No. 17-71

In the Supreme Court of the United States

WEYERHAEUSER COMPANY,

Petitioner,

v.

UNITED STATES FISH AND WILDLIFE SERVICE, ET AL.,

Respondents.

On Writ of Certiorari to the United States Court of Appeals for the Fifth Circuit

JOINT APPENDIX

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Petition for Certiorari Filed July 11, 2017
Certiorari Granted Jan. 22, 2018

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Relevant Docket Entries

U.S. DISTRICT COURT, EASTERN DISTRICT OF LOUISIANA

Weyerhaeuser Company v. United States Fish and Wildlife Service et al.

No. 2:13-cv-00413-MLCF-SS

DATE	NO.	DESCRIPTION
03/04/2013	1	COMPLAINT against All Defendants filed by Weyerhaeuser Company.
03/05/2013	3	NOTICE by Weyerhaeuser Company of related cases: 13-cv-00234; 13-cv-00362.
04/30/2013	10	MOTION to Consolidate Cases by Weyerhaeuser Company.
05/02/2013	11	ORDER granting Motion to Consolidate Cases.
05/02/2013	12	ORDER that 13-0413 is consolidated with 13-0234.

DATE	NO.	DESCRIPTION
08/27/2014	13	JUDGMENT entered in favor of plaintiff Weyerhaeuser Co. and against defendants U.S. Fish & Wildlife Service as plaintiffs having standing and in favor of defendants U.S. Fish & Wildlife Service, Daniel M. Ashe, U.S. Department of the Interior and Kenneth Salazar and against plaintiffs Weyerhaeuser Company insofar as the Rule including Unit 1 in its critical habitat designation is not arbitrary.
08/28/2014	15	NOTICE OF APPEAL by Weyerhaeuser Company.

Relevant Docket Entries

U.S. DISTRICT COURT, EASTERN DISTRICT OF LOUISIANA

Markle Interests, LLC v. United States Fish & Wildlife Service et al.

No. 2:13-cv-00234-MLCF

DATE	NO.	DESCRIPTION
02/07/2013	1	COMPLAINT filed by Markle Interests, LLC.
04/25/2013	22	MOTION to Intervene by Center for Biological Diversity, Gulf Restoration Network.
05/02/2013	31	ORDER that 13-0234 is consolidated with 13-0362 and 13-0413.
05/20/2013	39	ANSWER to Complaint by Daniel M. Ashe, Sally Jewell, U.S. Department of the Interior, United States Fish & Wildlife Service (13-413).
05/28/2013	41	RESPONSE/MEMORANDUM in Opposition filed by Markle Interests, LLC to Motion to Intervene.
05/28/2013	42	RESPONSE/MEMORANDUM in Opposition filed by Weyerhaeuser Company to Motion to Intervene.

DATE	NO.	DESCRIPTION
06/10/2013	44	REPLY by Center for Biological Diversity, Gulf Restoration Network in support of Motion to Intervene.
07/22/2013	52	ORDER granting Center for Biological Diversity and Gulf Restoration Network's Motion to Intervene as Defendants.
07/22/2013	54	ANSWER to Complaint of Weyerhaeuser Company by Center for Biological Diversity, Gulf Restoration Network.
08/19/2013	60	NOTICE by United States Lodging the Administrative Record.
12/09/2013	67	MOTION for Summary Judgment by Weyerhaeuser Company.
12/09/2013	69	MOTION for Summary Judgment by Markle Interests, LLC.
02/21/2014	89	CROSS MOTION for Summary Judgment by United States (13-234).
02/21/2014	90	CROSS MOTION for Summary Judgment by United States (13-362).
02/21/2014	91	CROSS MOTION for Summary Judgment by United States (13-413).

DATE	NO.	DESCRIPTION
03/10/2014	93	CROSS MOTION for Summary Judgment by Center for Biological Diversity, Gulf Restoration Network (13-234).
03/10/2014	94	CROSS MOTION for Summary Judgment by Center for Biological Diversity, Gulf Restoration Network (13-413).
03/10/2014	95	CROSS MOTION for Summary Judgment by Center for Biological Diversity, Gulf Restoration Network (13-362).
05/01/2014	105	RESPONSE/MEMORANDUM in Opposition filed by Markle Interests, LLC re Cross Motion for Summary Judgment (13-234).
05/02/2014	106	RESPONSE/MEMORANDUM in Opposition to Cross Motion for Summary Judgment filed by Weyerhaeuser Company (13-234).
05/02/2014	107	RESPONSE/MEMORANDUM in Opposition to Cross Motion for Summary Judgment filed by P&F Lumber Company 2000, LLC, PF Monroe Properties, L.L.C., St. Tammany Land Company, L.L.C. (13-362).
06/16/2014	115	REPLY in support of Cross Motion for Summary

DATE	NO.	DESCRIPTION
		Judgment filed by United States (13-234).
06/16/2014	116	REPLY to Response to Motion filed by United States (13-362).
06/16/2014	117	REPLY to Response to Motion filed by United States (13-413).
06/30/2014	120	REPLY in support of Cross Motion for Summary Judgment filed by Center for Biological Diversity, Gulf Restoration Network (13-234).
06/30/2014	121	REPLY in support of Cross Motion for Summary Judgment filed by Center for Biological Diversity, Gulf Restoration Network (13-413).
06/30/2014	122	REPLY in support of Cross Motion for Summary Judgment filed by Center for Biological Diversity, Gulf Restoration Network (13-362).
08/20/2014	129	MOTION HEARING held on 8/20/2014 before Judge Martin L.C. Feldman: Matter taken under submission.
08/22/2014	130	ORDER AND REASONS: ORDERED the defendants' 89 - 91 Motion for Summary and 93 - 95 Motion for Summary Judgment are DENIED IN PART and

DATE	NO.	DESCRIPTION
		GRANTED IN PART as stated herein; and the plaintiffs' cross motions 67, 69 and 80 Motion for Summary Judgment are GRANTED IN PART and DENIED IN PART as stated herein.
08/26/2014	131	NOTICE OF APPEAL by Markle Interests, LLC.
08/27/2014	132	JUDGMENT entered.
08/28/2014	133	NOTICE OF APPEAL by Weyerhaeuser Company.
09/05/2014	134	NOTICE OF APPEAL by P&F Lumber Company 2000, LLC, PF Monroe Properties, L.L.C.
09/10/2014	135	Notices of Appeal filed by Markle Interests, LLC and by Weyerhaeuser Company consolidated.
09/15/2014	136	APPEAL TRANSCRIPT of Motion Hearing of August 20, 2014.

Relevant Docket Entries

UNITED STATES COURT OF APPEALS FOR THE FIFTH CIRCUIT

Markle Interests, L.L.C., et al v. U.S. Fish and Wildlife Service, et al

No. 14-31008

DATE	DESCRIPTION
09/09/2014	CLERK ORDER consolidating cases 14-31008, 14-31021.
09/09/2014	CASE CAPTION updated. Additional appeal filed. Parties added: Appellants P&F Lumber Company 2000, L.L.C. and PF Monroe Properties, L.L.C. in 14-31008.
12/03/2014	BRIEF FILED by Weyerhaeuser Company, Markle Interests, L.L.C., P&F Lumber Company 2000, L.L.C., and PF Monroe Properties, L.L.C.
12/04/2014	RECORD EXCERPTS FILED.
12/18/2014	AMICUS CURIAE BRIEF FILED by American Farm Bureau Federation, National Alliance of Forest Owners, National Association of Home Builders.
01/05/2015	APPELLEE'S BRIEF FILED by Appellees Gulf Restoration Network and Center for Biological Diversity.
01/05/2015	RECORD EXCERPTS FILED by Appellees Gulf Restoration Network

	and Center for Biological Diversity.
02/04/2015	APPELLEE'S BRIEF FILED by United States.
03/09/2015	APPELLANT'S REPLY BRIEF FILED.
06/02/2015	ORAL ARGUMENT HEARD.
06/30/2016	PUBLISHED OPINION FILED.
06/30/2016	JUDGMENT ENTERED AND FILED.
07/29/2016	PETITION for rehearing en banc.
08/09/2016	AMICUS CURIAE BRIEF FILED by States of Alabama, Alaska, Arkansas, Georgia, Idaho, Kansas, Louisiana, Montana, Nevada, North Dakota, Ohio, Oklahoma, South Carolina, Texas and Wyoming in Support of Appellants' Petition for Rehearing En Banc.
08/16/2016	COURT DIRECTIVE ISSUED requesting a response to the petition for rehearing en banc.
08/26/2016	OPPOSITION of the United States to petition for rehearing en banc.
08/26/2016	OPPOSITION of the Center for Biological Diversity and Gulf Restoration Network to petition for rehearing en banc.
02/13/2017	ORDER denying petition for rehearing en banc.
02/22/2017	MANDATE ISSUED.

Pechmann Peer Review Comment (Aug. 17, 2010)

I appreciate the opportunity to provide a peer review for the U.S. Fish and Wildlife Service proposed rule: Endangered and threatened wildlife and plants: designation of critical habitat for Mississippi gopher frog (Docket ID: FWS-R4-ES-2010-0024). I will organize this review around the list of points that the Service seeks comments on:

1. *Reasons why we should or should not designate habitat as "critical habitat*." I agree with the reasoning presented on why designation of critical habitat for *R. sevosa* is prudent.

2. *Identifying and clarifying the physical and biological features essential to the conservation of R. sevosa*. These are summarized well in the proposed rule.

3. *The amount and distribution of Mississippi gopher frog habitat*. The Service based the amount of terrestrial habitat proposed for protection around each breeding pond on the furthest distance *R. sevosa* moved from Glen's Pond in a study by Richter et al. (2001), 299 m, plus an additional 50 m buffer zone. Preliminary results from an ongoing radiotelemetry study have found a similar maximum movement distance of 240 m for 17 *R. sevosa* at Glen's Pond (John A. Tupy unpublished data). Data are available for only one *R. sevosa* at another site, a female radiotracked to 130 m from Mike's Pond (John A. Tupy, unpublished data). Maximum movement distances for *R. sevosa* at Glen's Pond are lower than those reported for the closely related *R. capito* in seven studies reviewed by Roznik et al. (2009), with the exception of one study having a sample size of only two individuals. For the three studies re-

viewed having a sample size of greater than 2 individuals maximum distances were 396 m (Roznik et al. 2009), 460 m (Blihovde 2006), and 691 m (Roznik and Johnson 2009). A newly-completed study found that 9 adult *R. capito* in North Carolina moved to summer burrows ranging from 505 m to 3.5 km from their breeding pond (W. Jeffrey Humphries and Michael A. Sisson unpublished data). Preliminary results from an ongoing radiotelemetry study of another closely related species, *R. areolata*, found that 29 adults in Indiana moved an average of 372 m and a maximum of 1023 m from their breeding ponds (Jennifer Heemeyer and Michael J. Lannoo unpublished data). Critical habitat extending 350 m from the pond would protect none of the *R. capito* in North Carolina and only 62 % of the *R. areolata* in Indiana.

Differences in maximum distances moved from the pond between *R. sevosa* and its closely related congeners may indicate differences among species, differences among sites, or both. The differences observed within *R. capito* suggest that differences among sites play some role. Although the Service used data for *R. capito* elsewhere in its determination of critical habitat for *R. sevosa*, it used only the data available for *R. sevosa* for determining the amount of terrestrial habitat required for *R. sevosa*. I fear that the *R. sevosa* data may be too limited to adequately assess the potential variation in terrestrial habitat use of this species among sites and over time, however, including future variation at Glen's Pond. That is particularly true if the use of habitat surrounding Glen's Pond has been limited by past land use practices, as suggested by USFWS (2001) and Richter et al. (2001).

I believe that a safer approach would be to also consider the amount of terrestrial habitat used by

R. capito and *R. areolata* in determining the amount needed by *R. sevosa*. The types of terrestrial habitats used by these three species and other aspects of their ecology, life history, and behavior are very similar. One simple option would be to use the median maximum distance frogs were found from the pond in the available studies, 460 m, plus a buffer, e. g., 50 m. This would extend critical habitat to 510 m from each breeding pond, rather than the proposed 350 m. The Service previously required that developers of a planned community north of Glen's Pond maintain their lands within 531 m of Glen's Pond as suitable gopher tortoise habitat for the life of the development (USFWS 2001). The Service noted that this land would also provide suitable terrestrial habitat for *R. sevosa* and required that the Army Corps of Engineers recognize the establishment of a "Temporary no build zone" extending 531 m from Glen's Pond by the developer for the benefit of *R. sevosa* (USFWS 2001).

Using the maximum distance moved protects 100% of the frogs for which data are available, which is the most conservative approach. Another approach would be to determine the median or average distance required to protect 80 % or 90 % of the frogs in these studies. This would require access to the distance moved for each frog in each study.

Areas occupied at the time of listing. These are summarized well in the proposed rule.

Special management considerations or protections for habitat features. These are summarized well in the proposed rule.

Areas not occupied at the time of listing essential for conservation of the species. These are summarized reasonably well for Mississippi in the proposed rule.

I particularly applaud the intention to connect breeding ponds with suitable terrestrial habitat to form metapopulations. I encourage the Service to consult with Glen Johnson and the Mississippi Department of Wildlife, Fisheries, and Parks to determine if any of the sites from which *R. sevosa* disappeared in the last 30 years should be designated critical habitat.

I believe that it is essential for the conservation of the species to designate critical habitat in Louisiana, and in Alabama if possible, in addition to the habitat proposed for designation in Mississippi. As noted in the proposed rule, climate change may lead to increased frequency and duration of droughts in the southeastern U. S. (Seager et al. 2009). *Rana sevosa* do not breed when drought prevents the breeding pond from filling to an adequate depth (Richter and Seigel 2002). Even if breeding occurs, juvenile recruitment fails or is reduced if drought causes the pond to dry before larvae can reach the minimum size for metamorphosis, as happens frequently at Glen's Pond (Sisson et al. 2008). Disease is also a threat to *R. sevosa* (Overstreet and Lotz 2004, Cook 2008). Due to the low number of remaining populations and its very restricted range, *R. sevosa* may be at risk of extirpation from events such as drought or disease which vary over space and time. Maintaining sites over the entire range of *R. sevosa* into which it could be translocated is essential to decrease the potential risk of extinction of the species from events such as these, and provide for the species' eventual recovery. Potential *R. sevosa* translocation sites must be spread out over as wide a geographic area as possible because events such as droughts and disease tend to be spatially autocorrelated. Therefore, *Rana sevosa* will be less at risk of extinction if populations of *R. sevosa* are es-

tablished across its range in Louisiana and Alabama, rather than just in southern Mississippi.

The pond where *Rana sevosa* was last documented in Louisiana in 1967, located near Florenville, retains the required characteristics necessary to serve as a breeding pond (PCE 1) as described in the proposed rule (Pechmann et al. 2006). Another pond located nearby also retains these characteristics (Pechmann et al. 2006). Although the terrestrial habitat surrounding these ponds is currently in commercial pine plantations, it retains some stump holes and could be restored to suitable upland habitat for *R. sevosa* (PCE's 2 and 3). I am unfamiliar with available *R. sevosa* habitat in Alabama, but I encourage the Service to investigate possible locations for designation of critical habitat in that state.

4. *Effects of land-use designations and current or planned activities*. These are summarized well in the proposed rule.

5. *Probably economic, national security, or other relevant impacts*. I am not aware of any.

6. *Candidate areas for exclusions under section 4(b)(2) of the Act*. I am not aware of any.

7. *Economic costs or benefits*. These await full analysis.

8. *Projected and likely effects of climate change*. See discussion above under *Areas not occupied at the time of listing essential for conservation of the species*. Also, because of predicted increased variation in precipitation, it will be necessary to designate ponds having a variety of hydroperiods as critical habitat to insure that at least some ponds are suitable for *R. sevosa* reproduction and juvenile recruitment over periods of several years.

9. *Improving or modifying the Service's approach*. No suggestions needed.

10. *Appropriateness of name change*. I agree that the name of the listed entity should be changed to *Rana sevosa* following Young and Crother (2001). I think that the Service should use the standard common name dusky gopher frog for *R. sevosa*, however (Frost et al. 2008, p. 8). The proposed rule states that the Service will use Mississippi gopher frog to avoid confusion with populations of *R. capito* which some still call dusky gopher frog. I believe that using a nonstandard common name will engender more confusion than it alleviates.

Although Frost et al. (2008) use the genus *Lithobates* for the listed entity, I agree with the decision of the Service to retain *Rana* following Bossuyt et al. (2006).

Joseph H. K. Pechmann, Associate Professor
Western Carolina University

LITERATURE CITED (excluding those cited in proposed rule)

Bossuyt, F., Brown, R. M., Hillis, D. M., Cannatella, D. C., and Milinkovitch, M. C. 2006. Phylogeny and biogeography of a cosmopolitan frog radiation: late Cretaceous diversification resulted in continent-scale endemism in the family Ranidae. *Systematic Biology* 55, 579–594.

Cook, J. O. 2008. Transmission and occurrence of *Dermomycoides* sp. in *Rana sevosa* and other ranids in the north central Gulf of Mexico states. Unpublished M. S. thesis, University of Southern Mississippi, Hattiesburg, Mississippi. 104 pp.

Frost, D. R., R. W. McDiarmid and J. R. Mendelson III. 2008. Anura: Frogs. *IN* B. I. Crother (ed.),

Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, pp. 2–12. SSAR Herpetological Circular 37.

U.S. Fish and Wildlife Service. 2001. Biological opinion on the issuance of a master permit for the Tradition Development as a result of formal consultation under the Endangered Species Act with the Army Corps of Engineers. Jackson Field Office, Jackson, Mississippi. 27 pp.

JA17

Image of Amy's Pond (Mar. 3, 2011)

JA18

Image of Dry Pond (Mar. 3, 2011)

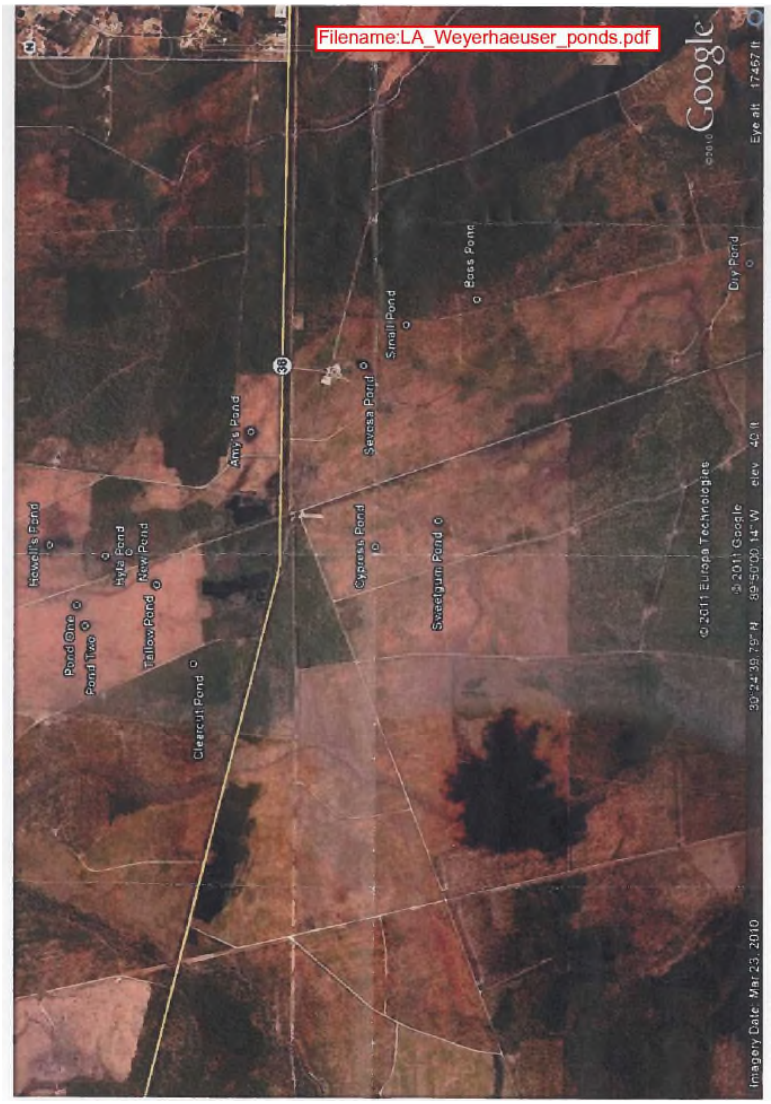
JA19

Image of Sevosa Pond (Mar. 3, 2011)

Image of Sevosa Pond Side Basin (Mar. 3, 2011)

JA21

Satellite Image with Ponds Identified (Mar. 3, 2011)



Lannoo Peer Review Comment (Oct. 27, 2011)

Comments on FWS–R4–ES–2010–0024: Revised Proposed Designation of Critical Habitat for the Mississippi Gopher Frog and Announcement of Associated Draft Economic Analysis

Mississippi Gopher Frogs (*Lithobates* [*Rana*] *sevosus*) are part of a species complex (the *Nenirana* subgenus of Hillis and Wilcox, 2005) that includes their sister species, Gopher Frogs (*L.* [*R.*] *capito*), and the outgroup species to Gopher Frogs, Crawfish Frogs (*L.* [*R.*] *areolatus*). All three species are similar enough in morphology and biology that they were once considered a single species, and all three species are of deep conservation concern. For example Gopher Frogs have recently been petitioned for Federal Listing. And we have recently determined that of 85 counties where Crawfish Frogs historically occurred east of the Mississippi River (in Indiana, Illinois, Kentucky, Tennessee, and Mississippi), they now occur in only 34 (a 60% reduction); plus we have data from Indiana showing that even in counties where Crawfish Frogs persist, populations have been lost. One of the problems in understanding the conservation needs of Mississippi Gopher Frogs is that with only one established population centered around a single breeding wetland, it can be difficult to know everything necessary about their conservation needs. Therefore, comparative data from Gopher Frogs and Crawfish Frogs offer insight.

All three Gopher Frog/Crawfish Frog species are exhibiting declines out of proportion to syntopic pond-breeding species. That is, while water-associated diseases and droughts have taken their toll on the eggs and tadpoles of these three species, other species such as Southern Leopard Frogs (*L.*

[*R.*] *sphenocephalus*), Chorus Frogs (*Pseudacris triseriata* complex), and Spring Peepers (*P. crucifer*), exposed to the same threats have not been declining to the same extent. Part of this response is due to having more populations, and more individuals per population, than members of the Gopher Frog/Crawfish Frog complex (affording a buffer), but a second part of this response is that unlike the more common species, members of the Gopher Frog/Crawfish Frog complex have unusually specific upland habitat requirements, as follows.

First, all three Gopher Frog/Crawfish Frog species depend on open upland habitats. Both Gopher Frog species rely on open canopy longleaf pine savannahs, Crawfish Frogs rely on tallgrass prairies. These are ecosystems maintained by fire, and with fire suppression practices common in the late 19th and throughout much of the first three-quarters of the 20th centuries, they became overgrown with late successional woody species. Recent habitat management practices based on prescribed burns and light grazing have re-established these habitats in many, but not all, places.

