding the proposed designation in Mississippi.³¹ These historical consultations focus on the gopher tortoise, the red-cockaded woodpecker, and the dusky gopher frog. The proposed pinesnake critical habitat in Mississippi is completely encompassed by the range of the gopher tortoise; thus, we are confident that the data provide a snapshot of historical activity spanning the proposed units in Mississippi. The range of the red-cockaded woodpecker and dusky gopher frog critical habitat overlap portions of the proposed designation for the pinesnake; as a result, the Service also included consultations for these species in relevant geographic areas. The list of consultations provided by the Service represents a subset of all consultations that occurred for the gopher tortoise, red-cockaded woodpecker, and dusky gopher frog.

To compile this list, the Service followed a three-step process to identify consultations likely to have occurred in the vicinity of proposed pinesnake critical habitat:

1. The Service included 23 consultations for which latitude and longitude information indicated that the project occurred within one mile of proposed pinesnake critical habitat.

²⁷ U.S. Fish and Wildlife Service. June 3, 2014. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Black Pinesnake. (p. 7)

²⁸ U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on September 5, 2014.

²⁹ U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on September 2, 2014.

³⁰ U.S. Fish and Wildlife Service. July 7, 1987. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Gopher Tortoise (*Gopherus Polyphemus*); Final Rule. 52 FR 25376.

³¹ U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Consultation history provided via email communication on October 10, 2014. We note that the amount of economic activity undertaken during this period may have been lower than in earlier periods due to the recession. Thus, the consultation rate from this period may understate the future consultation rate if economic activity, and therefore the number of projects requiring consultation, increases. However, as shown later in this memo, even with a 10-fold increase in activity, the section 7 compliance costs resulting from the rule would be unlikely to reach the threshold for an economically significant rulemaking under Executive Order 12866.

2. The Service included six additional consultations that were initiated by USFS for activities on the De Soto National Forest.
3. For consultations without reported latitude and longitude information, the Service used the consultation title to determine project location. The Service eliminated all consultations identified as occurring in a city or county outside the counties where pinesnake critical habitat is proposed. The Service conservatively included the 221 remaining consultations that were not definitively outside of the counties containing proposed pinesnake critical habitat.³²

This process resulted in a total of 250 consultations that could have occurred in the vicinity of proposed pinesnake critical habitat.

In addition, we received information on all consultations that occurred in Clarke County, Alabama, since 2009. The species covered by the Clarke County consultation history include the wood stork, gulf sturgeon, tulotoma snail, and inflated heelsplitter mussel.³³ The relevance of the consultation data provided for Clarke County, Alabama, is limited by the fact that the pinesnake occurs in a different habitat type than the other listed species in that county, most of which are aquatic. As a result, although we discuss the Clarke County consultation history below, our estimate of administrative costs relies solely on the Mississippi data, adjusting the historical consultation rate to account for the additional acreage in Alabama. This process is described in more detail later in this section.

Consultation Rate in Mississippi

Review of the consultation history indicates that one formal consultation, 229 informal consultations, and 20 technical assistance efforts have occurred near proposed pinesnake critical habitat in Mississippi since 2009. Exhibit 3 identifies the primary action agencies involved in these consultations. The exhibit presents the agencies in decreasing order of the number of consultations undertaken by each, and notes the types of consultations undertaken.

³² U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on October 10, 2014.

³³ U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office. Personal communication on September 4, 2014.

