



ECONOMIC ANALYSIS OF CRITICAL
HABITAT DESIGNATION FOR THE
MISSISSIPPI GOPHER FROG

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prepared for:

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LIST OF ACRONYMS

Act	Endangered Species Act
Camp Shelby	Camp Shelby Joint Forces Training Center
CEQA	California Environmental Quality Act
CHD	critical habitat designation
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DOD	U.S. Department of Defense
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FWS	Fish and Wildlife Service
gopher frog	Mississippi gopher frog
HCP	Habitat Conservation Plan
HFRP	Mississippi Healthy Forest Reserve Program
Iec	Industrial Economics, Inc.
INRMP	Integrated Natural Resource Management Plan
MSARNG	Mississippi Army National Guard
NGB	National Guard Bureau
NRCS	Natural Resources Conservation Service
OMB	U.S. Office of Management and Budget
PCEs	Primary Constituent Elements
RFA	Regulatory Flexibility Act
SBA	Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
Service	U.S. Fish and Wildlife Service
TNC	The Nature Conservancy
Tradition Properties	Columbus Communities, L.L.C. – Tradition Properties, Inc.
USFS	U.S. Forest Service
Ward Bayou WMA	Ward Bayou Wildlife Management Area

EXECUTIVE SUMMARY

1. The purpose of this report is to identify and analyze the potential economic impacts associated with the designation of critical habitat for the Mississippi gopher frog (*Rana sevosia*, hereafter “gopher frog”). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service (Service).
2. The gopher frog was listed as endangered on December 4, 2001.¹ On November 27, 2007, the Center for Biological Diversity and Friends of Mississippi Public Lands filed a lawsuit against the Service and the Secretary of the Interior for their failure to designate critical habitat for the frog in a timely manner.² In a settlement approved by the court on June 11, 2008, the Service agreed to submit to the Federal Register a proposed rule designating critical habitat for the gopher frog by May 30, 2010 if designation was found prudent and determinable. The proposed critical habitat designation was published on June 3, 2010.³ Based on information received during the comment period on the Proposed Rule, the Service revised the area proposed as gopher frog critical habitat to include additional area around the breeding ponds in Mississippi and the addition of a unit in Louisiana. The revised proposed critical habitat areas are described in the revised proposed critical habitat determination, which is published concurrently with the Notice of Availability (NOA) for this draft economic analysis.⁴ This analysis considers the economic effects of designating the proposed revised critical habitat as presented in the NOA (the study area for this analysis).
3. The Service is proposing to designate a total of 7,015 acres across 12 units, three of which--Units 2, 4, and 5 are divided into two subunits--as gopher frog critical habitat. The proposed designation covers area in one Louisiana parish and four Mississippi counties: St. Tammany, LA (1,649 acres); Harrison, MS (1,743 acres); Jackson, MS (1,862 acres); Forrest, MS (658 acres); and Perry, MS (1,108 acres). Approximately 53 percent of the proposed critical habitat falls on Federally-owned land, 42 percent falls on private land, and the remaining 4 percent falls on state-owned land. Occupied areas make up approximately 19 percent (1,316 acres) of the proposed designation. Occupied habitat for the gopher frog is limited to four areas: Subunit 2a located primarily within the DeSoto National Forest; Subunit 4a located on private land; Subunit 5a located on private land; and Unit 7 is located primarily within state-owned land held in trust as a local

¹ 66 FR 62993.

² Friends of Mississippi Public Lands and Center for Biological Diversity v. Kempthorne (07-CV-02073).

³ 75 FR 31387.

⁴ On May 5, 2011, the court issued an amended order, requiring that the Service submit the revised proposed critical habitat designation to the Federal Register by September 15, 2011, and the final designation by May 30, 2012.

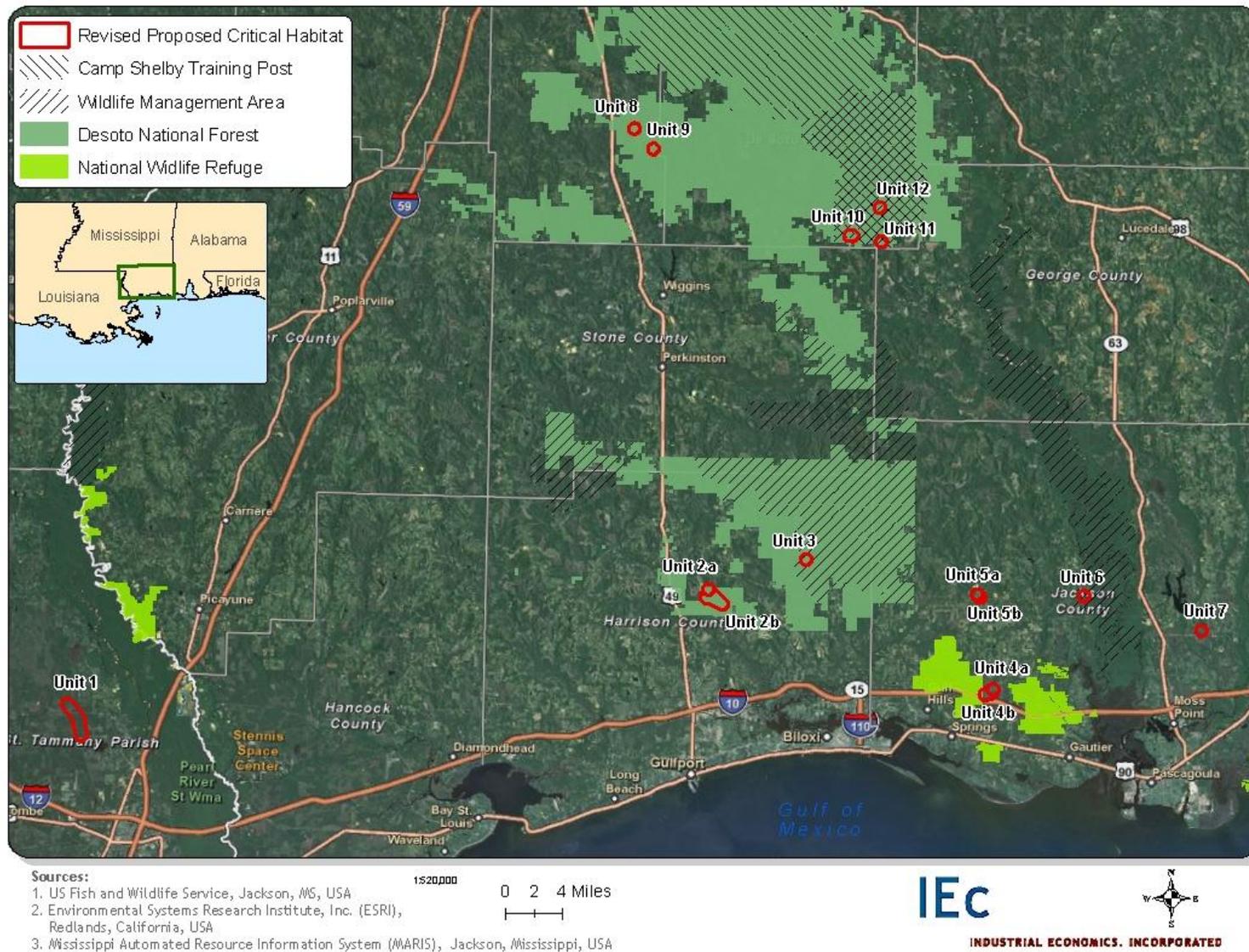
funding source for education in Jackson County. Unoccupied areas make up approximately 81 percent (5,704 acres) of the designation. The unoccupied proposed critical habitat falls within the historical range of the gopher frog.⁵ Exhibit ES-1 provides an overview of proposed critical habitat for the gopher frog.

FOCUS OF THE ECONOMIC ANALYSIS

4. This analysis describes economic impacts to active species management, development, forestry, and military activities associated with designation of critical habitat for the gopher frog. To provide an understanding of the potential economic impacts, this analysis: 1) determines the scope and scale of economic activities within proposed critical habitat; 2) identifies threats to gopher frog habitat associated with these economic activities; 3) identifies conservation measures that may be implemented to avoid or minimize these threats; and, 4) to the extent feasible, quantifies the economic costs of these measures.
5. The analysis separates conservation measures into two distinct categories according to "without critical habitat" and "with critical habitat" scenarios. The "without critical habitat" scenario represents the baseline for the analysis, considering protections otherwise afforded to the gopher frog, for example under other Federal, State, and local regulations. The "with critical habitat" scenario describes the incremental impacts specifically due to designation of critical habitat for the species. In other words, these incremental conservation measures and associated economic impacts would not occur but for the designation. Economic impacts are only quantified for conservation measures implemented specifically due to the designation of critical habitat (i.e., incremental impacts). Conservation measures implemented under the baseline (without critical habitat) scenario are described qualitatively within the report, but economic impacts associated with these measures are not quantified.
6. This analysis considers both direct and indirect costs. Indirect costs may result from the influence of critical habitat designation on the decisions of regulators and decision-makers other than the Service (e.g., State agencies and land managers).
7. Because the Service believes that the direct benefits of the Proposed Rule are best expressed in biological terms, this analysis does not quantify or monetize benefits. However, a qualitative discussion of economic benefits is provided in Chapter 5.

⁵ Personal communication with Service biologist, Jackson Field Office, May 20, 2011.

EXHIBIT ES-1 OVERVIEW PROPOSED CRITICAL HABITAT FOR MISSISSIPPI GOPHER FROG



SUMMARY OF FINDINGS

8. The following points summarize the key issues and conclusions of this report:

- **Present value incremental impacts are estimates to range from \$102,000 to \$36.3 million assuming a seven percent discount rate or \$106,000 to \$37.7 million assuming a three percent discount rate.** The reason for the broad range in incremental impacts stems from uncertainty regarding the likelihood of a Federal nexus for development activities in Unit 1 and the conservation measures that the Service may recommend if consultation does occur. To address this uncertainty, we estimate potential economic impacts of designating Unit 1 as critical habitat according to three scenarios:

- **Scenario 1** – This scenario assumes that development occurring within the unit avoids impacts on jurisdictional wetlands. As such, there is no Federal nexus (no Federal permit is required) triggering section 7 consultation regarding gopher frog critical habitat. Absent consultation, no conservation measures are implemented for the species and critical habitat designation of Unit 1 does not result in any incremental economic impact.

Total present value incremental impacts of critical habitat designation of the remaining units are \$102,000 (\$9,610 in annualized impacts) over the timeframe of the analysis (2012 to 2031) applying a seven percent discount rate.

- **Scenario 2** – This scenario assumes the proposed development of Unit 1 requires a U.S. Army Corps of Engineers (Corps) Clean Water Act (CWA) Section 404 permit due to the presence of jurisdictional wetlands. The development would therefore be subject to section 7 consultation considering critical habitat for the gopher frog. This scenario further assumes that the Service works with the landowner to establish conservation areas for the gopher frog within the unit. The Service anticipates that approximately 40 percent of the Unit may be developed in the case that 60 percent is managed for gopher frog conservation and recovery. According to this scenario, present value incremental impacts of critical habitat designation due to the lost option for developing 60 percent of Unit 1 lands are \$21.7 million.

Total present value incremental impacts of critical habitat designation across all units are therefore \$21.8 million (\$2.06 million in annualized impacts) applying a seven percent discount rate.

- **Scenario 3** – This scenario again assumes that the proposed development of Unit 1 requires a Section 404 permit and therefore is subject to section 7 consultation. This scenario further assumes that, due to the importance of the unit in the conservation and recovery of the species, the Service recommends that no development occur within the unit. According to

this scenario, present value impacts of the lost option for development in 100 percent of the unit are \$36.2 million.

Total present value incremental impacts of critical habitat designation across all units are therefore \$36.3 million (\$3.43 million in annualized impacts) applying a seven percent discount rate.

Incremental impacts stemming from additional gopher frog conservation measures requested by the Service during section 7 consultation are not expected in occupied areas because project modifications that may be needed to minimize impacts to the species would coincidentally minimize impacts to critical habitat.⁶ In unoccupied areas (e.g., Unit 1), project modifications resulting from consultation are considered incremental impacts of the critical habitat designation.⁷

- According to Scenarios 2 and 3, the majority of incremental impacts are related to the lost development value in Unit 1.** Under Scenarios 2 and 3, as described above, over 99 percent of the estimate incremental impacts are related to the lost development value of Unit 1. Unit 1 is planned for large-scale, future development. The area is currently managed for timber, but was recently rezoned to allow for mixed-use and residential development. In the case that development within this unit is subject to section 7 consultation regarding gopher frog critical habitat, the Service will make conservation recommendations. Scenario 2 assumes that a compromise with the landowners will be reached in which development is avoided on 989 acres of the unit in order to provide for conservation and recovery of the species, while the remaining 660 acres is developed. Scenario 3 assumes complete avoidance of critical habitat is necessary to avoid adverse modification of critical habitat. In the case that development of all or a portion of this unit is precluded due to the designation of critical habitat, incremental economic impacts are expected in the form of reduced land values. That is, the total value of the land would be reduced by the fraction of the value associated with the option for potential future development. Because this unit is unoccupied by the gopher frog, limitations on development would be attributable to the critical habitat designation alone and therefore would be considered incremental impacts.
- Incremental impacts are also related to active species management activities.** Because the United States Forest Service (USFS) in Mississippi has been working closely with the Service for many years, many actions are already in place or underway for the gopher frog even absent critical habitat designation. These efforts fall under the baseline for this analysis and are not quantified. The quantified incremental impacts to species management are related to the administrative cost of addressing adverse modification in section 7 consultation.

⁶ FWS to Industrial Economics, Inc., August 16, 2010, "Incremental Effects Memorandum for the Economic Analysis of Proposed Rule to Designate Critical Habitat for the Mississippi Gopher Frog." (see Appendix C)

⁷ *Ibid.*

Three future consultations are expected related specifically to gopher frog and other species management efforts – these include a programmatic consultation for activities on lands managed by the USFS, a programmatic consultation for activities within Ward Bayou Wildlife Management Area (Ward Bayou WMA), and a re-initiation of consultation with the Natural Resource Conservation Service for the Mississippi Healthy Forest Reserve Program. The present value of incremental impacts to species management is estimated to be \$64,500, or \$6,090 annualized over the analysis timeframe (2012 to 2031, applying a seven percent discount rate). Impacts related to species management activities represent roughly 0.2 percent of anticipated incremental impacts (discounted at seven percent).

- **Incremental impacts to military readiness could result from proposed critical habitat designation in Units 10, 11, and 12.** USFS lands proposed as critical habitat for the gopher frog in Units 10, 11, and 12 are used by the Mississippi Army National Guard under a special use permit as part of the Camp Shelby Joint Forces Training Center (Camp Shelby). This analysis assumes that USFS will engage in a programmatic consultation with the Service in 2012 to address issuance of the special use permit which authorizes training activities within the proposed critical habitat. While potential project modifications associated with this consultation are not known at this time, Department of Defense (DOD) requests exclusion of these units given Camp Shelby's importance as a training facility for the Army National Guard, Army and other military services. Incremental project modifications are not quantified at this facility.
- **Outside of Unit 1, potential impacts to residential development activities are anticipated to be limited.** Ten acres of proposed critical habitat overlap a planning area for a large-scale development known as Tradition (in Subunits 2a and 2b). However, because the area is occupied by the species and current plans appear to include leaving proposed critical habitat areas as wetlands/open space, it is not apparent that gopher frog critical habitat designation will result in a land use change at Tradition. Thus, this analysis assumes that while the Corps is expected to reinitiate consultation to address the potential for adverse modification of critical habitat on the gopher frog, no additional project modifications will result due to critical habitat. The analysis recognizes that a portion of unoccupied Unit 4 is currently used for rural residential development, and that some potential for future consultation exists in that area. However, no development plans are known at this time; therefore the analysis does not forecast potential impacts related to development in this unit.
- **A Habitat Conservation Plan (HCP) could be developed to address potential impacts of forestry activities on State School Lands.** Although normal silvicultural activities are exempt from section 404 permitting requirements, it is possible that the State of Mississippi, who own lands in Unit 7, could feel compelled to develop an HCP for their forestry activities following critical

habitat designation. Although this unit is occupied by the gopher frog, this analysis assumes that critical habitat has the potential to trigger development of this HCP. Potential project modifications associated with this HCP are not known at this time, and hence are not quantified in this analysis.

INCREMENTAL IMPACTS OF GOPHER FROG CONSERVATION

9. Exhibit ES-2 summarizes incremental impacts of gopher frog conservation over the next 20 years (2012 to 2031) by unit and subunit. To calculate present value and annualized impacts, guidance provided by U.S. Office of Management and Budget (OMB) specifies the use of a real annual discount rate of seven percent.⁸ In addition, OMB recommends conducting a sensitivity analysis using other discount rates, such as three percent.⁹ Accordingly, all cost figures presented in Chapters 3 and 4 of this analysis describe present value cost impacts assuming a seven percent discount rate. Appendix B reports forecast impacts assuming a discount rate of three percent to highlight the sensitivity of the results to the discount rate assumption.

⁸ “A real discount rate that has been adjusted to eliminate the effect of expected inflation should be used to discount constant-dollar or real benefits and costs. A real discount rate can be approximated by subtracting expected inflation from a nominal interest rate... Constant-dollar benefit-cost analyses of proposed investments and regulations should report net present value and other outcomes determined using a real discount rate of 7 percent. This rate approximates the marginal pretax rate of return on an average investment in the private sector in recent years.” U.S. Office of Management and Budget, Circular A-94 Revised, October 29, 1992.

⁹ U.S. Office of Management and Budget, Circular A-4, September 17, 2003 and U.S. Office of Management and Budget, “Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice,” 68 Federal Register 5492, February 3, 2003.

**EXHIBIT ES-2 INCREMENTAL IMPACTS OF GOPHER FROG CONSERVATION BY UNIT AND SUBUNIT
(2012 - 2031, 2011 DOLLARS)**

UNIT/SUBUNIT	THREE PERCENT DISCOUNT RATE			SEVEN PERCENT DISCOUNT RATE		
	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 1	SCENARIO 2	SCENARIO 3
1*	\$0	\$22,600,000	\$37,600,000	\$0	\$21,700,000	\$36,200,000
2a		\$4,000			\$3,860	
2b		\$4,000			\$3,860	
3		\$8,760			\$8,430	
4a		\$0			\$0	
4b		\$0			\$0	
5a		\$7,230			\$6,960	
5b		\$7,230			\$6,960	
6		\$26,300			\$25,300	
7		\$4,410			\$4,240	
8		\$8,760			\$8,430	
9		\$8,760			\$8,430	
10		\$8,760			\$8,430	
11		\$8,760			\$8,430	
12		\$8,760			\$8,430	
Total	\$106,000	\$22,700,000	\$37,700,000	\$102,000	\$21,800,000	\$36,300,000
Annualized	\$7,110	\$1,530,000	\$2,540,000	\$9,610	\$2,060,000	\$3,430,000

Notes: Totals may not sum due to rounding.
* This analysis employs three scenarios to estimate impacts of critical habitat designation in Unit 1 due to uncertainty regarding future land use and gopher frog conservation and recovery recommendations.

10. We estimate present value incremental impacts of critical habitat designation of \$102,000, \$21.8 million, or \$36.3 million according to three scenarios (applying a seven percent discount rate). This equates to \$9,610, \$2.06, and \$3.43 million in annualized impacts (applying a seven percent discount rate). Under Scenario 1 all incremental impacts stem from the administrative costs of future section 7 consultations. According to Scenarios 2 and 3, the vast majority of the incremental impacts stem from the lost development value of land in Unit 1. Less than one percent of the incremental impacts stem from the administrative costs of future section 7 consultations under Scenarios 2 and 3.
11. According to Scenario 1, the greatest incremental impacts are forecast to occur in Unit 6 where present value impacts are equal to \$25,300 (24.8 percent of overall incremental impacts), applying a seven percent discount rate. Under Scenarios 2 and 3, the greatest incremental impacts are forecast to occur within Unit 1 where present value impacts are equal to \$21.7 million or \$36.2 million, respectively (99.5 and 99.7 percent of overall incremental impacts), applying a seven percent discount rate. No incremental impacts are forecast in Subunits 4a and 4b.