Secondly, all three Gopher Frog/Crawfish Frog species occupy subterranean burrows built by other species (Gopher Tortoises [*Gopherus polyphemus*], and burrowing crayfish [many species including members of the genus *Cambarus*]). Crawfish Frogs are obligate crayfish burrow dwellers; both Gopher Frog species will use other burrow types, including those made by mammals, as well as pine stump holes. Crawfish Frogs exhibit fidelity to upland burrows, and a large proportion of individuals may use a single burrow their entire lives. Burrows clearly provide protection from predators (Crawfish Frogs outside of burrows are 12 times more likely to get eaten

than Crawfish Frogs in burrows; Heemeyer, 2011), and Crawfish Frogs in burrows can successfully thwart predation attempts by large snakes; Engbrecht, Heemeyer and Lannoo, unpubl. data). Burrows also provide protection from fires, as well as places to rehydrate and to avoid summer and winter temperature extremes. Post-metamorphic juvenile Gopher Frogs that find suitable burrows can avoid predation (Roznick and Johnson, 2009); among northern (Indiana, Illinois, and historically Iowa) populations of Crawfish Frogs, juveniles must find a burrow at least 75 cm deep in order to overwinter below the frost line.

We do not yet know the extent to which upland burrows are limiting. Clearly with the conservation concerns surrounding Gopher Tortoises, there cannot be as many tortoise burrows available to Mississippi Gopher Frogs or Gopher Frogs as there were historically. The situation for Crawfish Frogs is less clear. We recently surveyed 20 ha of a 45 ha prescribed burn encompassing the densest population of Crawfish Frogs known from Indiana. We located and measured nearly 6,000 burrows (> 5,900), and found only 5 burrows inhabited by Crawfish Frogs (Engbrecht and Lannoo, unpubl. data). It seems reasonable to assume that with all the species dependent on subterranean retreats (invertebrates, amphibians, reptiles, small mammals) that numbers of burrows per se is not an adequate metric for assessing habitat availability for members of this group; burrows must be adequately constructed (difficult to determine without excavating and thus destroying them), and unoccupied.

A third feature of members of the Gopher Frog/ Crawfish Frog complex is their ability to migrate long distances (> 1 km in Crawfish Frogs [Heemeyer,

2011]; > 3 km in Gopher Frogs) to upland burrows. Adult frogs migrating these distances will return to the same burrow. The work of Humphries and Sisson (pers. comm.) on Gopher Frog populations in North Carolina suggests burrows in their study population are limiting, and the reason for such long post-breeding migrations is the need for frogs to travel these distances in order to find suitable burrows in the first place. To protect populations, these distances would have to be incorporated into a protected buffer zone. The construction of artificial burrows (but what would they look like, how would they be built, and at what cost?) might reduce the radius of this buffer zone, but this is a management option that has not yet been tested. Working on Crawfish Frogs in Indiana, we have made the following management recommendations:

> "A buffer (core habitat plus terrestrial buffer) of at least 1.2 km around each breeding wetland. Within this buffer at least 3 critical habitat elements must be present: 1) extensive grasslands maintained by prescribed burning and/or logging; 2) an adequate number of upland crayfish burrows; and 3) no soil disturbance of the sort that would destroy crayfish burrow integrity."

Without the tight requirement for burrows to be crayfish burrows, a similar guide might be suitable for Mississippi Gopher Frogs.

The important point here is that while much of the conservation emphasis on Gopher Frogs/Crawfish Frogs has necessarily (and reasonably) focused on aspects of the fishless, seasonal/semipermanent wetlands used for breeding, recent work suggests that equal emphasis must be placed on the large ar-

eas of surrounding habitat used by adults (and juveniles) during the 10 or 11 months of the year when not breeding. The two aspects of this upland habitat that we can control for these frogs are: 1) it must be large and 2) it cannot be exposed to any soil disturbance of the sort that would destroy the integrity of subterranean burrows. Creative thinking regarding burrow construction would also be helpful. This is a lot to ask, but this is likely what is required to save Mississippi Gopher Frogs (as well as Gopher Frogs and Crawfish Frogs).

While conservation measures on public lands (federal and state) can probably proceed as planned, if the 2,983 acres of proposed private land cannot be utilized (either through agreement or purchase) for this critical habitat, it will be necessary to find other, suitable property within the historic range of Mississippi Gopher Frogs and repatriate populations to these sites. In fact, this might be desirable no matter what becomes of the situation with the private land acquisition.

Literature Cited

Heemyer, J.L. 2011. Breeding migrations, survivorship, and obligate crayfish burrow use by adult Crawfish Frogs (*Lithobates areolatus*). M.S. Thesis, Biology Department, Indiana State University, Terre Haute, IN.

Hillis, D. M., and T. P. Wilcox. 2005. Phylogeny of the new world true frogs (*Rana*). Molecular Phylogenetics and Evolution 34:299–314.

Roznik, E. A., and S. A. Johnson. 2009. Burrow use and survival of newly metamorphosed gopher frogs (*Rana capito*). Journal of Herpetology 43:431– 437.

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St. Tammany Parish Council Resolution (Nov. 3, 2011)

ST. TAMMANY PARISH COUNCIL RESOLUTION

RESOLUTION COUNCIL SERIES NO: C-3274

COUNCIL SPONSOR: STEFANCIK

PROVIDED BY: COUNCIL ATTORNEY

A RESOLUTION OPPOSING THE DESIGNATION OF 1649 ACRES OF PRIVATE LAND IN ST. TAMMANY PARISH AS CRITICAL HABITAT FOR THE MISSISSIPPI GOPHER FROG BY THE U.S. FISH AND WILDLIFE SERVICE.

WHEREAS, St. Tammany Parish has a vital interest in the health, safety, economy and welfare of its citizens and issues that directly impact residents within its boundaries; and

WHEREAS, the U.S. Fish and Wildlife Service, through rule-making published in the Federal Register, Vol. 76, No. 187, on Tuesday, September 27, 2011, has proposed designating 1649 acres of private land in St. Tammany Parish located north and south of State Hwy. 36, approximately 3.1 km (1.9 mi) west of State Hwy. 41 and the town of Hickory, Louisiana, as critical habitat for the Mississippi Gopher Frog, where the U.S. Fish and Wildlife Service has concluded the Mississippi Gopher Frog has not been sited since 1965, which was many years before the enactment of the U.S. Endangered Species Act; and

WHEREAS, critical habitat as described by the U.S. Fish and Wildlife Service consisting of fire-maintained Long-Leaf Pine does not exist within the proposed site which is currently managed for timber

cultivation and harvesting; the silviculture activities used to maintain the lands for timber cultivation will not permit the habitat to exist; and there is hardwood surrounding the ponds identified by the U.S. Fish and Wildlife Service in the proposed rulemaking, which shades the ponds that will prevent the Mississippi Gopher Frog from surviving, as sunlight is necessary for their survival; and

WHEREAS, the proposed site after extensive comprehensive planning, has been zoned by St. Tammany Parish for future development in this area that is favorable for human habitation as it is safe from hurricane flood inundation as experienced in other areas during Hurricane Katrina, will provide traditional neighborhoods with open space and housing for residents of St. Tammany Parish, and the designation of the lands as critical habitat may remove the site from commerce and have an adverse economic impact of more than $ 36.2-million dollars, most of which will adversely impact small businesses and families in St. Tammany Parish, including an adverse impact on the tax revenues to St. Tammany Parish due to lost taxes on undeveloped land, which is inadvisable in this time of National and International economic turmoil; and

WHEREAS, the proposed site contains a portion of Highway 36 which is a critical east-west transportation route in St. Tammany Parish and by the use of frequent fires necessary to maintain the habitat would create a public safety issue; and

WHEREAS, the St. Tammany Parish Council understands that the 1649 acres are not essential for survival of the Mississippi Gopher Frog and are some 47 miles from nearest colony in Mississippi, and the U.S. Fish and Wildlife Service cannot re-create the

non-existent critical habitat for the Mississippi Gopher Frog or locate colonies of the Mississippi Gopher Frog on the lands, and the landowner does not intend to re-create or locate colonies of the Mississippi Gopher Frog on the lands; and

WHEREAS, the U.S. Fish and Wildlife Service has not performed a population analysis to determine if the Mississippi Gopher Frog population can/cannot regenerate, as required by the U.S. Endangered Species Act, and pertinent regulations thereunder, and there is no showing that the 1649 acres are essential to the survival of the Mississippi Gopher Frog, and there are many acres of other lands in the proposed rule-making which are federal lands and therefore ideal for such designation; and

WHEREAS, the 1649 acres in question do not have critical habitat characteristics and the U.S. Fish and Wildlife Service has not shown proof that the lands are required for survival of the Mississippi Gopher Frog, and therefore its conclusions are unsupported by facts insofar as concerns these lands.

THE PARISH OF ST. TAMMANY HEREBY RESOLVES that the St. Tammany Parish Council officially opposes the designation of the proposed 1649 acres of private land in St. Tammany Parish, located north and south of State Hwy. 36, approximately 3.1 km (1.9 mi) west of State Hwy. 41 and the town of Hickory, Louisiana, located within its boundaries, as critical habitat for the Mississippi Gopher Frog, as proposed in the rule-making published in the Federal Register, Vol. 76, No. 187, on Tuesday, September 27, 2011.

THIS RESOLUTION HAVING BEEN SUBMITTED TO A VOTE, THE VOTE THEREON WAS AS FOLLOWS:

MOVED FOR ADOPTION BY: STEFANCIK SECONDED BY: BELLISARIO

YEAS: DEAN, THOMPSON, FALCONER, GOULD, HAMAUEL, CANULETTE, BELLISARIO, BLUM, STEFANCIK, BINDER, ARTIGUE (11)

NAYS: (0)

ABSTAIN: (0)

ABSENT: COOPER, HOWELL, BURKHALTER (3)

THIS RESOLUTION WAS DECLARED ADOPTED ON THE 3 DAY OF NOVEMBER, 2011. AT A REGULAR MEETING OF THE PARISH COUNCIL, A QUORUM OF THE MEMBERS BEING PRESENT AND VOTING.

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MARTIN W. GOULD, JR.,
COUNCIL CHAIRMAN

ATTEST:

THERESA L. FORD, COUNCIL CLERK

Public Comment on Behalf of P&F Lumber (Nov. 23, 2011)

* * *

The Landowners are virtually all descendants of John Poitevent, one of the founders of the Poitevent & Favre Lumber Co., who acquired the lands starting in the 1880s. The Lands have thus largely been in family hands for well over 100 years. The current owners wish to have their children and grandchildren take over ownership of the Lands in the future. This goal will be thwarted by the designation of the Lands as critical habitat for the MGF.

The Landowners are a "small entity" under applicable federal law. *See*, Draft August 17, 2011 Economic Analysis of Critical Habitat Designation for the Mississippi Gopher Frog published along with the Proposed Rule (the "DEA") (page A-5) at Federal Register Docket ID: FWS-R4-ES-2010-0024. The provisions of the DEA are incorporated herein.

Weyerhaeuser Company leases the Lands from the Landowners under its long term timber lease expiring in 2043 to grow and harvest timber, primarily pine sawtimber. The Landowners will continue employing the same silviculture methods and techniques employed by Weyerhaeuser after the timber lease expires in 2043 if the Lands are designated as critical habitat so that the Landowners may obtain some economic benefit from them, unless they are developed by the Landowners sooner if the Lands do not become critical habitat for the MGF. Thus, as is amply demonstrated in this letter of comment, because the Lands do not now contain the "primary constituent elements" to permit the MGF to exist on the Lands—and, indeed, the FWS in the Proposed Rule concludes that (by its own investigation on the

Lands) the MGF does not now actually occupy the Lands—it is certain that both the critical habitat and the MGF will never exist on the Lands.

(iii) Recent Events Affecting the Lands

Following the devastation of the New Orleans area by Hurricane Katrina on August 29, 2005, it became clear that many South Louisiana residents were not going to continue to live in low-lying areas. St. Tammany Parish experienced a dramatic growth rate in population on that date that has continued.[1] See also, DEA at page 4-2 and 4-3. As fully documented in the DEA, the location of the Lands in St. Tammany Parish north (above) Interstate 12 ideally suits them for future development where people can live safely in this area without the fear of the devastating flooding that accompanied Hurricane Katrina.[2]

Beginning in 2006, the Landowners and their partner (Weyerhaeuser Real Estate Development Co.) spent several hundred thousand dollars on a massive comprehensive planning and zoning effort to accommodate this future development on the Lands. The results of this effort were then approved by both the St. Tammany Parish Planning and Zoning Com-

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[1] The 2010 US census shows that there are some 240,000 residents in St. Tammany Parish, which is an astonishing growth rate of 22.2% for the decade. See http://quickfacts.census.gov/qfd/states/22/22103.html

[2] The Federal Emergency Management Agency has declared that Interstate 12, which runs on an east-west route through the Parish, is the line below which there will be mandatory evacuations when the next hurricane comes *The Role of Social Science Research on Preparedness and Response ftp.resource.org/gpo.gov/hearing109h/24463.pdf*

mission and the St. Tammany Parish Council.[3] Thus, CHU #1 is ready for the development of homes, businesses and recreation that will surely come once the current real estate crisis has passed. *See,* DEA at pages 4-1 and following for a detailed description of what the Lands represent to St. Tammany Parish.

There is no doubt that the location of the Lands makes them ideal for human habitation as they are safe from hurricane flood inundation as experienced in other areas during Hurricane Katrina. Moreover, the sensitive planning and zoning efforts by the Landowners and their partner will provide traditional neighborhoods with open space, housing and parks for current and future residents and businesses in St. Tammany Parish.

(iv) Highly Negative Direct and Indirect Economic Consequences to Landowners, St. Tammany Parish and the State of Louisiana Come From Designation

Designation of the Lands by the FWS as critical habitat for the MGF will destroy these carefully-made plans and remove the site from commerce, with an adverse direct economic impact on the "small entity" Landowners of some $36.2+ million dollars. See, pages A-6, ES-4, ES-5, ES-8, ES-9, 4-1, 4-6 and 4-14 of the DEA. As such, the huge $36.2+ million economic burden confirmed by the DEA of designating the Lands as critical habitat for the MGF will adversely impact the small entity Landowners exclusively.

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[3] The details of these extensive efforts by the Landowners and their partner are set out on pages 4-2 and 4-3 of the DEA.

There are other highly negative economic consequences that will befall both the Landowners, St. Tammany Parish and the State of Louisiana as a result of the proposed designation that are utterly ignored by the DEA, but which are real.

In addition to the direct impact of $36.2+ million to the Landowners, the Landowners will also clearly suffer economic harm to their adjacent lands in the vicinity of CHU #1. The FWS in the DEA and in the Proposed Rule indicates that frequent burning of the Lands in CHU #1 for the proposed critical habitat will be required. See, DEA at pages 1-4 and 4-3 ("The Service has indicated that in order to properly manage ... CHU #1, prescribed burnings would be necessary") and Proposed Rule at page 59780 and 59788. Smoke and flames from these burnings will drift and flames will imperil homes and businesses nearby. Indeed, the very real presence of such burnings will also very likely halt all development of Landowners' adjacent lands as the danger and health hazards from the smoke and flames will likely chill any residents or businesses from locating there.

When asked by the Landowners' attorney to address these very real negative economic impacts of burning, the FWS threw up its hands and ignored them in the DEA, along with inquiries about the negative economic impact of oil and gas drilling on the Lands.[4]

Additional negative economic consequences of the burning includes the loss of revenue from the Lands and the Landowners' adjacent lands and lost

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[4] See attached email correspondence to and from FWS representatives on this subject, attached hereto and made a part hereof as Exhibit "B".

ad valorem property tax and sales taxes that would have gone to St. Tammany Parish and the State of Louisiana.

* * *

Jensen Peer Review Comment (Nov. 28, 2011)

Submitter Information

Name: John Bruce Jensen

Address:

Forsyth, GA, 31029

Organization: Georgia DNR

Government Agency Type: State

Government Agency: GA Department of Natural Resources

General Comment

Thank you for the opportunity to comment, as a requested peer reviewer on the revised, proposed critical habitat designation for the Mississippi Gopher Frog (Rana sevosa).

I have read through the revised proposal and found it to be thoroughly researched and the conclusions made on critical habitat designation well-founded. It would be hard to argue that a species reduced to one, maybe two, viable breeding population(s) and a single experimental released population is not overwhelmingly deserving of the added protection afforded it by designating its current occupied range and proposed release sites as critical habitat. Further, I see no reason why the designation of critical habitat for this species would have the unintended consequence of further imperiling the animal.

I fully support the Service's proposed critical habitat designation of currently unoccupied habitat to serve as captively-reared frog release sites, as well as of those sites where the species currently persists. The repatriation sites chosen have the "primary constitu-

ent elements" and have clearly been selected in part because of the particular land ownership and the ability to guide proper land management there.

My only significant criticism of the previous proposal was the far too limited upland habitat proposed as critical to the species' survival, and the data (movement data from just a handful of radio-tracked frogs) used for determining the insufficient upland buffer size. Using data from additional studies of gopher frog movements, it is clear the Service has now better approximated the upland habitat likely necessary for populations to persist. While more upland habitat would certainly be safer, I think the 600 m buffer is quite acceptable and better balances the needs of the frog and that of landowners.

Sincerely,

John Jensen

Richter Peer Review Comment (Nov. 28, 2011)

28 November 2011
Stephen Ricks
Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
6578 Dogwood View Parkway; Suite A
Jackson, MS 39213-7856

Dear Sir,

I appreciate the opportunity to serve as a peer reviewer for the revised proposed rule to designate critical habitat for Mississippi Gopher Frogs. I have been studying this species since 1995, and I would like to begin by stating that I wholeheartedly support the designation of critical habitat. I applaud the proactive designation of multiple areas currently unoccupied by the species but that represent promising sites for reintroductions to what appear to be historic breeding ponds and surrounding uplands. These additional sites truly are essential to the conservation of the species. It might not be apparent to the public, but even though there are only up to a few hundred individuals of the species in the wild, these new sites are absolutely necessary because without establishing new populations, the species will not recover. Techniques in the field and captivity are highly successful in producing offspring for reintroductions to suitable habitats, and the one site where reintroductions of first-year juveniles occurred has shown promise with calling and reproduction. This approach of reestablishing populations in the historic range has great potential.

In my review of the original proposed rule, I stated that it was carefully written with accurate and thorough reference to life history details necessary to

designate habitat with one major exception, spatial ecology of individuals and space/habitat requirements for self-sustaining populations. I want to reiterate that here. The most crucial life history consideration for long-term maintenance of viable populations is providing sufficient upland habitat surrounding breeding wetlands. Although this concern was addressed in the revised proposal (proposed size of designated critical habitat was increased from a 350-m radius circle to a 650-m radius circle), based on the best available data, this size is still insufficient for the conservation of the species. This statement is supported by solid science of this species and of another gopher frog species with an identical life history.

There are at least three reasons the Service should not be conservative in setting the size of critical upland habitat around each wetland:

(1) When populations become isolated as has occurred for *Rana sevosa*, maintaining a large population size becomes especially critical. Richter et al. (2009) demonstrated that genetic variation in Glen's Pond population of *R. sevosa* has been severely reduced due to habitat isolation and small population size relative to other non-isolated and larger populations of gopher frogs. This population is currently the largest population of *R. sevosa*. Glen's Pond population is limited in size due to the loss of suitable habitat north of the USFS property, which is currently owned by Tradition Properties, Inc. In these situations, management strategies must be employed that maximize population size. For pond-breeding species, the primary determinant of population size is availability of upland habitat to support the maximum number of individuals. Thus, the size and quality of critical upland habitat and buffer surrounding it are

essential to the conservation and long-term persistence of the species.

(2) Circular areas of protection should be avoided where possible because they do not take into consideration the distribution of suitable habitat. For example, unsuitable habitat might begin 50 m south of a pond habitat whereas 800 m north of the pond may be the highest quality habitat, so a circle with 650-m radius of protected area might be ineffective and inappropriate. Semlitsch and Bodie (2003) refer specifically to *Rana sevosa* and other habitat-specialists where "it is not known, however, how protecting different amounts of terrestrial habitat affects the population persistence of any species or how habitat quality (e.g., density of mammal burrows; Loredo et al. 1996) might influence that decision." In cases of critical upland habitat designation rules to be applied to multiple sites, logistics might require that a circle with a standard radius be used. In these cases, the radius size should be increased to deal with uncertainty of habitat suitability (Semlitsch and Bodie, 2003).

(3) As described in the revised proposed rule, quite a bit of variation exists among studies in maximum distances that gopher frogs have been documented to travel from breeding ponds. Maximum movements from breeding ponds of individual populations ranged from 299 m to 3470 m. This makes sense because sites vary in upland habitat quality and ability of the landscape to support long-distance movements. Local features will determine spatial requirements of populations, so the size of designated habitat needs to encompass this variation.

In the revised proposed rule, the Service used the median value of all studies' maximum distance documented to arrive at the 600-m value to serve as the

radius of a circle delineating critical habitat. Rather than treating each study as independent, studies from the same locations should be combined and the maximum distances determined for each population. Maximum distances documented for 8 populations have a mean of 1210 m and median of 731 m. The data are right skewed (maximum distances for 8 populations are 299, 300, 510, 600, 862, 1609, 2000, and 3470 m). When data have this distribution, the median is a better measure of central tendency, but the mean better represents variation in the data and is more appropriate given the circumstances described above.

In terms of taxonomy, I fully support the use of dusky gopher frogs as the standard name of *Rana sevosa* (= *Lithobates sevosus*) as does the scientific community (Frost et al., 2008). The intent of each subsection of Crother (2008) is to provided stable standard English names of amphibians and reptiles of the US and Canada. The four major herpetological societies (American Society of Ichthyologists and Herpetologists, the Canadian Association of Herpetologists, and the Herpetologists' League, and the Society for the Study of Amphibians and Reptiles) and two major herp conservation societies (the Canadian Amphibian and Reptile Conservation Network and Partners in Amphibian and Reptile Conservation) in North America support Crother (2008) as the official list. In fact, all publications of the scientific societies require that authors use standard English names of Crother (2008) when publishing in their journals but leave to the author's discretion the scientific name used (within scientific reason and with citation when needed). Based on all of this, the Service should use dusky gopher frog as the standard name instead of Mississippi gopher frog. I recom-

mend use of *Lithobates sevosus* as the scientific name based on Frost et al. (2006, 2008).

In summary, I strongly support the designation of critical habitat for dusky gopher frogs, which is a major step in the long-term conservation of this species. I highly recommend that the Service modify the proposed size of critical habitat and adopt the average of documented maximum distances moved by individuals across all populations.

Sincerely,

Stephen Richter

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Blihovde Peer Review Comment (Nov. 29, 2011)

Comments on the Proposed Designation of Critical Habitat – the Mississippi Gopher Frog William (Boyd) Blihovde, November 29, 2011

From my experience working with the Mississippi Gopher Frog (MGF), this proposal to protect critical habitat should help ensure that this species has a place to recover from the brink of extinction. The Mississippi Gopher Frog or Dusky Gopher Frog is one of the most imperiled species (or sub-species) in the United States.