EXHIBIT 3. ACTION AGENCIES INITIATING CONSULTATION IN THE VICINITY OF PROPOSED PINESNAKE CRITICAL HABITAT IN MISSISSIPPI, 2009-2014

ACTION AGENCY	FORMAL CONSULTATION	INFORMAL CONSULTATION	TECHNICAL ASSIST	TOTAL
Forest Service	1	57	4	62
Federal Highway Administration	-	26	3	29
Federal Communications Commission	-	24	1	25
Federal Energy Regulatory Commission	-	17	2	19
Rural Utilities Service	-	13	1	14
Dept. of Housing and Urban Development	-	13	-	13
Rural Development	-	11	1	12
Mississippi Dept. of Environmental Quality	-	8	2	10
Army Corps of Engineers	-	8	1	9
Mississippi Dept. of Wildlife, Fisheries, and Parks	-	7	1	8
Fish and Wildlife Service	-	6	-	6
Federal Emergency Management Agency	-	5	-	5
Dept. of Energy	-	4	-	4
Bureau of Indian Affairs	-	3	-	3
Dept. of Defense	-	3	-	3
Animal and Plant Health Inspection Service	-	2	-	2
Environmental Protection Agency	-	2	-	2
Dept. of Transportation	-	2	-	2
Dept. of Agriculture	-	1	1	2
Total	1	212	17	230

Source: U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Consultation history provided via email communication on October 10, 2014.

Notes:

1. This table does not include the Service or other action agencies that were only involved in a single informal consultation or technical assist.
2. State agencies sometimes act as lead action agencies in section 7 consultations when Federal entities delegate authority to state agencies. For example, the U.S. Environmental Protection Agency may in some cases delegate authority over environmental quality standards and enforcement to state environmental agencies (such as the Mississippi Department of Environmental Quality). Non-Federal agencies may also initiate technical assists.

To develop an expected rate of consultation for the pinesnake, we consider the consultation history separately for USFS lands and other lands. Since 2009 (a period of approximately 5.5 years), USFS has participated in one formal consultation for its LRMP, 57 informal consultations, and four technical assists in the area surrounding the proposed designation. Because we forecast a reinitiation for the LRMP consultation, we do not include that historical formal consultation in our estimation of the future

consultation rate. Thus, we assume that the Service will conduct on average 10.4 informal consultations and 0.7 technical assists with USFS each year.³⁴ We allocate these consultations to units with USFS lands (Units 1 through 5) according to the amount of USFS land in each unit. In addition, as described previously, we forecast five reinitiations of formal consultation in 2015 for the USFS LRMP, three landscape-level environmental assessments, and the special use permit for Camp Shelby. We allocate costs associated with the consultation for the special use permit for Camp Shelby to Unit 3, based on the location of Camp Shelby within the proposed designation. We allocate costs associated with the other four consultations to Units 1 through 5 according to the amount of USFS land in each unit.

We follow a similar process to forecast future consultations on non-USFS lands within the proposed designation in Mississippi. First, to account for the Service's exemption from critical habitat designation of the portion of Camp Shelby that falls on DOD and state-owned lands, we remove three informal consultations that were conducted by DOD for Camp Shelby operations. We develop an annual consultation rate using the remaining 169 informal consultations and 16 technical assists in the area surrounding the proposed critical habitat designation. We divide these values by 5.5 years to generate estimates of approximately 30.7 informal consultations and 2.9 technical assists in a given year on non-USFS lands in Mississippi. We allocate costs associated with these consultations to Units 1 through 6 according to the amount of non-USFS acres in each unit.

Consultation Rate in Alabama

Since 2009, one informal consultation and 42 technical assists occurred in Clarke County, Alabama.³⁵ The key Federal agencies involved in these consultations were the Corps, DOT, USDA, FERC, FHWA, and the Rural Utilities Service. Although the species represented in the Clarke County consultation history do not share habitat with the pinesnake, the Service believes that a substantial increase in the number of consultations is not likely to result from the listing of the pinesnake or designation of critical habitat. This conclusion is based on the likely lack of a Federal nexus for activities occurring in proposed Units 7 and 8, which consist entirely of private and state lands. Specifically, the Service notes that timber management, which is the primary activity occurring in those areas, rarely has a Federal nexus for consultation on private lands. A Federal nexus is also rare for state management of the Wildlife Management Areas (WMAs) that are located within the proposed pinesnake critical habitat.³⁶