12. Exhibit ES-3 presents present value and annualized incremental impacts by activity. According to Scenario 1, impacts to species management represent the majority (63.4 percent) of the total incremental impacts with a present value of \$64,500 (applying a seven percent discount rate). Under Scenarios 2 and 3, impacts to development activities represent the majority (99.6 and 99.7 percent) of total incremental impacts with a present value of \$21.8 million and \$36.2 million (applying a seven percent discount rate).

EXHIBIT ES-3 PRESENT VALUE AND ANNUALIZED INCREMENTAL IMPACTS OF GOPHER FROG CONSERVATION BY ACTIVITY (2012 - 2031, 7 PERCENT DISCOUNT RATE, 2011 DOLLARS)

ACTIVITY	PRESENT VALUE IMPACTS			ANNUALIZED IMPACTS		
	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 1	SCENARIO 2	SCENARIO 3
Species Management			\$64,500			\$6,090
Development*	\$7,710	\$21,800,000	\$36,200,000	\$728	\$2,050,000	\$3,420,000
Forestry			\$4,240			\$400
Military			\$25,300			\$2,390
Total	\$102,000	\$21,800,000	\$36,300,000	\$9,610	\$2,060,000	\$3,430,000

Notes: Totals may not sum due to rounding.

* This analysis employs three scenarios to estimate impacts of critical habitat designation on development in Unit 1 due to uncertainty regarding future land use and gopher frog conservation and recovery recommendations.

KEY SOURCES OF UNCERTAINTY

- Economic impacts in Unit 1:** The most significant source of uncertainty in this analysis is the economic impact of critical habitat designation on potential development activities in Unit 1. This unit is not occupied by the gopher frog and, consequently, impacts of future species conservation efforts are due to the critical habitat designation (i.e., are incremental impacts). The specific nature of the potential future use of this land proposed for critical habitat is uncertain. Due to regional development pressure, the current landowners plan to sell the land, currently managed for timber production, for residential and development (although the type, distribution, and timing of the ultimate development are uncertain at this time). The analysis quantifies the economic impact according to three possible future scenarios within this unit. The scenarios represent a range of possible impacts associated with no restrictions on land use in Scenario 1, to complete avoidance of development of the land in Unit 1 according to Scenario 3. Landowners anticipate the economic impact could be even greater in the case that other potential land uses, such as timber management or oil and gas development are restricted due to the designation of critical habitat. Exhibit 4-1 details the uncertainties associated with the evaluation of impacts of critical habitat designation in Unit 1.
- Potential for additional conservation measures:** An additional source of uncertainty is the potential for the Service to request additional conservation measures specifically to avoid adverse modification in future section 7 consultations.

However, the Service does not anticipate additional conservation efforts for the frog in occupied areas, and many of the unoccupied areas are currently managed for the benefit of the gopher frog and its habitat. Therefore, incremental conservation efforts are expected to be most likely in unoccupied, privately-owned areas. Approximately 2,224 acres, or 32 percent of the proposed critical habitat area, is privately-owned and unoccupied. To the extent that the Service requests additional conservation measures to avoid adverse modification of critical habitat as part of consultations on future projects in unoccupied areas not managed for the gopher frog, this analysis underestimates incremental impacts.

- **Likelihood of consultation:** For most activities identified as occurring within critical habitat, this analysis conservatively assumes that consultation with the Service will occur. In some cases the Service may determine that the activity would not result in adverse modification and thus no consultation would be necessary. To the extent that future consultations are not necessary, this analysis overestimates incremental impacts.

CHAPTER 1 | INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

1. This chapter provides a brief introduction to proposed critical habitat for the gopher frog. It includes a summary of past publications and legal actions that relate to the current proposal, a summary of the proposed critical habitat designation including a map of the area, and a summary of threats to the proposed critical habitat. This information is intended to provide background information. All official definitions and boundaries should be taken from the Proposed Rule.¹⁰

1.2 PREVIOUS FEDERAL ACTIONS

2. The gopher frog was listed as endangered on December 4, 2001.¹¹ On November 27, 2007, the Center for Biological Diversity and Friends of Mississippi Public Lands filed a lawsuit against the Service and the Secretary of the Interior for their failure to designate critical habitat for the frog in a timely manner.¹² In a settlement approved by the court on June 11, 2008, the Service agreed to submit to the Federal Register a proposed rule designating critical habitat for the gopher frog by May 30, 2010 if designation was found prudent and determinable. The proposed critical habitat designation was published on June 3, 2010.¹³ Based on information received during the comment period on the Proposed Rule, the Service revised the area proposed as gopher frog critical habitat to include additional area around the breeding ponds in Mississippi and the addition of a unit in Louisiana. The revised proposed critical habitat areas are described in the revised proposed critical habitat determination, which is published concurrently with the Notice of Availability (NOA) for this draft economic analysis.¹⁴

1.3 PROPOSED REVISED CRITICAL HABITAT DESIGNATION

3. The Service is proposing to designate a total of 7,015 acres across 12 units, three of which—Units 2, 4, and 5 are divided into two subunits--as gopher frog critical habitat. The proposed designation covers area in one Louisiana parish and four Mississippi counties: St. Tammany, LA (1,649 acres); Harrison, MS (1,743 acres); Jackson, MS

¹⁰ 75 FR 31387.

¹¹ 66 FR 62993.

¹² Friends of Mississippi Public Lands and Center for Biological Diversity v. Kempthorne (07-CV-02073).

¹³ 75 FR 31387.

¹⁴ On May 5, 2011, the court issued an amended order, requiring that the Service submit the revised proposed critical habitat designation to the Federal Register by September 15, 2011, and the final designation by May 30, 2012.

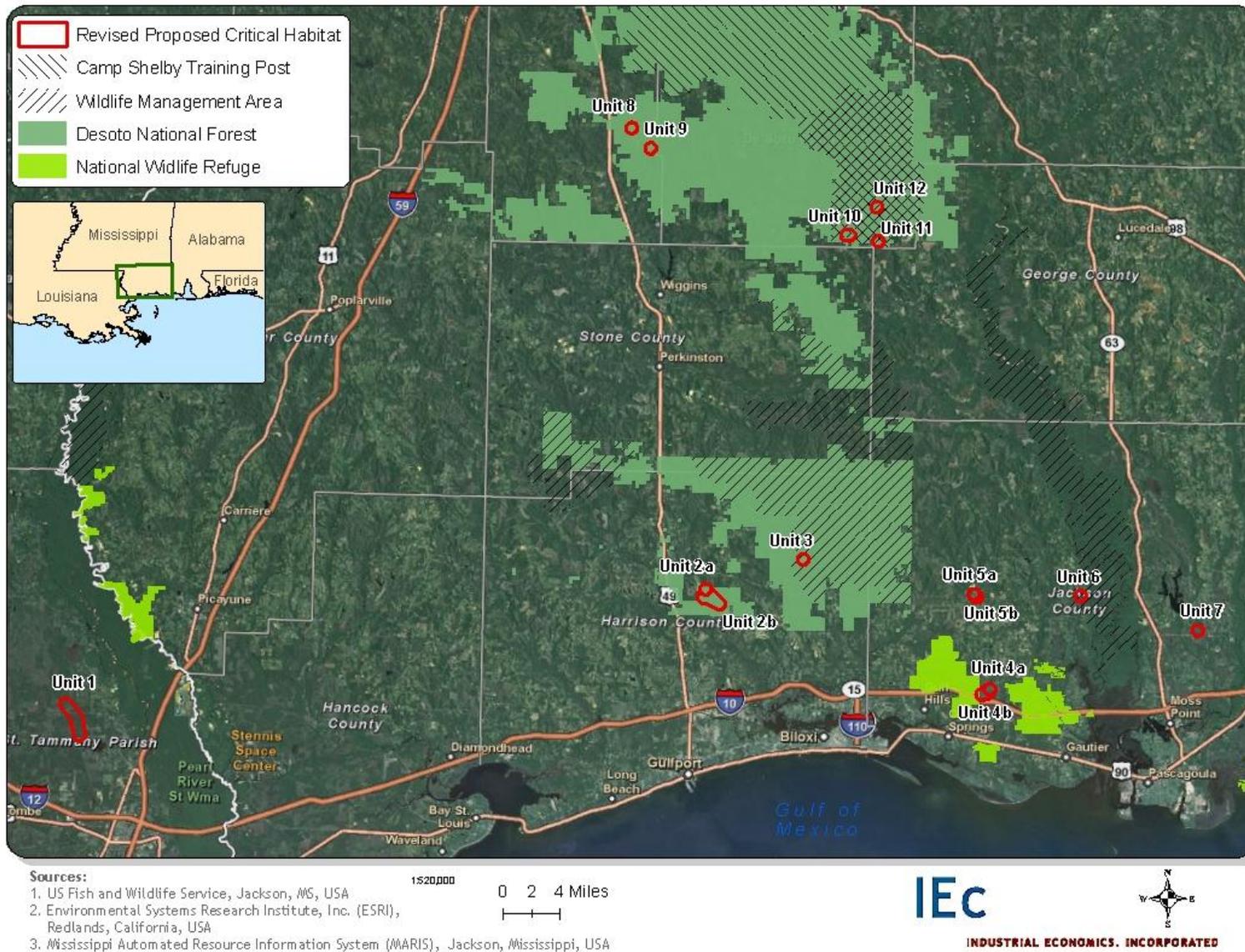
(1,862 acres); Forrest, MS (658 acres); and Perry, MS (1,108 acres). Approximately 53 percent of the proposed critical habitat falls on Federally-owned land, 42 percent falls on private land, and the remaining 4 percent falls on state-owned land. Occupied areas make up approximately 19 percent (1,316 acres) of the proposed designation. Occupied habitat for the gopher frog is limited to four areas: Subunit 2a located primarily within the DeSoto National Forest; Subunit 4a located on private land; Subunit 5a located on private land; and Unit 7 is located primarily within state-owned land held in trust as a local funding source for education in Jackson County. Unoccupied areas make up approximately 81 percent (5,704 acres) of the designation. The unoccupied proposed critical habitat falls within the historical range of the gopher frog.¹⁵ Exhibit 1-1 provides a detailed overview of occupied and unoccupied lands, along with a summary of lands by ownership. The “study area” for this Economic Analysis is defined as all lands proposed for critical habitat designation. Exhibit 1-2 provides an overview map of the study area. Appendix D provides detailed maps of the area.

EXHIBIT 1-1 SUMMARY OF LAND MANAGEMENT AND OCCUPANCY: PROPOSED CRITICAL HABITAT FOR THE MISSISSIPPI GOPHER FROG

UNIT/ SUBUNIT	COUNTY/ PARISH	OWNERSHIP (ACRES)			TOTAL	OCCUPANCY
		FEDERAL	STATE	PRIVATE		
LOUISIANA						
1	St. Tammany			1,649	1,649	Unoccupied
MISSISSIPPI						
2a	Harrison	269		59	329	Occupied
2b	Harrison	1,077		7	1,085	Unoccupied
3	Harrison	329			329	Unoccupied
4a	Jackson			329	329	Occupied
4b	Jackson	129		279	408	Unoccupied
5a	Jackson			329	329	Occupied
5b	Jackson			138	138	Unoccupied
6	Jackson	329			329	Unoccupied
7	Jackson		287	42	329	Occupied
8	Forrest	329			329	Unoccupied
9	Forrest	324		5	329	Unoccupied
10	Perry	334		116	450	Unoccupied
11	Perry	319		10	329	Unoccupied
12	Perry	309		20	329	Unoccupied
TOTAL		3,746	287	2,983	7,015	
Source: Personal communication with Service biologist, Jackson Field Office, May 20, 2011.						
Note: Totals may not sum due to rounding.						

¹⁵ Personal communication with Service biologist, Jackson Field Office, May 20, 2011.

EXHIBIT 1-2 OVERVIEW PROPOSED CRITICAL HABITAT FOR MISSISSIPPI GOPHER FROG



1.4 ECONOMIC ACTIVITIES CONSIDERED IN THIS ANALYSIS

4. Review of the Proposed Rule and the consultation history identified the following economic activities as being potentially affected by conservation efforts for the gopher frog and its habitat. Each of the following economic activities is addressed in Chapters 3 and 4 of the economic analysis.

- **Active Species Management.** Gopher frog management activities were established at many of the proposed critical habitat sites prior to the critical habitat designation, and thus are considered “baseline” in nature (i.e., they will occur regardless of the designation). However, the designation of critical habitat may bring about additional management activities, especially in areas currently considered by the Service to be unoccupied by the gopher frog. In addition, designation of critical habitat will necessitate section 7 consultation with the Service to address the adverse modification of critical habitat. Chapter 3 of this analysis considers the potential impact of gopher frog conservation on active species management.
- **Residential and Commercial Development.** The Proposed Rule identifies land conversion due to urban development as a primary threat to the gopher frog.¹⁶ The only area of known residential development activity within the proposed designation is the Tradition Community Development in Subunits 2a and 2b. In addition, future development in Unit 1 is likely. Chapter 4 of this analysis considers the economic impact of the proposed critical habitat on this development as well as other privately-owned land that may be developed in the future.
- **Timber Management.** The Proposed Rule identifies several forest management practices as potential threats to the upland habitat necessary for the growth and development of the gopher frog.¹⁷ These activities include conversion of timber land to another use, clear-cutting, site preparation and ground disturbance, prescribed burning, and pesticide application. Chapter 4 of this analysis includes a discussion of the potential impact of the proposed critical habitat designation on timber management activities.
- **Military Activities.** USFS land in Units 10, 11 and 12 is used by the Mississippi Army National Guard (MSARNG) under a special use permit as part of Camp Shelby. Chapter 4 of this analysis discusses the potential impacts of gopher frog conservation activities on future operations at Camp Shelby.

1.5 ORGANIZATION OF THE REPORT

5. The remainder of this report is organized as follows: Chapter 2 discusses the framework employed in the analysis. Chapters 3 and 4 cover the assessment of potential economic

¹⁶ 75 FR 31389, 31393.

¹⁷ 75 FR 31400.

impacts, organized by economic activity. Chapter 5 briefly discusses benefits of the critical habitat designation.

6. In addition, the report includes four appendices: Appendix A, which considers potential impacts on small entities and the energy industry; Appendix B, which provide information on the sensitivity of the economic impact estimates to alternative discount rates; Appendix C, which provides the Service's incremental effects memorandum to IEc, and Appendix D, which provides maps of the proposed critical habitat areas.

CHAPTER 2 | FRAMEWORK FOR THE ANALYSIS

7. The purpose of this report is to estimate the economic impact of actions taken to protect the gopher frog and its habitat. This analysis examines the impacts of restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the proposed critical habitat area. This analysis employs "without critical habitat" and "with critical habitat" scenarios. The "without critical habitat" scenario represents the baseline for the analysis, considering protections otherwise afforded to the gopher frog; for example, under the Federal listing and other Federal, State, and local regulations. The "with critical habitat" scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the gopher frog. The analysis forecasts both baseline and incremental impacts likely to occur after the proposed critical habitat is finalized (post-designation impacts).
8. This information is intended to assist the Secretary of the DOI in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.¹⁸ In addition, this information allows the Service to address the requirements of Executive Orders 12866 and 13211, and the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA).¹⁹
9. This chapter describes the framework for this analysis. First, it describes the case law that led to the selection of the framework applied in this report. It then describes in economic terms the general categories of economic effects that are the focus of regulatory impact analysis, including a discussion of both efficiency and distributional effects. Next, this chapter defines the analytic framework used to measure these impacts in the context of critical habitat regulation and the consideration of benefits. It concludes with a presentation of the information sources relied upon in the analysis.

¹⁸ 16 U.S.C. §1533(b)(2).

¹⁹ Executive Order 12866, Regulatory Planning and Review, September 30, 1993; Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001; 5 U.S.C. §§601 *et seq.*; and Pub Law No. 104-121.

2.1 BACKGROUND

10. OMB's guidelines for conducting economic analysis of regulations direct Federal agencies to measure the costs of a regulatory action against a baseline, which it defines as the "best assessment of the way the world would look absent the proposed action."²⁰ In other words, the baseline includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat. Impacts that are incremental to that baseline (i.e., occurring over and above existing constraints) are attributable to the proposed regulation. Significant debate has occurred regarding whether assessing the impacts of the Service's proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.
11. In 2001, the U.S. Tenth Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed critical habitat, regardless of whether those impacts are attributable co-extensively to other causes.²¹ Specifically, the court stated,

The statutory language is plain in requiring some kind of consideration of economic impact in the CHD [critical habitat designation] phase. Although 50 C.F.R. 402.02 is not at issue here, the regulation's definition of the jeopardy standard as fully encompassing the adverse modification standard renders any purported economic analysis done utilizing the baseline approach virtually meaningless. We are compelled by the canons of statutory interpretation to give some effect to the congressional directive that economic impacts be considered at the time of critical habitat designation.... Because economic analysis done using the FWS's [Fish and Wildlife Service's] baseline model is rendered essentially without meaning by 50 C.F.R. § 402.02, we conclude Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes. Thus, we hold the baseline approach to economic analysis is not in accord with the language or intent of the ESA [Endangered Species Act].²²

12. Since that decision, however, courts in other cases have held that an incremental analysis of impacts stemming solely from the critical habitat rulemaking is proper.²³ For example, in the March 2006 ruling that the August 2004 critical habitat rule for the Peirson's milk-vetch was arbitrary and capricious, the United States District Court for the Northern District of California stated,

²⁰ U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

²¹ *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

²² *Ibid.*

²³ *Cape Hatteras Access Preservation Alliance v. Department of Interior*, 344 F. Supp. 2d 108 (D.D.C.); *Center for Biological Diversity v. United States Bureau of Land Management*, 422 F. Supp. 2d 1115 (N.D. Cal. 2006).

The Court is not persuaded by the reasoning of *New Mexico Cattle Growers*, and instead agrees with the reasoning and holding of *Cape Hatteras Access Preservation Alliance v. U.S. Dep't of the Interior*, 344 F. Supp 2d 108 (D.D.C. 2004). That case also involved a challenge to the Service's baseline approach and the court held that the baseline approach was both consistent with the language and purpose of the ESA and that it was a reasonable method for assessing the actual costs of a particular critical habitat designation *Id* at 130. 'To find the true cost of a designation, the world with the designation must be compared to the world without it.'²⁴

13. In order to address the divergent opinions of the courts and provide the most complete information to decision-makers, this economic analysis reports both:
 - a. The baseline impacts of gopher frog conservation from protections afforded the species absent critical habitat designation; and
 - b. The estimated incremental impacts precipitated specifically by the designation of critical habitat for the species.

14. Incremental effects of critical habitat designation are determined using the Service's December 9, 2004 interim guidance on "Application of the 'Destruction or Adverse Modification' Standard Under Section 7(a)(2) of the Endangered Species Act" and information from the Service regarding what potential consultations and project modifications may be imposed as a result of critical habitat designation over and above those associated with the listing.²⁵ Specifically, in *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, the Ninth Circuit invalidated the Service's regulation defining destruction or adverse modification of critical habitat, and the Service no longer relies on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat.²⁶ Under the statutory provisions of the Act, the Service determines destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species. A detailed description of the methodology used to define baseline and incremental impacts is provided later in this chapter.

²⁴ *Center for Biological Diversity v. United States Bureau of Land Management*, 422 F. Supp. 2d 1115 (N.D. Cal. 2006).

²⁵ Director, U.S. Fish and Wildlife Service, Memorandum to Regional Directors and Manager of the California-Nevada Operations Office, Subject: Application of the "Destruction or Adverse Modification" Standard under Section 7(a)(2) of the Endangered Species Act, dated December 9, 2004.

²⁶ *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, 378 F.3d 1059 (9th Cir. 2004).

2.2 CATEGORIES OF POTENTIAL ECONOMIC EFFECTS OF SPECIES CONSERVATION

15. This economic analysis considers both the economic efficiency and distributional effects that may result from efforts to protect the gopher frog and its habitat (hereinafter referred to collectively as “gopher frog conservation efforts”). Economic efficiency effects generally reflect “opportunity costs” associated with the commitment of resources required to accomplish species and habitat conservation. For example, if the set of activities that may take place on a parcel of land is limited as a result of the designation or the presence of the species, and thus the market value of the land is reduced, this reduction in value represents one measure of opportunity cost or change in economic efficiency. Similarly, the costs incurred by a Federal Action agency to consult with the Service under section 7 represent opportunity costs of gopher frog conservation efforts.
16. This analysis also addresses the distribution of impacts associated with the designation, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation efforts on small entities and the energy industry. This information may be used by decision-makers to assess whether the effects of species conservation efforts unduly burden a particular group or economic sector. For example, while conservation efforts may have a small impact relative to the national economy, individuals employed in a particular sector of the regional economy may experience relatively greater impacts. The differences between economic efficiency effects and distributional effects, as well as their application in this analysis, are discussed in greater detail below.