In the early 2000's I traveled to Mississippi to assist Dr. Richard Siegel from Southeastern Louisiana University (SELU). I was there to help SELU begin radio telemetry work. I saw first-hand how few individuals were located in DeSoto National Forest, and how much information the researchers needed to make management recommendations. Since then, the researchers at SELU have gathered tremendous information on the movements and habitat needs of the MGF. They have discovered, as I did during my research in Central Florida, that the entire gopher frog group requires a great deal of upland habitat. The MGF is tied to the ephemeral wetlands where they breed, however, they do not linger there. They require the dry, upland habitat around the ponds to feed, find shelter, and find moist conditions (especially after the ephemeral wetlands have dried up). Other researchers in Florida have found gopher frogs over 1,000 meters away from their breeding ponds.

The upland habitat (interspersed with temporary wetlands) is critical to the survival of gopher frogs. The habitat designated in this proposal will be as important to the future of the MGF as the obviously

important breeding ponds. Not only will that habitat need to be protected, it will also need to be properly managed in an aggressive and proactive manner before the habitat becomes unsuitable for gopher frogs. Prescribed fire is the most important management tool needed to create open, early successional staged and biologically diverse ecosystems.

Although I feel that the 7,015 acres of critical habitat proposed here are not enough, I do agree that this is a good start and a good step in helping recover the MGF. The fact that only 43 percent of the critical habitat acres are located on private lands means there will be a very minor economic impact on private individuals. The acres located on already protected federal or state lands will hopefully ensure that those lands get better management in the future. To actually recover the MGF I believe that more critical habitat will be needed in the future. One thing that is definitely needed in the future is protection and proper management of corridors for the MGF to travel between potential breeding ponds. With the MGF occurring at so few breeding ponds, it is imperative that this species be established in additional ponds to be a sink for the well-studied "Glen's Pond". This pond has been the only dependable breeding pond for the MGF for decades. Since its discovery Glen's Pond has been heavily studied and managed. However, without other well-established breeding ponds the MGF will be at risk of being wiped out by a natural disaster, drought, or relatively newly discovered fungi that have been devastating to juvenile amphibians.

The proposal to designate critical habitat for the Mississippi Gopher Frog is a great thing, and I am in support of its implementation.

Pechmann Peer Review Comment (Nov. 29, 2011)

I appreciate the opportunity to provide a peer review for the U. S. Fish and Wildlife Service revised proposed rule: Endangered and threatened wildlife and plants: designation of critical habitat for Mississippi gopher frog (Docket ID: FWS-R4-ES-2010-0024; MO 92210-0-0009). I will organize this review around the list of points that the Service seeks comments on:

1. *Reasons why we should or should not designate habitat as "critical habitat."* I agree with the reasoning presented on why designation of critical habitat for *Rana sevosa* is prudent.

2.a. *The amount and distribution of Mississippi gopher frog habitat*. I applaud the decision to base the amount of terrestrial habitat around each breeding pond proposed for protection on the data available for both *R. sevosa* and the closely related *R. capito*. The types of terrestrial habitats used by these two species and other aspects of their ecology, life history, and behavior are very similar. Data for *R. sevosa* are available from only one site (Glen's Pond) for a limited period, and do not account for potential variation in terrestrial habitat use among sites and over time. That is particularly true if the use of habitat surrounding Glen's Pond has been limited by past land use practices, as suggested by USFWS (2001) and Richter et al. (2001).

The Service delineated critical habitat around breeding ponds based on the median maximum distance frogs were found from the pond in all available studies, 600 m, plus a 50 m buffer (USFWS *personal communication* clarifying information in the proposed rule). This is a very reasonable approach, but

there are alternative approaches. These involve combining data, being more selective about the data used, and calculating mean maximum distances instead of median maximum distances. Calculating means rather than medians yields higher values for the cases at hand because the distribution of maximum distances is skewed rather than normal, and the means are more influenced by the largest values than the medians are. It is a matter of biological opinion whether it's good or bad for the largest values to have more influence. I think medians are more appropriate in this case, but others might think differently.

Alternative approaches include:

Alternative A. Calculating the mean rather than the median of the maximum distance frogs were found from the pond in all available studies. The mean is 998 m.

Alternative B. Combining studies conducted at the same site. This results in a median maximum distance moved of 731 m and a mean maximum distance moved of 1206 m. Two colleagues suggested this alternative because counting multiple studies per site is pseudoreplication if the variation of interest is primarily among sites. Studies by Richter et al. (2001) and Tupy and Pechmann (2011) were both conducted at Glen's Pond. The three studies by Roznik and her colleagues were all at the same set of eight nearby ponds.

Alternative C. Combining studies conducted at the same site (as in Alternative B), deleting anecdotal observations of single frogs, and deleting another study which was not designed to examine distances frogs moved from ponds. The median maximum distance for the remaining five studies is 600 m, the

same value as the Service found in their calculation, and the mean maximum distance is 1072. Three of the records used in the Service's calculations were observations of single frogs in terrestrial habitat and the distance to the nearest breeding pond or presumed breeding pond (Carr 1940, Franz et al. 1988, and Roznik 2007). These observations were recorded and published because of their magnitude and do not represent the maximum value of a known sample of distances (although Roznik 2007 was in the context of her other studies). Also, Blihovde (2006) observed multiple gopher frogs in three plots at known distances from breeding ponds, but did not report where these plots were located relative to overall frog distributions around the pond. Eliminating these four studies leaves telemetry studies at five sites.

This median maximum distance derived in this calculation (and the Service's) comes from Neufeldt and Birkhead (2001). It was measured from the "herpetofaunal array," whereas distances in the other studies were measured from the center of the pond. It would be preferable to use the distance from the center of the pond if it could be obtained. This would also change some of my other calculations.

Alternative D. Weighting each maximum value by the sample size it was based on, and using all studies, gives a mean of 748 m. I don't think that you can weight a median. Although a larger sample size provides a better estimate of the maximum distance frogs move at a site, it is debatable whether sites should be weighted differently based only on this criterion.

The different alternatives provided above yield distances from the pond ranging from 600 m to 1206 m. There are other alternatives, for example, determining the median or average distance required to

protect 80% or 90% of the frogs at each site. This would require calculations using distances moved for each frog in each study.

Thus, the decision on how much critical habitat to designate around each breeding pond is more subjective than we would like it to be. I now summarize some related considerations. Why is there such variation among sites in the maximum distance frogs were found from the pond? In particular, why do gopher frogs migrate 3470 m from the pond in the sandhills of North Carolina (Humphries and Sisson 2011) and only 299 m from Glen's Pond in southern Mississippi? This most likely has to do with habitat quality, particularly the availability of the underground refuges where gopher frogs spend most of their lives. The North Carolina site has very few holes for gopher frogs to use, so they have to migrate a long distance to find one. The paucity of holes may be in part because stumps were harvested at this site in the past (Humphries and Sisson 2011 and personal communication). Holes associated with stumps are popular refuges for gopher frogs, especially where there are few or no gopher tortoise burrows to use (Richter et al. 2001, Humphries and Sisson 2011, Tupy and Pechmann 2011). Other factors such as fire also increase the availability of holes used by gopher frogs (Roznik and Johnson 2009a).

In contrast, there are abundant underground refuges for gopher frogs around Glen's Pond (Tupy and Pechmann 2011), except for the land 200 m north of the pond, where underground refuges have been limited by industrial forestry practices (Richter et al. 2001; personal observations). Thus, gopher frogs at Glen's Pond need not migrate far to find underground refuges, and migrating far to the north brings them to an area with few refuges.

How do the sites with data on the maximum distance frogs were found from the pond compare to other sites? The available data are not sufficient to formally answer this question. Nonetheless, people tend to study gopher frogs where they are relatively abundant (e.g., Roznik et al. 2009, Blihovde 2006) or where landowners manage habitat for their benefit, such as on military bases (e. g., Phillips 1995 and Rostal 1999, Neufeldt and Birkhead 2001). It is not practical to study gopher frogs at most sites where the habitat is poor, because there are too few frogs to study. Thus, I expect that most of the available data on terrestrial habitat use by gopher frogs is from relatively good habitat with sufficient underground refuges available.

Is it necessary to protect terrestrial habitat up to the maximum distance frogs are found from the pond, or is it sufficient to protect the habitat used by most frogs? It may only be necessary to protect the area around each pond used by the vast majority of frogs, e. g., 90-95% of the frogs. The sample sizes (number of frogs observed) for all the available studies of terrestrial habitat use are relatively small, however. Thus, these studies likely underestimate the maximum distances that frogs may be found from a pond. Using the maximum distance frogs were observed from a pond in a small study is likely a reasonable measure of the habitat used by most, but not all, of the frogs.

How much habitat around each pond should be designated as critical habitat? In my opinion, this depends on the habitat quality, particularly the availability of underground refuges. Designating habitat within 650 m of the center of the pond is probably sufficient for Glen's Pond and other units with high-quality terrestrial habitat. More area may

be needed in units where the number of underground refuges has been reduced by current or past industrial forestry practices, such as Unit 1, 7, and 4. Unfortunately, it takes many years of good management to develop new underground refuges, as we have observed in Unit 4.

b. *Areas occupied which should be included in the designation*. These are summarized well in the proposed rule.

c. *Special management considerations or protection in critical habitat, including those related to climate change*. These are summarized well in the proposed rule.

d. *Areas not occupied at the time of listing essential for conservation of the species*. These are summarized well in the proposed rule. I particularly applaud the intention to connect breeding ponds with suitable terrestrial habitat to form metapopulations. I was very pleased to see that the Service designated critical habitat in Louisiana in the revised proposed rule. As noted in the proposed rule, climate change may lead to increased frequency and duration of droughts in the southeastern U. S. (Seager et al. 2009). *Rana sevosa* do not breed when drought prevents the breeding pond from filling to an adequate depth (Richter and Seigel 2002). Even if breeding occurs, juvenile recruitment fails or is reduced if drought causes the pond to dry before larvae can reach the minimum size for metamorphosis, as happens frequently at Glen's Pond (Sisson et al. 2008). Disease is also a threat to *R. sevosa* (Overstreet and Lotz 2004, Cook 2008). Due to the low number of remaining populations and its very restricted range, *R. sevosa* may be at risk of extirpation from events such as drought or disease which vary over space and time. Maintaining sites over the entire range of

R. sevosa into which it could be translocated is essential to decrease the potential risk of extinction of the species from events such as these, and provide for the species' eventual recovery. Potential *R. sevosa* translocation sites must be spread out over as wide a geographic area as possible because events such as droughts and disease tend to be spatially autocorrelated. Therefore, *Rana sevosa* will be less at risk of extinction if populations of *R. sevosa* are established across its historical range in Louisiana as well as Mississippi. Unfortunately, I am not aware of any suitable habitat left in the historical range in Alabama.

The critical habitat proposed in Unit 1 contains the best gopher frog habitat remaining in Louisiana, to my knowledge, and some of the best breeding ponds available anywhere in the historical range of *R. sevosa*. I strongly agree with the Service's determination that this area is essential for the conservation of *R. sevosa*.

3. *Effects of land-use designations and current or planned activities*. These are summarized well in the proposed rule.

4. *Projected and likely effects of climate change*. See discussion above under *Areas not occupied at the time of listing essential for conservation of the species.* Also, because of predicted increased variation in precipitation, it will be necessary to designate ponds having a variety of hydroperiods as critical habitat to insure that at least some ponds are suitable for *R. sevosa* reproduction and juvenile recruitment over periods of several years.

5. *Probable economic, national security, or other relevant impacts (especially Unit 1 in St. Tammany Parish), particularly on small entities or families,*

and benefits of including or excluding areas exhibiting these impacts. Very little of the proposed critical habitat is owned by families or small entities. Most of the private land proposed as critical habitat in Mississippi is owned by a national conservation organization which desires to provide habitat for *R. sevosa*. The land in Unit 1 is owned by a family, but the 1,649 acres of this unit represent only 3.66% of the approximately 45,000 acres this family owns in that Louisiana Parish (Harvey 2011). Thus, any economic or other impacts on this family should be minimal.

6. *Candidate areas for exclusions under section 4(b)(2) of the Act*. I am not aware of any.

7. *Improving or modifying the Service's approach*. No suggestions needed.

8. *Appropriateness of name change.* I agree that the name of the listed entity should be changed *to Rana sevosa* following Young and Crother (2001). I think that the Service should use the standard common name dusky gopher frog for *R. sevosa*, however (Frost et al. 2008, p. 8). The proposed rule states that the Service will use Mississippi gopher frog to avoid confusion with populations of *R. capito* which some still call dusky gopher frog. I believe that using a nonstandard common name will engender more confusion than it alleviates.

Although Frost et al. (2008) use the genus *Lithobates* for the listed entity, I agree with the decision of the Service to retain *Rana* following Bossuyt et al. (2006).

Joseph H. K. Pechmann, Associate Professor
Western Carolina University

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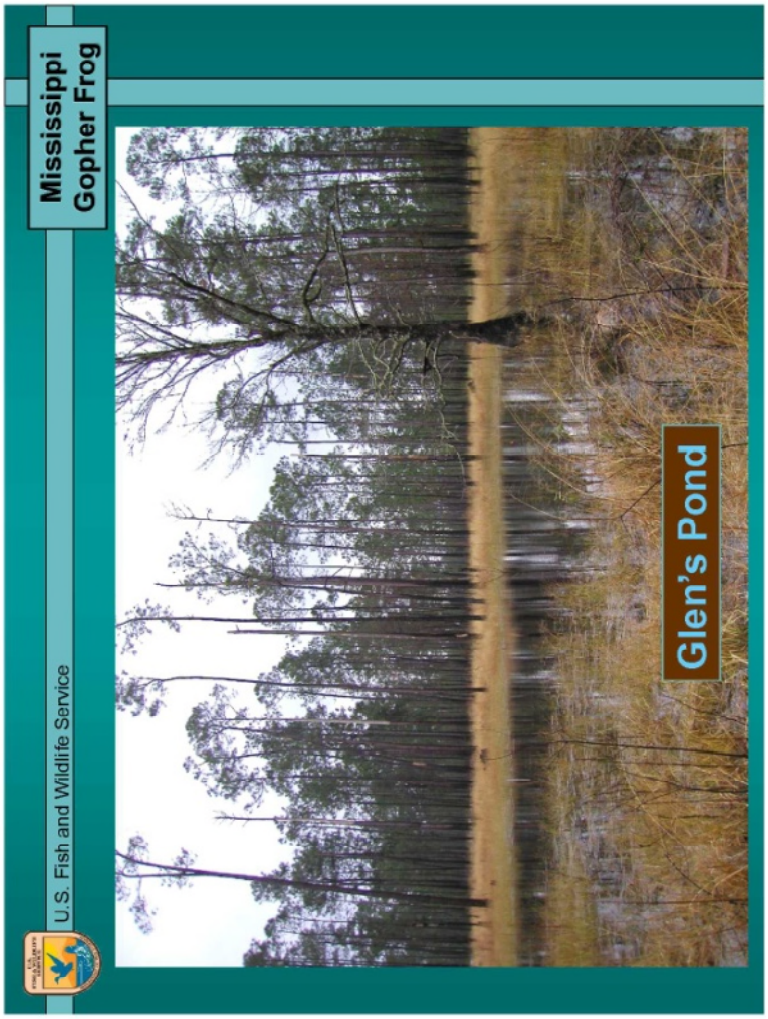
JA56

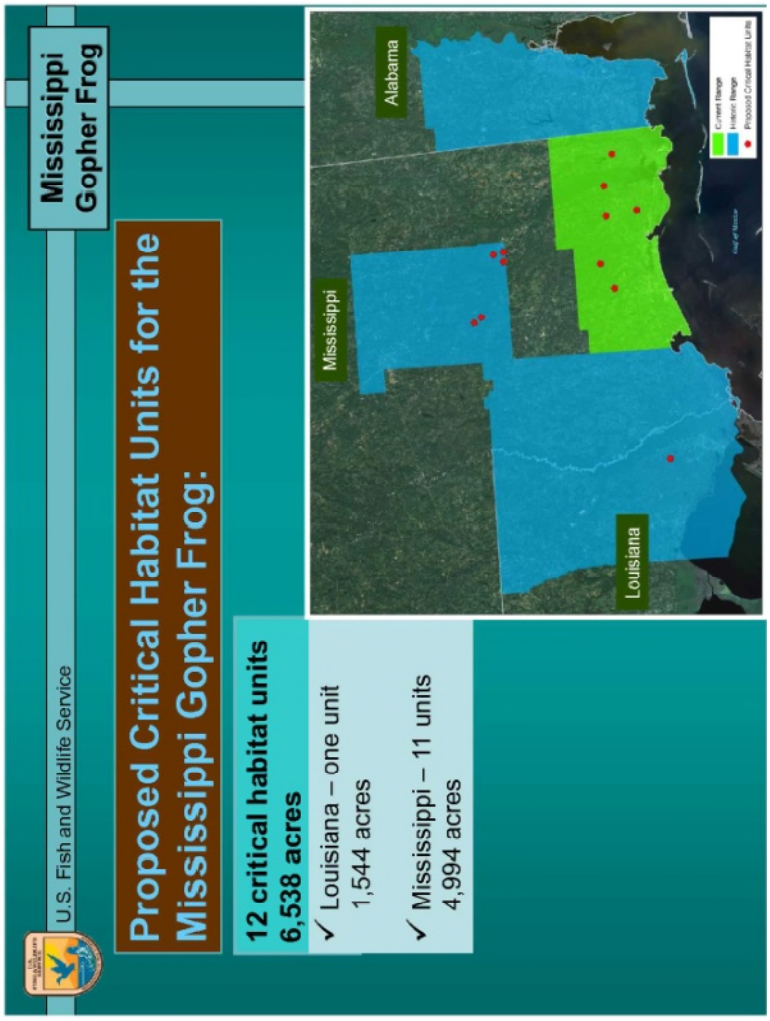
Image of Glen's Pond (Jan. 31, 2012)



JA57

Image of Frog, Burrow, and Upland Pine Forest (Jan. 31, 2012)

Image of Current and Historic Range of Frog Habitat (Jan. 31, 2012)



Public Comment on Behalf of P&F Lumber (Feb. 28, 2012)

* * *

POSITIONS OF LANDOWNERS AND FWS

Simply put, the Proposed Rule boils down to whether the FWS should declare the Lands to be critical habitat for the MGF under the ESA, given the following:

1. The frog has not occupied or been seen on the Lands since at least 1 965.[1] The FWS admits this in the Proposed Rule.[2]

2. The frog will never be present on the Lands as the FWS cannot move the frog there and the Landowners will not allow them to be moved there, as the FWS will then require that the Lands be burned periodically to maintain the frogs' habitat.[3] The FWS admits this in the Proposed Rule and in its Economic Analysis for the Proposed Rule.[4] Burning the Lands will also create a terrible potential for loss of life and injury as smoke and flames will drift onto LA Highway 36, which bisects the Lands. See also 66 FR 62999 where FWS says that " ... fire is the only

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[1] For detailed reasons on this point, see Landowners' comments of November 23, 2011 at pages 16 and 17.

[2] See, Proposed Rule at page 59783.

[3] For detailed reasons on this point, see Landowners' comments of November 23, 2011 at pages 5,6,8, 15 and 16, and Weyerhaeuser's comments of November 28, 2011.

[4] See, Proposed Rule at page 59783. See, Draft Economic Analysis page 4-3 ("The Service has indicated that in order to properly manage the breeding sites [on the Lands], prescribed burns would be necessary")

known management tool that will maintain [MGF habitat]." (Emphasis added).

3. Designating the Lands as critical habitat for the frog will utterly destroy all of the value of the Lands and Landowners' adjacent lands and will cost the Landowners at least $36.3 million.[5] The FWS admits this in the Proposed Rule and in its Economic Analysis for the Proposed Rule.[6]

4. The Lands do not now, and will not in the future, contain the required "primary constituent elements" the FWS says are needed for the frog to live on the Lands.[7] The FWS admits this in the Proposed Rule. [8]

* * *

In *United States v. Lopez,* 514 U.S. 549, 556-57, 115 S. Ct. 1624, 131 L.Ed.2d 626 (1995); the US Supreme Court defined the limits of the Commerce Clause by mandating that (i) Congress may only regulate an activity that "substantially affect(s)" interstate commerce, and (ii) there must be a rational basis for Congress' conclusion that the regulated activity sufficiently affects interstate commerce.

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[5] For detailed reasons on this point, sec Landowners' comments of November 23,2011 at pages 5, 6,9,10 and 19, and Weyerhaeuser's comments of November 28, 2011 at pages 13 and 14.

[6] See, Proposed Rule at pages 59789 and 509790. See, Draft Economic Analysis, Chapter 4.

[7] For detailed reasons on this point, see Landowners' comments of November 23, 2011 at pages 4, to, 11, 13,14, 15,and 18, and Weyerhaeuser's comments of November 28, 2011 at pages 4-9.

[8] FWS admits that the Lands do not "contain sufficient PCEs to support ... the [MGF]." 76 FR 59780. Also see proposed Rule at page 59777.

The Supreme Court has also clearly stated that the Commerce Clause cannot be extended to embrace effects upon interstate commerce that are merely indirect and remote. *NLRB v. Jones and Laughlin Steel,* 301 U.S. **1,** 37, 57 S. Ct. 615, 81 L. Ed. 893 (1937).

The FWS' attempt to regulate the "ecosystem" of the Lands in this wholly intrastate setting for the MGF, which has no known commercial, scientific, tourism, food, medical or other value, and where (as here) the MGF do not now and will not ever exist in the future, and where the elements of its critical habitat do not now exist and will not ever exist in the future, defies all logic and reason. Thus, the FWS' attempt to designate the Lands as critical habitat is plainly unconstitutional as it constitutes an attempt by the FWS to regulate a frog that does not occupy or exist on the Lands. The FWS goes beyond *Jones and Laughlin Steel's* "indirect and remote" standard of in this matter as it attempts to regulate nothingness and no commerce or commercial link to the Lands.

The FWS does not cite any link of any sort between the frog or the designation of the Lands as critical habitat to commerce of any nature whatsoever, be it travel, tourism, scientific research, or agriculture. Indeed, the FWS cannot do this because there is absolutely no such link and no commercial tie between the designation of the Lands as critical habitat under the ESA and the Commerce Clause. In turn, this means that the FWS' powers under ESA to designate the Lands as critical habitat do not pass constitutional muster.

Under the ESA there is no "market" at all for the MGF that applies to the Lands. Thus, this essential element necessary to justify exertion of the Com-

merce Clause power is missing. In this wholly intrastate context, as the frog is not present on the Lands and the frogs' habitat does not exist—and the FWS cannot "translocate the frogs to the Lands without the Landowners' approval (which they will not give) or recreate the frogs' habitat without the landowners' approval (which they also will not give)[9], the Proposed Rule neither has nor demonstrates any economic or commercial nexus to the Lands.