However, to account for the possible increase in section 7 consultations due to the listing of the pinesnake, we conservatively assume that the forecast rate of consultations per acre of non-Federal, proposed critical habitat in Mississippi also applies to proposed Units 7 and 8 in Alabama. To calculate the number of consultations in a given year in Units 7 and 8, we divide the annual number of forecast non-USFS consultations, by type, in Units 1 through 6 by the total acreage of non-USFS lands in those units. This generates per-acre

³⁴ These values are calculated by dividing the number of consultations since 2009 by 5.5 years, e.g., [57 informal consultations since 2009] / [5.5 years] = [10.4 informal consultations per year]. Where the annual consultation rate is less than one, consultation is unlikely to occur every year (e.g. an annual consultation rate of 0.1 suggests one consultation is likely every 10 years).

³⁵ U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office. Personal communication on September 2, 2014.

³⁶ U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office. Personal communication on September 4, 2014.

rates of formal consultations, informal consultations, and technical assists on non-Federal lands in Mississippi. We multiply these rates by the total number of non-Federal acres in Units 7 and 8 to estimate the total number of consultations for those units.³⁷ As a result of these calculations, we forecast approximately 16 informal consultations and 1.5 technical assists in a given year in Unit 7, and approximately 2.8 informal consultations and 0.3 technical assists in a given year in Unit 8. If land use activities in these units do not have a Federal nexus (as suggested by the Service), this rate will overstate the number of future consultations and the associated administrative costs.

While we cannot, at this time, predict the precise number of anticipated future consultations, we find that, in total, five formal consultations are likely the first year after the designation is finalized due to the need to reinitiate several past formal consultations with the USFS and DOD.³⁸ After the first year, less than one annual formal consultation is likely. In addition, up to 60 informal consultations and five technical assists could occur each year. The projected consultation forecast, expressed as the maximum number of likely consultations in a given year, is presented in Exhibit 4.

EXHIBIT 4. MAXIMUM NUMBER OF LIKELY SECTION 7 CONSULTATIONS FOR THE PINESNAKE IN A GIVEN YEAR

UNIT	NUMBER OF TECHNICAL ASSISTS	NUMBER OF INFORMAL CONSULTATIONS	NUMBER OF FORMAL CONSULTATIONS	NUMBER OF FORMAL REINITIATIONS ¹
1 - Overtt	0.4	5.0	0.0	0.7
2 - Pineywoods Creek	0.3	3.0	0.0	0.3
3 - Cypress Creek	1.1	12.6	0.0	3.2
4A - Maxie	0.3	3.5	0.0	0.2
4B - Maxie	0.8	9.1	0.0	0.5
5 - Howison	0.2	2.2	0.0	0.2
6 - Marion County WMA	0.5	5.8	0.0	0
7- Scotch WMA	1.5	16.3	0.0	0
8 - Fred T. Stimpson WMA	0.3	2.8	0.0	0
Total²	5.4	60	0.0	5.0

Notes:

1. The formal reinitiated consultations are likely to occur in the first year after the final critical habitat rule is promulgated.
2. Totals may not sum due to rounding.

³⁷ Units 7 and 8 do not contain Federal lands, so the total number of non-Federal acres is equal to the total number of acres in these units.

³⁸ In some cases, it is uncertain whether consultations previously considered the pinesnake. In the case that previous actions did not consider the pinesnake, such consultations would be normal formal consultations, not reinitiated formal consultations. Normal consultations result in lower incremental administrative costs than reinitiated consultations because all of the administrative effort in a reinitiated consultation is attributable to critical habitat (i.e., none of the administrative costs are baseline costs attributable to the listing of the species). We conservatively assume that these consultations will be reinitiations. This assumption may overestimate costs.