2.2.1 EFFICIENCY EFFECTS

17. At the guidance of OMB and in compliance with Executive Order 12866 "Regulatory Planning and Review," Federal agencies measure changes in economic efficiency in order to understand how society, as a whole, will be affected by a regulatory action. In the context of regulations that protect gopher frog habitat, these efficiency effects represent the opportunity cost of resources used or benefits foregone by society as a result of the regulations. Economists generally characterize opportunity costs in terms of changes in producer and consumer surpluses in affected markets.²⁷
18. In some instances, compliance costs may provide a reasonable approximation for the efficiency effects associated with a regulatory action. For example, a Federal land manager may enter into a consultation with the Service to ensure that a particular activity will not adversely modify critical habitat. The effort required for the consultation is an economic opportunity cost because the landowner or manager's time and effort would have been spent in an alternative activity had the parcel not been included in the designation. When compliance activity is not expected to significantly affect markets -- that is, not result in a shift in the quantity of a good or service provided at a given price, or in the quantity of a good or service demanded given a change in price -- the

²⁷ For additional information on the definition of “surplus” and an explanation of consumer and producer surplus in the context of regulatory analysis, see: Gramlich, Edward M., *A Guide to Benefit-Cost Analysis* (2nd Ed.), Prospect Heights, Illinois: Waveland Press, Inc., 1990; and U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, EPA 240-R-00-003, September 2000, available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>.

measurement of compliance costs can provide a reasonable estimate of the change in economic efficiency.

19. Where habitat protection measures are expected to significantly impact a market, it may be necessary to estimate changes in producer and consumer surpluses. For example, protection measures that reduce or preclude the development of large areas of land may shift the price and quantity of housing supplied in a region. In this case, changes in economic efficiency (i.e., social welfare) can be measured by considering changes in producer and consumer surplus in the market.
20. This analysis begins by measuring impacts associated with efforts undertaken to protect the gopher frog and its habitat. As noted above, in some cases, compliance costs can provide a reasonable estimate of changes in economic efficiency. However, if the cost of conservation efforts is expected to significantly impact markets, the analysis will consider potential changes in consumer and/or producer surplus in affected markets. In the case of the gopher frog, conservation efforts are not anticipated to significantly affect markets; therefore, this report focuses solely on compliance costs.

2.2.2 DISTRIBUTIONAL AND REGIONAL ECONOMIC EFFECTS

21. Measurements of changes in economic efficiency focus on the net impact of conservation efforts, without consideration of how certain economic sectors or groups of people are affected. Thus, a discussion of efficiency effects alone may miss important distributional considerations. OMB encourages Federal agencies to consider distributional effects separately from efficiency effects.²⁸ This analysis considers several types of distributional effects, including impacts on small entities; impacts on energy supply, distribution, and use; and regional economic impacts. It is important to note that these are fundamentally different measures of economic impact than efficiency effects, and thus cannot be added to or compared with estimates of changes in economic efficiency.

Impacts on Small Entities and Energy Supply, Distribution, and Use

22. This analysis considers how small entities, including small businesses, organizations, and governments, as defined by the RFA, might be affected by future species conservation efforts.²⁹ In addition, in response to Executive Order 13211 "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," this analysis considers the future impacts of conservation efforts on the energy industry and its customers.³⁰

²⁸ U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

²⁹ 5 U.S.C. §§601 *et seq.*

³⁰ Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001.

Regional Economic Effects

23. Regional economic impact analysis can provide an assessment of the potential localized effects of conservation efforts. Specifically, regional economic impact analysis produces a quantitative estimate of the potential magnitude of the initial change in the regional economy resulting from a regulatory action. Regional economic impacts are commonly measured using regional input/output models. These models rely on multipliers that represent the relationship between a change in one sector of the economy (e.g., expenditures by recreators) and the effect of that change on economic output, income, or employment in other local industries (e.g., suppliers of goods and services to recreators). These economic data provide a quantitative estimate of the magnitude of shifts of jobs and revenues in the local economy.
24. The use of regional input/output models in an analysis of the impacts of species and habitat conservation efforts can overstate the long-term impacts of a regulatory change. Most importantly, these models provide a static view of the economy of a region. That is, they measure the initial impact of a regulatory change on an economy but do not consider long-term adjustments that the economy will make in response to this change. For example, these models provide estimates of the number of jobs lost as a result of a regulatory change, but do not consider re-employment of these individuals over time or other adaptive responses by impacted businesses. In addition, the flow of goods and services across the regional boundaries defined in the model may change as a result of the regulation, compensating for a potential decrease in economic activity within the region.
25. Despite these and other limitations, in certain circumstances regional economic impact analysis may provide useful information about the scale and scope of localized impacts. It is important to remember that measures of regional economic effects generally reflect shifts in resource use rather than efficiency losses. Thus, these types of distributional effects are reported separately from efficiency effects (i.e., not summed). In addition, measures of regional economic impact cannot be compared with estimates of efficiency effects, but should be considered as distinct measures of impact.
26. Impacts associated with gopher frog conservation activities largely include administrative costs; the quantity of housing supplied in the broader region is not anticipated to be affected. Therefore, measurable impacts of the type typically assessed with input-output models are not anticipated.

2.3 ANALYTIC FRAMEWORK AND SCOPE OF THE ANALYSIS

27. This analysis identifies those economic activities most likely to threaten the listed species and its habitat and, where possible, quantifies the economic impact to avoid or minimize such threats within the boundaries of the proposed critical habitat area, as described in Chapter 1. This section provides a description of the methodology used to separately identify baseline impacts and incremental impacts stemming from the proposed designation of critical habitat for the gopher frog. This evaluation of impacts in a "with critical habitat designation" versus a "without critical habitat designation" framework

effectively measures the net change in economic activity associated with the revised proposed rulemaking.

2.3.1 IDENTIFYING BASELINE IMPACTS

28. The baseline for this analysis is the existing state of regulation, prior to the designation of critical habitat, which provides protection to the species under the Act, as well as under other Federal, State and local laws and guidelines. This "without critical habitat designation" scenario also considers a wide range of additional factors beyond the compliance costs of regulations that provide protection to the listed species. As recommended by OMB, the baseline incorporates, as appropriate, trends in market conditions, implementation of other regulations and policies by the Service and other government entities, and trends in other factors that have the potential to affect economic costs and benefits, such as the rate of regional economic growth in potentially affected industries.
29. Baseline impacts include sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections, to the extent that they are expected to occur absent the designation of critical habitat for the species.
- Section 7 of the Act, absent critical habitat designation, requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. The portion of the administrative costs of consultations under the jeopardy standard, along with the impacts of project modifications resulting from consideration of this standard, are considered baseline impacts. Baseline administrative costs of section 7 consultation are summarized later in Exhibit 2-3.
 - Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits the "take" of endangered wildlife, where "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."³¹ The economic impacts associated with this section manifest themselves in sections 7 and 10.
 - Under section 10(a)(1)(B) of the Act, an entity (e.g., a landowner or local government) may develop an Habitat Conservation Plan (HCP) for a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with the development and management of a property.³² The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately avoided or minimized. The development and implementation of HCPs is considered a baseline protection for the species and habitat unless the HCP is determined to be

³¹ 16 U.S.C. 1532.

³² U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at <http://endangered.fws.gov/hcp/>.

precipitated by the designation of critical habitat, or the designation influences stipulated conservation efforts under HCPs.

Enforcement actions taken in response to violations of the Act are not included in this analysis.

30. The protection of listed species and habitat is not limited to the Act. Other Federal agencies, as well as State and local governments, may also seek to protect the natural resources under their jurisdiction. If compliance with the Clean Water Act (CWA) or State environmental quality laws, for example, protects habitat for the species, such protective efforts are considered to be baseline protections and costs associated with these efforts are categorized accordingly. Of note, however, is that such efforts may not be considered baseline in the case that they would not have been triggered absent the designation of critical habitat. In these cases, they are considered incremental impacts and are discussed below.

2.3.2 IDENTIFYING INCREMENTAL IMPACTS

31. This analysis identifies and, where possible, separately quantifies the incremental impacts of this rulemaking. The focus of the incremental analysis is to determine the impacts on land uses and activities from the designation of critical habitat that are above and beyond those impacts due to required or voluntary conservation efforts undertaken due to other Federal, State, and local regulations or guidelines.
32. When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat (in addition to considering whether the actions are likely to jeopardize the continued existence of the species). The added administrative costs of including consideration of critical habitat in section 7 consultations, and the additional impacts of implementing project modifications resulting from the protection of critical habitat are the direct compliance costs of designating critical habitat. These costs are not in the baseline and are considered incremental impacts of the rulemaking.
33. Incremental impacts may be the direct compliance costs associated with additional effort for consultations, reinitiated consultation, new consultations occurring specifically because of the designation, and additional project modifications that would not have been required under the jeopardy standard. Additionally, incremental impacts may include indirect impacts resulting from reaction to the potential designation of critical habitat (e.g., implementing gopher frog management direction in an effort to avoid designation of critical habitat), triggering of additional requirements under State or local laws intended to protect sensitive habitat, and uncertainty and perceptual effects on markets.

Direct Impacts

34. The direct incremental impacts of critical habitat designation stem from the consideration of the potential for destruction or adverse modification of critical habitat during section 7 consultations. The two categories of direct incremental impacts of critical habitat designation are: 1) the administrative costs of conducting section 7 consultation; and 2) implementation of any project modifications requested by the Service through section 7

consultation solely to avoid potential destruction or adverse modification of critical habitat or to minimize impacts to critical habitat.

35. Section 7(a)(2) of the Act requires Federal agencies (Action agencies) to consult with the Service whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve the Service and another Federal agency only, such as the U.S. Army Corps of Engineers (Corps). Often, they will also include a third party involved in projects that involve a permitted entity, such as the recipient of a CWA section 404 permit.
36. During a consultation, the Service, the Action agency, and the entity applying for Federal funding or permitting (if applicable) communicate in an effort to minimize potential adverse effects to the species and/or to the proposed critical habitat. Communication between these parties may occur via written letters, phone calls, in-person meetings, or any combination of these. The duration and complexity of these interactions depends on a number of variables, including the type of consultation, the species, the activity of concern, and the potential effects to the species and designated critical habitat associated with the proposed activity, the Federal agency, and whether there is a private applicant involved.
37. Section 7 consultations with the Service may be either informal or formal. *Informal consultations* consist of discussions between the Service, the Action agency, and the applicant concerning an action that may affect a listed species or its designated critical habitat, and are designed to identify and resolve potential concerns at an early stage in the planning process. By contrast, a *formal consultation* is required if the Action agency determines that its proposed action may or will adversely affect the listed species or designated critical habitat in ways that cannot be resolved through informal consultation. The formal consultation process results in the Service's determination in its Biological Opinion of whether the action is likely to jeopardize a species or adversely modify critical habitat, and recommendations to minimize those impacts. Regardless of the type of consultation or proposed project, section 7 consultations can require substantial administrative effort on the part of all participants.

Administrative Section 7 Consultation Costs

38. Parties involved in section 7 consultations include the Service, the Action agency, and in some cases, a private entity involved in the project or land use activity. The Action agency (i.e., the Federal nexus necessitating the consultation) serves as the liaison with the Service. While consultations are required for activities that involve a Federal nexus and may affect a species regardless of whether critical habitat is designated, the designation may increase the effort for consultations in the case that the project or activity in question may adversely modify critical habitat. Administrative efforts for consultation may therefore result in both baseline and incremental impacts.
39. In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs:

1. **Additional effort to address adverse modification in a new consultation -**
New consultations taking place after critical habitat designation may require additional effort to address critical habitat issues above and beyond the listing issues. In this case, only the additional administrative effort required to consider critical habitat is considered an incremental impact of the designation.
 2. **Re-initiation of consultation to address adverse modification -** Consultations that have already been completed on a project or activity may require re-initiation to address critical habitat. In this case, the costs of re-initiating the consultation, including all associated administrative and project modification costs are considered incremental impacts of the designation.
 3. **Incremental consultation resulting entirely from critical habitat designation**
Critical habitat designation may trigger additional consultations that may not occur absent the designation (e.g., for an activity for which adverse modification may be an issue, while jeopardy is not, or consultations resulting from the new information about the potential presence of the species provided by the designation). Such consultations may, for example, be triggered in critical habitat areas that are not occupied by the species. All associated administrative and project modification costs of incremental consultations are considered incremental impacts of the designation.
40. The administrative costs of these consultations vary depending on the specifics of the project. One way to address this variability is to show a range of possible costs of consultation, as it may not be possible to predict the precise outcome of each future consultation in terms of level of effort. Review of consultation records and discussions with Service field offices resulted in a range of estimated administrative costs of consultation. This analysis uses the average of the range of costs in each category as the starting point in determining the administrative costs of consultation. Additional information specific to the gopher frog was provided by the Service indicating that the additional effort to address adverse modification in a new consultation would result in a 10 percent increase in administrative costs.³³
41. Exhibit 2-2 provides estimated administrative consultation costs representing effort required for all types of consultation, including those that considered both adverse modification and jeopardy. To estimate the fractions of the total administrative consultation costs that are baseline and incremental, the following assumptions are applied.
- The greatest effort will be associated with consultations that consider both jeopardy and adverse modification. Depending on whether the consultation is precipitated by the listing or the critical habitat designation, part or all of the costs, respectively, will be attributed to the proposed rule.

³³ FWS to Industrial Economics, Inc., August 16, 2010, "Incremental Effects Memorandum for the Economic Analysis of Proposed Rule to Designate Critical Habitat for the Mississippi Gopher Frog." (see Appendix C)

- Efficiencies exist when considering both jeopardy and adverse modification at the same time (e.g., in staff time saved for project review and report writing), and therefore incremental administrative costs of considering adverse modification in consultations precipitated by the listing result in the least incremental effort, roughly 10 percent of the cost of the entire consultation.³⁴ The remaining 90 percent of the costs are attributed to consideration of the jeopardy standard in the baseline scenario. This latter amount also represents the cost of a consultation that only considers adverse modification (e.g., an incremental consultation for activities in unoccupied critical habitat) and is attributed wholly to critical habitat.
- Incremental costs of the re-initiation of a previously completed consultation because of the critical habitat designation are assumed to be approximately half the cost of a consultation considering both jeopardy and adverse modification. This assumes that re-initiations are less time-consuming as the groundwork for the project has already been considered in terms of its effect on the species. However, because the previously completed effort must be re-opened, they are more costly than simply adding consideration of critical habitat to a consultation already underway.

³⁴ *Ibid.*

EXHIBIT 2-2 RANGE OF ADMINISTRATIVE CONSULTATIONS COSTS (2011 DOLLARS)

BASELINE ADMINISTRATIVE COSTS OF CONSULTATION					
CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
CONSULTATION CONSIDERING JEOPARDY (DOES NOT INCLUDE CONSIDERATION OF ADVERSE MODIFICATION)					
Technical Assistance	\$428	n/a	\$788	n/a	\$1,220
Informal	\$1,840	\$2,330	\$1,540	\$1,500	\$7,200
Formal	\$4,130	\$4,650	\$2,630	\$3,600	\$15,000
Programmatic	\$12,500	\$10,400	n/a	\$4,200	\$27,100
INCREMENTAL ADMINISTRATIVE COSTS OF CONSULTATION					
CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
NEW CONSULTATION RESULTING ENTIRELY FROM CRITICAL HABITAT DESIGNATION (TOTAL COST OF A CONSULTATION CONSIDERING BOTH JEOPARDY AND ADVERSE MODIFICATION)					
Technical Assistance	\$470	n/a	\$866	n/a	\$1,340
Informal	\$2,020	\$2,560	\$1,690	\$1,650	\$7,920
Formal	\$4,540	\$5,120	\$2,890	\$3,960	\$16,500
Programmatic	\$13,700	\$11,400	n/a	\$4,620	\$29,800
NEW CONSULTATION CONSIDERING ONLY ADVERSE MODIFICATION (UNOCCUPIED HABITAT)					
Technical Assistance	\$428	n/a	\$788	n/a	\$1,220
Informal	\$1,840	\$2,330	\$1,540	\$1,500	\$7,200
Formal	\$4,130	\$4,650	\$2,630	\$3,600	\$15,000
Programmatic	\$12,500	\$10,400	n/a	\$4,200	\$27,100
RE-INITIATION OF CONSULTATION TO ADDRESS ADVERSE MODIFICATION					
Technical Assistance	\$235	n/a	\$433	n/a	\$668
Informal	\$1,010	\$1,280	\$846	\$825	\$3,960
Formal	\$2,270	\$2,560	\$1,440	\$1,980	\$8,250
Programmatic	\$6,870	\$5,710	n/a	\$2,310	\$14,900
ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION (ADDITIVE WITH BASELINE COSTS ABOVE OF CONSIDERING JEOPARDY)					
Technical Assistance	\$43	n/a	\$79	n/a	\$122
Informal	\$184	\$233	\$154	\$150	\$720
Formal	\$413	\$465	\$263	\$360	\$1,500
Programmatic	\$1,250	\$1,040	n/a	\$420	\$2,710
Source: IEc analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2009, and a review of consultation records from several Service field offices across the country conducted in 2002.; FWS to Industrial Economics, Inc., August 16, 2010, "Incremental Effects Memorandum for the Economic Analysis of Proposed Rule to Designate Critical Habitat for the Mississippi Gopher Frog."					
Notes:					
1. Estimates are rounded to three significant digits and may not sum due to rounding.					
2. Estimates reflect average hourly time required by staff.					

Section 7 Project Modification Impacts

42. Section 7 consultation considering critical habitat may also result in additional project modification recommendations specifically addressing potential destruction or adverse modification of critical habitat. For forecast consultations considering jeopardy and adverse modification, and for re-initiations of past consultations to consider critical habitat, the economic impacts of project modifications undertaken solely to avoid adverse modification or to minimize impacts to critical habitat are considered incremental impacts of critical habitat designation. For consultations that are forecast to occur specifically because of the designation (incremental consultations), impacts of all associated project modifications are assumed to be incremental impacts of the designation. This is summarized below.
1. **Additional effort to address adverse modification in a new consultation -** Only project modifications above and beyond what would be requested to avoid or minimize jeopardy are considered incremental.
 2. **Re-initiation of consultation to address adverse modification -** Only project modifications above and beyond what was requested to avoid or minimize jeopardy are considered incremental.
 3. **Incremental consultation resulting entirely from critical habitat designation** Impacts of all project modifications are considered incremental.

Specific Steps Applied to Identify and Quantify Incremental Impacts

43. Exhibit 2-3 depicts the methodology used to identify and separate baseline and incremental impacts for the gopher frog. As is discussed above, in areas where conservation measures exist for the gopher frog, the costs associated with implementing these measures are considered baseline. Projects without a Federal nexus will not be affected and therefore are not included in the Economic Analysis. For projects located in areas without existing conservation measures in place that have a Federal nexus, baseline and incremental impacts will be defined differently for occupied and unoccupied habitat. The following sections describe this flowchart in detail.