* * *

Endangered Species Act's Precarious Perch: A Constitutional Analysis Under The Commerce Clause And The Treaty Power, 27 Ecology L. Q. 215 (2000); Bradford C. Mank, *Protecting Intrastate Threatened Species: Does The Endangered Species Act Encroach On Traditional State Authority And Exceed The Outer Limits Of The Commerce Clause?,* 36 Ga. L. Rev. 723 (Spring 2002).

[9] The Landowners will not do this for two primary reasons: (i) doing so will destroy the value of the lands and the value of the Landowners' adjacent lands due to habitat modification and required burnings to maintain it and (ii) as the FWs knows, the Lands are subject to a long-term timber lease with Weyerhaeuser expiring in 2043, under which Weyerhaeuser has the right to use the Lands exclusively to grow and harvest timber. The Landowners would thus breach the timber lease (and be required to pay damages for the breach) by turning the Lands over to support "translocated" frogs on the modified habitat. Both the habitat modification and the burnings would make the Lands wholly unusable and unsuitable for timber growing and harvesting

IEC Final Economic Analysis Report (Apr. 6, 2012)

* * *

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 dusky gopher frog, also known as the Mississippi gopher frog (*Rana sevosa*, 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]

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

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[1] 66 FR 62993.

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

[3] 75 FR 31387.

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 was published concurrently with the Notice of Availability (NOA) for the draft economic analysis.[4] These areas were further revised, the comment period was reopened, and a public hearing was announced on January 17, 2012. This revision decreased the area proposed as critical habitat to reflect a decreased maximum distance of gopher frog movement between breeding pods and upland habitat.[5] Since this publication, the Service has decreased the proposed critical habitat in Unit 10 by 54 acres to remove a portion of an agricultural field.[6] This analysis considers the economic effects of designating the proposed revised critical habitat as published on January 17, 2012 and including the reduction to proposed Unit 10 (the study area for this analysis).

4. The Service is proposing to designate a total of 6,477 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 (1,544 acres); Harrison, MS (1,655 acres); Jackson, MS (1,717 acres); Forrest, MS (598 acres); and Perry, MS (961 acres). Approximately 54 percent of the proposed critical habitat falls on Federally-owned land, 42 percent falls on private land, and the remaining 4 percent falls on

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[4] 75 FR 77817.

[5] 77 FR 2254.

[6] Personal communication with Service biologist, Jackson Field Office, March 16, 2012.

state-owned land. Occupied areas make up approximately 18 percent (1,197 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 82 percent (5,280 acres) of the designation. The unoccupied proposed critical habitat falls within the historical range of the gopher frog.[7] Exhibit ES-1 provides an overview of proposed critical habitat for the gopher frog.

5. This final economic analysis analyzes the proposed designation as described in the proposed rule, with the changes noted above. This analysis does not reflect changes to the proposed critical habitat designation made in the final rule. Consequently, description of the habitat designation in the final rule may differ from maps and figures presented in this analysis.[8]

FOCUS OF THE ECONOMIC ANALYSIS

6. 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 eco-

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[7] Personal communication with Service biologist, Jackson Field Office, May 20, 2011.

[8] For a detailed discussion of public comments on the draft economic analysis and associated responses, refer to the responses to public comment section of the final rule.

nomic 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.

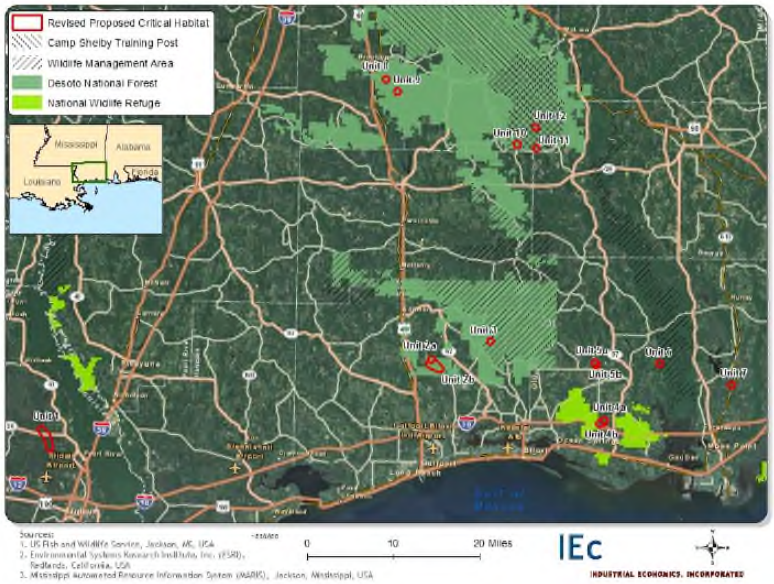
7. The analysis separates conservation measures into two distinct categories according to "without critical habitat" and "with critical habitat" scenarios. The "without critical habitat" scenario represents the baseline for the analysis, considering protections otherwise afforded to the gopher frog, 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.

8. 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).

9. 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.

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



SUMMARY OF FINDINGS

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

- **Present value incremental impacts are estimates to range from $102,000 to $34.0 million assuming a seven percent discount rate or $106,000 to $35.3 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 recommended

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 $20.4 million.

- Total present value incremental impacts of critical habitat designation across all units are therefore $20.5 million ($1.93 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 $33.9 million.

  Total present value incremental impacts of critical habitat designation across all units are therefore $34.0 million ($3.21 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.[9] In unoccupied areas (e.g., Unit 1), project modifications resulting from consultation are considered incremental impacts of the critical habitat designation.[10]

- **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 926 acres of the unit in order to provide for conservation and recovery of the species, while the remaining 618 acres is developed. Scenario 3 assumes complete avoidance of critical habitat

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[9] 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)

[10] *Ibid*.

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. 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 reinitiation 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. 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.
- **Outside of Unit 1, potential impacts to residential development activities are anticipated to be limited.** 59 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

11. 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.[11] In addition, OMB recommends conducting a sensitivity analysis using other discount rates, such as three percent.[12] 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.

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[11] "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.

[12] 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, 201 1 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	$21,200,000	$35,200,000	$0	$20,400,000	$33,900,000
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**	**$21,300,000**	**$35,300,000**	**$102,000**	**$20,500,000**	**$34,000,000**
Annualized	**$7,110**	**$1,430,000**	**$2,380,000**	**$9,610**	**$1,930,000**	**$3,210,000**

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.

12. We estimate present value incremental impacts of critical habitat designation of $102,000, $20.5 million, or $34.0 million according to three scenarios (applying a seven percent discount rate). This equates to $9,610, $1.93, and $3.21 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.

13. 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 sev-

en 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 $20.4 million or $33.9 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.

14. 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 (99.5 and 99.7 percent) of total incremental impacts with a present value of $20.4 million and $33.9 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, 201 1 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	$20,400,000	$33,900,000	$728	$1,920,000	$3,200,000
Forestry			$4,240			$400
Military			$25,300			$2,390
Total	**$102,000**	**$20,500,000**	**$34,000,000**	**$9,610**	**$1,930,000**	**$3,210,000**

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 2,026 acres, or 31 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.

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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 $34.0 million ($3,520 to $3.21 million annualized), depending upon the scenario applied to estimate impacts to development activities in Unit 1. [75] 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

[75] Using a seven percent discount rate.

the gopher frog and its habitat.[76] 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).[77] The landowners began leasing their land to Weyerhaeuser's predecessor in 1953 and the current lease is set to expire in 32 years.[78] Approximately five years ago, 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.[79] The current timber lease will be released once development occurs.[80,81] If the land is ultimately sold to a third par-

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[76] 75 FR 31393, 31400.

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

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

[79] Personal Communication with Edward Poitevent, June 9, 2011.

[80] Email Communication with Edward Poitevent, June 9, 2011.

ty, the landowners and WREDCO have agreed upon a division of the monetary gains.[82]

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.[83] Growth in the Parish is projected to continue, reaching nearly 500,000 by 2030.[84] 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.[85] A new high school was recently opened not far from the proposed critical habitat and major transportation infrastructure

[81] There remains significant uncertainty regarding the timing of potential development activities within Unit 1. A February 2012 article in the New Orleans Times-Picayune based on an interview with the landowner indicates that development of the unit would not occur until 2043, after the timber lease expires (Harvey, Christine. "Gopher frog habitat plans contested by St. Tammany Parish landowner" New Orleans Times-Picayune. February 1, 2012. Accessed by http://www.nola.com/poltics/-index.ssf/2012/02/st_tammany_parish_landowner_fi.html on March 29, 2012).

[82] Written communication with Edward Poitevent, August 2, 2011.

[83] Demographics and Census Geography Louisiana State Census Data Center, accessed by http://louisiana.gov/Explore/-Demographics_and_ Geography/ on June 29, 2011.

[84] Louisiana Population Projections, accessed by http://-www.louisiana.gov/Explore/Population_Projections/ on June 29, 2011.

[85] 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/130936241-4.pdf).

is planned in anticipation of continued rapid growth in the area.[86] In addition, infrastructure improvements have recently taken place on Highway 1088 between Interstate 12 and Highway 36, which runs through the proposed critical habitat.[87]

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 1,544 acres falls within four zoning classifications: TND-2 (50 percent), A-3 (40 percent), A-4 (five percent), and A-2 (five percent).[88] 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;
- A-4 Single-Family Residential District – single-family residential zone with a maximum density of four units per acre; and

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[86] Email Communication with Edward Poitevent, June 9, 2011.

[87] Written communication with Edward Poitevent, August 2, 2011.

[88] *Ibid*.

- A-2 Suburban District – single-family residential district with a maximum density of one unit per acre.[89]

73. The landowners and WREDCO have invested a significant amount of time and dollars into their plans to develop this area.[90] 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. Recently, the landowner indicated that development may not occur until 2043, which is beyond the 20-year timeframe of this analysis.[91] Nevertheless, we assume that any reduction in land value occurring due to the designation of critical habitat will happen immediately at the time of the designation (the time at which the restriction is considered enforceable).

74. 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.[92] If development avoids jurisdictional

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

[90] Email Communication with Edward Poitevent, June 9, 2011.

[91] Harvey, Christine. "Gopher frog habitat plans contested by St. Tammany Parish landowner" New Orleans Times-Picayune. February 1, 2012. Accessed by http://www.nola.com/politics-/index.ssf/2012/02/st_tammany_parish_landowner_fi.html on March 29, 2012.

[92] Personal Communication with Edward Poitevent, June 9, 2011.

wetlands, section 7 consultation would not be required due to the absence of a Federal nexus.

75. 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.[93] 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 926 acres) of the proposed critical habitat in Unit 1 would provide a meaningful conservation benefit to the gopher frog.[94] Therefore, development of 618 acres (40 percent) within Unit 1 with 926 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.[95]

76. Under the most conservation assumption (e.g., most likely to overstate rather than understate

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[93] Email Communication with U.S. Fish and Wildlife Service biologist, July 29, 2011.

[94] Email Communication with U.S. Fish and Wildlife Service biologist, August 122011.

[95] Personal Communication with U.S. Fish and Wildlife Service, August 11, 2011.

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.

77. 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 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 im-

portance of the unit in the conservation and recovery of the species, the Service recommends that no development occur within the unit.

78. 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.[96]

79. We do not expect that designation of critical habitat in Unit 1 will have a significant impact on regional real estate demand and supply dynamics. The economic impacts are likely to extend beyond the regulated landowners and affect the real estate market, real estate consumers, and the regional economy if: (1) the amount of land not developed as a result of gopher frog protection is high relative to the total developable land in the region; or (2) other project modification costs are high relative to real estate development value and cover a significant proportion of developable land. In these cases, landowners and developers may pass on the costs to real estate consumers in the form of high prices.

80. Conversely, if project modification costs are low or if gopher frog protection only affects a small fraction of the total developable land supply in a region, then economic effects are likely to be limited to

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[96] 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.

that subset of individual landowners or projects. This analysis estimates that up to 1,544 acres of developable land will be affected by the critical habitat designation. This acreage represents approximately 0.5 percent of the total amount of developable land within St. Tammany Parish.[97] As area within the proposed critical habitat designation represents a small percentage of total developable lands within the Parish, we expect a reduction in the regional supply of housing is unlikely.

81. 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 and hunting.[98] However, critical habitat only affects activities with a Federal nexus, as described in Chapter 2 of this report. As such, absent Federal funding, permitting, or

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[97] We estimate the amount of developable land in St. Tammany Parish using the latest land cover data available. Developable land is defined as land classified as cultivated, deciduous forest, evergreen forest, grassland, mixed forest, pasture, hay and scrub/shrub. Wetlands, water, and lands already developed are not considered developable land. Furthermore, protected lands are not considered developable land (NOAA Coastal Change Analysis Program (C-CAP) Land Cover and Change Data [landcover_la_noaa_2005.tif] Available online at http://lagic.lsu.edu/loscoweb/. Accessed March 29, 2012; U.S. Geological Survey Protected Areas Database 1.2, 2011).

[98] 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.

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 exempt from Corps regulation under Section 404 of the CWA, and thus 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 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.

82. The landowners of Unit 1 have also expressed interest in developing the land for oil and gas. Oil and gas activities are potentially subject to a Federal nexus if a Corps CWA Section 404 Permit is required. St. Tammany and adjacent Parishes contain Tuscaloosa marine shale.[99] Recent consultation with a geologist has shown that Tuscaloosa Marine Shale exists within proposed critical habitat Unit 1.[100] Landowners indicate that a geologist recently determined that there may be 20 million bbls or recoverable oil within the landowners' total land area. Approximately 3.5 percent of the landowners' land overlaps the 1,544 acres within the unit. As noted above,

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

[100] Written communication with Edward Poitevent, August 2, 2011.

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).

83. 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. We do not quantify these impacts due to considerable uncertainty surrounding the likelihood, timing, and extent of oil and gas development within Unit 1 over the foreseeable future.

84. 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).

85. 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
- The current value of this land for its other potential future uses (e.g., timber management, oil and gas development, recreation, etc.).

86. 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 926 acres. According to Scenario 3, development will be restricted within the entire unit (1,544 acres). Adjacent land with comparable zoning has been proposed for sale to Central Louisiana Electric Company for $23,500/acre.[101] 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 develop-

[101] Written communication with Edward Poitevent, August 2, 2011.

ment 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.

87. 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 $20.4 million ($1.92 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 $33.9 million ($3.20 million in annualized impacts).[102]

88. 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
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.	May overestimate or underestimate incremental impacts	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 develop-

[102] Development loss impacts in Scenarios 2 and 3 are calculated by multiplying 926 and 1,544, respectively, by $23,500 per acre (totaling $21.8 million and $36.3 million, respectively), discounted one year at seven percent.

		ment 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. 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.
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.**	Likely leads to an underestimate of incremental impacts	Potentially major. Approximately 700,000 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. 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. 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. 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.
We assume all land within proposed critical habitat Unit 1 may be developed within the next 30 years.	Unlikely to affect the results of the analysis.	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.

SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
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.	Unlikely to affect the results of the analysis.	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.
The landowners suggest that revenue from hunting leases on the critical habitat lands contributed $9,844 per year.	Unlikely to affect the results of the analysis.	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.
Notes and Sources: *Based on an estimate of 20 million barrels of oil on 43,500 acres – the 1,544 acres within Unit 1 represent 3.5 percent of this area (Written communication with Edward Poitevent, August, 2, 2011). **Written communication with Edward Poitevent, August, 2, 2011.		

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CHAPTER 5 | POTENTIAL ECONOMIC BENEFITS

5.1 INTRODUCTION

107. 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.

108. 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.

109. Numerous published studies estimate individuals' willingness to pay to protect endangered species.[119] 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 as-

[119] 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.

sure 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.

110. 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 (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).

111. 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, ap-

plying 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

112. 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.

113. 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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Federal Register Final Rule
77 Fed. Reg. 35118 (June 12, 2012)

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17
[Docket No. FWS-R4-ES-2010-0024; 4500030114]

RIN 1018-AW89

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Dusky Gopher Frog (Previously Mississippi Gopher Frog)

AGENCY: Fish and Wildlife Service, Interior.
ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, designate critical habitat for the dusky gopher frog under the Endangered Species Act. In previous publications, we used the common name "Mississippi gopher frog" for this species. We are taking this action to fulfill our obligations under the Act. Land in St. Tammany Parish, Louisiana, and Forrest, Harrison, Jackson, and Perry Counties, Mississippi, is being designated under a court approved settlement agreement to finalize critical habitat for the species. The effect of this regulation is to conserve the habitat upon which dusky gopher frog depends.

DATES: This rule becomes effective on July 12, 2012.

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SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Endangered Species Act, we are required to designate critical habitat for any endangered or threatened species if prudent and determinable and we must issue a rule to designate critical habitat. Designation of critical habitat for the dusky gopher frog was found to be prudent and a proposed rule to designate critical habitat was published on June 3, 2010. We subsequently reproposed critical habitat on September 27, 2011, and announced the availability of an economic analysis. Pursuant to a court-approved settlement agreement, we must deliver to the **Federal Register** our final designation of critical habitat for the dusky gopher frog on or before May 30, 2012. This action fulfills our obligations under the Act and the settlement agreement.

This rule designates critical habitat for the dusky gopher frog.

- Approximately 625 hectares (1,544 acres) are designated as critical habitat in St. Tammany Parish, Louisiana.
- Approximately 1,996 hectares (4,933 acres) are designated as critical habitat in Forrest, Harrison, Jackson and Perry Counties, Mississippi.
- In total, approximately 2,621 hectares (ha) (6,477 acres (ac)) are designated as critical habitat for the dusky gopher frog.

Peer reviewers support our methods. We solicited expert opinions front seven knowledgeable individu-

als with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles. We received responses from six of the peer reviewers. The peer reviewers generally concurred with our methods and conclusions, and provided additional information, clarifications and suggestions to improve the final critical habitat rule.

Background

It is our intent to discuss in this final rule only those topics directly relevant to the development and designation of critical habitat for the dusky gopher frog under the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 *et seq*.). For more information on the biology and ecology of the dusky gopher frog, refer to the final listing rule published in the **Federal Register** on December 4, 2001 (66 FR 62993). For additional information on dusky gopher frog critical habitat, refer to the revised proposed rule to designate critical habitat for the dusky gopher frog published in the **Federal Register** on September 27, 2011 (76 FR 59774) and the announcement of the public hearing for the revised proposed rule published in the **Federal Register** on January 17, 2012 (77 FR 2254).

Taxonomy and Nomenclature

Subsequent to the listing of the dusky gopher frog (=Mississippi gopher frog), taxonomic research was completed that indicated that the entity (which we listed as a DPS of the dusky gopher frog (*Rana capito* [sic] *sevosa*)) is different from other gopher frogs and warrants acceptance as its own species (Young and Crother 2001, pp. 382-388). The herpetological scientific community accepted this taxonomic change and the scientific name for the species was

changed to *Rana sevosa*. In addition, all comments on taxonomy that we received during the comment periods for the revised critical habitat proposal were in agreement that the frog warrants acceptance as its own species. Therefore, listing as a DPS is no longer appropriate. The taxonomic change meant that a change in the common name from Mississippi gopher frog to dusky gopher frog was appropriate (Crother *et al*. 2003 , p. 197). Most comments we received on this subject indicated that we should change the common name to dusky gopher frog from Mississippi gopher frog. Therefore, although in the revised proposed critical habitat rule (76 FR 59774) we stated that we would continue to use the common name "Mississippi gopher frog" we now believe the common name dusky gopher frog should be used to describe the listed species rather than Mississippi gopher frog and, in this rule, we use the common name "dusky gopher frog" for this species.

We received other comments on changes that have been proposed in the scientific literature regarding removing the genus name *Rana* from a group of North American frogs and replacing it with the genus *Lithobates* (*see* Crother 2008, p. 7). There is still reluctance by some in the scientific community to accept this change (Hillis 2007, p. 331 ; Pauly *et al*. 2009, p. 115: Wiens *et al*. 2009, p. 1220). Until there is a clear consensus within the scientific community, we will continue to use the scientific name of *Rana sevosa* for the dusky gopher frog.

Previous Federal Actions

The dusky gopher frog was listed as an endangered species under the Act on December 4, 2001 (66 FR 62993). The species was at that time identified as the Mississippi gopher frog, *Rana capito*

sevosa, a distinct population segment of the dusky gopher frog (*Rana capito*) (see Taxonomy and Nomenclature discussion above). At the time of listing, the Service found that designation of critical habitat was prudent. However, the development of a designation was **[35,119]** deferred due to budgetary and workload constraints.

On November 27, 2007, the Center for Biological Diversity and Friends of Mississippi Public Lands (plaintiffs) filed a lawsuit against the Service and the Secretary of the Interior for our failure to timely designate critical habitat for the dusky gopher frog (*Friends of Mississippi Public Lands and Center for Biological Diversity v. Kempthorne* (07–CV–02073)). In a court-approved settlement, the Service agreed to submit to the **Federal Register** a new prudency determination, and if the designation was found to be prudent, a proposed designation of critical habitat by May 30, 2010, and a final designation by May 30, 2011. Designation of critical habitat for the dusky gopher frog was again found to be prudent, and a proposed rule to designate critical habitat for the dusky gopher frog was published on June 3, 2010 (75 FR 31387).

During the comment period for the June 3, 2010, proposed rule, the peer reviewers and other commenters indicated their belief that the amount of critical habitat proposed was insufficient for the conservation of the dusky gopher frog and that additional habitat should be considered throughout the historic range of the species. Specifically, information was provided that pointed to limitations in the data we used to determine the size of individual critical habitat units and that there was additional habitat in Louisiana that would aid in the conservation of dusky gopher frogs. Based on this new information,

we asked the plaintiffs to agree to an extension of the deadline that was established by the original settlement. Plaintiffs agreed, and in a modification to the original settlement signed on May 4, 2011, the court agreed to the Service's timeline to send a revised proposed critical habitat rule to the **Federal Register** by September 15, 2011, and a final critical habitat rule to the **Federal Register** by May 30, 2012. A revised proposed critical habitat rule was published in the **Federal Register** on September 27, 2011 (76 FR 59774) and replaced our June 3, 2010 (75 FR 31387), proposed critical habitat rule in its entirety.

Summary of Comments and Recommendations

We requested written comments from the public on the revised proposed designation of critical habitat for the dusky gopher frog during two comment periods. The first comment period, associated with the publication of the revised proposed rule and notification of the availability of the associated draft economic analysis (76 FR 59774), opened on September 27, 2011 and closed on November 28, 2011. The second comment period, associated with a public hearing held on January 31, 2012, in Gulfport, Mississippi, opened on January 17, 2012 and closed on March 2, 2012. We also contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties, and invited them to comment on the revised proposed rule and draft economic analysis during these comment periods.

During the first comment period, we received 46 comment letters directly addressing the revised critical habitat designation or the draft economic analysis. During the second comment period, we received 57 comment letters directly addressing the revised proposed critical habitat designation or the draft

economic analysis. During the January 31, 2012, public hearing, 19 individuals or organizations made comments on the proposed designation. All substantive information provided during comment periods has either been incorporated directly into this final determination or is addressed in our responses below. Public comments we received were grouped into six general categories.