Administrative Costs of Section 7 Consultations

Exhibit 5 presents the per-consultation administrative costs used in this analysis. These costs were developed using data from the 2012 Federal Government Schedule Rates and a review of consultation records from Service field offices across the country.³⁹ As shown in the exhibit, the incremental cost to consider adverse modification during technical assistance totals approximately \$410 across all parties (2012 dollars). Similarly, the incremental costs for informal, formal, and programmatic consultations total \$2,400, \$5,000, and \$9,000, respectively. Additionally, when a consultation that previously considered the pinesnake as a candidate species is reinitiated because of the designation of critical habitat, the incremental cost of such a consultation is higher than the incremental cost associated with a new consultation because all of the administrative effort is attributable to the designation of critical habitat (i.e., none of the administrative costs are baseline costs attributable to the listing of the species). Costs associated with reinitiated formal, informal, and programmatic consultations total \$4,800, \$10,000, and \$18,000, respectively. These estimates assume that consultations would occur even in the absence of critical habitat due to the presence of the listed species, and the amount of administrative effort needed to address critical habitat during this process is relatively minor.⁴⁰ We conservatively assume that third parties are involved in all consultations within pinesnake critical habitat; in some cases, such as for consultations on land management that occur solely between the Service and USFS, this assumption will overstate incremental costs.

³⁹ We use 2012 schedule rates, even though more current (2014) rate information is available because, as discussed in a later section of the memorandum, the analysis also relies on information about private property values, where the most current information is from 2012.

⁴⁰ As noted previously, the Service's proposed special rule under section 4(d) of the Act will not affect the number of consultations likely to result from the designation of critical habitat but may result in a streamlined section 7 consultation process, and an associated reduction in per-consultation administrative costs, for activities that have been identified as net beneficial to the pinesnake. We are unable to determine the magnitude of such cost reductions. Source: U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office. Personal communication on October 8, 2014.

EXHIBIT 5. RANGE OF INCREMENTAL ADMINISTRATIVE CONSULTATIONS COSTS (2012\$)

CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION					
Technical Assistance	\$140	n/a	\$260	n/a	\$410
Informal	\$610	\$780	\$510	\$500	\$2,400
Formal	\$1,400	\$1,600	\$880	\$1,200	\$5,000
Programmatic	\$4,200	\$3,500	n/a	\$1,400	\$9,000
REINITIATION OF CONSULTATION TO ADDRESS ADVERSE MODIFICATION					
Technical Assistance	\$290	n/a	\$530	n/a	\$810
Informal	\$1,200	\$1,600	\$1,000	\$1,000	\$4,800
Formal	\$2,800	\$3,100	\$1,800	\$2,400	\$10,000
Programmatic	\$8,300	\$6,900	n/a	\$2,800	\$18,000
Source: IEC analysis of administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2012, and a review of consultation records from several Service field offices across the country conducted in 2002.					
Notes:					
1. Estimates are rounded to two significant digits and may not sum due to rounding.					
2. Estimates reflect average hourly time required by staff.					

Applying these unit cost estimates, this analysis estimates that considering adverse modification in section 7 consultation will result in incremental costs of approximately \$190,000 (2012 dollars) in 2015 (the year likely to have the greatest costs). Exhibit 6 summarizes forecast incremental costs by unit.

EXHIBIT 6. SUMMARY OF INCREMENTAL COSTS BY UNIT (2012\$)

UNIT	COSTS ON NON-USFS LANDS	COSTS ON USFS LANDS	TOTAL INCREMENTAL COSTS	PERCENT OF INCREMENTAL COSTS
1 - Ovet	\$7,700	\$11,000	\$19,000	9.7%
2 - Pineywoods Creek	\$5,500	\$4,900	\$10,000	5.3%
3 - Cypress Creek	\$17,000	\$46,000	\$63,000	32.1%
4A - Maxie	\$7,400	\$2,400	\$9,900	5.1%
4B - Maxie	\$19,000	\$7,800	\$27,000	13.7%
5 - Howison	\$4,200	\$2,600	\$6,800	3.5%
6 - Marion County WMA	\$14,000	\$0	\$14,000	7.1%
7 - Scotch WMA	\$39,000	\$0	\$39,000	20.1%
8 - Fred T. Stimpson WMA	\$6,600	\$0	\$6,600	3.4%
Total	\$120,000	\$75,000	\$190,000	100%
Note: Costs are reported to two significant figures. Therefore, totals may not sum due to rounding.				