Occupied Habitat

44. If the project area is currently occupied by the gopher frog, the Service expects that the additional effort to address adverse modification will result in a 10 percent increase in the administrative cost of consultation.³⁵ These additional costs are the only anticipated incremental impacts of the designation in occupied areas. The Service believes that “alterations of habitat that diminish the value of habitat and amount of habitat available for the species would be likely to affect population size, reproduction, and recruitment of the Mississippi gopher frog, as well as further confine its limited range, and would therefore, appreciably reduce its likelihood of survival in the wild and constitute jeopardy.”³⁶ Thus, the Service has defined no difference in project modifications for

³⁵ *Ibid.*

³⁶ *Ibid.*

jeopardy versus adverse modification for the gopher frog in occupied areas. According to the Service, “in occupied critical habitat it is unlikely that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the species.”³⁷

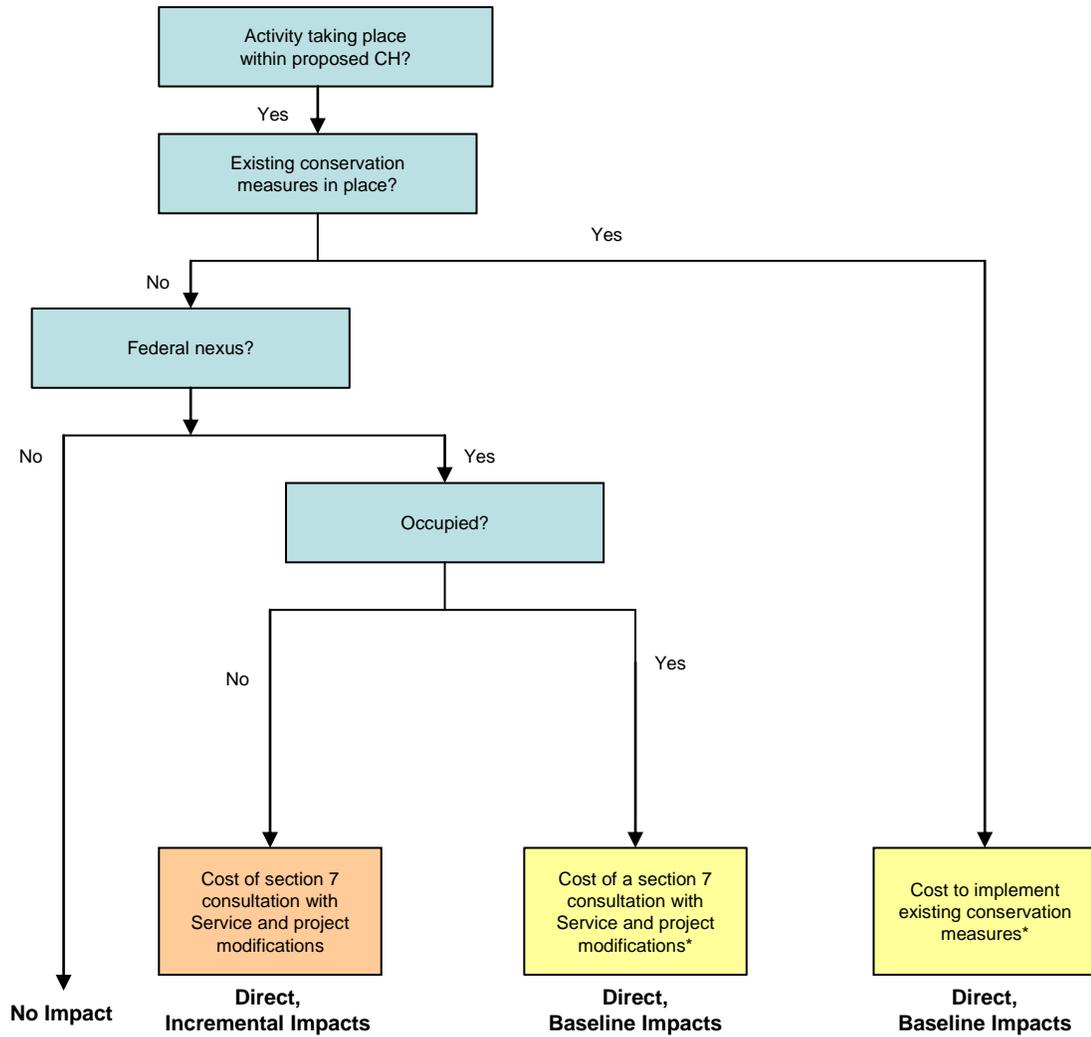
45. Critical habitat is not expected to provide new information to landowners about the presence of the frog in occupied areas. The occupied area in Subunit 2a is primarily owned and managed by the USFS as part of a gopher frog management area surrounding Glen’s Pond. Similarly, the occupied habitat in Subunits 4a and 5a are primarily owned and managed by TNC for the recovery of the frog. While the occupied habitat in Unit 7 is not specifically managed for the frog, the proposed critical habitat is located around a known gopher frog breeding pond.

Unoccupied Habitat

46. If the project area is currently unoccupied by the gopher frog, the Service believes that costs associated with project modifications implemented to avoid adversely modifying critical habitat would be attributable to the critical habitat designation alone. Thus, in unoccupied areas, costs associated with section 7 consultation and project modifications are considered incremental impacts.

³⁷ *Ibid.*

EXHIBIT 2-3 STEPS USED TO IDENTIFY AND SEPARATE BASELINE AND INCREMENTAL IMPACTS



*Minor incremental costs will be incurred as a result of considering adverse modification in consultation with the Service.

Source: FWS to Industrial Economics, Inc., August 16, 2010, "Incremental Effects Memorandum for the Economic Analysis of Proposed Rule to Designate Critical Habitat for the Mississippi Gopher Frog." See Appendix B.

Indirect Impacts

47. The designation of critical habitat may, under certain circumstances, affect actions that do not have a Federal nexus and thus are not subject to the provisions of section 7 under the Act. Indirect impacts are those unintended changes in economic behavior that may occur outside of the Act, through other Federal, State, or local actions, and that are caused by the designation of critical habitat. This section identifies common types of indirect impacts that may be associated with the designation of critical habitat. Importantly, these types of impacts are not always considered incremental. In the case that these types of conservation efforts and economic effects are expected to occur regardless of critical habitat designation, they are appropriately considered baseline impacts in this analysis.

Habitat Conservation Plans

48. Under section 10 of the Act, landowners seeking an incidental take permit must develop an HCP to counterbalance the potential harmful effects that an otherwise lawful activity may have on a species. As such, the purpose of the habitat conservation planning process is to ensure that the effects of incidental take are adequately avoided or minimized. Thus, HCPs are developed to ensure compliance with section 9 of the Act and to meet the requirements of section 10 of the Act. There are currently no HCPs that include the gopher frog as a covered species.
49. Application for an incidental take permit and completion of an HCP are not required or necessarily recommended by a critical habitat designation. However, in certain situations the new information provided by the proposed critical habitat rule may prompt a landowner to apply for an incidental take permit. For example, a landowner may have been previously unaware of the potential presence of the species on his or her property, and expeditious completion of an HCP may offer the landowner regulatory relief in the form of exclusion from the final critical habitat designation. In this case, the effort involved in creating the HCP and undertaking associated conservation efforts are considered an incremental effect of designation. No specific plans to prepare new HCPs in response to this proposed designation were identified for the gopher frog.

Other State and Local Laws

50. Under certain circumstances, critical habitat designation may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other State or local laws. In cases where these impacts would not have been triggered absent critical habitat designation, they are considered indirect, incremental impacts of the designation. No other state or local laws will be triggered by designation of critical habitat for the gopher frog.

Additional Indirect Impacts

51. In addition to the indirect effects of compliance with other laws or triggered by the designation, project proponents, land managers and landowners may face additional indirect impacts, including the following:

- **Time Delays** - Both public and private entities may experience incremental time delays for projects and other activities due to requirements associated with the

need to reinitiate the section 7 consultation process and/or compliance with other laws triggered by the designation. To the extent that delays result from the designation, they are considered indirect, incremental impacts of the designation.

- **Regulatory Uncertainty** - The Service conducts each section 7 consultation on a case-by-case basis and issues a biological opinion on formal consultations based on species-specific and site-specific information. As a result, government agencies and affiliated private parties who consult with the Service under section 7 may face uncertainty concerning whether project modifications will be recommended by the Service and what the nature of these modifications will be. This uncertainty may diminish as consultations are completed and additional information becomes available on the effects of critical habitat on specific activities. Where information suggests that this type of regulatory uncertainty stemming from the designation may affect a project or economic behavior, associated impacts are considered indirect, incremental impacts of the designation.
- **Stigma** - In some cases, the public may perceive that critical habitat designation may result in limitations on private property uses above and beyond those associated with anticipated project modifications and regulatory uncertainty described above. Public attitudes about the limits or restrictions that critical habitat may impose can cause real economic effects to property owners, regardless of whether such limits are actually imposed. All else equal, a property that is designated as critical habitat may have a lower market value than an identical property that is not within the boundaries of critical habitat due to perceived limitations or restrictions. As the public becomes aware of the true regulatory burden imposed by critical habitat, the impact of the designation on property markets may decrease. To the extent that potential stigma effects on markets are probable and identifiable, these impacts are considered indirect, incremental impacts of the designation.

2.3.3 BENEFITS

52. Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.³⁸ OMB's Circular A-4 distinguishes two types of economic benefits: *direct benefits and ancillary benefits*. Ancillary benefits are defined as favorable impacts of a rulemaking that are typically unrelated, or secondary, to the statutory purpose of the rulemaking.³⁹
53. In the context of critical habitat, the primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. In its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research.⁴⁰ *Rather than rely on economic measures, the Service believes that the direct benefits of the proposed rule are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.*
54. Critical habitat designation may also generate ancillary benefits. Critical habitat aids in the conservation of species specifically by protecting the Primary Constituent Elements (PCEs) on which the species depends. To this end, critical habitat designation can result in maintenance of particular environmental conditions that may generate other social benefits aside from the preservation of the species. That is, management actions undertaken to conserve a species or habitat may have coincident, positive social welfare implications, such as increased recreational opportunities in a region. While they are not the primary purpose of critical habitat, these ancillary benefits may result in gains in employment, output, or income that may offset the direct, negative impacts to a region's economy resulting from actions to conserve a species or its habitat. The potential ancillary benefits of critical habitat designation are described qualitatively in a separate chapter at the end of this report.

2.3.4 GEOGRAPHIC SCOPE OF THE ANALYSIS

55. Economic impacts of gopher frog conservation are considered across the entire area proposed for critical habitat designation, as defined in Chapter 1. Results will be presented at the unit level.

2.3.5 ANALYTIC TIME FRAME

56. Ideally, the time frame of this analysis would be based on the expected time period over which the critical habitat regulation is expected to be in place. Specifically, the analysis would forecast impacts of implementing this rule through species recovery (i.e., when the

³⁸ Executive Order 12866, Regulatory Planning and Review, September 30, 1993.

³⁹ U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

⁴⁰ *Ibid.*

rule is no longer required). However, absent specific information on the expected time frame for recovery of the gopher frog, this analysis forecasts impacts over a “reasonably foreseeable” time frame. Based on available data, this analysis considers economic impacts to activities from 2012 (expected year of final critical habitat designation) through 2031.

2.4 INFORMATION SOURCES

57. The primary sources of information for this report are communications with, and data provided by, personnel from the Service, local governments and other stakeholders. Some of this information and data is provided in public comment letters submitted in response to the Proposed Rule.⁴¹ In addition, the analysis draws on the section 7 consultation history, historical conservation efforts for the species, published information, and GIS data. A complete list of references is provided at the end of this document.

⁴¹ 75 FR 31387.

CHAPTER 3 | POTENTIAL ECONOMIC IMPACTS TO ACTIVE SPECIES MANAGEMENT

58. This chapter discusses the economic impacts to active species management resulting from the proposed critical habitat designation for the gopher frog. Unlike the other activities described in this analysis, the activities described in this chapter do not pose a threat to the gopher frog or its habitat. Rather, the activities described in this chapter are implemented specifically to benefit the gopher frog and its habitat. Nevertheless, active species management activities carried out in the baseline have the potential to be impacted by the proposed critical habitat designation. Total present value projected incremental impacts to these activities is limited: \$64,500 total anticipated over the next 20 years (\$6,090 annualized impact).⁴²
59. Many of the proposed critical habitat units include areas that are currently being managed to benefit the gopher frog. These areas include areas within DeSoto National Forest, land managed by The Nature Conservancy (TNC), and Ward Bayou WMA. Details on the impacts to management activities on these lands are provided in Section 3.1 through 3.3, results summarized at the unit level are presented in Section 3.4

3.1 IMPACTS TO LAND MANAGED WITHIN THE DESOTO NATIONAL FOREST

60. Portions of Units 2a, 2b, 3, 8, 9, 10, 11, and 12 fall within DeSoto National Forest and are actively managed by the USFS to benefit the recovery of the Mississippi gopher frog.⁴³ All but 232 acres of the Federally-owned land in Subunits 2a and 2b are part of a gopher frog management area that surrounds Glen's Pond and extends east.⁴⁴ USFS has consulted with the Service on management activities in this area.⁴⁵
61. The USFS has also been working informally with the Service to manage for the gopher frog in Units 3, 8, 9, 10, 11, and 12. If critical habitat is designated, it is likely that the USFS will enter into a programmatic consultation with the Service for their land management activities in these areas. This programmatic consultation is expected to

⁴² Using a seven percent discount rate.

⁴³ Units 10, 11, and 12 are owned and managed by the U.S. Forest Service, but the Mississippi Army National Guard is authorized to conduct training in or near these units under a special use permit.

⁴⁴ Personal Communication with Fish and Wildlife Service Biologist, August 18, 2010.

⁴⁵ U.S. Forest Service and U.S. Fish and Wildlife Service, "Biological Evaluation Amendment for Ecosystem Restoration for Gopher Tortoise and Red Cockaded Woodpecker Habitat, Effects to Mississippi Gopher Frog from Forest Management Activities between 1.2 - 2.0 km from Glen's Pond."

occur in 2012 (the year critical habitat will be finalized) and is expected to result entirely of the designation.

62. Land managed by the USFS in Units 3, 8, 9, 10, 11, and 12 is not currently occupied by the gopher frog and although it has been informally managed for the benefit of the species in the past, no consultation has occurred and no management plan is in place. The Service states that, in unoccupied areas, costs associated with project modifications implemented to avoid adversely modifying critical habitat would be attributable to the critical habitat designation alone. Therefore, this anticipated programmatic consultation is considered to be incremental.⁴⁶ Administrative costs associated with this programmatic consultation are distributed equally across the three units for which the consultation will occur. Because the USFS has worked closely with the Service to develop their current management practices on these lands, no additional project modifications leading to increased costs by USFS are expected to result from the consultation.

3.2 IMPACTS TO LAND MANAGED BY TNC

63. Subunit 4a and the majority of Subunit 4b are owned by the TNC and operated as a wetland mitigation bank. The proposed critical habitat in Subunit 4a is considered occupied and the proposed critical habitat in Subunit 4b is considered unoccupied. In order to continue operating as a wetland mitigation bank, TNC must perform certain habitat restoration tasks annually such as prescribed burns and herbicide treatments.⁴⁷ In areas occupied by the gopher frog, TNC takes precautions with heavy equipment; for example, herbicide treatments are applied by hand instead of on the back of all-terrain vehicles.⁴⁸ Because this mitigation bank has already been established, TNC does not anticipate a future need for a section 404 permit. Therefore, no consultation with the Service and no incremental impacts are expected.
64. Subunit 5a and a portion of Subunit 5b are owned by TNC and funds for management of the site have been provided as part of the Natural Resources Conservation Service's (NRCS's) Mississippi Healthy Forest Reserve Program (HFRP).⁴⁹ The purpose of the HFRP is to assist landowners, on a voluntary basis, in restoring, enhancing and protecting forestland resources on private lands. One of HFRP's objectives is to promote the recovery of endangered and threatened species.⁵⁰ NRCS has consulted with the Service on the Mississippi HFRP, although gopher frog critical habitat was not considered at the

⁴⁶ FWS to Industrial Economics, Inc., August 16, 2010, "Incremental Effects Memorandum for the Economic Analysis of Proposed Rule to Designate Critical Habitat for the Mississippi Gopher Frog." (see Appendix C)

⁴⁷ Personal Communication with Nelwyn McInnis, The Nature Conservancy, September 30, 2010.

⁴⁸ *Ibid.*

⁴⁹ Personal Communication with Fish and Wildlife Service Biologist, August 25, 2010.

⁵⁰ U.S. Department of Agriculture, National Resources Conservation Service, "Healthy Forest Reserve Program," accessed <<http://www.nrcs.usda.gov/programs/hfrp/proginfo/index.html>> on August 25, 2010.

time.⁵¹ If critical habitat is designated, NRCS expects to reinitiate consultation to consider the potential for adverse modification of critical habitat.⁵² NRCS states that their management actions are intended to protect the habitat in which gopher frogs thrive, thus the designation of critical habitat is not likely to change their activities.⁵³ Because the reinitiation of the programmatic consultation for HFRP is triggered by the designation of critical habitat for gopher frog, it is considered to be an incremental impact of the proposed critical habitat designation. For purposes of this analysis, the consultation is assumed to occur in 2012 (the year critical habitat is expected to be finalized) and the cost is distributed equally across the two subunits.

3.3 IMPACTS TO LAND MANAGED WITHIN THE WARD BAYOU WMA

65. Unit 6 is owned by the Corps and leased to the State of Mississippi as part of the Ward Bayou WMA. This unit is considered unoccupied by the gopher frog. The WMA is managed by the Mississippi Department of Wildlife, Fisheries, and Parks. Ward Bayou WMA's dual management goals are to provide sustainable, quality, wildlife-oriented recreational opportunities for the public and to conserve the natural ecosystems through sound management to provide habitat for native wildlife.⁵⁴ Their habitat management activities focus on conserving the bottomland hardwood forests and the upland longleaf pine forests through timber harvesting, prescribed burning, and invasive species control.⁵⁵ These habitat management activities are expected to generally benefit the gopher frog and its habitat. This analysis conservatively includes the administrative cost associated with a future programmatic consultation with the Corps for the management activities at Ward Bayou WMA. This cost is included as an incremental impact because the area is not occupied by the gopher frog. At this time, project modifications that may be requested during consultation are unknown; therefore, the analysis includes only the administrative cost of consultation. This cost is assumed to occur in 2012, the year that critical habitat for the gopher frog will be finalized.

3.4 RESULTS

66. Exhibit 3-1 presents the incremental impacts to active species management activities by unit and subunit. As discussed above, incremental impacts are limited to administrative costs of three programmatic consultations, which are distributed across six units and subunits.

⁵¹ U.S. Fish and Wildlife Service and Natural Resources Conservation Service, May 2007, "Programmatic Biological Assessment and Programmatic Biological Opinion for the Natural Resources Conservation Service's Mississippi Healthy Forest Reserve Program."

⁵² Personal Communication with Glenda Clardy, Natural Resource Conservation Service, September 27, 2010.

⁵³ *Ibid.*

⁵⁴ Mississippi Department of Wildlife, Fisheries, and Parks, Ward Bayou WMA Management Plan, June 2010, accessed by <<http://home.mdwfp.com/pdfgallery.aspx?albumid=9>>.

⁵⁵ *Ibid.*

**EXHIBIT 3-1 ESTIMATED INCREMENTAL IMPACTS TO ACTIVE SPECIES MANAGEMENT ACTIVITIES
(2012 - 2031, 2011 DOLLARS, SEVEN PERCENT DISCOUNT RATE)**

UNIT/SUBUNIT	PRESENT VALUE IMPACTS	ANNUALIZED IMPACTS
1	\$0	\$0
2a	\$0	\$0
2b	\$0	\$0
3	\$8,430	\$796
4a	\$0	\$0
4b	\$0	\$0
5a	\$6,960	\$657
5b	\$6,960	\$657
6	\$25,300	\$2,390
7	\$0	\$0
8	\$8,430	\$796
9	\$8,430	\$796
10	\$0	\$0
11	\$0	\$0
12	\$0	\$0
Total	\$64,500	\$6,090
Notes: Values are rounded to three significant figures. Totals may not sum due to rounding.		

CHAPTER 4 | POTENTIAL ECONOMIC IMPACTS TO DEVELOPMENT, FORESTRY, AND MILITARY ACTIVITIES

67. This chapter discusses the potential incremental economic impacts of the proposed critical habitat designation for the gopher frog to development, forestry, and military activities. Total present value projected incremental impacts to these activities over the next 20 years is anticipated to range from \$37,300 to \$36.3 million (\$3,520 to \$3.42 million annualized), depending upon the scenario applied to estimate impacts to development activities in Unit 1.⁵⁶ Details on the projected incremental impacts to each of these three sectors are provided in Section 4.1 through 4.3. Results at the unit level are presented in Section 4.4.
68. Due to uncertainty regarding the ultimate scope and scale of potential future development in Unit 1, along with uncertainty regarding the conservation measures the Service may recommend to avoid destruction or adverse modification of critical habitat in this unit, this analysis estimates incremental impacts of critical habitat designation of Unit 1 according to three scenarios, as described in Section 4.1. These scenarios drive the range in estimated incremental impacts of the designation.