Peer Review

In accordance with our peer review policy published in the **Federal Register** on July 1, 1994 (59 FR 34270), we solicited expert opinions from seven knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles. We received responses from six of the peer reviewers.

We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding critical habitat for the dusky gopher frog. The peer reviewers generally concurred with our methods and conclusions, and provided additional information, clarifications, and suggestions to improve the final critical habitat rule. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Reviewer Comments

Comment 1: All peer reviewers agreed that although *Rana capito sevosa* was listed as a distinct population segment of *Rana capito* the listed entity has now been accepted by the scientific community as a unique species, *Rana sevosa.* All but one of the peer reviewers agreed with our proposed change of

the common name of the listed entity from Mississippi gopher frog to dusky gopher frog. Two of the peer reviewers suggested changing the scientific name of *Rana sevosa* to *Lithobates sevosus* based on recent publications in the scientific literature. However, one of these peer reviewers stated that although the four major herpetological societies require authors submitting papers to their publications to use the standard English names of Crother (2008, p. 8) (=dusky gopher frog], authors may use their discretion on the scientific name used (within scientific reason and with citation when needed).

Our Response: See "Taxonomy and Nomenclature" above. The Service is changing the name of the listed entity to *Rana sevosa*, the dusky gopher frog. However, because disagreement exists in the scientific community regarding the taxonomic support for replacing *Rana* with *Lithobates*, the Service believes it is not yet appropriate to make this change for the listed entity.

Comment 2: All of the peer reviewers agreed that it was appropriate that the Service had increased the size of the critical habitat units in the September 27, 2011 revised proposed rule. Nevertheless, there was some disagreement among the peer reviewers about whether the increase was adequate for the conservation of the dusky gopher frog, and this was reflected in their comments regarding the methods used to define the individual units. All of the peer reviewers approved of combining the maximum distance movements of the two species of gopher frogs for use in the determination of the size of individual critical habitat units; however, two of the peer reviewers, and others, provided specific comments on our use of these data. The comments included: Combining movement data from studies of the same population;

deleting anecdotal observations from single frogs not incorporated into larger studies; using the mean rather than the median to calculate the value used to define the area around each breeding pond; and increasing the area of critical habitat beyond the value calculated from the movement data to account for areas of poor upland habitat quality. One peer reviewer stressed the need to maximize the size of critical habitat units due to the uncertainty of habitat suitability when creating circular areas of protection and due to the reduction in dusky gopher frog genetic variability resulting from the species' habitat isolation and small population size.

Our Response: In our January 17, 2012, publication (77 FR 2254), we reopened the comment period and **[35,120]** announced a public hearing on the revised proposed critical habitat designation. We also proposed changes in the data analysis that had been used in creating the critical habitat units in the revised proposed rule, and requested comments on these changes. The changes included combining movement data from individual sites and removing one anecdotal gopher frog movement record from our maximum distance dataset. The Service did not receive any comments on these changes from peer reviewers or the public. We continue to believe, as was expressed by one of the peer reviewers, that the use of the median distance value in our calculations is more appropriate than using the mean. The use of the mean would yield a higher value because the maximum distance values are skewed toward larger values and the mean is more influenced by these values when compared to the median. To illustrate the possible bias in using the mean rather than the median, one reviewer pointed out that the greatest maximum distance movement was on a site where

burrow habitat in the uplands was severely limited and the frogs had to move long distances to find appropriate fossorial (underground) habitat. We believe the use of the median long distance movement value provides a better estimate of central tendency in our dataset, and we consider its use more appropriate than the mean. The Service agrees that there are likely differences in habitat suitability in the various critical habitat units, and we have tried to account for that by using the median maximum distance value, plus a buffer, in calculating the area to include in critical habitat surrounding each occupied or unoccupied breeding pond (see "*Criteria Used To Identify Critical Habitat*" below).

Comments From States

Section 4(i) of the Act states, "the Secretary shall submit to the State agency a written justification for his failure to adopt regulations consistent with the agency's comments or petition." The only comment received from a State agency was from an employee of a State agency that was a peer reviewer of the revised proposed rule. This comment was in support of the revised proposal as written.

Public Comments

General Comments Issue 1: Critical Habitat Delineation Methodology

Comment 3: If the delineation of critical habitat for the dusky gopher frog is based on the best available science, there is no biological reason to include movement data from other gopher frogs (*Rana capito*) and not include movement data from crawfish frogs (*R. areolata*). The two gopher frog species and crawfish frogs share derived morphological and behavioral characters that separate them from all oth-

er frog species. One of their shared behavioral traits is an affinity for small terrestrial cavities.

Our Response: The two species of gopher frogs (*Rana capito* and *R. sevoso*) share similar habitat within different geographic areas of the longleaf pine ecosystem in the southeastern United States. As adults, all gopher frogs occupy below-ground habitat within the forested uplands, typically stump holes, small mammal burrows, and when they are available, gopher tortoise burrows. Crawfish frogs occur outside the range of gopher frogs and are distributed to the east and west of the Mississippi River in an arc from the eastern Gulf Coast of Texas north to southern Iowa, Illinois, Indiana, and Kentucky, and south across western Tennessee, north and central Mississippi, and northeastern Louisiana (Parris and Redmer 2005, p. 526). Crawfish frogs occupy a wide variety of habitats including open wet woodlands, wooded valleys, prairies, river floodplains, pine forest, wet pastures, and grasslands (Parris and Redmer 2005, p. 527). Adult crawfish frogs use fossorial habitats, commonly occupying abandoned crayfish burrows (Parris and Redmer 2005, p. 527). Although adult dusky gopher frogs also use fossorial habitats (abandoned mammal burrows, stump holes), the Service considers the differences in geography and habitat between the two species to be too great to include crawfish frog movement data in our critical habitat calculations.

Comment 4: The amount of area designated as critical habitat around occupied or unoccupied dusky gopher frog breeding ponds should be increased. One commenter requested a general increase in area only around the four occupied sites. Another commenter wanted the Service to go back to using a 650-m (2,133-fl) radius around all sites as was used to con-

struct critical habitat units in our September 27, 2011, revised proposed rule (76 FR 59774). In addition, that commenter requested the radius be increased to 1,000 m (3,281 ft) around Glen's Pond when constructing the critical habitat unit at that site.

Our Response: see Section "*Criteria Used To Identify Critical Habitat*" below for a discussion of our rationale for constructing individual critical habitat units. The Service used the best available scientific information on gopher frog movements to quantify the areas we are designating as critical habitat. We have found no scientific justification for using a larger radius when constructing some units over others. In the future, if such data become available, under the authority of section 4(a)(3)(A)(ii) the Secretary could revise the designation, as appropriate.

General Comments Issue 2: Procedural and Legal Issues

Comment 5: The Endangered Species Act and the proposed designation of critical habitat are unconstitutional and the Service lacks authority to regulate the dusky gopher frog under the Commerce Clause of Article I, Section 8, Clause 3 of the United States Constitution. The U.S. Supreme Court defined the limits of the Commerce Clause by mandating that (i) Congress may only regulate an activity that "substantially affect(s)" interstate commerce, and (ii) there must be a rational basis for Congress' conclusion that the regulated activity sufficiently affects interstate commerce. The Service did not cite any link whatsoever between the designation of critical habitat for the frog and commerce, be it travel, tourism, scientific research, or agriculture. Designation of critical habitat will "result in a significant impinge-

ment of the States' traditional and primary power over land and water use" and this effective control is not justified because there is no Federal interest in regulation of interstate commerce relative to the dusky gopher frog.

Our Response: The constitutionality of the Act in authorizing the Services' protection of endangered and threatened species has consistently been upheld by the courts. see, *e.g.*, *GDF Realty Investments, Ltd.* v. *Norton*, 326 F .3d 622 (5th Cir. 2003); *Gibbs* v. *Babbitt*, 214 F.3d 483 (4th Cir. 2000); *National Association of Homebuilders* v. *Babbitt*, 130 F.3d 1041 (D.C. Cir. 1997), *cert. denied*, 524 U.S. 937 (1998); *Rancho Viejo* v. *Norton*, 323 F.3d 1062 (D.C. Cir. 2003); and *United States* v. *Hill*, 896 F. Supp. 1057 (D. Colo. 1995). The courts have held that regulation under the Act to protect species that live only in one State is within Congress' Commerce Clause power and that loss of animal diversity has a substantial effect on interstate commerce. *National Ass'n of Home Builders*, 130 F.3d at 1050-51; see *Rancho Viejo*, 323 F.3d at 310, n. 5. Thus, although the dusky gopher frog is currently known to occur only within the State of Mississippi, the Service's application of the Act to designate critical habitat for this species is constitutional. **[35,121]**

Comment 6: Designation of private property as critical habitat constitutes a "taking" of private property under the 5th Amendment of the U.S. Constitution by depriving landowners of the economically beneficial use of their land. As a result of the designation, the property will be pressed into "public service" without compensation to the landowners.

Our Response: The Service analyzed the potential takings implications of designating critical habitat

for the dusky gopher frog and included this analysis in our administrative record. Determining whether a constitutional taking will occur is a matter for the courts. However the process is generally fact-specific and involves weighing the character of the government action, the economic impact of that action, and the reasonableness of the property owner's investment-backed expectations. We have identified two "taking" scenarios that are relevant to the designation of critical habitat. The first is a physical taking when the government's action amounts to a physical occupation or invasion of the property, including the functional equivalent of a practical ouster of the owner's possession. The proposed designation of critical habitat for the dusky gopher frog would not result in physical occupation or invasion of private property. On non-Federal lands, activities that lack Federal involvement, such as timber management and oil and gas extraction, would not be affected by the critical habitat designation. However, a second scenario concerns activities of an economic nature that are likely to occur on non-Federal lands in the area encompassed by this designation, and where Federal involvement may occur, and includes construction of utilities, residential or commercial development, and road construction and maintenance. This second scenario is where a regulation may potentially deny all economically beneficial or productive use of land, commonly referred to as a categorical taking. However, the mere promulgation of a regulation designating critical habitat does not on its face deny property owners all economically viable use of their land. The Act does not automatically restrict all uses of lands that have been designated as critical habitat, but only imposes restrictions under section 7(a)(2) on Federal agency actions that may result in destruction or adverse modification of criti-

cal habitat. Furthermore, as discussed above, if a biological opinion concludes that a proposed action is likely to result in the destruction or adverse modification of critical habitat, we are required to suggest reasonable and prudent alternatives to the action that would avoid the destruction or adverse modification of critical habitat. Such alternatives must be economically, as well as technologically, feasible (50 CFR 402.02).

Comment 7: The Service has no delegated authority to regulate or confiscate private land.

Our Response: When prudent, the Service is required to designate critical habitat under the Act. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation (see further explanation under Comment 6 above).

Comment 8: The Service did not comply with the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*). The Ninth Circuit's holding that NEPA does not apply to critical habitat designations rested in part on supposition that the action at issue does not alter the natural, untouched physical environment at all. Therefore, as maintenance of critical habitat requires special management, which can be interpreted as human interference with the environment, a NEPA review is required.

Our Response: Environmental assessments and environmental impact statements, as defined under NEPA, are not required for regulations enacted under section 4 of the Act (see 48 FR 49244, October 25, 1983). The Service has determined that, outside of the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, a NEPA analysis is not required for critical habitat designation.

The fact that a physical or biological feature requires special management considerations or protection to meet the definition of "critical habitat" does not mean that the designation of critical habitat would include "special management" requiring active maintenance or any other form of human interference with property. In the case of unoccupied habitat, the "physical/biological features/special management" part of the definition simply does not apply. Thus, the designation of critical habitat does not constitute the sort of human interference that would require a NEPA analysis.

Comment 9: In order to determine what is "essential to the conservation of the species," the Service must first identify "the point" when the species will no longer be "endangered" or "threatened". That point can be identified only if the Service has determined a viable population size and the minimum habitat necessary to sustain that population. These threshold determinations are missing from the proposed rule. The failure to articulate a basis for designating each unit as critical habitat is a violation of the law that must be corrected.

Our Response: During the process of developing a recovery plan, as required by Section 4(f) of the Act, the Service determines the threshold that must be met to establish when a species is no longer "endangered" or "threatened". The Service has not yet completed a recovery plan for the dusky gopher frog, and thus, this threshold has not been defined. However, the Act does not require that recovery criteria be established as a precondition to designating critical habitat. Section 3(5)(A) of the Act defines the term "critical habitat" as (i) the specific areas within the geographical area occupied by the species, at the time it is listed * * * on which are found those physi-

cal or biological features essential to the conservation of the species and which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed * * * upon a determination that such areas are essential for the conservation of the species. The Act does not provide additional guidance on how to determine what habitat is essential for the conservation of the species, nor does it require a minimum population and habitat viability analysis for critical habitat designation. In this case, the Secretary has discretion in determining what is essential for the conservation of a species. The Service has studied the one dusky gopher frog population known at the time of listing to determine the habitat attributes essential to the conservation of the species, and determined that the primary constituent elements (PCEs) specific to the dusky gopher frog are: (1) Ephemeral wetland habitat (PCE 1); (2) upland forested nonbreeding habitat (PCE 2); and (3) upland connectivity habitat (PCE 3) (see "*Criteria Used To Identify Critical Habitat*" below). With regard to units/subunits not known to be occupied at the time of listing, we have determined that these areas are essential to the conservation of the dusky gopher frog because this species is at high risk of extirpation from stochastic events, such as disease or drought, and from demographic factors such as inbreeding depression. The establishment of additional populations beyond the single site known to be occupied at listing is critical to protect the species from extinction and provide for the species' eventual recovery. **[35,122]**

Therefore, the Service believes that all the areas designated as critical habitat meet the definition under section 3(5)(A) of the Act. If the Service gains

knowledge of additional areas that meet the definition of critical habitat, then under section 4(a)(3)(A)(ii) of the Act, the Secretary may revise the designation, as appropriate. The Service has articulated a basis for designating each unit as critical habitat under the individual unit descriptions in Final Critical Habitat Designation.

Comment 10: The Service has failed to meet the "prudent and determinable" standard of section 4(a)(3) of the Act. In fact, the Service was required to immediately "find" critical habitat for the dusky gopher frog as a result of a court settlement with the Center for Biological Diversity.

Our Response: see "*Previous Federal Actions*." The dusky gopher frog was listed as an endangered species under the Act on December 4, 2001 (66 FR 62993), and at that time the Service found that designation of critical habitat was prudent. On November 27, 2007, the Center for Biological Diversity and Friends of Mississippi Public Lands (plaintiffs) filed a lawsuit against the Service and the Secretary of the Interior for our failure to timely designate critical habitat for the dusky gopher frog. In a court-approved settlement, the Service agreed to submit to the **Federal Register** a new prudency determination, and if the designation was found to be prudent, a proposed designation of critical habitat by May 30, 2010, and a final designation by May 30, 2011. A new prudency determination was included in our proposed rule to designate critical habitat for the dusky gopher frog published on June 3, 2010 (75 FR 31387). Based on new scientific information we received during the comment period for this proposed rule, the Service requested and received a modification to the settlement agreement, signed on May 4, 2011. The Service complied with the settlement agreement and

made another prudency determination in our revised proposed rule to designate critical habitat for the dusky gopher frog (76 FR 59774, September 27, 2011) which replaced the 2010 proposed rule in its entirety. Thus, the settlement agreement did not force the Service to "find" critical habitat for the dusky gopher frog, but rather complete a new prudency determination and only proceed with a proposed, and ultimately, a final designation of critical habitat if deemed prudent.

Comment 11: The Service did not contact all landowners potentially affected by the proposed designation of critical habitat.

Our Response: The Act requires that we publish the proposed regulation in the **Federal Register**, give actual notice of the proposed regulation to each affected state and county (i.e., those in which the species is believed to occur), appropriate professional organizations, and publish a summary of the proposed regulation in a newspaper of general circulation in each area of the U.S. where the species is believed to occur. It also requires that we promptly hold one public hearing if any person files a request within 45 days of the publication (in the **Federal Register**). When we were able to identify the landowners of a proposed critical habitat unit, we contacted them directly. In addition, we attempted to ensure that as many people as possible would be aware of the revised proposed critical habitat designation, draft economic analysis, and public hearing by issuing press releases to all major media in the affected area, submitting newspaper notices for publication within areas of revised proposed critical habitat, and directly notifying affected State and Federal agencies, environmental groups, State Governors, Federal and State elected officials, and county com-

missions. We accepted comments from September 27, 2011, through November 28, 2011, and from January 17, 2012, through March 2, 2012, for a total of 105 days. We sent out notifications of the second comment period to commenters from the first comment period when they had supplied their contact information. By these actions, we have complied with or exceeded all of the notification requirements of the Act and the Administrative Procedure Act (5 U.S.C. subchapter II).

Comment 12: One commenter expressed opposition to Federal acquisition of 16th Section land unless the land is purchased at full replacement value or fair market lease without loss and hardship to schools and without increasing local homeowners' tax burden to recoup the losses from such a transaction.

Our Response: Designation of critical habitat on land does not constitute "Federal acquisition" of that land. The Service has no plans to acquire ownership of any land designated as critical habitat. The commenter referred to "16th section" lands. This designation is based on the original surveys of the country in the late 1700's when land was systematically surveyed into square townships, 9.656 km (6 miles) on a side. The townships were subdivided into 36 sections of 2.59 km^2 (1 mi^2). Section 16 in each township was reserved for the maintenance of public schools. This system remains in place in Mississippi and funds derived from "16th section" lands are used to support county funding for public schools. Our intention is to work with existing landowners, including the State of Mississippi, which owns 16th Section lands, to further the recovery of the dusky gopher frog.

Comment 13: Critical habitat designation may limit conservation actions in other areas.

Our Response: The Service will work on actions to support the recovery of the dusky gopher frog wherever possible, including outside the geographic area designated as critical habitat.

General Comments Issue 3: Critical Habitat Designation on Private Land—General

Comment 14: Critical habitat designation on private land will prevent future timber management and development within the designated area. Property owners within one mile of critical habitat could be affected by the designation. Private property owners will be burdened with consultation under section 7 of the Act as a result of the critical habitat designation. The Service should restrict critical habitat on private land to landowners that voluntarily participate in the recovery of endangered and threatened species.

Our Response: The selection of sites to be included in critical habitat is based, first and foremost, on the needs of the species. Before we determine land ownership, we consider what is needed for species conservation based on the best available scientific and commercial information. This ensures that the best locations to support species' conservation are identified and increases awareness among all potential partners of the best known sites to support the conservation of the species.

The designation of critical habitat does not impose a legally binding duty on private parties. Activities that do not involve a Federal agency, Federal action, Federal funding, or Federal permitting, will be unaffected by the designation of critical habitat. Private land use activities, such as farming and silviculture, would be unaffected. Federal activities, or actions permitted, licensed, or funded by Federal agencies, will require consultation with the Service if they

are likely to adversely modify critical habitat. Consultation is a process by which Federal agencies use the Service's expertise to evaluate the potential effects of a proposed action on species listed under the Act and their critical habitats. The Service works with Federal agencies to identify alternatives where activities or projects may proceed **[35,123]** without adverse modification to critical habitat. For example, if private landowners wish to develop their property and are required by the U.S. Army Corps of Engineers (Corps) to obtain a wetlands dredge and fill permit, this would trigger consultation under section 7 of the Act between the Corps and the Service if critical habitat is designated on the property; however, the Service would work with the Corps to identify strategies to avoid adverse modification of critical habitat. Based on our experience with section 7 consultations for other listed species, virtually all projects—including those that, in their initial proposed form, would result in jeopardy or adverse modification—can be implemented successfully with, at most, the adoption of reasonable and prudent alternatives. Reasonable and prudent alternatives must, by definition, be economically feasible and within the scope of authority of the Federal agency involved in consultation.

If there is no activity on private property involving a Federal agency, Federal action, Federal funding, or Federal permitting, participation in the recovery of endangered and threatened species is voluntary. Critical habitat designation does not require property owners to undertake affirmative actions to promote the recovery of the listed species. There is no effect to landowners whose property is outside the specific area designated as critical habitat, no matter the ownership (see response to Comment 6).

General Comments Issue 4: Critical Habitat Designation on Private Land—Louisiana

Comment 15: The dusky gopher frog has not been seen in Louisiana since 1965, and the habitat designated as Critical Habitat Unit 1 (Unit 1) has none of the primary constituent elements (PCEs) described in the revised proposed rule; the ponds in Unit 1, in their present condition, do not constitute suitable dusky gopher frog habitat under the definition of PCE 1. Although the Service's interest in Unit 1 is caused in part by the perceived difficulty in establishing ephemeral ponds for the dusky gopher frog, artificial ponding has supported gopher frog reproduction. Unit 1 will never have PCEs due to on-going timber management of the site, which precludes burning or planting longleaf pine trees to improve the upland habitat for the gopher frog. The dusky gopher frog will never be present on site because the landowners object to moving them there. The Service cannot designate critical habitat on the grounds that the PCEs will be present in the future.

Our Response: The site in Louisiana identified as Unit 1 contains at least two historic breeding sites for the dusky gopher frog. Unit 1 is not currently occupied nor was it occupied at the time the dusky gopher frog was listed. For such areas, which are outside the geographical area occupied by a species at the time it is listed, section 3(5)(A)(ii) of the Act requires simply that critical habitat be designated based on a determination that such areas are essential for the conservation of the species. Due to the importance of ephemeral ponds to the recovery of the dusky gopher frog (see "*Criteria Used To Identify Critical Habitat*"), the Service determined that the area of Unit 1 is essential for the conservation of the dusky gopher frog. The only pond occupied at the

time of listing is being designated and we determined that this one location is not sufficient to conserve the species. Additional areas that were not known to be occupied at the time of listing are essential for the conservation of the species. Although the presence of the PCEs is not a necessary element for this determination, the Service believes Unit 1 contains the PCE described as Primary Constituent Element 1—Ephemeral wetland habitat (see Section "*Primary Constituent Elements for the Dusky Gopher Frog*") based on the best available data, which include the visits made to the site by Service personnel and other gopher frog experts. During these visits, the Service assessed the habitat quality of ephemeral wetlands in this area and found that a series of five ponds contained the habitat requirements for PCE 1 (see response to Comment 16 below).

The Service is aware borrow pits and other sites constructed by man have been used for breeding by other species of gopher frogs outside the range of the dusky gopher frog. Nevertheless, these sites need to contain the same features that are present in natural ponds in order for them to provide the proper environment for successful development of metamorphic dusky gopher frogs. Ephemeral, isolated ponds are very difficult to establish in the landscape due to their short and specific hydrology. The ponds have to hold water long enough to allow for tadpole development and metamorphosis, but if they hold water too long they become permanent ponds and no longer have value for ephemeral pond-breeding amphibians. The U.S. Forest Service, in cooperation with the Service and our partners, constructed a pond on the DeSoto National Forest with the goal of creating a dusky gopher frog breeding site. It has taken 10 years to reach the point where we consider this pond

ready to be used as a reintroduction site, and its value as a breeding site has not yet been proven. It is highly unlikely that five ponds, similar to those that currently exist in Unit 1, could be created in the landscape within a timeframe that would provide near-term conservation benefits to the dusky gopher frog.