SECTION 4. OTHER COSTS OF THE CRITICAL HABITAT RULE

This section discusses the potential for incremental costs to occur outside of the section 7 consultation process. These types of costs include triggering additional requirements or project modifications under state laws or regulations, and perception effects on markets. These types of impacts may occur even when activities do not have a Federal nexus for consultation.

ADDITIONAL STATE REGULATION

Incremental costs may occur outside of the section 7 consultation process if the designation of critical habitat triggers additional requirements or project modifications under state or local laws, regulations, or management strategies. These types of costs typically occur if the designation increases awareness of the presence of the species or the need for protection of its habitat. Such costs may occur even when activities do not have a Federal nexus for consultation.

Although the pinesnake is not yet listed under the Act, the species receives protection as a state-listed endangered species in Mississippi and as a nongame species in Alabama. In addition, the pinesnake receives baseline protection from state-level conservation guidelines undertaken for the federally listed gopher tortoise. For example, the Mississippi Forestry Commission (MFC), a state agency, operates the Mississippi Forest Stewardship Program, which guides foresters to survey for state- and federally listed species.⁴¹ The MFC also includes specific considerations for threatened and endangered species in its Best Management Practices for Forestry in Mississippi.⁴² Similarly, in Alabama, the Alabama Cooperative Extension System of Alabama A&M and Auburn Universities publishes information on its website regarding forestry considerations for threatened and endangered species found in the State of Alabama. The information provided for the gopher tortoise identifies Clarke County (the location of approximately one-third of the private acres proposed for pinesnake critical habitat designation) as potential habitat and recommends minimizing impacts to the species by avoiding ground disturbance from the use of heavy equipment and conducting frequent controlled burns and thinning to maintain optimal forest density.⁴³ As a result of the existing protections afforded the pinesnake and its habitat in both Mississippi and Alabama, we assume that the designation of critical habitat will not provide new information about the need to conserve pinesnake critical habitat.

POSSIBLE IMPACTS OF PUBLIC PERCEPTION

Comments received regarding proposed designations of critical habitat in various locations throughout the United States indicate that the public perceives critical habitat designation as possibly resulting in incremental changes to private property values, above and beyond those associated with specific forecast project modifications under section 7

⁴¹ Mississippi Forestry Council. "Mississippi Forest Stewardship Program: State Plan 2009-2013." Accessed on September 11, 2014 at http://www.mfc.ms.gov/pdf/Mgt/FS/State_Stewardship_Plan_Final_08.pdf.

⁴² Mississippi Forestry Council. "Best Management Practices for Forestry in Mississippi." September 2008. Accessed on September 11, 2014 at http://www.mfc.ms.gov/pdf/mgt/wq/entire_bmp_2008-7-24.pdf.

⁴³ Johnson, Rhett, and Brett Wehrle. Threatened and Endangered Species of Alabama: A Guide to Assist with Forestry Activities. Alabama Cooperative Extension System, Alabama A&M and Auburn Universities, accessed on September 5, 2014. Available at: <http://www.aces.edu/natural-resources/wildlife/endangeredspecies.php>.

of the Act.⁴⁴ These commenters believe that, all else being equal, a property that is inhabited by a threatened or endangered species, or that lies within a critical habitat designation, will have a lower market value than an identical property that is not inhabited by the species or that lies outside of critical habitat. This lower value results from the perception that critical habitat will preclude, limit, or slow development, or somehow alter the highest and best use of the property.