4.1 IMPACTS TO DEVELOPMENT ACTIVITIES

69. The Service has stated that development activities that disturb the soil and result in habitat fragmentation are considered a potential threat to the gopher frog and its habitat.⁵⁷ Residential or commercial development is forecast within proposed critical habitat Unit 1 and Subunits 2a and 2b (other than timber development, which is discussed separately). Units with lands potentially available for residential or commercial development are discussed below.

UNIT 1

70. Unit 1 is entirely privately-owned by a group on five landowners and Weyerhaeuser. Currently, this land is leased to Weyerhaeuser and managed for timber development (see Section 4.2).⁵⁸ The landowners began leasing their land to Weyerhaeuser's predecessor in 1953 and the current lease is set to expire in 32 years.⁵⁹ Approximately five years ago,

⁵⁶ Using a seven percent discount rate.

⁵⁷ 75 FR 31393, 31400.

⁵⁸ A small portion of Unit 1 may be owned by Weyerhaeuser in fee (Written communication with Edward Poitevent, August 2, 2011).

⁵⁹ Written communication with Edward Poitevent, August 2, 2011.

the landowners entered into an understanding with Weyerhaeuser Real Estate Development Company (WREDCO) to jointly develop the land covered by the timber lease. The arrangement stipulates that the landowners contribute land and WREDCO contributes capital in a joint venture to develop the land when market conditions are amenable.⁶⁰ The current timber lease will be released once development occurs.⁶¹ If the land is ultimately sold to a third party, the landowners and WREDCO have agreed upon a division of the monetary gains.⁶²

71. St. Tammany Parish is a fast-growing area; according to the Louisiana State Census the population grew from 191,268 to 233,740, or 22 percent, between 2000 and 2010.⁶³ Growth in the Parish is projected to continue, reaching nearly 500,000 by 2030.⁶⁴ The area immediately surrounding the proposed critical habitat is experiencing particularly rapid growth. Within the last few years large warehousing facilities have been constructed or have begun construction in Pearl River.⁶⁵ A new high school was recently opened not far from the proposed critical habitat and major transportation infrastructure is planned in anticipation of continued rapid growth in the area.⁶⁶ In addition, infrastructure improvements have recently taken place on Highway 1088 between Interstate 12 and Highway 36, which runs through the proposed critical habitat.⁶⁷
72. Over the last five years, the landowners and WREDCO have worked with the help of master planners Jordan, Jones & Goulding to rezone the area for development. Current zoning for the 1,649 acres falls within four zoning classifications: TND-2 (50 percent), A-3 (40 percent), A-4 (five percent), and A-2 (five percent).⁶⁸ These classifications are defined as follows:
- TND-2 Traditional Neighborhood Development Zoning District – compact mixed use development zone that includes residential, commercial, civic and open space;
 - A-3 Suburban District – single-family residential zone with a maximum density of two units per acre;

⁶⁰ Personal Communication with Edward Poitevent, June 9, 2011.

⁶¹ Email Communication with Edward Poitevent, June 9, 2011.

⁶² Written communication with Edward Poitevent, August 2, 2011.

⁶³ Demographics and Census Geography Louisiana State Census Data Center, accessed by http://louisiana.gov/Explore/Demographics_and_Geography/ on June 29, 2011.

⁶⁴ Louisiana Population Projections, accessed by http://www.louisiana.gov/Explore/Population_Projections/ on June 29, 2011.

⁶⁵ For example, Rooms to Go opened a distribution and retail outlet in 2009 (<http://neworleanscitybusiness.com/blog/2009/12/08/rooms-to-go-opens-50m-pearl-river-facility/>) and Associated Wholesale Grocers, Inc. began construction on a distribution center in June 2011 (<http://www.stedf.org/photos/1309362414.pdf>).

⁶⁶ Email Communication with Edward Poitevent, June 9, 2011.

⁶⁷ Written communication with Edward Poitevent, August 2, 2011.

⁶⁸ *Ibid.*

- A-4 Single-Family Residential District – single-family residential zone with a maximum density of four units per acre; and
 - A-2 Suburban District – single-family residential district with a maximum density of one unit per acre.⁶⁹
73. The landowners and WREDCO have invested a significant amount of time and dollars into their plans to develop this area.⁷⁰ Because Louisiana Highway 36 runs through the proposed critical habitat unit, the area is particularly attractive for development. Development plans for this area are currently delayed due to the recession and the negative real estate bank-lending environment. If the development plans do move forward, a section 404 Army Corps permit may be necessary and therefore consultation with the Service regarding effects on the proposed critical habitat will likely be required.⁷¹ If development avoids jurisdictional wetlands, section 7 consultation would not be required due to the absence of a Federal nexus.
74. The Service has indicated that in order to properly manage the breeding sites within Unit 1, prescribed burns would be necessary. Development would make burning more problematic, but not impossible. If this area is developed, burns would likely be less frequent than without development.⁷² During consultation, the Service strives to work with Federal action agencies and landowners to minimize the impacts of a particular action. In this case, if the landowners agree to allow the Service to re-introduce the gopher frog in a portion of the unit, the Service anticipates the remainder would be available for development activities. Specifically, the Service indicates that protecting 60 percent (or 989 acres) of the proposed critical habitat in Unit 1 would provide a meaningful conservation benefit to the gopher frog.⁷³ Therefore, development of 600 acres (40 percent) within Unit 1 with 989 acres of the unit managed for the conservation and recovery of the species would avoid adverse modification of critical habitat. The Service anticipates that such a compromise is the most likely outcome of section 7 consultation regarding proposed development activities within the Unit.⁷⁴
75. Under the most conservation assumption (e.g., most likely to overstate rather than understate impacts) regarding the outcome of section 7 consultation, the Service would recommend complete avoidance of development within Unit in order to avoid adverse modification of critical habitat.
76. Due to uncertainty regarding the likelihood of a Federal nexus and the conservation measures that would be recommended during consultation, we evaluate impacts of critical

⁶⁹ St. Tammany Parish Government, Unified Development Code - Volume 1 (Zoning), accessed by http://www.stpgov.org/departments_planning_unified.php on June 20, 2011.

⁷⁰ Email Communication with Edward Poitevent, June 9, 2011.

⁷¹ Personal Communication with Edward Poitevent, June 9, 2011.

⁷² Email Communication with U.S. Fish and Wildlife Service biologist, July 29, 2011.

⁷³ Email Communication with U.S. Fish and Wildlife Service biologist, August 12, 2011.

⁷⁴ Personal Communication with U.S. Fish and Wildlife Service, August 11, 2011.

habitat designation on development activities in Unit 1 according to the following three scenarios:

- **Scenario 1** – This scenario assumes that development occurring within the unit avoids impacts on jurisdictional wetlands. As such, there is no Federal nexus (no Federal permit is required) triggering section 7 consultation regarding gopher frog critical habitat.
- **Scenario 2** – This scenario assumes the proposed development of Unit 1 requires a Corps CWA Section 404 permit due to the presence of jurisdictional wetlands. The development would therefore be subject to section 7 consultation considering critical habitat for the gopher frog. This scenario further assumes that the Service works with the landowner to establish conservation areas for the gopher frog within the unit, resulting in 40 percent of the Unit being developed and 60 percent managed for gopher frog conservation and recovery.
- **Scenario 3** – This scenario again assumes that the proposed development of Unit 1 requires a Section 404 permit and therefore is subject to section 7 consultation. This scenario further assumes that, due to the importance of the unit in the conservation and recovery of the species, the Service recommends that no development occur within the unit.

77. According to Scenarios 2 and 3, the economic impact of critical habitat designation is the lost development value of lands within the unit on which development is precluded. Note that the total value of the land would not be lost, as there is some value associated with timber production and other potential land uses.⁷⁵
78. The current landowners are concerned that, in addition to limiting development, critical habitat designation will restrict all future uses of the land, including timber management, hunting, and potential oil and gas development.⁷⁶ However, critical habitat only affects activities with a Federal nexus, as described in Chapter 2 of this report. Private activities on private lands are not subject to section 7 consultation regarding potential impacts on critical habitats. As such, absent Federal funding, permitting, or oversight, certain future uses of the land would not be precluded. For example, timber management activities, such as are currently occurring on these lands, are not subject to Federal funding or permitting. Consequently, critical habitat does not provide the Service with regulatory authority regarding critical habitat for the gopher frog with respect to this activity. We therefore do not expect that critical habitat designation would affect timber management activities in Unit 1. Similarly, hunting activities are unlikely to affect the critical habitat

⁷⁵ In general, normal silvicultural activities are exempt from section 404 permitting requirements. Therefore, consultation with the Service under section 7 of the Act is not necessary and timber harvests will not be affected by the designation. Impacts to forestry activities are discussed in more detail in Section 4.2.

⁷⁶ The landowner has also expressed concern that burning of these lands may occur due to the critical habitat designation and that these burns will be incompatible with any future land uses (Written communication with Edward Poitevent, August 2, 2011). Critical habitat designation does not allow the Service to require burning of land parcels. Absent section 7 consultation (which is not required for private activities on private lands) the Service cannot prescribe burning of private critical habitat lands.

for the gopher frog and are not subject to a Federal nexus triggering section 7 consultation. As such, hunting activities are not expected to be affected by critical habitat designation for the gopher frog in Unit 1.

79. The landowners of Unit 1 have also expressed interest in developing the land for oil and gas. St. Tammany and adjacent Parishes contain Tuscaloosa marine shale.⁷⁷ Recent consultation with a geologist has shown that Tuscaloosa Marine Shale exists within proposed critical habitat Unit 1.⁷⁸ Landowners indicate that a geologist recently determined that there may be 20 million bbls or recoverable oil within the landowners' total land area. Approximately 3.8 percent of the landowners' land overlaps the 1,649 acres within the unit. As noted above, the landowners are concerned that the Service may restrict the use of the land for oil and gas development, resulting in further impacts (above and beyond losses associated with residential and commercial development restrictions). As no oil and gas development has yet occurred within the proposed critical habitat area for the gopher frog, the Service has not considered potential conservation measures that may be relevant to this activity. In many cases, impacts of oil and gas exploration and development on habitats may be avoided by implementing conservation efforts such as directional drilling to avoid surface disturbance. These conservation efforts, however, would result in some incremental operational costs even in the case that oil and gas development is not precluded. It is therefore possible that, in the case oil and gas development occurs on this land, and a Federal nexus is present triggering section 7 consultation, that there may be economic impacts of critical habitat designation for the gopher frog on this activity.
80. While we do not anticipate that all economic activities would be precluded on these land (i.e., timber management and hunting are unlikely to be affected and potential impacts on oil and gas development activities are uncertain), the value of the land associated with the option for future development may be lost in a portion of Unit 1 under Scenario 2, and all lands within Unit 1 according to Scenario 3. Because the unit is unoccupied, costs associated with project modifications implemented to avoid adversely modifying critical habitat would be attributable to the critical habitat designation (i.e., incremental impacts).
81. We apply the following information to quantify the economic impact of restricting development within Unit 1 due to critical habitat designation:
- The number of acres within the unit that may be targeted for development absent the designation of critical habitat;
 - The number of acres within the unit where development would be restricted;
 - Market values of comparable land parcels subject to similar types of development opportunity for which restrictions on future development do not exist; and

⁷⁷ Chacko, John J. et al., An Unproven Unconventional Seven Billion Barrel Oil Resource - the Tuscaloosa Marine Shale, Basin Research Institute, Louisiana State University.

⁷⁸ Written communication with Edward Poitevent, August 2, 2011.

- The current value of this land for its other potential future uses (e.g., timber management, oil and gas development, recreation, etc.).
82. This analysis assumes that, absent critical habitat designation, the entire area within proposed critical habitat Unit 1 will be subject to future development. According to Scenario 2, development will be restricted on 989 acres. According to Scenario 3, development will be restricted within the entire unit (1,649 acres). Adjacent land with comparable zoning has been proposed for sale to Central Louisiana Electric Company for \$23,500/acre.⁷⁹ This value does not include the value of the standing timber, as Weyerhaeuser maintains the lease for the timber. This value is used to approximate the per acre value of the land for future development in proposed critical habitat Unit 1. As the exact uses of the sale parcel compared to the proposed critical habitat parcel are uncertain, the value is not a perfect proxy for development value of the critical habitat acres. For example, the sale parcel may have more or less oil and gas potential, or may be more or less desirable for future development. This would affect the relative value of the parcels. However, the market value of nearby comparably zoned parcels currently represents the best available information of the potential development value of the critical habitat lands.
83. We multiply the per-acre development value by the total number of acres within critical habitat that may not be developed due to the gopher frog critical habitat designation. Assuming substitute land is available to developers, existing landowners bear the full burden of the costs of gopher frog development restrictions in the form of lower land values. This reduction in land value occurs immediately at the time of designation of critical habitat (the time at which the restriction is considered enforceable); therefore, this analysis assumes the land value loss occurs in 2012. In addition, under Scenarios 2 and 3 the administrative cost of a new consultation considering only adverse modification will occur in 2012. Accordingly, the total incremental impacts to development activities in Unit 1 are anticipated to be:
- **Scenario 1** – Absent consultation, no conservation measures are implemented for the species and critical habitat designation of Unit 1 does not result in any incremental economic impact.
 - **Scenario 2** – According to this scenario, present value incremental impacts of critical habitat designation due to the lost option for developing 60 percent of Unit 1 lands are \$21.7 million (\$2.05 million in annualized impacts).
 - **Scenario 3** – According to this scenario, present value impacts of the lost option for development in 100 percent of the unit are \$36.2 million (\$3.42 million in annualized impacts).⁸⁰

⁷⁹ Written communication with Edward Poitevent, August 2, 2011.

⁸⁰ Development loss impacts in Scenarios 2 and 3 are calculated by multiplying 989 and 1,649, respectively, by \$23,500 per acre (totaling \$23.2 million and \$38.7 million, respectively), discounted one year at seven percent.

84. As noted above, the loss in Scenarios 2 and 3 reflect only the lost development value of the land. The extent to which future oil and gas activities may also be affected by critical habitat designation of this unit is unknown. Exhibit 4-1 presents these key uncertainties and the potential bias they introduce in the evaluation of the incremental impacts of critical habitat designation in Unit 1.

EXHIBIT 4-1. KEY UNCERTAINTIES ASSOCIATED WITH THE ESTIMATED INCREMENTAL IMPACTS OF CRITICAL HABITAT DESIGNATION FOR THE GOPHER FROG IN UNIT 1

SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>We apply the market value of a comparable parcel of vacant, developable land (\$23,500/acre) as a proxy for the option value of future development on the critical habitat lands.</p>	<p>May overestimate or underestimate incremental impacts</p>	<p>Potentially major. The option value for future development, which is what is lost when development is precluded on a parcel, is unknown for these lands. Applying market values of similarly zoned adjacent parcels may overestimate the value of the land for future development to the extent that the market values incorporate values of the future use of the land other than for development (e.g., future oil and gas development or recreational use values). The market value may also overestimate the development value of the critical habitat acres to the extent that the sale parcel is more attractive for potential future development than the critical habitat parcel.</p> <p>On the other hand, the market value may underestimate the development value of the critical habitat lands to the extent that the critical habitat lands are more desirable for future development activity.</p>

SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>The landowners anticipate that, due to the presence of Tuscaloosa Marine Shale, oil and gas extraction may occur in the future absent critical habitat designation. The landowners suggest that the value of this activity within critical habitat would be \$17.1 million in market value for the potentially discoverable oil, plus an additional \$164,900 to \$247,350 in minerals bonus.**</p>	<p>Likely leads to an underestimate of incremental impacts</p>	<p>Potentially major. Approximately 760,000 barrels of oil are predicted to exist within the shale of proposed Unit 1.* In the case that critical habitat designation precludes oil and gas development activities, the landowners suggest the market value of the oil and the minerals bonus are losses.</p> <p>First, it is uncertain whether the Service would preclude oil and gas activities within the critical habitat area. It may be that the activities could proceed with some modification (e.g., implementing directional drilling). In this case, the value of the land associated with potential future oil and gas development would not be lost.</p> <p>Second, the market value of the oil does not represent an economic impact to the landowners as it is not net of the costs of exploration and extraction that would be incurred if the area were to be developed.</p> <p>To the extent that oil and gas development activities are affected by critical habitat designation, however, this analysis underestimates potential economic impacts associated with critical habitat designation in Unit 1.</p>
<p>We assume all land within proposed critical habitat Unit 1 may be developed within the next 30 years.</p>	<p>Unlikely to affect the results of the analysis.</p>	<p>No effect. We account for various scopes of development according to the three scenarios, which results in a range of impacts from zero to full loss of development value.</p>
<p>The landowners suggest that the value of the timber on these lands is \$3.96 million (the value of the standing timber) and an additional \$1.98 million to \$2.97 million associated with timbering the land for the remainder of the lease term.</p>	<p>Unlikely to affect the results of the analysis.</p>	<p>No effect. This analysis does not anticipate that timber management of these lands will be affected by critical habitat designation for the gopher frog. This activity does not involve a Federal nexus and is not expected to be subject to section 7 consultation.</p>
<p>The landowners suggest that revenue from hunting leases on the critical habitat lands contributed \$9,844 per year.</p>	<p>Unlikely to affect the results of the analysis.</p>	<p>No effect. This analysis does not anticipate that hunting on these lands will be affected by critical habitat designation for the gopher frog. This activity does not involve a Federal nexus and is not expected to be subject to section 7 consultation.</p>
<p>Notes and Sources: *Based on an estimate of 20 million barrels of oil on 43,500 acres - the 1,649 acres within Unit 1 represent 3.8 percent of this area (Written communication with Edward Poitevent, August, 2, 2011). **Written communication with Edward Poitevent, August, 2, 2011.</p>		

SUBUNITS 2A AND 2B

85. The privately-owned areas in Subunits 2a (59 acres) and 2b (7 acres) are included in the master planning area for a 4,600-acre development known as “Tradition.” Tradition is being developed by Columbus Communities, L.L.C. - Tradition Properties, Inc. (Tradition Properties), which plans to build it in phases over a 20-year period. A 2001 consultation with the Corps on Tradition identified potential impacts of the development on gopher frogs as including a reduced ability of USFS to conduct controlled burns on their adjacent property, increased damage related to off-road vehicle use, and increased potential for predation by pets.⁸¹
86. The majority of the Tradition development located within the proposed critical habitat is in Subunit 2a which is considered to be occupied by the gopher frog. As described in Chapter 2 of this analysis, the Service has stated that “in occupied critical habitat it is unlikely that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the species.”⁸² Therefore, in areas occupied by the species, no additional project modifications above and beyond those requested under jeopardy would be requested to avoid adverse modification of critical habitat. This section nonetheless considers whether it is possible that additional project modifications or other property value effects are likely to occur in Subunits 2a and 2b as a result of critical habitat designation.
87. The 2001 consultation with the Corps on Tradition focused on potential impacts to the gopher tortoise, and required extensive terms and conditions related to relocating them to suitable habitat during construction activities. This consultation also included a conference opinion on the gopher frog, which at the time was not yet listed. The consultation recommended that the Corps adopt a “Temporary No Build Zone” on Tradition property located within a 0.33 miles radius of the breeding pond.⁸³ This Temporary No Build Zone was originally established in July 2000 as an agreement between Tradition and the Service in order to prevent jeopardizing the continued existence of the gopher frog.⁸⁴ The No Build Zone includes most of the 66 acres of Tradition land that is currently proposed for designation as critical habitat for the gopher frog. Because no critical habitat for the species was designated at that time, the potential for adverse modification of frog habitat was not considered.⁸⁵
88. In a public comment submitted on the draft proposed critical habitat rule for the gopher frog, Tradition Properties expressed their support of the proposed critical habitat

⁸¹ United States Fish and Wildlife Service, Jackson Mississippi Field Office, November 19, 2001, Biological Opinion on the Tradition Community Development Corporation.