During the process of delineating critical habitat, the Service assesses habitat to determine if it is essential for the conservation of a listed species. Although we have no existing agreements with the private landowners of Unit 1 to manage this site to improve habitat for the dusky gopher frog, or to move the species there, we hope to work with the landowners to develop a strategy that will allow them to achieve their objectives for the property and protect the isolated, ephemeral ponds that exist there. According to the landowners, the timber lease on their property does not expire until 2043. The Service has a number of tools, such as habitat conservation plans, that could be used to formalize the timber management goals of the landowners and work towards recovery of the dusky gopher frog. There are also programs, such as the Healthy Forests Initiative administered through the U.S. Department of Agriculture's Natural Resources Conservation Service, that provide funding to private landowners for habitat management. However, these tools and programs are voluntary, and actions such as habitat management through prescribed burning, or frog translocations to the site, cannot be implemented without the cooperation and permission of the landowner.

Comment 16: The Service has not provided sufficient support for the argument that Unit 1 is "essential for the conservation" of the dusky gopher frog, only a "more is better" statement that Unit 1 pro-

vides additional habitat for population expansion. "Essential for conservation of the species," the standard for designating critical habitat on unoccupied sites, is a more exacting standard than that for determining critical habitat designation of occupied habitat. The Act requires a demonstration that the designation of unoccupied habitat is essential for conservation, not essential to decreasing the risk of extinction of the species. The Service must provide a factual basis supporting the conclusion that Unit 1 is essential to recovery of the dusky gopher frog.

Our Response: The scientific peer reviewers that responded to our original proposed critical habitat rule were **[35,124]** united in their assessment that this proposal was inadequate for the conservation of the dusky gopher frog and that we should look within the species' historic range outside the state of Mississippi for additional habitat for the designation. As a result of the peer review, we conducted a reanalysis of current and historic data for the species, including data from Alabama and Louisiana, to determine if we could find additional habitat that would meet the definition of critical habitat (see Comment 17, below, for discussion of habitat in Alabama). As a result of the rarity of open-canopied, isolated, ephemeral ponds within the historic range of the dusky gopher frog, and their importance to survival of the species, identifying more of these ponds was the primary focus of our reanalysis (see "*Criteria Used To Identify Critical Habitat*", below).

The Service visited the area designated as Unit 1 in St. Tammany Parish, Louisiana, in 2011. We conducted a habitat assessment in this specific area because at least two historic breeding ponds for the dusky gopher frog occur there, including the one where the species was last seen in 1965. We deter-

mined that five isolated, ephemeral wetlands in that area are similar to ponds where dusky gopher frogs currently breed in Mississippi. The five ponds are in close proximity to each other, which provides metapopulation structure and increases the unit's value to the long-term survival and recovery of the frogs over an area with a single breeding pond (see "Space for Individual and Population Growth and for Normal Behavior", below).

The role of critical habitat is to support the life-history needs of the species and provide for conservation. Conservation is defined in section 3(3) of the Act as the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary (recovery). Recovery of the dusky gopher frog will not be possible without the establishment of additional breeding populations of the species. Isolated, ephemeral ponds that can be used as the focal point for establishing these populations are rare, and this is a limiting factor in dusky gopher frog recovery. Based on the best scientific information available to the Service, the five ponds in Unit 1 provide breeding habitat that in its totality is not known to be present elsewhere within the historic range of the dusky gopher frog.

The isolated populations of the dusky gopher frog face many threats, including droughts and disease. These environmental and biological threats are likely to occur at the same time at sites near each other. Habitat in Louisiana is distant from the extant populations of the dusky gopher frog. For this reason, the Louisiana site would likely be affected by different environmental variables than sites in Mississippi. Thus, Unit 1 provides a refuge for the frog should the

other sites be negatively affected by environmental threats or catastrophic events. An example of one of these threats is climate change. Climate change will undoubtedly affect amphibians throughout the world in the coming decades (Lawler *et al*. 2010, p. 38). For species such as the dusky gopher frog, one of the greatest threats posed by climate change is water availability. The amount and timing of precipitation can have dramatic effects on ephemeral breeding ponds, resulting in mortality of eggs and larvae. In addition, post-metamorphic survivorship may be reduced by increased desiccation risk. Dusky gopher frogs will be susceptible to the effects of rapid climate change due to their limited natural ability to move through the landscape, and habitat fragmentation. Hydrological changes to ponds at the currently occupied sites could mean extinction for this species. The designation of critical habitat, and the creation of new populations of dusky gopher frogs through reintroductions, should give the species better odds of survival and recovery given the threats posed by climate change.

In summary, the Service believes Unit 1 is essential to the conservation of the dusky gopher frog because it provides: (1) Breeding habitat for the dusky gopher frog in a landscape where the rarity of that habitat is a primary threat to the species; (2) a framework of breeding ponds that supports metapopulation structure important to the long-term survival of the dusky gopher frog; and (3) geographic distance from extant dusky gopher frog populations, which likely provides protection from environmental stochasticity.

Comment 17: The site in Louisiana (Unit 1) was chosen without regard to available habitat for the dusky gopher frog in Alabama. Alabama contains

habitat that provides more of the PCEs needed for the dusky gopher frog to survive than in Unit 1, and the Service provided no assertion that Alabama ponds are not essential for the conservation of the dusky gopher frog. The standard the Service applied to designating critical habitat areas was that they would provide "additional habitat" and this standard could just as easily be applied to Alabama as to Louisiana. Nevertheless, critical habitat may only include areas "essential to the conservation of the species." The Service's failure to apply a consistent or correct standard for determining critical habitat is arbitrary and prohibited by the Administrative Procedure Act.

Our Response: Peer reviewers of our original proposed rule indicated that critical habitat for the dusky gopher frog in the proposal (76 FR 59774, September 27, 2011) was inadequate for the conservation of the dusky gopher frog. Thus, the Service conducted a habitat reassessment, which included areas outside of Mississippi that are within the species' historic range in Louisiana and Alabama (see Comment 16 and "*Criteria Used To Identify Critical Habitat*", below). In Alabama, the only record for the dusky gopher frog, as currently described, is from 1922 at a location in Mobile County near Mobile Bay. The upland terrestrial habitat at this site has been destroyed and replaced by a residential development (Bailey 1994, p. 5). A breeding site that might have been used by these frogs has never been found. Two remote sensing studies (Hart 2004, pp. 1–9: Bailey 2009, pp. 1–14) have been conducted to search for ponds and terrestrial habitat that might support dusky gopher frog populations. Those ponds identified using aerial photography which were visited did not contain habitat that provides a conservation benefit for dusky gopher frogs. Habitat was poor because

of a number of factors which limited its suitability for dusky gopher frogs. For example, ponds contained woody shrubs and trees, were occupied by fish, occurred within agricultural fields, and/or were surrounded by trailers and houses (Hart 2004, pp. 8–9). As there are no data supporting the occurrence of historic or current dusky gopher frog breeding sites in Alabama, nor any habitat of a quality certain to support conservation of the frog, the Service could not identify areas in Alabama that we believed essential for the conservation of the species in Alabama (see "*Criteria Used To Identify Critical Habitat*", below). The Service does not have data, nor did any commenter provide data, to support the assertion that habitat in Alabama provides more of the PCEs needed for the dusky gopher frog to survive than in Unit 1.

Comment 18: Unit 1 is not "essential" to the survival of the frog because most of the proposed critical habitat occurs on the DeSoto National Forest where the frogs can thrive.

Our Response: Critical habitat is a conservation tool. Conservation measures are a means to reach recovery and the point at which the measures provided under the Act are no longer necessary. This is a broader standard than simply survival and requires the Service to designate critical habitat that will support recovery of the species. DeSoto National Forest (DNF) represents only one area of the historic distribution of the dusky gopher frog. Although DNF is crucial to the survival of the frog because the majority of the remaining frogs occur there, recovery of the species will require populations of dusky gopher frog distributed across a broader portion of the species' historic distribution. Critical habitat will support recovery of the dusky gopher frog by protecting

sites across a large area of the species' historic range and providing space for population expansion, including in areas that will provide protection from the effects of local catastrophic events. See also our response to Comment 16.

* * *

General Comments Issue 6: Science

Comment 20: The Service failed to consider sound science when developing the revised proposed rule. The designation of Unit 1 as critical habitat is deeply flawed for scientific reasons and violates the Presidential Memorandum of Scientific Integrity. The agency actions for this designation are wholly devoid of sound science and undermine public trust.

Our Response: Comments questioning aspects of the methodology and data used in our revised proposed designation of critical habitat for the dusky gopher frog have been addressed above under Comments 2, 3, 4, 8, 15, 16, 17, and 18. Scientific peer review of our revised proposed rule supported the science that we used in developing the document. The commenter did not provide specifics about why the Service might be in violation of the President's March 9, 2009, Memorandum concerning Scientific Integrity; however, as illustrated below, we believe our rulemaking meets the standards set forth in the President's memorandum.

In accordance with section 4 of the Act, we are required to use, and we used, the best available scientific and commercial information to make this critical habitat decision. Further, we followed the criteria, established procedures, and guidance from our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Regis-**

ter on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554: H.R. 5658)), and our associated Information Quality Guidelines.

In order to meet these "best available scientific and commercial information" standards, we found information from many different sources, including articles in peer-reviewed journals, scientific status surveys and studies, other unpublished materials, and experts' opinions or personal knowledge. Also, in accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles. Additionally, we requested comments or information from other concerned governmental agencies, the scientific community, industry, and other interested parties concerning the revised proposed rule. We accepted comments during two open comment periods for a total of 105 days. All of the comments and information we received were considered in finalizing this critical habitat designation for the dusky gopher frog. All the supporting materials used for the final rule, including literature cited and comments from the public and peer reviewers, were made available for public inspection at the Web site: *http://www.regulations.gov*.

In conclusion, we believe that we have used the best available scientific and commercial information for the designation of critical habitat for the dusky gopher frog, in compliance with the Act and in accordance with the President's March 9, 2009, Memo-

randum concerning Scientific Integrity (see Critical Habitat). **[35,126]**

General Comments Issue 7: Economic Analysis

Comment 21: Two commenters state that the estimated $36.2 million impact to development activities in proposed Unit 1 should be attributed to that unit and not viewed as an economic impact of the entire 7,015-acre proposed critical habitat area.

Our Response: Exhibit ES–2 in the draft economic analysis (DEA) presents the incremental impacts of gopher frog conservation by unit and subunit. The impacts presented in this exhibit were revised in the final economic analysis (FEA) due to the reduction in acreage proposed in the **Federal Register** on January 17, 2012 (77 FR 2254). The FEA's Exhibit ES–2 includes incremental impacts attributable to the areas within proposed Unit 1 ranging from $0 to $33.9 million (assuming a 7 percent discount rate). This range reflects uncertainly regarding future land use and gopher frog conservation and recovery recommendations in Unit 1. These impacts are described further in the text following this exhibit (paragraphs 12 and 13 in the FEA's Executive Summary), where the FEA notes that "under scenarios 2 and 3, the greatest incremental impacts are forecast to occur within Unit 1 where present value impacts are equal to $20.4 million or $33.9 million, respectively (99.5 and 99.7 percent of overall incremental impacts), applying a seven percent discount rate." Also refer to the "*Economic Analysis*" section of this rule.

Comment 22: Multiple commenters assert that controlled burns necessary to properly manage habitat for the gopher frog within proposed Unit 1 will imperil homes and businesses in the vicinity. The commenters note that such burnings may halt devel-

opment of adjacent lands resulting in the loss of revenue to the landowners and tax revenue to St. Tammany Parish and the State of Louisiana. In addition, burnings are a safety hazard for drivers along LA Highway 36, which runs through proposed critical habitat Unit 1.

Our Response: In paragraph 78, the DEA acknowledges landowner concern that burning may lead to negative impacts in proposed Unit 1. However, as explained in footnote 76, critical habitat designation does not allow the Service to require burning of land parcels. If activities undertaken in Unit 1 have a Federal nexus (as assumed in scenarios 2 and 3 in the DEA), the Service may request burning through the section 7 consultation. Burning would be undertaken by experts following the issuance of a permit based on environmental conditions. In particular, wind conditions are considered when issuing a burning permit to ensure that smoke will not drift onto other properties or across roads. There is considerable uncertainty surrounding the frequency of future burns that may be requested by the Service and whether these burns would lead to any economic impacts; therefore incremental impacts associated with burns are not quantified in the DEA.

Comment 23: One commenter describes the potential for oil and gas development in Unit 1 and questions why the DEA does not quantify economic impacts for oil and gas activities. In particular, the commenter indicates that consultation on oil and gas development activities under section 7 of the Act would lead to negative economic impacts. The commenter concludes that the DEA ignores the negative economic impact of consultation on oil and gas activities and is therefore fatally flawed.

Our Response: Paragraph 79 of the DEA summarizes the potential for economic impacts to oil and gas activities in proposed Unit 1. The DEA concludes that it is 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." As summarized on pages ES–4 and ES–5, the DEA assumes that a Federal nexus is present under scenarios 2 and 3 because of the need for a Corps Clean Water Act Section 404 permit. The DEA assumes that there is no Federal nexus triggering section 7 consultation under scenario 1. Despite the fact that the DEA assumes a Federal nexus is present under scenarios 2 and 3, and the DEA indicates that economic impacts to oil and gas activities may be "possible," the DEA does not quantify these impacts due to considerable uncertainty surrounding the likelihood, timing, and extent of oil and gas development within Unit 1 over the foreseeable future. Instead, the DEA qualitatively discusses the impacts that may occur, such as increased operational costs due to the need to use directional drilling to access oil and gas resources within proposed critical habitat areas.

Comment 24: One comment indicates that the DEA underestimates adverse economic impacts in proposed Unit 1 by failing to quantify potential impacts to forestry activities. The commenter notes that in light of recent litigation and Federal agency initiatives, the likelihood of a Federal nexus for forestry activities is not zero and therefore costs associated with future consultation on these activities should be included in the analysis.

Our Response: The DEA includes a section on potential impacts to forestry activities. Paragraph 95 of

the DEA explains that, "in general, normal silvicultural activities are exempt from section 404 permitting requirements." Although this statement is currently true, recent litigation and Federal agency initiatives could create a circumstance in which silviculture operations are no longer exempt from section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq*.) permitting requirements. A section has been added to the FEA in Chapter 4 to describe the recent and potential future changes. Nevertheless, considerable uncertainty surrounds these rulings and whether they will in fact change the permitting requirements for silvicultural operations in Mississippi and Louisiana within the next 20 years. It follows that the likelihood for these activities to be subject to section 7 consultation considering the gopher frog and its habitat is likewise uncertain. Therefore, the FEA discusses this potential impact qualitatively.

Comment 25: One comment asserts that the Service fails to seriously consider the burden that section 7 consultation will place on the landowners of proposed Unit 1. The commenter expresses concern that the consultation process itself, as well as the outcome of consultation on development within proposed Unit 1, will have negative economic impacts.

Our Response: The DEA estimates a range of possible incremental economic impacts to development in Unit 1. Two of the possible scenarios include the administrative cost of section 7 consultation, as well as a range of impacts associated with the lost value of that land for development assuming that consultation leads to the Service recommending that development be avoided within all or part of the unit. The administrative costs of consultation applied in this analysis are summarized in Exhibit 2–2 and are based on a review of consultation records from sever-

al Service field offices across the country conducted in 2002, and the Federal Government Schedule rates. Costs associated with lost development value of the land within proposed Unit 1 are described in the DEA's section 4–1. The DEA also includes a scenario which assumes that development occurring within Unit 1 avoids impacts on jurisdictional wetlands, and therefore the landowners will not be required to consult with the Service regarding gopher frog critical habitat. This low-**[35127]** end impact estimate is included due to uncertainty regarding the likelihood of a Federal nexus for development activities in Unit 1 and the conservation measures that the Service may recommended if consultation does occur.

Comment 26: Multiple commenters assert that designation would lead to lost tax revenues for the local government and State.

Our Response: The designation of critical habitat is not expected to have an effect on broader regional real estate demand and supply in St. Tammany Parish due to the existence of substitute sites for development activities. As a result, impacts to the regional construction industry and loss in revenue associated with home and business sales are not anticipated to occur. In addition, a reduction in housing supply is unlikely due to the existence of substitute sites, and, in turn, a measurable loss of tax revenue is not expected. A discussion of the potential effect on the regional real estate market has been added to the FEA.

Comment 27: One commenter states that the DEA fails to consider the incremental impacts to future activities in Unit 1 that would be borne by fu-

ture landowners residing within the unit after it has been developed for residential and commercial uses.

Our Response: As described in section 4.1 of the DEA, under scenario 1, no Federal nexus compelling section 7 consultation would occur and therefore no additional economic burdens would be expected for those families and businesses that purchase developed lands. Under scenario 3, no development would occur and thus impacts would be expected to be limited to the existing landowners. Therefore, scenario 2 is the only scenario in which both development and a Federal nexus would be expected to occur. Under this scenario, there is the potential that additional economic impacts could be incurred by landowners who purchase this developed property; however, this would occur only if the landowners undertake activities that result in a Federal nexus. The extent of these impacts would depend on the type and timing of future projects. In general, consultation with the Service at sites that have already been developed are rare. Given the inherent uncertainty, impacts to future landowners cannot be quantified in scenario 2.

Comment 28: One commenter asserts that the Service unjustly ignores the negative economic impacts in Unit 1 on the landowners and St. Tammany Parish by deeming the impacts "insignificant."

Our Response: In the revised proposed rule published in the **Federal Register** on September 27, 2011 (76 FR 59774), the Service states that, "if promulgated, the proposed designation would not directly have a significant effect on a substantial number of small business entities." This certification is based on the screening level analysis of the potential for gopher frog critical habitat designation to affect small entities contained in Appendix A of the DEA.

The results of this screening analysis were revised in the FEA due to the reduction in acreage proposed in the **Federal Register** on January 17, 2012 (77 FR 2254). The screening analysis in the FEA finds that five small entities will be affected by the designation of critical habitat for the gopher frog, accounting for 3.9 percent of the total small Land Subdividers within the counties containing critical habitat. In addition, this screening analysis finds that the annualized impact of the proposed designation of critical habitat within Unit 1 represents from zero to 44.7 percent of the average annual revenue for the four small entities affected in Unit 1. Based on these findings in the screening analysis and the tests set forth under the Small Business Regulatory Enforcement Fairness Act (SBREFA), we certified that, "if promulgated, the proposed designation would not directly have a significant effect on a substantial number of small business entities."

Comment 29: One commenter states that the benefits of designating proposed Unit 1 as critical habitat are vague and highly speculative and not quantified in the DEA on page 5–2.

Our Response: As stated in paragraph 53 of the DEA, the "primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species." OMB acknowledges in its guidance for implementing Executive Order 12866 that it may not be feasible to monetize or quantify the benefits of environmental regulations due to either an absence of studies or a lack of resources on the implementing agency's part to conduct new research. Instead of relying on economic measures, the Service believes that the benefits of the proposed rule are best expressed in biological terms that can

then be weighed against the expected costs of the rulemaking.

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[35,128] * * *

Comment 33: Multiple comments state that all privately owned lands, with the exception of those owned by supporters of the designation, should be excluded from the designation of critical habitat. These commenters assert that the proposed designation will negatively affect property values, the livelihood of landowners, and thus the local economy.

Our Response: All known reasonably foreseeable economic impacts on privately owned lands are quantified in the DEA. In particular, section 4.1 of the DEA quantifies potential impacts to land value within Unit 1. In addition to these direct impacts to land value, paragraph 51 of the DEA describes the potential indirect stigma effect that the designation of critical habitat may have on property values. Measurable stigma effects are unlikely, and thus they are quantified in the DEA.

Summary of Changes From Revised Proposed Rule

In preparing this final rule, we reviewed and fully considered comments from the public and peer reviewers that we received in response to our revised proposed rule designating critical habitat for the dusky gopher frog published in the **Federal Register** on September 27, 2011 (76 FR 59774). Based on information we received from peer reviewers, we amended the methodology we used in constructing critical habitat units. This change is described in detail in our January 17, 2012 publication announcing a public hearing in the **Federal Register** (77 FR

2254). Proposed changes included: combining all movement data from different studies conducted at the same site; discarding one field observation from the movement data because it did not provide specific information on breeding pond or upland habitat use; and standardizing all movement data to reflect straight-line distances between breeding ponds and uplands. As a result of these changes, proposed critical habitat for the dusky gopher frog was reduced by 193 ha (477 ac).

During a review of aerial photography prior to making the final maps of critical habitat for this final rule, we identified an agricultural field within critical habitat Unit 10 as it was described in the revised proposed rule. Because this agricultural area does not contain habitat suitable for the dusky gopher frog, it has been removed from the critical habitat designation. This change resulted in a further reduction of critical habitat of 35 ha (87 ac).

As a result of these two changes, there is a total reduction of 228 ha (564 ac) from the critical habitat we proposed on September 27, 2011, (76 FR 59774). In this rule we are designating approximately 2,621 ha (6,477 ac) of critical habitat for the dusky gopher frog.

Critical Habitat

Background

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

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

(a) Essential to the conservation of the species; and

(b) Which may require special management considerations or protection; and

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

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2)

of the Act would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

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

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographic area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of

the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographic area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species. **[35,129]**

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

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

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species; and (3) the prohibitions of section 9 of the Act if actions occurring in these areas may affect the species. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Physical or Biological Features

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographic area occupied by the species at the time of

listing to designate as critical habitat, we consider the physical or biological features essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographic, and ecological distributions of a species.

We derive the specific physical or biological features required for the dusky gopher frog from studies of this species' habitat, ecology, and life history as described in the Critical Habitat section of the revised proposed rule to designate critical habitat published in the **Federal Register** on September 27, 2011 (76 FR 59774), and in the information presented below. Additional information can be found in the final listing rule published in the **Federal Register** on December 4, 2001 (66 FR 62993). We have determined that the dusky gopher frog requires the following physical or biological features.

Space for Individual and Population Growth and for Normal Behavior

Dusky gopher frogs are terrestrial amphibians endemic to the longleaf pine ecosystem. They spend most of their lives underground in forested habitat consisting of fire-maintained, open-canopied, pine

woodlands historically dominated by longleaf pine (naturally occurring slash pine (*Pinus elliottii*) in wetter areas). Optimal habitat is created when management includes frequent fires, which support a diverse ground cover of herbaceous plants, both in the uplands and in the breeding ponds (Hedman *et al.* 2000, p. 233; Kirkman *et al.* 2000, p. 373). Historically, fire-tolerant longleaf pine dominated the uplands; however, much of the original habitat has been converted to pine (often loblolly (*P. taeda*) or slash pine) plantations and has become a closed-canopy forest unsuitable as habitat for dusky gopher frogs and other species of gopher frogs (Roznik and Johnson 2009a, p. 265).