Public attitudes about the limits and costs that the Act may impose can cause real economic effects to the owners of property, regardless of whether such limits are actually imposed. Over time, as public awareness grows of the regulatory burden placed on designated lands, particularly where no Federal nexus compelling section 7 consultation exists, the effect of critical habitat designation on properties may subside.

Data limitations prevent the quantification of the possible incremental reduction in property values or its attenuation rate.⁴⁵ Therefore, to determine whether the possible magnitude of such costs may approach the threshold for an economically significant rulemaking under E.O. 12866, we conduct a bounding analysis. We estimate the market value for privately owned agricultural lands (including woodlands, cropland, and pastureland) within the proposed designation. Because proposed critical habitat is located in areas where development pressure is low, agricultural and timber uses are likely to represent the highest and best use of these properties.

The total value of the properties represents the upper bound on possible costs, rather than a best estimate of likely costs. Assuming the entire value of the parcel is lost likely overstates impacts for the following reasons:

1. Many properties may have alternative uses that the public would not construe as “lost” (e.g., land that is currently used for timber management could be used for recreational purposes, such as hunting).⁴⁶
2. If perception effects occur as a result of the listing of the pinesnake, the incremental portion of the impact attributable to pinesnake critical habitat would be reduced.
3. The presence of the federally listed gopher tortoise and red-cockaded woodpecker, as well as designated critical habitat for the dusky gopher frog,

⁴⁴ See, for example, public comments on the possible impact of designating private lands as critical habitat for the Northern spotted owl (as summarized in Industrial Economics, Incorporated. Economic Analysis of Critical Habitat Designation for the Northern Spotted Owl: Final Report. Prepared for the U.S. Fish and Wildlife Service. November 20, 2012. (p. 5-21) and the cactus ferruginous pygmy owl (as summarized in Industrial Economics, Incorporated. Economic Analysis of Critical Habitat Designation for the Cactus Ferruginous Pygmy-Owl. Prepared for the U.S. Fish and Wildlife Service. June 1999. p. 44)).

⁴⁵ For a discussion of the available literature describing possible perceptual effects resulting from the Act, see Industrial Economics, Incorporated. Memorandum to the U.S. Fish and Wildlife Service, Supplemental Information on Land Values - Critical Habitat Designation for the Black Pinesnake. October 22, 2014.

⁴⁶ Ducks Unlimited, a nonprofit organization dedicated to the conservation of wetlands and associated upland habitats for waterfowl and other wildlife, owns more than 55,000 acres across the State of Mississippi. Ducks Unlimited conserves these acres for the purpose of maintaining adequate habitat to support hunting. Source: U.S. Geological Survey, Gap Analysis Program (GAP). November 2012. Protected Areas Database of the United States (PADUS), version 1.3 Combined Feature Class. Downloaded from: gapanalysis.usgs.gov/padus/ on August 27, 2014; Ducks Unlimited, “About Ducks Unlimited,” accessed on September 12, 2014, at <http://www.ducks.org/about-du?poe=hometxt>.

could further reduce the incremental portion of the impact attributable to pinesnake critical habitat.

4. Because co-occurring species have received protection for many years, the public has experience with, and therefore greater understanding of, the limitations likely to be imposed under the Act. In particular, the Service partners with local stakeholders in Alabama and Mississippi to implement significant large-scale conservation programs for the federally listed gopher tortoise.⁴⁷
5. Assuming the entire value of these lands (i.e., all economic activity associated with the parcel) is lost is not supported by the limited, existing academic literature investigating endangered species-related public perception effects.⁴⁸

To estimate the value of privately owned agricultural lands within the proposed designation, we first identify the number and location of acres within proposed critical habitat that could be reasonably subject to perception effects. Then, we estimate the current market value of these acres using county-level agricultural land values from the U.S. Department of Agriculture.⁴⁹ We identify approximately 65,000 acres of privately owned land within the proposed designation that are not currently managed for conservation. The total value of these parcels exceeds \$100 million.⁵⁰ As described above, data limitations prevent us from determining whether, and to what degree, this total value may be reduced as a result of the designation.