⁸² *Ibid.*

⁸³ *Ibid.*

⁸⁴ *Ibid.*

⁸⁵ United States Fish and Wildlife Service, November 19, 2001, Biological Opinion on the Tradition Community Development Corporation.

designation on their land.⁸⁶ However, Tradition Properties has subsequently expressed concern that critical habitat may make Tradition's planned use of the area for single-family residential units and/or a portion of a golf course economically unfeasible.⁸⁷

89. Although it states concern, Tradition Properties also states that the proposed critical habitat "is also currently part of an area designated for Gopher tortoise habitat in the event that Gopher tortoises must be relocated from future development areas of Tradition."⁸⁸ Further, Tradition's current master plan of future development of the property identifies the proposed critical habitat area as predominantly "Wetlands/Open Space." The master plan does appear to identify a small portion of proposed Subunit 2a as "Residential Neighborhoods" and "Golf."⁸⁹
90. While gopher frog conservation efforts may have influenced plans for development, the plans occurred prior to proposed designation of critical habitat. The Corps consulted with the Service on this project in 2001. Service has indicated that "in occupied critical habitat it is unlikely that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the species."⁹⁰ Therefore, this analysis assumes that while the Corps is expected to reinitiate consultation to address the potential for adverse modification of critical habitat for the gopher frog, no additional project modifications to the areas planned for residential and golf course development within occupied Subunit 2a will be required. Current plans do not appear to include developing within the unoccupied Subunit 2b. Thus, no additional project modifications will be required in unoccupied Subunit 2b either. However, the reinitiation of consultation is considered to be an incremental impact of the proposed critical habitat designation, and is assumed to occur in 2012 (the year critical habitat is expected to be finalized).

OTHER UNITS THAT CONTAIN POTENTIALLY DEVELOPABLE LANDS

91. Portions of Subunits 5a and 5b are owned by TNC and managed using funds provided by NRCS as part of HFRP (see Chapter 3), but the units also contain rural residential land that could be developed in the future. Subunit 5a contains some existing structures, while Subunit 5b remains mostly forested. While large-scale development of these subunits appears unlikely, small-scale future development potential exists. However, the likelihood of these lands being developed in the future is not known; therefore, impacts that could be associated with development of these lands, should consultation on them occur, are not included in the analysis.

⁸⁶ Public comments of Gerald Blessey, Exec VP, Columbus Communities LLC, on July 30, 2010.

⁸⁷ Written communication with Gerald Blessey, Exec VP, Columbus Communities LLC, on October 10, 2010.

⁸⁸ *Ibid.*

⁸⁹ Traditions Master Plan Maps, Accessed at: http://www.traditionms.com/tradition/master_plan.html on October 11, 2010.

⁹⁰ *Ibid.*

92. Most of Unit 7 is currently managed for timber by the Jackson County School District, and the land manager does not expect the area to be developed.⁹¹ A small portion of the unit (42 acres) is privately-owned and could be developed in the future. Similar to Subunits 5a and 5b, the likelihood of this land being developed in the future is not known; therefore, impacts that could be associated with development of this land, should consultation on it occur, are not included in the analysis.

4.2 IMPACTS TO FORESTRY ACTIVITIES

93. This section describes potential incremental impacts of gopher frog critical habitat designation on forest management activities within the proposed critical habitat area. Forest management activities, including clear-cutting, site preparation, and prescribed burning have the potential to destroy or alter the upland area necessary for the growth and development of juvenile adult gopher frogs.⁹²
94. Most of Unit 7 is currently held in trust by the State of Mississippi to provide funding for Jackson County schools, and the Jackson County School Board has jurisdiction and control of the land.⁹³ This land is part of a larger harvest scheduled to occur within the next five years.⁹⁴ Unit 7 is considered occupied by the gopher frog. Unit 1 is currently leased to Weyerhaeuser for timber. Timber has been harvested from this land for over 100 years and the current lease is not set to expire for 32 years. The current timber will not be ready to harvest for at least 15 years.⁹⁵ Unit 1 is considered unoccupied by the gopher frog.
95. In general, normal silvicultural activities are exempt from section 404 permitting requirements.⁹⁶ Therefore, consultation with the Service under section 7 of the Act is not likely. However, it is possible that the Jackson County School Board will develop an HCP to cover its activities within the proposed critical habitat to avoid take of the frog. There are currently no gopher frog conservation activities being conducted within the unit.⁹⁷ It is unlikely that the landowners or managers of Unit 1 will develop an HCP as the proposed critical habitat is currently unoccupied by the gopher frog.
96. As described in Chapter 2, under section 10(a)(1)(B) of the Act, an entity may develop an HCP for a listed species in order to meet the conditions for issuance of an incidental take

⁹¹ Personal communication with Vickie Vecchio, Jackson County School District, September, 28, 2010, and Randy Wilson, Mississippi Forestry Commission, October 8, 2010.

⁹² 75 FR 31400.

⁹³ 75 FR 31397.

⁹⁴ Written communication with Randy Wilson, Mississippi Forestry Commission, October 11, 2010.

⁹⁵ Personal Communication with Edward Poitevent, June 9, 2011.

⁹⁶ Clean Water Act. Section 404 Policy and Guidance, U.S.C. 1344. Section 404(f). Accessed at: <http://www.epa.gov/owow/wetlands/regs/sec404.html> on October 12, 2010. Exemption applies to “normal” silvicultural activities that do not entail land use conversion.

⁹⁷ *Ibid.*

permit. The development and implementation of an HCP is considered a baseline protection for the species and habitat unless the HCP is determined to be precipitated by the designation of critical habitat. In this case, it appears that the designation of critical habitat has the potential to precipitate development of the HCP since one was not conceived of prior to the proposed designation. In this case, Service would have to perform an intra-agency consultation on this HCP. To be conservative, this analysis includes administrative cost associated with a future section 7 consultation on an HCP, which is included in this analysis as an incremental impact. At this time, project modifications that may be requested during consultation are unknown; therefore, the analysis includes only the administrative cost of intra-Service consultation. This cost is assumed to occur in 2012 the year that critical habitat for the gopher frog will be finalized.

4.3 IMPACTS TO MILITARY ACTIVITIES

97. USFS lands proposed as critical habitat for the gopher frog in Units 10, 11, and 12 are used by the MSARNG under a special use permit as part of Camp Shelby military training. Camp Shelby supports the mobilization, training, deployment, and demobilization of soldiers, sailors, airmen, and Marines. The current special use permit is set to expire in 2029, but USFS does not foresee any reason to revoke this permit after this time.⁹⁸
98. Camp Shelby consists of approximately 132,195 acres of land, including areas owned by the Department of Defense (5.5 percent), land leased from private landowners (0.7 percent), land owned by the state of Mississippi (6.0 percent), and land owned by the USFS (88 percent).⁹⁹ Both the National Guard Bureau (NGB) and the MSARNG submitted public comment on the Proposed Rule expressing concern over the proposed designation of critical habitat within the boundaries of Camp Shelby and the possible reintroduction of the species on these lands. Both entities believe that Camp Shelby should be exempt from critical habitat designation under section 4(b)(2) of the Act.^{100,101}
99. Currently, MSARNG manages natural resources on land owned by the Department of Defense at Camp Shelby in accordance with an Integrated Natural Resource Management Plan (INRMP) that was established in 2001.¹⁰² The INRMP covers species including the gopher tortoise, indigo snake, red-cockaded woodpecker, and the black pine snake, but does not currently cover the gopher frog.¹⁰³ Importantly, the INRMP does not cover

⁹⁸ Personal communication with Lisa Yager, U.S. Forest Service, September 27, 2010.

⁹⁹ Public Comment on the Proposed Rule from Michael Bennett, the National Guard Bureau, Arlington, VA, August 2, 2010

¹⁰⁰ *Ibid.*

¹⁰¹ Public Comment on the Proposed Rule from Michael Bennett, the National Guard Bureau, Arlington, VA, August 2, 2010.

¹⁰² *Ibid.*

¹⁰³ *Ibid.*

USFS land operated under the special use permit, including the areas proposed for designation, because these lands are managed by the USFS.¹⁰⁴

100. The areas being proposed for designation as critical habitat within Camp Shelby are currently used for bivouacking and convoy training. These are considered “light” training activities, as opposed to the “heavy” training with armored vehicles that occurs in the northerly portion of Camp Shelby.¹⁰⁵ It is likely that the USFS will consult with the Service on issuance of the special use permit which authorizes these activities, should the areas be designated as critical habitat for the gopher frog. This analysis assumes that USFS will engage in a programmatic consultation with the Service in 2012 to cover training activities within the proposed critical habitat. Because the units within Camp Shelby are considered unoccupied, this consultation would result entirely from the critical habitat designation. Therefore, the administrative cost of consultation and any project modifications requested to avoid an adverse modification finding would be considered to be incremental. At this time, the type of project modifications that may be requested for military activities is unknown; therefore, this analysis includes only the administrative cost of consultation. The administrative cost of a future programmatic consultation is distributed equally over the three units within Camp Shelby. As mentioned above, DOD requests exclusion of these units “given Camp Shelby’s importance as a training facility for the Army National Guard, Army and other military services.”¹⁰⁶

4.4 RESULTS

101. Exhibit 4-2 presents the projected incremental impacts to development, forestry, and military activities by unit and subunit. Incremental impacts associated with three scenarios in Unit 1 are presented to account for a range of possible impacts to development activities. Incremental impacts are limited to administrative costs of three anticipated consultations in Units 2a, 2b, 7, 10, 11, and 12.

¹⁰⁴ Personal communication with Service biologist, Jackson Field Office, October 12, 2010.

¹⁰⁵ Personal communication with Lisa Yager, U.S. Forest Service, September 27, 2010.

¹⁰⁶ Public Comment on the Proposed Rule from Michael Bennett, the National Guard Bureau, Arlington, VA, August 2, 2010.

EXHIBIT 4-2 PROJECTED INCREMENTAL IMPACTS TO DEVELOPMENT, FORESTRY, AND MILITARY ACTIVITIES (2012 - 2031, 2011 DOLLARS, SEVEN PERCENT DISCOUNT RATE)

UNIT/SUBUNIT	PRESENT VALUE IMPACTS			ANNUALIZED IMPACTS		
	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 1	SCENARIO 2	SCENARIO 3
1*	\$0	\$21,700,000	\$36,200,000	\$0	\$2,050,000	\$3,420,000
2a		\$3,860			\$364	
2b		\$3,860			\$364	
3		\$0			\$0	
4a		\$0			\$0	
4b		\$0			\$0	
5a		\$0			\$0	
5b		\$0			\$0	
6		\$0			\$0	
7		\$4,240			\$400	
8		\$0			\$0	
9		\$0			\$0	
10		\$8,430			\$796	
11		\$8,430			\$796	
12		\$8,430			\$796	
Total	\$37,300	\$21,800,000	\$36,300,000	\$3,520	\$2,060,000	\$3,420,000
<p>Notes: Values are rounded to three significant figures. Totals may not sum due to rounding. * This analysis employs three scenarios to estimate impacts of critical habitat designation on development activities in Unit 1 due to uncertainty regarding future land use and gopher frog conservation and recovery recommendations.</p>						

CHAPTER 5 | POTENTIAL ECONOMIC BENEFITS**5.1 INTRODUCTION**

102. There are two types of economic benefits that result from the proposed critical habitat designation: direct benefits and ancillary benefits. The primary intended benefit of critical habitat (i.e., the direct benefit) is to support the conservation of threatened and endangered species, such as the gopher frog. Thus, attempts to develop monetary estimates of the benefits of this proposed revised critical habitat designation would likely focus on the public's willingness to pay to achieve the conservation benefits to the gopher frog resulting from this designation.
103. Quantification and monetization of species conservation benefits would require information on the incremental change in the probability of gopher frog conservation that is expected to result from the designation. No studies exist that provide such information for this species. Furthermore, there is no published valuation literature to support monetization of such changes for this species.
104. Numerous published studies estimate individuals' willingness to pay to protect endangered species.¹⁰⁷ The economic values reported in these studies reflect various groupings of benefit categories (including both use and non-use values). For example, these studies assess public willingness to pay for wildlife-viewing opportunities, for the option for seeing or experiencing the species in the future, to assure that the species will exist for future generations, and simply knowing a species exists, among other values. Unfortunately, this literature addresses a relatively narrow range of species and circumstances compared to the hundreds of species and habitats that are the focus of the Act. Specifically, existing studies focus almost exclusively on large mammal, bird, and fish species, and generally do not report values for incremental changes in species conservation. Importantly for this analysis, we are not aware of any published studies that estimate the value the public places on preserving the gopher frog.
105. Other ancillary benefits may also be achieved through designation of critical habitat. For example, the public may hold a value for habitat conservation, beyond its willingness to pay for conservation of a specific species. Studies have been done that estimate the public's willingness to pay to preserve wilderness areas, for wildlife management and preservation programs, protection of open space and ecosystem maintenance. These studies address categories of benefits (e.g., ecosystem integrity) that may be similar to the types of benefits provided by critical habitat, but do not provide values that can be used to establish the incremental values associated with this proposed critical habitat designation

¹⁰⁷ See, for example, Loomis, J.B. and Douglas S. White. 1996. Economic Benefits of Rare and Endangered Species: Summary and Meta-Analysis. *Ecological Economics*, 18(3): 197-206.

(i.e., the ecosystem and species protection measures considered in these studies are too dissimilar from the habitat protection benefits that may be afforded by this designation).

106. Similarly, economists have conducted research on the economic value of open space. Open space can provide aesthetic benefits, with subsequent positive impacts on property values in the surrounding community. Such benefits are not the purpose of critical habitat designation. In addition, applying this literature would involve transferring research results from other parts of the country and other contexts to Mississippi and Louisiana and the specific context of this rulemaking. More importantly, it is not possible to estimate the likelihood that open space will be preserved as a result of this proposed designation. Thus, because open space preservation is not the goal of the designation, and because it is not possible to determine the probability that such benefits will occur in this instance, the Service has decided not to include such estimates in the Economic Analysis. The remainder of this chapter includes a qualitative benefits discussion, summarizing the gopher frog conservation efforts described in Chapters 3 and 4 of this report and linking them with potential categories of economic benefit that may derive from their implementation.

5.2 POTENTIAL BENEFITS OF GOPHER FROG CONSERVATION

107. This section describes the categories of benefits potentially resulting from gopher frog conservation efforts within the study area. As described in Chapters 3 and 4, the only additional conservation effort anticipated to be undertaken incrementally as a result of critical habitat designation for gopher frog is the avoidance of development in Unit 1. The remainder of the quantified incremental costs is limited to the administrative effort associated with future consultations. Therefore, ancillary benefits are only anticipated related to the avoidance of development in Unit 1. The following categories of benefits may derive from conservation efforts in Unit 1:
- **Property value benefits:** Open space or decreased density of development resulting from gopher frog conservation may increase adjacent or nearby property values.
 - **Aesthetic benefits:** Social welfare gains may be associated with enhanced aesthetic quality of habitat. Preferences for aesthetic improvements may be measured through increased willingness-to-pay to visit a habitat region for recreation or increased visitation.
 - **Ecosystem services benefits:** Decreased development may lead to protection and improvement of water quality and preservation of natural habitat for other species.
108. In addition to these categories of potential benefit, avoidance of development in Unit 1 related to the broader conservation and recovery of the species. All conservation efforts therefore relate to the maintenance or enhancement of the use and non-use value (e.g., existence value) that the public may hold specifically for the gopher frog. Further, many of the conservation efforts undertaken for the gopher frog may also result in

improvements to ecosystem health that are shared by other, coexisting species. The maintenance or enhancement of use and non-use values for these other species, or for biodiversity in general, may also result from these gopher frog conservation efforts.

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APPENDIX A | SMALL BUSINESS ANALYSIS AND ENERGY IMPACTS ANALYSIS

109. This appendix considers the extent to which incremental impacts from critical habitat designation for the gopher frog may be borne by small entities and the energy industry. The analysis presented in Section A.1 is conducted pursuant to the RFA as amended by SBREFA. Information for this analysis was gathered from the Small Business Administration (SBA), the Service, and from interviews with stakeholders contacted in the development of the economic analysis. The energy analysis in Section A.2 is conducted pursuant to Executive Order No. 13211.
110. The analyses of impacts to small entities and the energy industry rely on the estimated incremental impacts resulting from the proposed revised critical habitat designation. The incremental impacts of the rulemaking are most relevant for the small business and energy impacts analyses because they reflect costs that may be avoided or reduced based on decisions regarding the composition of the final rule. The only incremental impacts forecast in this analysis are the administrative costs of section 7 consultation, as quantified in Chapters 3 and 4.

A.1 SBREFA ANALYSIS

111. When a Federal agency proposes a regulation, the RFA requires the agency to prepare and make available for public comment an analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions as defined by the RFA).¹⁰⁸ No initial regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have significant economic impact on a substantial number of small entities. To assist in this process, this appendix provides a screening level analysis of the potential for gopher frog critical habitat designation to affect small entities.
112. To ensure broad consideration of impacts on small entities, the Service has prepared this small business analysis without first making the threshold determination in the proposed rule regarding whether the proposed revised critical habitat designation could be certified as not having a significant economic impact on a substantial number of small entities. This small business analysis will therefore inform the Service's threshold determination.

¹⁰⁸ 5 U.S.C. § 601 et seq.

A.1.1 REQUIREMENTS OF SBREFA ANALYSIS

113. This analysis is intended to improve the Service's understanding of the potential effects of the proposed rule on small entities and to identify opportunities to minimize these impacts in the final rulemaking. The Act requires the Service to designate critical habitat for threatened and endangered species to the maximum extent prudent and determinable. Section 4(b)(2) of the Act requires that the Service designate critical habitat “on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular areas as critical habitat.” The Secretary’s discretion is limited as (s)he may not exclude areas if so doing “will result in the extinction of the species.”
114. Three types of small entities are defined in the RFA:
- **Small Business** - Section 601(3) of the RFA defines a small business as having the same meaning as small business concern under section 3 of the Small Business Act. This includes any firm that is independently owned and operated and is not dominant in its field of operation. The SBA has developed size standards to carry out the purposes of the Small Business Act, and those size standards can be found in 13 CFR 121.201. The size standards are matched to NAICS industries. The SBA definition of a small business applies to a firm’s parent company and all affiliates as a single entity.
 - **Small Governmental Jurisdiction** - Section 601(5) defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000. Special districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. When counties have populations greater than 50,000, those municipalities of fewer than 50,000 can be identified using population reports. Other types of small government entities are not as easily identified under this standard, as they are not typically classified by population.
 - **Small Organization** - Section 601(4) defines a small organization as any not-for-profit enterprise that is independently owned and operated and not dominant in its field. Small organizations may include private hospitals, educational institutions, irrigation districts, public utilities, agricultural co-ops, etc.
115. The courts have held that the RFA/SBREFA requires Federal agencies to perform a regulatory flexibility analysis of forecast impacts to small entities that are directly regulated. In the case of *Mid-Tex Electric Cooperative, Inc., v. Federal Energy Regulatory Commission (FERC)*, FERC proposed regulations affecting the manner in which generating utilities incorporated construction work in progress in their rates. The generating utilities that expected to be regulated were large businesses; however, their customers -- transmitting utilities such as electric cooperatives -- included numerous small entities. In this case, the court agreed that FERC simply authorized large electric generators to pass these costs through to their transmitting and retail utility customers,

and FERC could therefore certify that small entities were not directly impacted within the definition of the RFA.¹⁰⁹

116. Similarly, *American Trucking Associations, Inc. v. Environmental Protection Agency* (EPA) addressed a rulemaking in which EPA established a primary national ambient air quality standard for ozone and particulate matter.¹¹⁰ The basis of EPA's RFA/SBREFA certification was that this standard did not directly regulate small entities; instead, small entities were indirectly regulated through the implementation of state plans that incorporated the standards. The court found that, while EPA imposed regulation on states, it did not have authority under this rule to impose regulations directly on small entities and therefore small entities were not directly impacted within the definition of the RFA.
117. The SBA in its guidance on how to comply with the RFA recognizes that consideration of indirectly affected small entities is not required by the RFA, but encourages agencies to perform a regulatory flexibility analysis even when the impacts of its regulation are indirect.¹¹¹ "If an agency can accomplish its statutory mission in a more cost-effective manner, the Office of Advocacy [of the SBA] believes that it is good public policy to do so. The only way an agency can determine this is if it does not certify regulations that it knows will have a significant impact on small entities even if the small entities are regulated by a delegation of authority from the Federal agency to some other governing body."¹¹²
118. The regulatory mechanism through which critical habitat protections are enforced is section 7 of the Act, which directly regulates only those activities carried out, funded, or permitted by a Federal agency. By definition, Federal agencies are not considered small entities, although the activities they may fund or permit may be proposed or carried out by small entities. Given the SBA guidance described above, this analysis considers the extent to which this designation could potentially affect small entities, regardless of whether these entities would be directly regulated by the Service through the proposed rule or by a delegation of impact from the directly regulated entity.