During the breeding season, dusky gopher frogs leave their subterranean retreats in the uplands and migrate to their breeding sites during rains associated with passing cold fronts. Breeding sites are ephemeral (seasonally flooded), isolated ponds (not connected to other water bodies) located in the uplands. Both forested uplands and isolated wetlands (see "*Sites for Breeding, Reproduction, or Rearing* (*or Development*) *of Offspring*" for further discussion of isolated wetlands) are needed to provide space for individual and population growth and for normal behavior.

After breeding, adult dusky gopher frogs leave pond sites during major rainfall events; metamorphic frogs follow, after their development is complete. Limited data are available on the distance between the wetland breeding and upland terrestrial habitats of post-larval and adult dusky gopher frogs. Richter *et al.* (2001, pp. 316-321) used radio transmitters to track a total of 13 adult frogs at Glen's Pond, the primary dusky gopher frog breeding site, located in Harrison County, Mississippi. The farthest move-

ment recorded was 299 meters (m) (981 feet (ft)) by a frog tracked for 63 days from the time of its exit from the breeding site (Richter *et al.* 2001, p. 318). Tupy and Pechmann (2011, p. 1) conducted a more recent radio telemetry study of 17 dusky gopher frogs captured at Glen's Pond. The maximum distance traveled by these frogs to underground refuges was 240 m (787 ft).

Studies of a closely related gopher frog (*Rana capito*) in Florida, Georgia, and North Carolina, have documented surprisingly long movements between their breeding ponds and upland refugia. In a study in the sandhills of North Carolina, the post-breeding movements of 17 gopher frogs were tracked (Humphries and Sisson 2011, p. 1). The maximum distance a frog was found from its breeding site was 3.5 kilometers (km) (2.2 miles (mi)). In Florida, gopher frogs have been found up to 2 km (1.2 mi) from their breeding **[35,130]** sites (Franz *et al.* 1988, p. 82). The frequency of these long-distance movements is not known (see discussion in Roznik *et al.* 2009, p. 192). A number of other gopher frog studies have either generated data on radio-tracked frogs, or provided observations of them, in upland habitat at varying distances from their breeding ponds. We assessed these studies, and when multiple studies were conducted on a single population, we combined data for each site (we also combined the two data sets for dusky gopher frog). In the additional gopher frog studies, the maximum straight-line distances from pond to upland refugia are: 300 m (984 ft) (Georgia; Rostal 1999, p. 1); 525 m (1,722 ft) (Georgia; Neufeldt and Birkhead 2001, p. 10); 571 m (1,873 ft) (Florida; Blihovde 2006, p. 267); and 862 m (2,828 ft) (Florida; Roznik 2007, p. 10).

It is difficult to interpret specific habitat use for the dusky gopher frog from the limited available data. Movements are generally between breeding sites and belowground refugia, and distances moved are likely to be tied to the abundance and distribution of appropriate refugia. We have assumed that the dusky gopher frog can move farther distances, and may use a larger area, than the existing data for the species indicate. For this reason, we used data from the dusky gopher frog and other species of gopher frogs to estimate the potential distance a dusky gopher frog may move between its breeding pond and upland refugia. These seven values included the longest movement recorded for the dusky gopher frog, 299 m (981 ft), and the six values for other species of gopher frogs as described in the paragraph above. We then took the median value of all the dusky gopher frog and gopher frog movement data available to us (571 m (1,873 ft)), and used this value to construct the area of critical habitat around each occupied or unoccupied dusky gopher frog breeding pond. See also Summary of Changes from Revised Proposed Rule, above.

Due to the low number of occupied sites for the species, and with the cooperation of our Federal, State, and nongovernmental agency partners, management has been conducted at specific sites to improve habitat for dusky gopher frogs with the hope of establishing new populations at the sites (see "*Criteria Used To Identify Critical Habitat*"), When possible, we are managing wetlands in these areas within 1,000 m (3,281 ft) of each other as a block in order to create multiple breeding sites and metapopulation structure (defined as neighboring local populations close enough to one another that dispersing individuals could be exchanged (gene flow) at least once per

generation) in support of recovery (Marsh and Trenham 2001, p. 40; Richter *et al*. 2003, p. 177).

Due to fragmentation and destruction of habitat, the current range of naturally occurring dusky gopher frogs has been reduced to three sites (Glen's Pond, Mike's Pond, and McCoy's Pond). In addition, optimal terrestrial habitat for gopher frogs is considered to be within burrows of the gopher tortoise (*Gopherus polyphemus*), a rare and declining species that is listed as threatened under the Act within the range of the dusky gopher frog. Therefore, this specialized microhabitat has been reduced as well. Fragmentation and loss of the dusky gopher frog's habitat has subjected the species' small, isolated populations to genetic isolation and reduction of space for reproduction, development of young, and population maintenance; thus, the likelihood of population extinction has increased (U.S. Fish and Wildlife Service 2001, pp. 62993–63002). Genetic variation and diversity within a species are essential for recovery, adaptation to environmental changes, and long-term viability (capability to live, reproduce, and develop) (Harris 1984, pp. 93–107). Long-term viability is founded on the existence of numerous interbreeding, local populations throughout the range (Harris 1984, pp. 93–107).

Connectivity of dusky gopher frog breeding and nonbreeding habitat within the geographic area occupied by the species must be maintained to support the species' survival. Additionally, connectivity of these sites with other areas outside the geographic area occupied currently by the dusky gopher frog is essential for the conservation of the species. Research on other species of pond-breeding amphibians demonstrates the importance of connectivity of breeding and nonbreeding habitat, as well as occu-

pied and unoccupied sites (Semlitsch 2002, p. 624; Harper *et al*. 2008, p. 1205). Connectivity allows for gene flow among local populations within a metapopulation, which enhances the likelihood of metapopulation persistence and allows for recolonization of sites that are lost due to drought, disease, or other factors (Hanski and Gilpin 1991, pp. 4–6).

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

Dusky gopher frog tadpoles eat periphyton (microscopic algae, bacteria, and protozoans) from surfaces of emergent vegetation or along the pond bottom, as is typical of pond-type tadpoles (Duellman and Trueb 1986, p. 159). Juvenile and adult gopher frogs are carnivorous. Insects found in their stomachs have included carabid (*Pasimachus* sp.) and scarabaeid (genera *Canthon* sp. and *Ligyrus* sp.) beetles (Netting and Goin 1942, p. 259) and *Ceuthophilus* crickets (Milstrey 1984, p. 10). Dusky gopher frogs are gape-limited (limited by the size of the jaw opening} predators with a diet probably similar to that reported for other gopher frogs, including other frogs, toads, beetles, hemipterans, grasshoppers, spiders, roaches, and earthworms (Dickerson 1969, p. 196; Carr 1940, p. 64). Within the pine uplands, a diverse and abundant herbaceous layer consisting of native species, maintained by frequent fires, is important to maintain the prey base for juvenile and adult dusky gopher frogs. Wetland water quality and an open canopy (Skelly *et al*. 2002, p. 983) are important to the maintenance of the periphyton that serves as a food source for dusky gopher frog tadpoles.

Cover or Shelter

Amphibians need to maintain moist skin for respiration (breathing) and osmoregulation (controlling the amounts of water and salts in their bodies) (Duellman and Trueb 1986, pp. 197–222). Because dusky gopher frogs disperse from their aquatic breeding sites to the uplands where they live as adults, desiccation (drying out) can be a limiting factor in their movements. Thus, it is important that areas connecting their wetland and terrestrial habitats are protected in order to provide cover and appropriate moisture regimes during their migration. Richter *et al.* (2001, pp. 317–318) found that during migration, dusky gopher frogs used clumps of grass or leaf litter for refuge. Protection of this connecting habitat may be particularly important for juveniles as they move out of the breeding pond for the first time. Studies of migratory success in post-metamorphic amphibians have demonstrated the importance of high levels of survival of these individuals to population maintenance and persistence (Rothermel 2004, pp. 1544–1545)

Both adult and Juvenile dusky gopher frogs spend most of their lives underground in forested uplands (Richter *et al.* 2001, p. 318). Underground retreats include gopher tortoise burrows, small mammal burrows, stump holes, and root mounds of fallen trees (Richter *et al.* 2001, p. 318). Availability of appropriate underground sites is especially **[35,131]** important for juveniles in their first year. Survival of juvenile gopher frogs in north-central Florida was found to be dependent on their use of underground refugia (Roznik and Johnson 2009b, p. 431). Gopher frogs that did not occupy an underground refuge experienced much higher levels of mortality when compared with those that did occupy underground refuges (Roznik and Johnson 2009b, p. 434).

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

Dusky gopher frog breeding sites are isolated ponds that dry completely on a cyclic basis. Faulkner (U.S. Fish and Wildlife Service 2001, p. 62994) conducted hydrologic research at the Glen's Pond site in DNF, Harrison County, Mississippi. He described the pond as a depressional feature on a topographic high. The dominant source of water to the pond is rainfall within a small, localized watershed that extends 61 to 122 m (200 to 400 ft) from the pond's center. Substantial winter rains are needed to ensure that the pond fills sufficiently to allow hatching, development, and metamorphosis (change to adults) of larvae. The timing and frequency of rainfall are critical to the successful reproduction and recruitment of dusky gopher frogs. Adult frogs move to wetland breeding sites during heavy rain events, usually from January to late March (Richter and Seigel 2002, p. 964).

Studies at Glen's Pond indicate that this breeding pond is approximately 1.5 ha (3.8 ac) when filled and attains a maximum depth of 1.1 m (3.6 ft) (Thurgate and Pechmann 2007, p. 1846). The pond is hard-bottomed, contains emergent and submergent vegetation, and has an open canopy cover. It is especially important that a breeding pond have an open canopy; although the mechanism is unclear, it is believed an open canopy is critical to tadpole development. Experiments conducted by Thurgate and Pechmann (2007, pp. 1845–1852) demonstrated the lethal and sublethal effects of canopy closure on dusky gopher frog tadpoles. Canopy closure reduced the number of tadpoles that survived to metamorphosis and reduced the growth rates of those that did survive so that they were smaller at metamorphosis (Thurgate and Pechmann 2007, pp. 1845). The gen-

eral habitat attributes of the other three dusky gopher frog breeding ponds are similar to those of Glen's Pond. Female dusky gopher frogs attach their eggs to rigid vertical stems of emergent vegetation (Young 1997, p. 48). Breeding ponds typically dry in early to mid-summer, but on occasion have remained wet until early fall (Richter and Seigel 1998, p. 24). Breeding ponds of closely related gopher frogs in Alabama (east of the Mobile River drainage) and Florida have similar structure and function to those of the dusky gopher frog (Bailey 1990, p. 29; Palis 1998, p. 217; Greenberg 2001, p. 74).

An unpolluted wetland with water free of predaceous fish, suspended sediment, pesticides, and chemicals associated with road runoff is important for egg development, tadpole growth and development, and successful mating and egg-laying by adult frogs. For further information, see our December 4, 2001, listing rule (66 FR 62993).

Primary Constituent Elements for the Dusky Gopher Frog

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the dusky gopher frog in areas occupied at the time of listing, focusing on the features' primary constituent elements. We consider primary constituent elements to be the elements of physical or biological features that, when laid out in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features (discussed above) and habitat characteristics required to sustain the species' life-

history processes, we determine that the primary constituent elements specific to the dusky gopher frog are;

(1) Primary Constituent Element 1—*Ephemeral wetland habitat*. Breeding ponds, geographically isolated from other waterbodies and embedded in forests historically dominated by longleaf pine communities, that are small (generally <0.4 to 4.0 ha (<1 to 10 ac)), ephemeral, and acidic. Specific conditions necessary in breeding ponds to allow for successful reproduction of dusky gopher frogs are:

(a) An open canopy with emergent herbaceous vegetation for egg attachment;

(b) An absence of large, predatory fish that prey on frog larvae;

(c) Water quality such that frogs, their eggs, or larvae are not exposed to pesticides or chemicals and sediment associated with road runoff; and

(d) Surface water that lasts for a minimum of 195 days during the breeding season to allow a sufficient period for larvae to hatch, mature, and metamorphose.

(2) Primary Constituent Element 2—*Uplond forested nonbreeding habitat*. Forests historically dominated by longleaf pine, adjacent to and accessible to and from breeding ponds, that are maintained by fires frequent enough to support an open canopy and abundant herbaceous ground cover and gopher tortoise burrows, small mammal burrows, stump holes, or other underground habitat that the dusky gopher frog depends upon for food, shelter, and protection from the elements and predation,

(3) Primary Constituent Element 3—*Upland connectivity habitat*. Accessible upland habitat be-

tween breeding and nonbreeding habitats to allow for dusky gopher frog movements between and among such sites. This habitat is characterized by an open canopy, abundant native herbaceous species, and a subsurface structure that provides shelter for dusky gopher frogs during seasonal movements, such as that created by deep litter cover, clumps of grass, or burrows.

With this designation of critical habitat, we intend to identify the physical or biological features essential to the conservation of the species through the identification of the elements of the features, the primary constituent elements, that support the life-history processes of the species. The Service has determined that Unit 2a contained all of the PCEs, Units 2b through 12 are essential to the conservation of the species and also contain all of the PCEs, and Unit 1 is essential to the conservation of the species and contains one of the PCEs.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographic area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection.

All areas occupied at the time of listing will require some level of management to address the current and future threats to the dusky gopher frog and to maintain or restore the PCEs. Unoccupied areas will also require management to complete restoration. The features essential to the conservation of this species may require special management considerations or protection to reduce various threats to critical habitat that may affect one or more of the

PCEs. Special management of ephemeral wetland habitats ((breeding sites (PCE 1)) will be needed to ensure that these areas provide water **[35,132]** quantity, quality, and appropriate hydroperiod; cover; and absence from levels of predation and disease that can affect population persistence. In nonbreeding upland forested habitat (PCEs 2 and 3), special management will be needed to ensure an open canopy and abundant herbaceous ground cover; underground habitat for adult and subadult frogs to occupy; and sufficient cover as frogs migrate to and from breeding sites. A detailed discussion of activities influencing the dusky gopher frog and its habitat can be found in the final listing rule (66 FR 62993; December 4, 2001). Activities that may warrant special management of the physical or biological features that define essential habitat (appropriate quantity and distribution of PCEs) for the dusky gopher frog include, but are not limited to: (1) Land use conversions, primarily urban development and conversion to agriculture and pine plantations; (2) stump removal and other soil-disturbing activities that destroy the belowground structure within forest soils; (3) fire suppression and low fire frequencies; (4) wetland destruction and degradation; (5) random effects of drought or floods; (6) off-road vehicle use; (7) maintenance of gas, water, electrical power, and sewer easements; and (8) activities that disturb underground refugia used by dusky gopher frogs for foraging, protection from predators, and shelter from the elements.

Special management considerations or protection are required within critical habitat areas to address the threats identified above. Management activities that could ameliorate these threats include (but are not limited to): (1) Maintaining critical habitat areas as forested pine habitat (preferably longleaf pine); (2)

conducting forestry management using prescribed burning, avoiding the use of beds when planting trees, and reducing planting densities to create or maintain an open canopied forest with abundant herbaceous ground cover; (3) maintaining forest underground structure such as gopher tortoise burrows, small mammal burrows, and stump holes; (4) and protecting ephemeral wetland breeding sites from chemical and physical changes to the site that could occur by presence or construction of ditches or roads.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(1)(A) of the Act, we use the best scientific and commercial data available to designate critical habitat. We reviewed available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we consider whether designating additional areas—outside those currently occupied as well as those occupied at the time of listing—are necessary to ensure the conservation of the species. We are designating critical habitat in areas within the geographic area occupied by the species at the time of listing in 2001, We also are designating specific areas outside the geographic area occupied by the species at the time of listing, including those that are currently occupied, and others which are currently unoccupied, Most of the unoccupied areas designated as critical habitat are part of ongoing recovery initiatives for this species. We have determined that all areas designated as critical habitat outside the area occupied by the species at the time of listing are essential for the conservation of the species.

Dusky gopher frogs require small, isolated, ephemeral, acidic, depressional standing bodies of

freshwater for breeding; upland pine forested habitat that has an open canopy maintained by fire (preferably) for nonbreeding habitat; and upland connectivity habitat areas that allow for movement between nonbreeding and breeding sites. Dusky gopher frog populations are likely to function as metapopulations when occupied habitat is improved and that option is available to them since other species of gopher frogs behave in this way. In certain years and under certain conditions, dusky gopher frogs may move from ponds that become unsuitable to others that are suitable. Or in some years, if ponds fail to fill with water, local extirpations may occur and dusky gopher frogs from adjacent ponds may recolonize those sites when they fill with water again. The range of the dusky gopher frog has been severely curtailed, occupied habitats are limited and isolated, and population sizes are extremely small and at risk of extirpation and extinction from stochastic events that occur as periodic natural events or existing or potential human-induced events (U.S. Fish and Wildlife Service 2001, pp. 62993–63002). To reduce the risk of extinction through these processes, it is important to establish multiple protected subpopulations across the landscape (Soulé and Simberloff 1986, pp. 25–35; Wiens 1996, pp. 73–74). We considered the following criteria in the selection of areas that contain the essential features for the dusky gopher frog when designating units: (1) The historical distribution of the species; (2) presence of open-canopied, isolated wetlands; (3) presence of open-canopied, upland pine forest in sufficient quantity around each wetland location to allow for sufficient survival and recruitment to maintain a breeding population over the long term; (4) open-canopied, forested connectivity habitat between wetland and upland sites; and (5)

multiple isolated wetlands in upland habitat that would allow for the development of metapopulations.

We began our determination of which areas to designate as critical habitat for the dusky gopher frog with an assessment of the critical life-history components of the dusky gopher frog, as they relate to habitat. We then evaluated the dusky gopher frog in the context of its historic (Alabama (west of the Mobile River drainage), Louisiana, and Mississippi) and current (Mississippi) distribution to establish what portion of its range still contains the physical and biological features that are essential to the conservation of the species. We reviewed the available information pertaining to historic and current distributions, life histories, and habitat requirements of this species. We focused on the identification of ephemeral wetland habitats in our analysis because they are requisite sites for population survival and conservation and their rarity in the environment is one of the primary reasons that the frog is endangered. Our sources included surveys, unpublished reports, and peer-reviewed scientific literature prepared by the Alabama Department of Conservation and Natural Resources, Alabama Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Natural Heritage Program, Mississippi Department of Wildlife, Fisheries, and Parks, and dusky gopher frog researchers and other herpetologists that specialize in frogs; Service data and publications such as the final listing rule for the dusky gopher frog; and Geographic Information System (GIS) data (such as species occurrence data, habitat data, land use, topography, digital aerial photography, and ownership maps).

In Alabama, we were unable to identify habitat that met the requirements for sustaining the essen-

tial life-history functions of the species. No historical breeding sites for the species are known in Alabama. The only dusky gopher frog (as currently described) record from Alabama was an observation by Löding in 1922, and summarized in Wright and Wright (1949, p. 539). Löding found three gopher frogs under drift logs on the beach of Mobile Bay just south of the mouth of Dog River, Mobile County, **[35,133]** Alabama. Bailey (1994, pp. 4–5) visited this area in 1993, and found it to be a residential development, although large longleaf pine trees in lawns and vacant lots indicated the area could have formerly been suitable upland habitat for gopher frogs. Neither Löding nor Bailey located a possible breeding site in the vicinity of the record. Researchers have conducted two studies in southwestern Alabama to look for habitat that could support dusky gopher frogs. Hart (2004, pp. 1–9) initiated a remote sensing study using aerial photography of Mobile and Washington Counties, Alabama, to find open, isolated ponds in proximity to forested terrain. This technique was used to identify sites with the potential for supporting dusky gopher frog populations. Hart (2004, pp. 1–9) conducted field assessments of 41 ponds in Mobile County, Alabama, but habitat quality at these ponds was limited. Ponds were overgrown with woody vegetation and lacked the emergent vegetation necessary for dusky gopher frog egg attachment (Hart 2004, p. 9). Additional ponds were identified remotely in Washington County, Alabama, but were not visited, and their habitat quality is unknown. Bailey (2009, pp. 1–14) used a similar remote sensing technique to locate a total of 21 ponds in Choctaw, Mobile, and Washington Counties, Alabama. However, this was a coarse filter approach, and field assessments were not possible due to drought conditions and inaccessibility resulting from site isolation.

No areas suitable for conservation of the dusky gopher frog were identified in either of the remote sensing studies. No dusky gopher frog populations in Alabama were discovered during field assessments associated with Hart's (2004, pp. 1–9) study. At this time, the Service has not been able to identify suitable areas in Alabama that are essential for the conservation of the dusky gopher frog; thus, none are being designated as critical habitat.

In Louisiana, the dusky gopher frog was last observed in 1965. The Service visited the area of historic dusky gopher frog occurrence in St. Tammany Parish, Louisiana, and conducted a habitat assessment in March 2011. The area is managed for timber by a company conducting industrial forestry. Although the surrounding uplands are poor quality terrestrial habitat for dusky gopher frogs, we visited at least five ephemeral ponds, including the last known record of the species in Louisiana. These ponds were intact and of remarkable quality. This same area was surveyed for gopher frogs in the 1990s and 2000s. During those visits, the ephemeral ponds were considered similar in appearance (water clarity, depth, vegetation) to ponds in Mississippi used for breeding by the dusky gopher frog (Thomas and Ballew 1997, p. 6; Leonard *et al*. 2003, pp. 7–8; Pechmann *et al*. 2006, pp. 8, 10). Our observations in 2011 indicated the Louisiana ponds were little changed from the descriptions provided by the previous surveyors. In addition, the ponds are in close proximity to each other, which would allow movement of adult gopher frogs between them. In fact, no group of five ponds such as these was found in any of the areas of historical occurrence that we have searched in Mississippi. Dusky gopher frogs exhibit high larval and juvenile mortality. Multiple breeding sites protect against

catastrophic loss at any one site and provide opportunity for recolonization. This is an especially important aspect of critical habitat for dusky gopher frogs due to their limited population numbers. The multiple ponds present at the St. Tammany Parish site provide metapopulation structure that supports long-term survival and population resiliency. As a result, the Service determined that this area of St. Tammany Parish (Unit 1) is essential for the conservation of the dusky gopher frog.

In Mississippi, we identified ephemeral wetland habitat throughout the coastal counties within the historic distribution of the dusky gopher frog using U.S. Geological Survey topographic maps, National Wetland Inventory maps, Natural Resource Conservation Service county soil survey maps, and satellite imagery. Because we had previously identified existing sites with habitat essential for the conservation of the dusky gopher frog in our 2010 proposed rule (75 FR 31387), we searched for additional habitat with the best potential of restoring the physical and biological features essential for the conservation of the dusky gopher frog. We found these areas were concentrated on the DNF in Forrest, Harrison, and Perry Counties in southern Mississippi. Some additional sites were found in Jackson County on Federal land being managed by the State as a Wildlife Management Area and on private land being managed as a wetland mitigation bank. Once these areas were identified, we coordinated with our partners in the U.S. Forest Service, the U.S. Army Corps of Engineers, the Mississippi Department of Wildlife, Fisheries, and Parks, and The Nature Conservancy as they worked on habitat restoration efforts at the sites. The habitat quality of isolated ephemeral wetlands and the upland pine forests surrounding them

were improved to benefit the recovery of the dusky gopher frog. The habitat restoration efforts have been successful in establishing or improving the quality of the three PCEs required to sustain the dusky gopher frog's life-history processes on each of these sites. Therefore, the Service has determined that these unoccupied sites are essential for the conservation of the species.