SECTION 5. GEOGRAPHIC DISTRIBUTION OF SECTION 7 AND OTHER COSTS

Because we do not forecast costs associated with project modifications, estimated compliance costs are closely related to the number of projected consultations. This analysis relies on the consultation history for species that co-occur or share habitat with the pinesnake to forecast future consultations for the pinesnake. Detailed information on the location of these consultations is not available. We assign projected consultations to the proposed units according to the acreage in each unit (i.e., we assume consultations are distributed evenly across specific land ownership types within proposed critical habitat). Thus, the highest costs are generally estimated to occur in the largest units. This analysis estimates the greatest costs of section 7 consultation in Unit 3, which contains nearly three times the number of acres as the next largest unit. This result is also driven by the anticipated reinitiation of formal consultation for the Camp Shelby special use permit assigned to that unit.⁵¹

⁴⁷ U.S. Fish and Wildlife Service. "Range-Wide Conservation Strategy for the Gopher Tortoise." June 2013. Accessed on September 8, 2014, at <https://www.fws.gov/southeast/candidateconservation/pdf/FinalGopherTortoiseStrategy.pdf>.

⁴⁸ For a discussion of the available literature describing possible perceptual effects resulting from the Act, see Industrial Economics, Incorporated. Memorandum to the U.S. Fish and Wildlife Service, Supplemental Information on Land Values - Critical Habitat Designation for the Black Pinesnake. October 22, 2014.

⁴⁹ U.S. Department of Agriculture, National Agricultural Statistics Service. 2012 Agricultural Census. Quick Stats, accessed on August 27, 2014. Available at: http://quickstats.nass.usda.gov/?source_desc=CENSUS.

⁵⁰ For additional detail describing our analysis of perception-related effects, see Industrial Economics, Incorporated. Memorandum to the U.S. Fish and Wildlife Service, Supplemental Information on Land Values - Critical Habitat Designation for the Black Pinesnake. October 22, 2014.

⁵¹ Note, we use project-specific information to forecast consultations undertaken by USFS.

After Unit 3, the unit expected to incur the greatest costs of section 7 consultation is Unit 7. As described previously, Units 7 does not contain Federal lands, and the ongoing activities in that unit have limited potential for a Federal nexus for consultation. However, in the absence of information regarding the likelihood of consultations for the pinesnake in Alabama, this analysis applies the per-acre consultation rate from non-Federal lands in Units 1 through 6 in Mississippi to the non-Federal acres in Units 7 and 8 in Alabama. This process, and the implications for the conclusions of this analysis, is described in the text box below.

FORECAST CONSULTATIONS IN UNITS 7 AND 8

Units 7 and 8 contain no Federal lands, and the Service believes that activities on these units are unlikely to involve a Federal nexus requiring consultation. Moreover, approximately half of each unit is located within a WMA, further limiting the potential for section 7 consultation. However, our calculations indicate that, of all the proposed critical habitat units for the pinesnake, Unit 7 may experience the second highest incremental administrative cost in a given year, after Unit 3.¹

This finding results from applying the per-acre consultation rate from non-Federal lands in Mississippi to non-Federal lands in Alabama. Because Unit 7 contains the largest number of non-Federal acres of any unit proposed for pinesnake critical habitat designation, Unit 7 also has the largest number of forecast informal consultations and technical assists. Incremental administrative costs in Unit 7 are lower than costs in Unit 3 only after accounting for forecast reinitiations of formal section 7 consultation associated with the De Soto National Forest.