A.1.2 SUMMARY OF IMPACTS TO SMALL ENTITIES

119. This screening analysis focuses on small entities that may incur incremental impacts due to the designation of critical habitat. This analysis applies the methodology outlined in Chapter 2 to identify and estimate incremental impacts. As described in this report, approximately 99.7 percent of the estimated incremental impacts (\$3.42 million in annualized impacts) are related to land value losses due the lost option for future development value in Unit 1 according to our most conservative (i.e., most likely to overstate rather than understate impacts) scenario, which assumes development is entirely

¹⁰⁹ 773 F. 2d 327 (D.C. Cir. 1985).

¹¹⁰ 175 F. 3d 1027, 1044 (D.C. Cir. 1999).

¹¹¹ Small Business Administration, Office of Advocacy. May 2003. A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act, pg. 20.

¹¹² *Ibid.*, pg. 21.

precluded within the Unit. This incremental impact is anticipated to be borne across the multiple landowners within Unit 1, including four small businesses, one individual, and Weyerhaeuser (not a small business).

120. In addition, relatively minor incremental impacts stem from the additional administrative costs of addressing adverse modification during future section 7 consultations. Small entities may participate in section 7 consultation as a third party (the primary consulting parties being the Service and the Federal Action agency). It is therefore possible that the small entities may spend additional time considering critical habitat during section 7 consultation for the gopher frog. These incremental administrative costs of consultation borne by third parties are the subject of this SBREFA analysis. Additional incremental administrative costs of consultation borne by Federal action agencies and the Service are not relevant to this screening analysis as these entities (Federal agencies) are not small.
121. Chapters 3 and 4 of this analysis estimate incremental impacts for species management, development, timber management and military activities as follows.
- **Species Management.** Chapter 3 of this report discusses effects the proposed critical habitat designation will have on species management activities. Gopher frog management activities occur on land owned by the USFS, Corps, and TNC. Federal agencies are not small entities by definition. TNC, a non-profit organization, is classified under NAICS code 813312 (Environment, Conservation and Wildlife Organizations), which has a small business threshold of \$7 million in annual revenues. A national organization, TNC's annual revenues exceed \$500 million.¹¹³
 - **Development.** Development is likely within the proposed gopher frog critical habitat in Unit 1 and Subunits 2a, and 2b. At the high end of our estimated range of impacts to development, impacts associated with lost development value in Unit 1 represent 99.7 percent of the overall incremental impacts. A portion of this impact is expected to be born by the small business landowners in Unit 1. In addition, incremental costs are forecast to be incurred by Tradition Properties in Subunits 2a and 2b as the Corps is expected to reinstate consultation to address the potential for adverse modification of critical habitat on the gopher frog. As Tradition Properties and the landowners in Unit 1 are considered small entities, potential impacts to these businesses are discussed in greater detail below.
 - **Timber Management.** As described in Section 4.2 of this report, incremental impacts to future timber management projects, which are administrative in nature, are forecast to be incurred by the State of Mississippi, which does not meet the definition of a small entity.
 - **Military Activities.** Section 4.3 of this report discusses the likelihood that the National Guard Bureau (NGB) and the MSARNG would enter consultation with

¹¹³ Consolidated Financial Statements for the Years Ended June 30, 2009 and 2008, The Nature Conservancy. Accessed online at http://www.nature.org/aboutus/annualreport/files/fs_fy2009.pdf on October 15, 2010

the Service on their training activities. Both are governmental agencies that are not considered small entities.

Given that incremental impacts potentially incurred by small entities are limited to development activities within Unit 1 and at the Tradition development, the remainder of this analysis focuses on these activities.

Development Impacts

Unit 1

122. Proposed critical habitat lands in Unit 1 are jointly owned by a group, which acts as a unified landowner, and Weyerhaeuser. The group is made up of four limited liability corporations (LLCs) and one individual.¹¹⁴ Personal communication with one landowner indicates that the LLCs are classified as Land Subdividers (NAICS Code 237210), which must have revenues below \$7 million to be considered a small entity.¹¹⁵ The landowner has also indicated that each of the four LLCs meet the small business revenue threshold and should thus be considered small entities.¹¹⁶ The individual is not a business and therefore not considered in this analysis, and Weyerhaeuser is not a small business based on Small Business Administration thresholds.
123. As discussed in Chapter 4, Unit 1 is currently planned for large-scale future development when economic conditions are amenable. Due to uncertainty regarding the specific scope and scale of development within this unit, combined with uncertainty regarding the conservation measures the Service may recommend through section 7 consultation, we estimate impacts on development within Unit 1 according to three scenarios. As this unit is not currently occupied by the species, the lost option for future development of these lands, as quantified in Chapter 4, is an incremental impact of critical habitat designation. The results of the analysis according to the three scenarios are as follows:
- **Scenario 1** – This scenario assumes that development occurring within the unit avoids impacts on jurisdictional wetlands. As such, there is no Federal nexus (no Federal permit is required) triggering section 7 consultation regarding gopher frog critical habitat. Absent consultation, no conservation measures are implemented for the species and critical habitat designation of Unit 1 does not result in any incremental economic impact.
 - **Scenario 2** – This scenario assumes the proposed development of Unit 1 requires a U.S. Army Corps of Engineers (Corps) Clean Water Act (CWA) Section 404 permit due to the presence of jurisdictional wetlands. The development would therefore be subject to section 7 consultation considering critical habitat for the gopher frog. This scenario further assumes that the Service works with the

¹¹⁴ Ownership interest is divided amongst the four LLC (which are small businesses) and the individual as follows: 40.3 percent, 37.2 percent, 21.7 percent, 0.79 percent, and the individual 0.13 percent (Written Communication with Edward Poitevent, August 4, 2011).

¹¹⁵ Email Communication with Edward Poitevent, August 4, 2011.

¹¹⁶ Personal Communication with Edward Poitevent, August 4, 2011.

landowner to establish conservation areas for the gopher frog within the unit. The Service anticipates that approximately 40 percent of the Unit may be developed in the case that 60 percent is managed for gopher frog conservation and recovery. According to this scenario, present value incremental impacts of critical habitat designation due to the lost option for developing 60 percent of Unit 1 lands are \$21.7 million, an annualized impact of \$2.05 million.

- **Scenario 3** – This scenario again assumes that the proposed development of Unit 1 requires a Section 404 permit and therefore is subject to section 7 consultation. This scenario further assumes that, due to the importance of the unit in the conservation and recovery of the species, the Service recommends that no development occur within the unit. According to this scenario, present value impacts of the lost option for development in 100 percent of the unit are \$36.2 million, an annualized impact of \$3.42 million.

124. A small portion of the impacts estimated according to Scenarios 2 and 3 will be borne by the individual, and some fraction will be borne by Weyerhaeuser. Absent specific information on how these impacts may be distributed among the joint landowners, however, we conservatively (i.e., more likely to overstate than understate impacts on small businesses) that the full impact of lost development is borne by the four small business landowners within Unit 1.

Unit 2a and 2b

125. Tradition Properties is classified as a Land Subdivider (NAICS Code 237210), which must have revenues below \$7 million to be considered a small entity.¹¹⁷ Tradition estimates that total investment in the 4,800 acre development will approach \$2 billion at full build-out over 20 years.¹¹⁸ For purposes of this analysis, annual revenues for Tradition Properties are not available. As such, we assume that Tradition Properties is a small entity.
126. As discussed in Chapter 4, the majority of the 66 acres of overlap between the Tradition development and critical habitat appear to already be planned as set-asides for wetland/open space within the development. In addition, Subunit 2a is considered occupied by the gopher frog. As such, incremental costs of gopher frog critical habitat to Tradition Properties are anticipated to be \$1,350 or \$127 on an annualized basis associated with participating with the Corps on a reinitiation of a formal consultation on the development.

Number of Small Businesses Affected

127. As described above, four small Land Subdividers in Unit 1 and one small Land Subdivider in Units 2a and 2b are anticipated to experience an incremental economic

¹¹⁷ Company Profile for Tradition Properties Inc, Accessed online at “The Million Dollar Database.” Dunn and Bradstreet. On October 13, 2010.

¹¹⁸ “Tradition Fact Sheet”. Accessed online at <http://www.traditionms.com/tradition/fact-sheet.html> , on October 14, 2010; “Tradition October 3, 2004 Press Release”. Accessed online at <http://www.traditionms.com/releases/pdf/10-03-04Luxury.pdf> on October 15, 2010.

impact due to the critical habitat designation for the gopher frog. Currently, 129 small Land Subdividers (businesses within NAICS code 237210 with average annual receipts of less than \$7,000,000) exist within the counties containing proposed critical habitat.¹¹⁹ The five affected entities therefore account for 3.9 percent of total small Land Subdividers within counties containing critical habitat.

The analysis estimates that approximately 3.9 percent of total small land subdividers (five of 129) within the counties containing proposed critical habitat will experience economic impacts due to the designation.

Impact of Rule on the Affected Small Businesses

128. While data are not available on the specific annual revenues for the four LLCs owning land within Unit 1, or for Tradition Properties, we estimate that, on average, small subdividers (NAICS Code 237210) experience average annual revenues of approximately \$1.79 million.¹²⁰
129. Annualized impacts to the four landowners in Unit 1 are evaluated according to three Scenarios. Exhibit A-1 describes the estimated impacts to the small businesses according to the three scenarios and compares this impact to estimated annual revenues of the four small businesses combined.

EXHIBIT A-1. IMPACTS OF CRITICAL HABITAT DESIGNATION ON SMALL SUBDIVIDERS IN UNIT 1

SCENARIO	ANNUALIZED IMPACT TO SMALL BUSINESSES IN UNIT 1	COMBINED AVERAGE ANNUAL REVENUE OF SMALL BUSINESSES IN UNIT 1*	IMPACT AS PERCENT OF AVERAGE ANNUAL REVENUE**
1	\$0	\$7.16 million	0%
2	\$2.05 million	\$7.16 million	28.6%
3	\$3.42 million	\$7.16 million	47.8%

Notes:
 Values are rounded to three significant figures.
 * Data are not available regarding the specific annual revenues of the four small subdividers. We therefore estimate average annual revenues per small subdivider (\$1.79 million) and multiply this by four in order to calculate the average annual revenues of the four subdividers combined.
 **To the extent that these subdividers experience average annual revenues of more or less than the average, impacts as a percent of annual revenues are over- or underestimated, respectively.

¹¹⁹ Dialog search of File 516, Dun and Bradstreet, "Duns Market Identifiers," on August 9, 2011.

¹²⁰ Annual revenues are estimated using Risk Management Association (RMA), *Annual Statement Studies: Financial Ratio Benchmarks 2010 to 2011*, 2011. For each NAICS code, RMA provides the net sales and the number of entities falling within several sales categories: \$0 to \$500,000, \$500,000 to \$2 million, \$2 to \$10 million, or \$10 to \$50 million. Based on the number of entities and total net sales falling within each sales category, we developed an estimate of average net sales (revenues) per small entity. Specifically, the analysis averages data for the sales categories at or below the small business threshold for each industry.

130. In addition, assuming Tradition Properties experiences average annual revenues of approximately \$1.79 million, the annualized impact of critical habitat designation on this business (\$127) represents less than 0.01 percent of its average annual revenues.

A.2 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

131. Pursuant to Executive Order No. 13211, “Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use,” issued May 18, 2001, Federal agencies must prepare and submit a “Statement of Energy Effects” for all “significant energy actions.” The purpose of this requirement is to ensure that all Federal agencies “appropriately weigh and consider the effects of the Federal Government’s regulations on the supply, distribution, and use of energy.”¹²¹
132. The Office of Management and Budget provides guidance for implementing this Executive Order, outlining nine outcomes that may constitute “a significant adverse effect” when compared with the regulatory action under consideration:
- Reductions in crude oil supply in excess of 10,000 barrels per day;
 - Reductions in fuel production in excess of 4,000 barrels per day;
 - Reductions in coal production in excess of 5 million tons per year;
 - Reductions in natural gas production in excess of 25 million thousand cubic feet per year;
 - Reductions in electricity production in excess of 1 billion kilowatt-hours per year or in excess of 500 megawatts of installed capacity;
 - Increases in energy use required by the regulatory action that exceed the thresholds above;
 - Increases in the cost of energy production in excess of one percent;
 - Increases in the cost of energy distribution in excess of one percent; or
 - Other similarly adverse outcomes.¹²²
133. As described in Chapters 3 and 4, incremental impacts to the energy industry are not anticipated as a result of critical habitat designation for the gopher frog. The landowner of Unit 1 has expressed interest in developing the land for oil and gas, as described in Chapter 4. The Service has not reviewed any oil and gas development projects for potential impacts on the gopher frog or its habitat. Consequently, potential impacts on the activity (e.g., increased operational costs associated with requested project modification) are uncertain. Proposed critical habitat in Unit 1 accounts for approximately 3.8 percent of the total land available for oil and gas discovery, as

¹²¹ Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, M-01-27, Office of Management and Budget, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>.

¹²² *Ibid.*

described in Chapter 4. Landowners estimate approximately 171,000 bbls of oil in total occur within this unit (3.8 percent of the total estimated discoverable resource.

134. The Service does not anticipate critical habitat designation will result in the complete loss of oil and gas development in Unit 1. In addition, the level and timing of such development is significantly uncertain regardless, as no oil and gas development has occurred within the region to date. Consequently, this analysis does not anticipate the rule will affect the production, distribution, or use of energy according to the above criteria.

APPENDIX B | THREE PERCENT DISCOUNT RATE EXHIBITS

135. This appendix summarizes the costs of gopher frog conservation efforts quantified in Chapters 3 and 4 of this report applying an alternative real discount rate of three percent (the main text of the report applies a real discount rate of seven percent). This analysis employs standard discounting techniques to calculate the present value of economic impacts that are expected to occur at different points in time. Consistent with the main analysis, this appendix focuses on quantified estimates of economic impacts to active species management, development, forestry, and military activities within the proposed revised critical habitat area.
136. Exhibit B-1 presents projected incremental economic impacts to active species management by unit and subunit applying a real discount rate of three percent. Exhibit B-2 presents projected incremental economic impacts to development, forestry, and military activities by unit and subunit applying a real discount rate of three percent.

**EXHIBIT B-1 ESTIMATED INCREMENTAL IMPACTS TO ACTIVE SPECIES MANAGEMENT ACTIVITIES
(2012 - 2031, 2011 DOLLARS, THREE PERCENT DISCOUNT RATE)**

REGION	PRESENT VALUE IMPACTS	ANNUALIZED IMPACTS
1	\$0	\$0
2a	\$0	\$0
2b	\$0	\$0
3	\$8,760	\$589
4a	\$0	\$0
4b	\$0	\$0
5a	\$7,230	\$486
5b	\$7,230	\$486
6	\$26,300	\$1,770
7	\$0	\$0
8	\$8,760	\$589
9	\$8,760	\$589
10	\$0	\$0
11	\$0	\$0
12	\$0	\$0
Total	\$67,000	\$4,510
Notes: Values are rounded to three significant figures. Totals may not sum due to rounding.		

EXHIBIT B-2 PROJECTED INCREMENTAL IMPACTS TO DEVELOPMENT, FORESTRY, AND MILITARY ACTIVITIES
(2012 - 2031, 2011 DOLLARS, THREE PERCENT DISCOUNT RATE)

UNIT/SUBUNIT	PRESENT VALUE IMPACTS			ANNUALIZED IMPACTS		
	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 1	SCENARIO 2	SCENARIO 3
1*	\$0	\$22,600,000	\$37,600,000	\$0	\$1,520,000	\$2,530,000
2a		\$4,000			\$269	
2b		\$4,000			\$269	
3		\$0			\$0	
4a		\$0			\$0	
4b		\$0			\$0	
5a		\$0			\$0	
5b		\$0			\$0	
6		\$0			\$0	
7		\$4,410			\$296	
8		\$0			\$0	
9		\$0			\$0	
10		\$8,760			\$589	
11		\$8,760			\$589	
12		\$8,760			\$589	
Total	\$38,700	\$22,600,000	\$37,700,000	\$2,600	\$1,520,000	\$2,530,000
Notes: Values are rounded to three significant figures. Totals may not sum due to rounding. * This analysis employs three scenarios to estimate impacts of critical habitat designation on development in Unit 1 due to uncertainty regarding future land use and gopher frog conservation and recovery recommendations.						

APPENDIX C | INCREMENTAL EFFECTS MEMORANDUM TO IEC

DATE: August 16, 2010

TO: Industrial Economics, Inc.

FROM: Southeast Region, U.S. Fish and Wildlife Service

SUBJECT: Incremental Effects Memorandum for the Economic Analysis of Proposed Rule to Designate Critical Habitat for the Mississippi Gopher Frog

Designation Objectives: The proposed critical habitat units for the Mississippi gopher frog represent habitat-based distributions associated with known occurrence records for this species and with unoccupied habitat being restored to allow for eventual translocation of the species to these sites. The geographic distribution of the proposed critical habitat units was based on the current distribution of the species and on habitat selected as potential translocation sites after conducting surveys looking for additional populations. The 11 proposed critical habitat units were chosen based on physical and biological factors including: (1) protection of existing occupied habitat; (2) conservation of genetic diversity; (3) establishment of connectivity among multiple breeding ponds, when possible; (4) habitat sufficient to support population viability; and (5) existing threats.

Designation Summary: We are proposing to designate 11 critical habitat units including the entire habitat that was known to be occupied at the time of listing, habitat that was found to be occupied after the time of listing, and additional unoccupied habitat that is essential to the conservation of the species. The proposed critical habitat designation includes lands under Federal, State, and private ownership subject to different levels of recreational use, transportation projects, commercial timber harvest, agriculture, utility rights of way, and urban development projects.

Jeopardy Analysis: The jeopardy analysis is focused not only on these population relationships, but also on the habitat conditions that support them. The jeopardy analysis considers the range-wide status of the Mississippi gopher frog, the factors responsible for that condition, and the species' survival and recovery needs. It also characterizes the condition of the Mississippi gopher frog in the area affected by the proposed Federal action (i.e., the action area), and the survival and recovery role of the action area in the conservation of the Mississippi gopher frog at the level of the recovery unit and range-wide. That context is then used to determine the significance of adverse and beneficial effects of the proposed Federal action, and any cumulative effects for purposes of making the jeopardy determination. The jeopardy analysis also considers any conservation measures that may be proposed by a Federal Action agency to minimize or compensate for adverse project effects to the Mississippi gopher frog or to promote its recovery.

Adverse Modification Analysis: The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat will continue to, or have the capability to serve its intended

conservation role for the species. This can be met by retaining or regaining the proper function of those physical and biological features of the habitat necessary to support the life cycle needs of the Mississippi gopher frog. Activities that may destroy or adversely modify critical habitat are those that would alter those physical and biological features to an extent that appreciably reduces the intended conservation function of the designated critical habitat at the range-wide scale.

Activities of Potential Concern: Activities that may result in adverse effects to Mississippi gopher frog critical habitat could include those that: (1) alter the hydrology or water quality of Mississippi gopher frog wetland habitats (e.g., discharge of fill material; release or dumping of toxic chemicals, silt, and/or biological pollutants; clear-cutting, draining, ditching, grading, or bedding of wetland; diversion or alteration of surface or ground water flow into or out of a wetland due to roads, fire breaks, impoundments, and/or discharge pipes; and use of vehicles within wetlands); (2) forestry management actions in pine habitat that would significantly alter the suitability of Mississippi gopher frog terrestrial habitat (e.g., conversion of timber land to another use; fire suppression; timber management including clear-cutting and/or site preparation involving ground disturbance; unlawful pesticide/herbicide use; road construction and maintenance; off-road vehicle use; power transmission line or pipeline construction/repair); and (3) actions that would significantly fragment and isolate Mississippi gopher frog wetland and upland habitats from each other (e.g., residential and commercial development, road construction, converting forested habitat to other uses). These types of activities would require section 7 consultation only in cases where there is Federal involvement (e.g., a project is proposed, funded, or authorized by a Federal agency).

Baseline Impacts

When consulting under section 7 in designated critical habitat, independent analyses are conducted for jeopardy to the species and adverse modification of critical habitat. In those portions of proposed critical habitat units where the species is physically present (Units 1, 3, 4, and 6; 156 hectares (ha) (385 acres (ac))), adverse modification of critical habitat would also constitute jeopardy because 1) the primary constituent elements that define critical habitat are also essential for the survival of the species, 2) the Mississippi gopher frog is severely limited in its range, and 3) numbers of individuals in the surviving populations are very small. We determine destruction or adverse modification of designated critical habitat on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain the current ability for the essential features to be functionally established) to serve its intended conservation role for the species. Jeopardy occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. The Mississippi gopher frog has been eliminated from seven of the nine counties or parishes in Mississippi, Alabama, and Louisiana where it occurred historically. It now inhabits only four sites in two counties in Mississippi. It is estimated that only approximately 100 adult Mississippi gopher frogs remain in the wild. Alterations of habitat that diminish the value of the habitat (ex., actions which alter hydrology or water quality of wetland breeding habitat; degrade upland forested habitat;

or fragment and/or isolate breeding and upland habitat from each other) and the amount of habitat available for the species would be likely to affect population size, reproduction, and recruitment of the Mississippi gopher frog, as well as further confine its limited range, and would therefore, appreciably reduce its likelihood of survival in the wild and constitute jeopardy. Thus, project modifications that may be needed to minimize impacts to the species would coincidentally minimize impacts to critical habitat.

Accordingly, in occupied critical habitat it is unlikely that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the species. Absent reasonably foreseeable economic impacts that are distinctly attributable to the critical habitat portion of the analysis (such as those possible from designation of unoccupied habitat), economic impacts from conservation efforts that avoid adverse modification of critical habitat coincidental to avoiding jeopardizing the species would be coextensive with the impacts of Mississippi gopher frog listing and within the regulatory baseline.

In addition to economic impacts associated with conservation actions coincidental to Mississippi gopher frog listing, the baseline cost also includes the benefit to the Mississippi gopher frog from existing regulations that impose conservation requirements for other species (e.g., Clean Water Act, Endangered Species Act).

Incremental Impacts

For a new section 7 consultation in occupied areas, the jeopardy analysis and the adverse modification analysis would be analyzed separately. In cases where impacts are attributed to Federal actions within the unoccupied portions of proposed critical habitat (all or portions of Units 1 through 5, 7 through 11; 636 ha (1,572 ac)), we believe a reasonable method to determine their potential incremental economic impacts would be to assume that if they alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for the Mississippi gopher frog, the costs associated with conservation measures implemented to mitigate those impacts would be attributable to critical habitat designation alone.

All of Unit 3 (111 ha (274 ac)) is currently designated as critical habitat for the Mississippi sandhill crane. Activities that may adversely modify the crane's habitat in this area are likely to adversely modify habitat for and/or jeopardize the continued existence of the Mississippi gopher frog. However, there may be some activities, such as alterations of the frog's breeding ponds, which would not be considered adverse modification for the crane and could be attributable to Mississippi gopher frog critical habitat designation alone.

Also, in cases where we determine that an adverse modification finding may be likely, we work with the Federal agency involved to identify reasonable and prudent alternatives that would eliminate or reduce those impacts to a point where adverse modification is no longer likely. The resulting project modifications would appropriately be considered to be an incremental cost of the critical habitat designation. We estimate that adding an

adverse modification analysis to an analysis for jeopardy would result in an approximate 10 percent increase in administrative costs.

APPENDIX D | MAPS OF GOPHER FROG PROPOSED CRITICAL HABITAT

EXHIBIT D-1 MISSISSIPPI GOPHER FROG PROPOSED CRITICAL HABITAT - UNIT 1



Sources:

1. US Fish and Wildlife Service, Jackson, MS, USA
2. Environmental Systems Research Institute, Inc. (ESRI), Redlands, California, USA
3. Mississippi Automated Resource Information System (MARIS), Jackson, Mississippi, USA

1:75,000 0 0.3 0.6 Miles



EXHIBIT D-2 MISSISSIPPI GOPHER FROG PROPOSED CRITICAL HABITAT - SUBUNITS 2A, 2B, AND UNIT 3

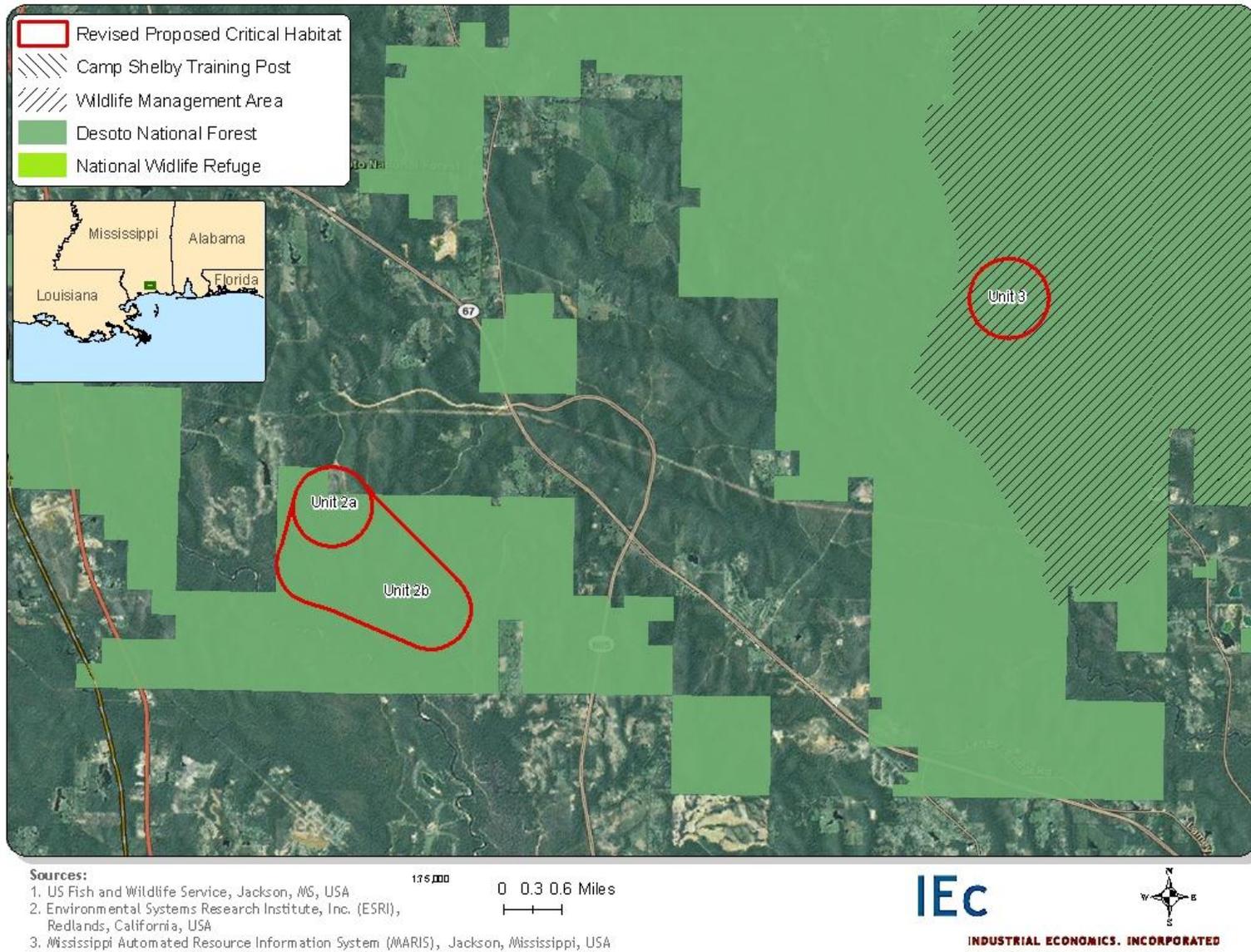


EXHIBIT D-3 MISSISSIPPI GOPHER FROG PROPOSED CRITICAL HABITAT - SUBUNITS 4A, 4B, 5A, 5B, AND UNIT 6

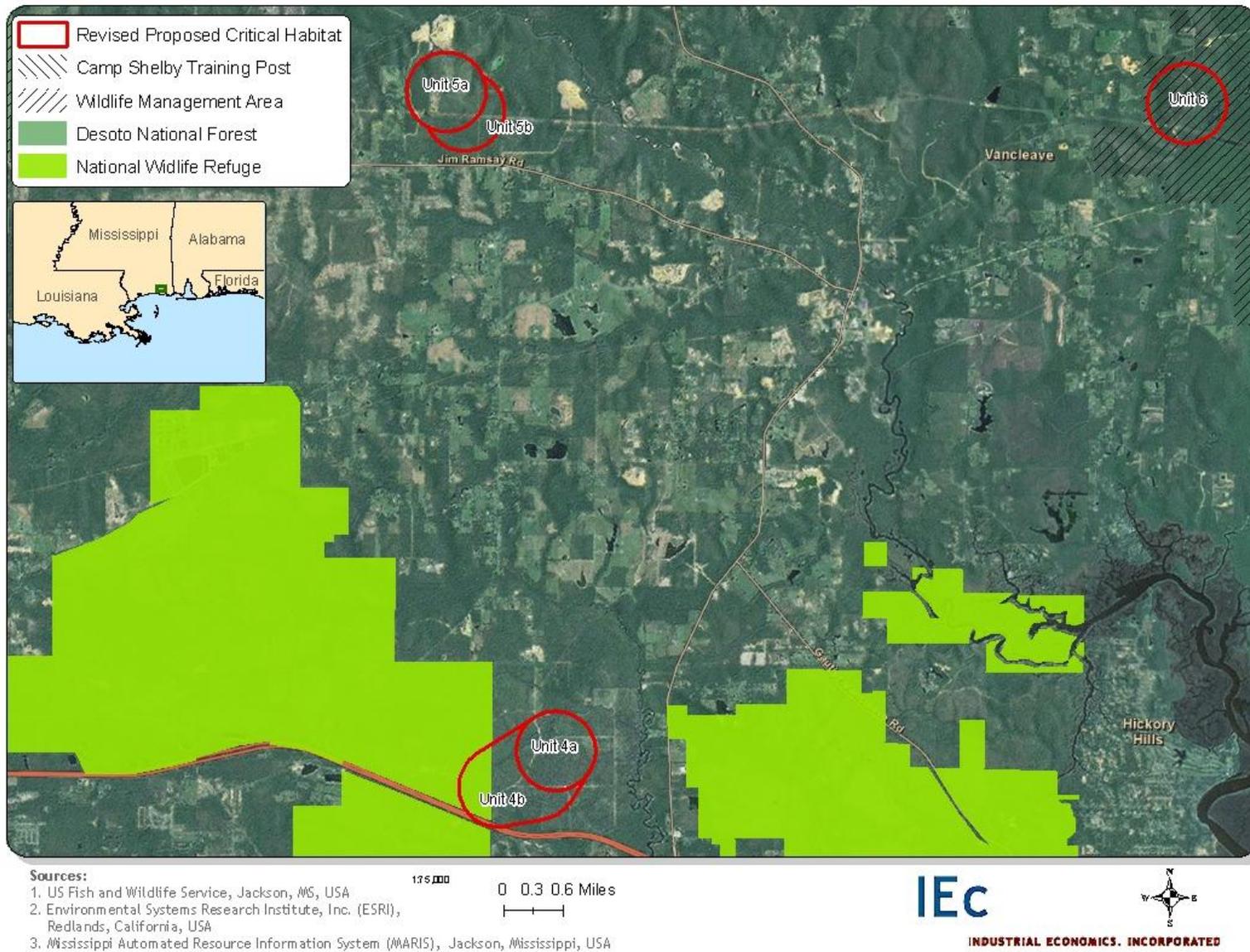
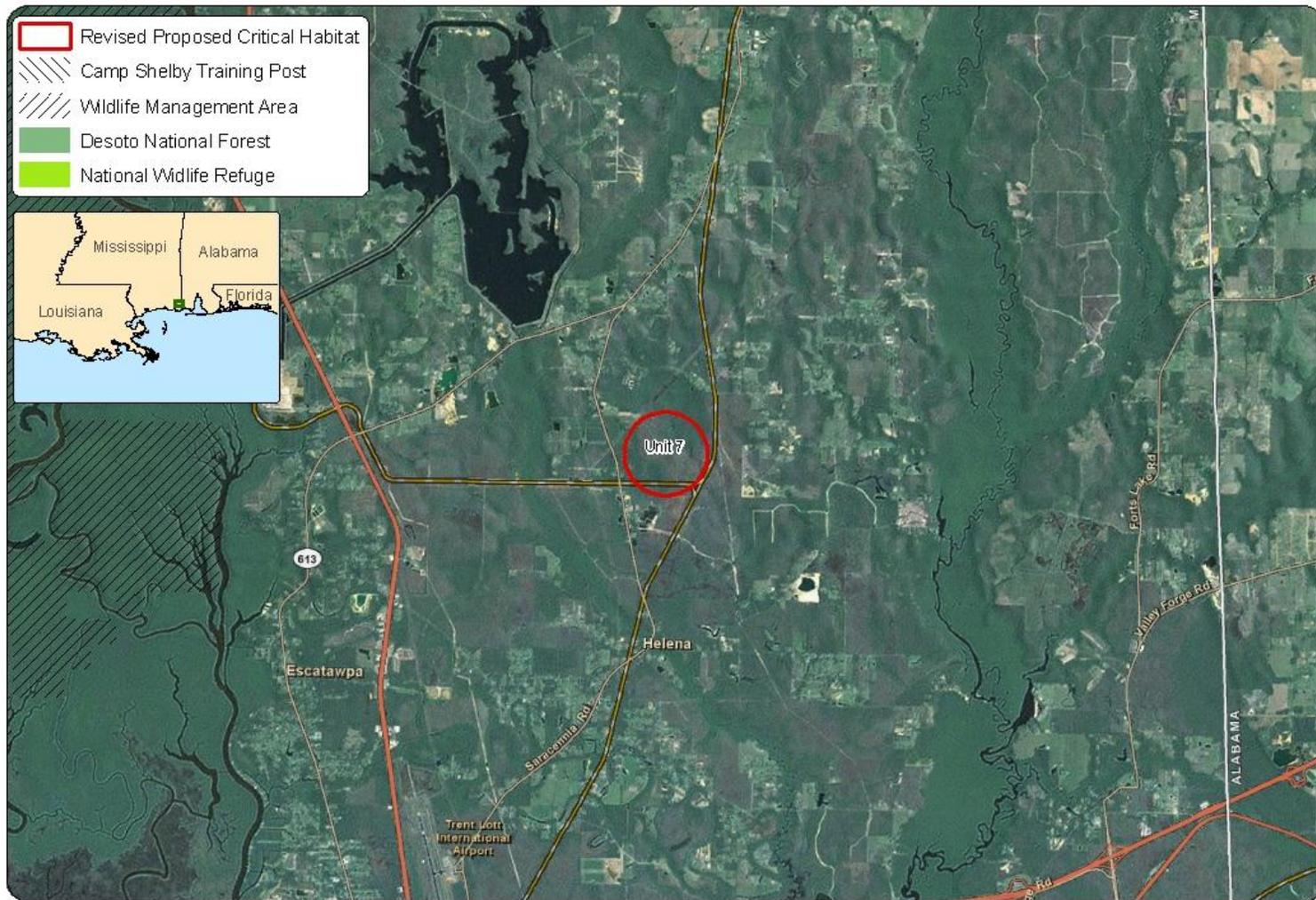


EXHIBIT D-4 MISSISSIPPI GOPHER FROG PROPOSED CRITICAL HABITAT - UNIT 7



- Revised Proposed Critical Habitat
- Camp Shelby Training Post
- Wildlife Management Area
- Desoto National Forest
- National Wildlife Refuge



Sources:

1. US Fish and Wildlife Service, Jackson, MS, USA
2. Environmental Systems Research Institute, Inc. (ESRI), Redlands, California, USA
3. Mississippi Automated Resource Information System (MARIS), Jackson, Mississippi, USA

1:75,000 0 0.3 0.6 Miles

IEc
INDUSTRIAL ECONOMICS, INCORPORATED

A north arrow is positioned to the right of the logo.

EXHIBIT D-5 MISSISSIPPI GOPHER FROG PROPOSED CRITICAL HABITAT - UNITS 8 AND 9

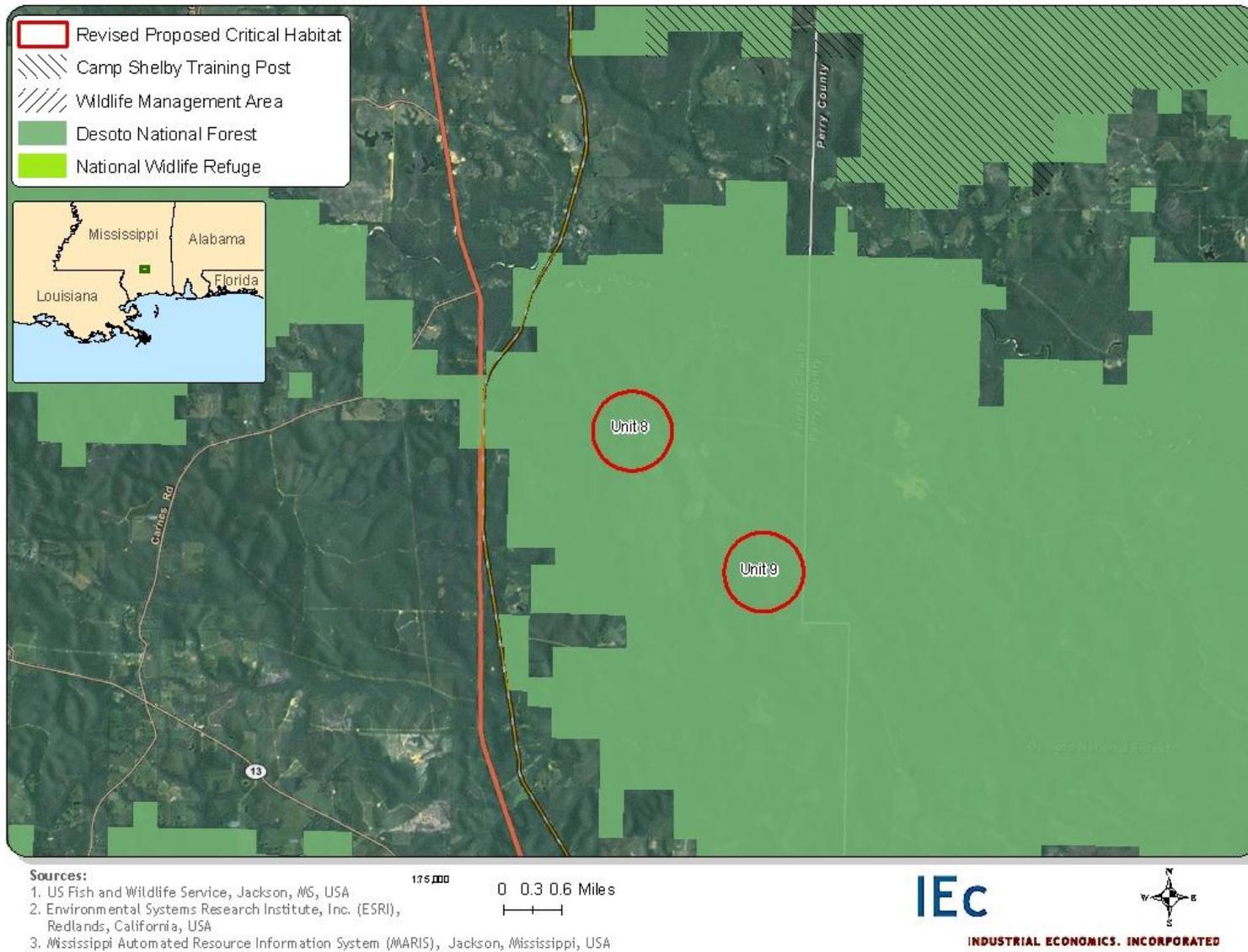


EXHIBIT D-6 MISSISSIPPI GOPHER FROG PROPOSED CRITICAL HABITAT - UNITS 10, 11, AND 12