This approach, in which we apply the per-acre consultation rate from non-Federal lands in Units 1 through 6 to non-Federal lands in Units 7 and 8, does not reflect differences in land use among those units. For example, only nine percent of non-Federal lands in Units 1 through 6 are located within WMAs. In comparison, approximately 50 percent of Units 7 and 8 are located within WMAs. Thus, the forecast per-acre consultation rate in Units 1 through 6 may not be representative of the likely consultation rate in Units 7 and 8. This analysis may therefore overstate incremental costs in Units 7 and 8.

¹Because of the small number of acres in Unit 8, representing less than six percent of the total non-Federal acreage proposed for critical habitat designation, forecast incremental administrative costs in Unit 8 are lower than costs in all other units.

In addition, we consider the geographic distribution of possible perception-related effects. If such effects occur, costs are likely to be highest in Units 4b, 7 and 3, due to the large number of privately owned agricultural acres located in those units.

SECTION 6. SECTION 7 AND OTHER ECONOMIC BENEFITS

The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the pinesnake. In order to quantify and monetize direct benefits of the designation, information is needed to determine (1) the incremental change in the probability of pinesnake conservation expected to result from the designation (distinct from the change in conservation probability associated with the listing of the species), and (2) the public's willingness to pay for such beneficial changes.

As described in this memorandum, additional project modifications to conserve the pinesnake are not anticipated. If, however, public perception causes changes in future land use, benefits to the species and environmental quality may occur. Due to existing data limitations, we are unable to assess the possible magnitude of such benefits.⁵²

SECTION 7. SUMMARY

In conclusion, the section 7-related costs of designating critical habitat for the pinesnake are likely to be relatively low given the expected number of future consultations implied by the consultation history for co-occurring species. Incremental costs are limited to additional administrative effort to consider adverse modification in consultation. This finding is based on several factors, including:

1. The presence of the species in all proposed critical habitat units results in significant baseline protection under the Act;
2. The Service believes that project modifications requested to avoid adverse modification are likely to be the same as those needed to avoid jeopardy to the species;
3. An increase in awareness of the need to consult with the Service is unlikely given the overlap between the proposed designation and the known range of the pinesnake, as well as the past involvement of key action agencies in consultations for co-occurring species;
4. The proposed designation also receives baseline protection from the presence of two federally listed species, the gopher tortoise and the red-cockaded woodpecker, that have habitat needs similar to those of the pinesnake; and
5. The proposed designation also receives baseline protection from overlap with designated critical habitat for the dusky gopher frog.

The incremental section 7 costs resulting from the designation are unlikely to reach the threshold of an economically significant rulemaking based on the number of anticipated consultations and per-consultation administrative costs. Furthermore, based on the state-level conservation status for the pinesnake and conservation practices undertaken for co-occurring species throughout the proposed designation, the designation of critical habitat is unlikely to trigger additional requirements under state or local regulations. Data limitations prevent the quantification of possible land value losses resulting from the public's perception of the regulatory burden imposed by critical habitat. However, we note that landowners in these areas are already familiar with the requirements of the Act, and substantial baseline conservation is already in place for two co-occurring federally listed species and designated critical habitat for a third federally listed species. These factors may mitigate possible incremental impacts on private property values.

Additional efforts to conserve the pinesnake are not anticipated. If, however, perception effects cause changes in future land use, benefits to the species and environmental quality may occur. Due to existing data limitations, we are unable to assess the possible

⁵² For a detailed discussion of these data limitations, see Flight, M. and R. Unsworth, Industrial Economics, Incorporated. 2011. *Quantifying Benefits of Critical Habitat Designation for Listed Species*. Memorandum to Douglas Krofta, U.S. Fish and Wildlife Service.

magnitude of such benefits. Quantification of benefits would require primary research and the generation of substantial amounts of new data, which is beyond the scope of this memorandum and Executive Order 12866.⁵³

⁵³ Executive Order 12866 directs agencies to base regulatory decisions on “the best reasonably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the intended regulation” (58 FR 51736). For a detailed discussion of data limitations associated with the estimation of critical habitat benefits, see Flight and Unsworth (2011).