Only one subunit (Unit 2, subunit A) is known to have been occupied at the time of listing. We believe this occupied area contains sufficient PCEs to support life-history functions essential to the conservation of the species; however, this lone area is not sufficient to conserve the species. Therefore, sites not known to be occupied at the time of listing have also been designated as critical habitat. Three units/subunits (Unit 4, subunit A; Unit 5, subunit A; and Unit 7) are currently occupied by the dusky gopher frog, but were discovered or established subsequent to the listing of the species. Eleven units/subunits, not known to be occupied at the time of listing but within the historic range of the species, are also currently unoccupied. The inclusion of these eleven areas will provide habitat for population translocation and support recovery efforts for the dusky gopher frog. One of the unoccupied units (Unit 1) represents an historic record for the dusky gopher frog. The historic occupancy status of the other 10 units/subunits is unknown. All 14 units/subunits not known to be occupied at the time of listing have been designated as critical habitat because the Service has determined they are essential for the conservation of the species. The dusky gopher frog is at high risk of extirpation from stochastic events, such as disease or drought, and from demographic factors such as inbreeding depression. The establishment of additional

populations beyond the single site known to be occupied at listing is critical to protect the species from extinction and provide for the species' eventual recovery.

We have determined that, with proper protection and management, the areas we are designating as critical habitat are essential for the conservation of the species based on our current understanding of the species' requirements. However, as discussed in the Critical Habitat section above, we recognize that designation of critical habitat may not include all habitat areas that we may eventually determine are necessary for the recovery of the species **[35,134]** and that, for this reason, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not promote the recovery of the species.

We delineated the critical habitat unit boundaries using the following steps:

(1) We used digital aerial photography using ArcMap 9.3.1 to map

(a) The specific location of the breeding site occupied by the dusky gopher frog at the time of listing, and

(b) Those locations of breeding sites outside the geographic area occupied by the species at the time it was listed, that are currently occupied and not occupied, that were determined to be essential for the conservation of the species;

(2) We delineated critical habitat units by buffering the above locations by a radius of 621 m (2,037 ft). We believe the area created will protect the majority of a dusky gopher frog population's breeding and upland habitat and incorporate all primary con-

stituent elements within the critical habitat unit. We chose the value of 621 m (2,037 ft) by using the median farthest distance movement (571 m (1,873 ft)) from data collected during multiple studies of the gopher frog group (see "*Space for Individual and Population Growth and for Normal Behavior*") and adding 50 m (164 ft) to this distance to minimize the edge effects of the surrounding land use (see discussion in Semlitsch and Bodie 2003, pp. 1222-1223);

(3) We used aerial imagery and ArcMap to connect critical habitat areas within 1,000 m (3,281 ft) of each other to create routes for gene flow between breeding sites and metapopulation structure (see "*Space for Individual and Population Growth and for Normal Behavior*").

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

We are designating as critical habitat twelve units, three of which are divided into two subunits

each, based on sufficient elements of physical or biological features present to support dusky gopher frog life processes. Some units/subunits contain all of the identified elements of physical or biological features and support multiple life processes. Other units contain only some elements of the physical or biological features necessary to support the dusky gopher frog's particular use of that habitat.

Final Critical Habitat Designation

We are designating 15 units/subunits as critical habitat for the dusky gopher frog. The critical habitat areas described below constitute our current best assessment at this time of areas that meet the definition of critical habitat. Table 1 below shows the specific occupancy status of each unit/subunit at the time of listing and currently, based on the most recent data available.

TABLE 1—OCCUPANCY OF DUSKY GOPHER FROG BY DESIGNATED CRITICAL HABITAT UNITS

Unit	Parish/county	Occupied at the time of listing, currently occupied	Not occupied at the time of listing, currently occupied	Not occupied at the time of listing, currently unoccupied
LOUISIANA				
1	S. Tammany			X
MISSISSIPPI				
2, Subunit A	Harrison	X		
2, Subunit B	Harrison			X
3	Harrison			X
4, Subunit A	Jackson		X	
4, Subunit B	Jackson			X
5, Subunit A	Jackson		X	
5, Subunit B	Jackson			X
6	Jackson			X
7	Jackson		X	
8	Forrest			X
9	Forrest			X
10	Perry			X
11	Perry			X
12	Perry			X

Table 2 provides the approximate area unit and ownership of each critical habitat unit. Hectare and acre values were individually computer-generated

using GIS software, rounded to nearest whole number, and then summed. **[35,135]**

TABLE 2—DESIGNATED CRITICAL HABITAT UNITS FOR DUSKY GOPHER FROG BY LAND OWNERSHIP

[Area estimates (hectares (ha) and acres (ac)) reflect all land within critical habitat unit boundaries]

Unit	Parish/county	Ownership			Total area
		Federal	State	Private	
LOUISIANA					
1	St. Tammany.			625 ha (1,544 ac)	625 ha (1,544 ac)
MISSISSIPPI					
2, Subunit A.	Harrison	100 ha (247 ac)		21 ha (52 ac)	121 ha (299 ac)
2, Subunit B.	Harrison	425 ha (1,050 ac)		3 ha (7 ac)	428 ha (1,057 ac)
3	Harrison	121 ha (299 ac)			121 ha (299 ac)
4, Subunit A.	Jackson			121 ha (299 ac)	121 ha (299 ac)
4, Subunit B.	Jackson	48 ha (119 ac)		109 ha (269 ac)	157 ha (388 ac)
5, Subunit A.	Jackson			121 ha (299 ac)	121 ha (299 ac)
5, Subunit B.	Jackson			54 ha (133 ac)	54 ha (133 ac)
6	Jackson	121 ha (299 ac)			121 ha (299 ac)
7	Jackson		107 ha (264 ac)	14 ha (35 ac)	121 ha (299 ac)
8	Forrest	121 ha (299 ac)			121 ha (299 ac)
9	Forrest	120 ha (297 ac)		1 ha (2.5 ac)	121 ha (299 ac)
10	Perry	127 ha (314 ac)		20 ha (49 ac)	147 ha (363 ac)
11	Perry	119 ha (294 ac)		2 ha (5 ac)	121 ha (299 ac)
12	Perry	115 ha (284 ac)		6 ha (15 ac)	121 ha (299 ac)
Total	All Parishes and Counties	1,417 ha (3,501 ac)	107 ha (264 ac)	1,097 ha (2,711 ac)	2,621 ha (6,477 ac)

Note: Area sizes may not sum due to rounding.

We present below brief descriptions of all units and reasons why they meet the definition of critical habitat for the dusky gopher frog.

Unit 1: St. Tammany Parish, Louisiana

Unit 1 encompasses 625 ha (1,544 ac) on private lands managed for industrial forestry in St. Tamma-

ny Parish, Louisiana. This unit is located north and south of State Hwy. 36, approximately 3.1 km (1.9 mi) west of State Hwy. 41 and the town of Hickory, Louisiana. Unit 1 is not within the geographic area occupied by the species at the time of listing. It is currently unoccupied; however, the last observation of a dusky gopher frog in Louisiana was in 1965 in one of the ponds within this unit.

Unit 1 consists of five ponds (ephemeral wetland habitat) and their associated uplands. If dusky gopher frogs are translocated to the site, the five ponds are in close enough proximity to each other that adult frogs could move between them and create a metapopulation, which increases the chances of the long-term survival of the population. Although the uplands associated with the ponds do not currently contain the essential physical or biological features of critical habitat, we believe them to be restorable with reasonable effort. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species is at high risk of extirpation from stochastic events, such as disease or drought. Maintaining the five ponds within this area as suitable habitat into which dusky gopher frogs could be translocated is essential to decrease the risk of extinction of the species resulting from stochastic events and provide for the species' eventual recovery. Therefore, we have determined this unit is essential for the conservation of the species because it provides important breeding sites for recovery. It includes habitat for population expansion outside of the core population areas in Mississippi, a necessary component of recovery efforts for the dusky gopher frog.

Unit 2: Harrison County, Mississippi

Unit 2 comprises two subunits encompassing 549 ha (1,356 ac) on Federal and private lands in Harrison County, Mississippi. This unit, between U.S. Hwy. 49 and Old Hwy. 67, is approximately 224 m (735 ft) northeast of the Biloxi River. It is located approximately 2.8 km (1.8 mi) east of U.S. Hwy. 49 and approximately 2.3 km (1.4 mi) west of Old Hwy. 67. Within this unit, approximately 525 ha (1,297 ac) are in the DNF and 24 ha (59 ac) are in private ownership. **[35,136]**

Subunit A

Unit 2, Subunit A encompasses 121 ha (299 ac) around the only breeding pond (Glen's Pond) known for the dusky gopher frog when it was listed in 2001; as a result, it is within the geographic area of the species occupied at the time of listing. In addition, this subunit contains all elements of the essential physical or biological features of the species. The majority of this subunit (100 ha (247 ac)) is in the DNF, with the remainder (21 ha (52 ac)) in private ownership. This subunit is being designated as critical habitat because it was occupied at the time of listing, is currently occupied, and contains sufficient primary constituent elements (ephemeral wetland habitat (PCE 1), upland forested nonbreeding habitat (PCE 2), and upland connectivity habitat (PCE 3)) to support life-history functions essential to the conservation of the species.

Glen's Pond and the habitat surrounding it, consisting of forested uplands used as nonbreeding habitat and upland connectivity habitat between breeding and nonbreeding habitat, support the majority of the dusky gopher frogs that currently exist in the wild. Within Unit 2, Subunit A, the dusky gopher frog and its habitat may require special management

considerations or protection to address potential adverse effects caused by: Fire suppression and low fire frequencies; detrimental alterations in forestry practices that could destroy belowground soil structures, such as stump removal; hydrologic changes resulting from ditches, and/or adjacent highways and roads that could alter the ecology of the breeding pond and surrounding terrestrial habitat; wetland degradation; random effects of drought or floods; off-road vehicle use; gas, water, electrical power, and sewer easements; and agricultural and urban development.

Subunit B

Unit 2, Subunit B encompasses 428 ha (1,057 ac) adjacent to Subunit A and the area surrounding Glen's Pond. The majority of this subunit (425 ha (1,050 ac)) is in the DNF, with the remainder (3 ha (7 ac)) in private ownership. This subunit is not within the geographic area of the species occupied at the time of listing and is currently unoccupied. However, we believe this subunit is essential for the conservation of the dusky gopher frog because it consists of areas, within the dispersal range of the dusky gopher frog (from Subunit A), which we believe provide important breeding sites for recovery and metapopulation structure that will protect the dusky gopher frog from extinction. This unoccupied area consists of three ponds and their associated uplands in the DNF. These ponds were named Reserve Pond, Pony Ranch Pond, and New Pond during our ongoing recovery initiatives. The USFS is actively managing this area to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and the severely restricted range of the dusky gopher frog, the species is at high risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat into which

dusky gopher frogs could be translocated is essential to decrease the risk of extinction of the species resulting from stochastic events and provide for the species' eventual recovery.

Unit 3: Harrison County, Mississippi

Unit 3 encompasses 121 ha (299 ac) on Federal land in Harrison County, Mississippi. This unit is located in the DNF approximately 7.9 km (4.9 mi) east of the community of Success at Old Hwy. 67 and 4 km (2.5 mi) south of Bethel Road.

Unit 3 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area surrounds a pond on the DNF that was given the name of Carr Bridge Road Pond during ongoing recovery initiatives when it was selected as a dusky gopher frog translocation site. The USFS is actively managing this area to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat into which dusky gopher frogs could be translocated is essential to decrease the potential risk of **[35,137]** extinction of the species resulting from stochastic events and to provide for the species' eventual recovery. Therefore, this unit is being designated as critical habitat because it is essential for the conservation of the species.

Unit 4: Jackson County, Mississippi

Unit 4 encompasses 278 ha (687 ac) on Federal and private land in Jackson County, Mississippi. This unit borders the north side of Interstate 10 approximately 1.1 km (0.7 mi) west of State Hwy. 57.

Within this unit, approximately 48 ha (119 ac) are in the Mississippi Sandhill Crane National Wildlife Refuge and 230 ha (568 ac) are in private ownership.

Subunit A

Unit 4, Subunit A encompasses 121 ha (299 ac) on private land. It is currently occupied as a result of translocation efforts conducted in 2004, 2005, 2007, 2008, 2009, and 2010; however, it was not occupied at the time of listing. We believe this subunit is essential for the conservation of the dusky gopher frog because of the presence of a proven breeding pond (egg masses have been deposited here in 2007 and 2010 by gopher frogs translocated to the site) and its associated uplands (upland forested nonbreeding habitat and upland connectivity habitat). We also believe that metapopulation structure, which will further protect the dusky gopher frog from extinction, is possible when the whole area of Unit 4 is considered. The private owners of this property are actively managing this area to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at high risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat into which dusky gopher frogs can continue to be translocated is essential to decrease the risk of extinction of the species resulting from stochastic events and provide for the species' eventual recovery.

Subunit B

Unit 4, Subunit B encompasses 157 ha (388 ac) on Federal and private land adjacent to Subunit A. The majority of this subunit (109 ha (269 ac)) is on private land, with the remainder of the unit (48 ha (119 ac)) in the Mississippi Sandhill Crane National

Wildlife Refuge. This subunit is not within the geographic area of the species occupied at the time of listing and is currently unoccupied. However, we believe this subunit is essential for the conservation of the dusky gopher frog because it consists of an area, within the dispersal range of the dusky gopher frog (from Subunit A), which provides two important breeding sites and their associated upland for recovery and metapopulation structure that will protect the dusky gopher frog from extinction. This area is actively managed to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Unit 5: Jackson County, Mississippi

Unit 5 encompasses 175 ha (432 ac) on private land in Jackson County, Mississippi. This unit is located approximately 10.6 km (6.6 mi) north of Interstate 10. It is 124 m (407 ft) north of Jim Ramsey Road and 5.7 km (3.6 mi) west of the community of Vancleave located near State Hwy. 57.

Subunit A

Unit 5, Subunit A encompasses 121 ha (299 ac) on private land. It is currently occupied, but was not known to be occupied at the time of listing. This subunit contains a breeding site where dusky gopher frogs were discovered in 2004, subsequent to the listing of the dusky gopher frog.

We believe this subunit is essential for the conservation of the dusky gopher frog because of the presence of a proven breeding pond, named Mike's Pond (ephemeral wetland habitat), and its associated uplands (upland forested nonbreeding habitat and upland connectivity habitat). We also believe that metapopulation structure, which will further protect the dusky gopher frog from extinction, is possible when the whole area of Unit 5 is considered. The owners of this property are actively managing this area to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at high risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat is essential to decrease the risk of extinction of the species resulting from stochastic events and provide for the species' eventual recovery.

Subunit B

Unit 5, Subunit B encompasses 54 ha (133 ac) on private land adjacent to Subunit A. This subunit is not within the geographic area of the species occupied at the time of listing and is currently unoccupied. However, we believe this subunit is essential for the conservation of the dusky gopher frog because it consists of an area, within the dispersal range of the dusky gopher frog (from Subunit A), which provides an important breeding site and associated forested uplands for recovery and metapopulation structure that will protect the dusky gopher frog from extinction. This unoccupied area consists of a single pond and its associated uplands. This area is actively managed to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the

dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Unit 6: Jackson County, Mississippi

Unit 6 encompasses 121 ha (299 ac) on Federal land in Jackson County, Mississippi. This unit is located on the Ward Bayou Wildlife Management Area (WMA) approximately 4.8 km (3 mi) northeast of State Hwy. 57 and the community of Vancleave. This land is owned by the U.S. Army Corps of Engineers (Corps) and managed by the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) to benefit the recovery of the dusky gopher frog.

Unit 6 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area consists of a pond and its associated uplands on the WMA and has been given the name of Mayhaw Pond during ongoing recovery initiatives. We believe this area is essential for the conservation of the dusky gopher frog because it provides an important breeding site and associated forested uplands for recovery. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area of suitable habitat, into which dusky gopher frogs could be translocated, is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Unit 7: Jackson County, Mississippi

Unit 7 encompasses 121 ha (299 ac) on State and private land in Jackson County, Mississippi. This unit is located approximately 4.2 km (2.6 mi) east of the intersection of State Hwy. 63 and State Hwy. 613; it is 3.8 km (2.4 mi) west of the Escatawpa River, and 3.2 km (2 mi) northeast of Helena, Mississippi. The portion of this unit in State ownership (107 ha (264 ac)) is 16th section land held in trust by the State of Mississippi as a local funding source for public education in Jackson County. The Jackson County School board has jurisdiction and control of the land. The balance of this unit is on private land (14 ha (35 ac)).

Unit 7 is currently occupied, but was not known to be occupied at the time of listing. The area, discovered in 2004 subsequent to the listing of the dusky gopher frog, contains a breeding pond named McCoy's Pond and associated uplands. We believe this area is essential for the conservation of the species because it provides an important breeding site and associated forested uplands for recovery of the dusky gopher frog. Currently, the State-owned portion of the area is managed for timber production by the Mississippi Forestry Commission for the Jackson County School Board. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, it may be at high risk of extirpation from stochastic events, such as disease or drought. Maintaining this area of currently occupied habitat for dusky gopher frogs is essential to decrease the risk of extinction of the species and provide for the species' eventual recovery.

Unit 8: Forrest County, Mississippi

Unit 8 encompasses 121 ha (299 ac) on Federal land in Forrest County, Mississippi. This unit is lo-

cated in the DNF approximately 1.9 km (1.2 mi) east of U.S. Hwy. 49, approximately 1.7 km (1.1 mi) south of Black Creek, and approximately 3.1 km (1.9 mi) southeast of the community of Brooklyn, Mississippi.

Unit 8 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area consists of a pond and associated uplands that have been selected as a future dusky gopher frog translocation site during ongoing recovery initiatives. We believe this area is essential for the conservation of the species because it provides an important breeding site and associated forested uplands for recovery of the dusky gopher frog.

Unit 8 is being actively managed by the USFS to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat, into which dusky gopher frogs could be translocated, is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Unit 9: Forrest County, Mississippi

Unit 9 encompasses 121 ha (299 ac) on Federal land and private land in Forrest County, Mississippi. The majority of this unit (120 ha (297 ac)) is located in the DNF and the balance (1 **[35,138]** ha (2.5 ac)) on private land. This unit is located approximately 3.9 km (2.4 mi) east of U.S. Hwy. 49, approximately 4.3 km (2.7 mi) south of Black Creek, and approximately 6.1 km (3.8 mi) southeast of the community of Brooklyn, Mississippi, at the Perry County line.

Unit 9 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area consists of a pond and associated uplands that have been selected as a future dusky gopher frog translocation site during ongoing recovery initiatives. We believe this area is essential for the conservation of the species because it provides an important breeding site and associated forested uplands for recovery of the dusky gopher frog.

Most of Unit 9 is being actively managed by the USFS to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat, into which dusky gopher frogs could be translocated, is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Unit 10: Perry County, Mississippi

Unit 10 encompasses 147 ha (363 ac) on Federal land and private land in Perry County, Mississippi. The majority of this unit (127 ha (314 ac)) is located in the DNF and the balance (20 ha (49 ac)) is located on private land. This unit is located at the intersection of Benndale Road and Mars Hill Road, approximately 2.6 km (1.6 mi) northwest of the intersection of the Perry County, Stone County, and George County lines and approximately 7.2 km (4.5 mi) north of State Hwy. 26.

Unit 10 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area consists of two ponds and their associated uplands that have been selected as future dusky gopher frog translocation sites during

ongoing recovery initiatives. It provides the habitat for establishing new breeding ponds and metapopulation structure that will protect the dusky gopher frog from extinction. We believe this area is essential for the conservation of the dusky gopher frog because it provides two important breeding sites and their associated forested uplands for recovery of the dusky gopher frog.

Most of Unit 10 is being actively managed by the USFS to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at high risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat, into which dusky gopher frogs could be translocated, is essential to decrease the risk of extinction of the species and provide for the species' eventual recovery.

Unit 11: Perry County, Mississippi

Unit 11 encompasses 121 ha (299 ac) on Federal land and private land in Perry County, Mississippi. The majority of this unit (119 ha (294 ac)) is located in the DNF and the balance (2 ha (5 ac)) is located on private land. This unit borders the north side of Benndale Road northeast of the intersection of the Perry County, Stone County, and George County lines, approximately 6.4 km (4 mi) north of State Hwy. 26.

Unit 11 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area consists of a pond and associated uplands that have been selected as a future dusky gopher frog translocation site during ongoing recovery initiatives. We believe this area is essential

for the conservation of the gopher dusky frog because it provides an important breeding site and associated forested uplands for recovery of the dusky gopher frog.

Most of Unit 11 is being actively managed by the USFS to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events, such as disease or drought. Maintaining this area as suitable habitat, into which dusky gopher frogs could be translocated, is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Unit 12: Perry County, Mississippi

Unit 12 encompasses 121 ha (299 ac) on Federal land and private land in Perry County, Mississippi. The majority of this unit (115 ha (284 ac)) is located in the DNF and the remaining balance (6 ha (15 ac)) is located on private land. This unit is located approximately 1.2 km (0.75 mi) east of Mars Hill Road, approximately 3.9 km (2.4 mi) north of the intersection of the Perry County, Stone County, and George County lines, and approximately 10.2 km (6.4 mi) north of State Hwy. 26.

Unit 12 is not within the geographic range of the species occupied at the time of listing and is currently unoccupied. This area consists of a pond and its associated uplands that have been selected as a future dusky gopher frog translocation site during ongoing recovery initiatives. We believe this area is essential for the conservation of the dusky gopher frog because it provides an important breeding site and associated forested uplands for recovery of the dusky gopher frog.

Most of Unit 12 is being actively managed by the USFS to benefit the recovery of the dusky gopher frog. Due to the low number of remaining populations and severely restricted range of the dusky gopher frog, the species may be at risk of extirpation from stochastic events such as disease or drought. Maintaining this area as suitable habitat into which dusky gopher frogs could be translocated is essential to decrease the potential risk of extinction of the species and provide for the species' eventual recovery.

Effects of Critical Habitat Designation

Section 7 Consultation

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

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our definition of "destruction or adverse modification" (50 CFR 402.02) (see *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059 (9th Cir. 2004) and *Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d 434, 442 (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the provisions of the Act, we determine

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

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action **[35,139]** agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the Corps under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq*.) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local or private lands that are not federally funded or authorized, do not require section 7 consultation.

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

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

(2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely

modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define "reasonable and prudent alternatives" (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

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

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

cretionary involvement or control may affect subsequently listed species or designated critical habitat.

Application of the "Adverse Modification" Standard

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

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

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the dusky gopher frog. These activities include, but are not limited to:

(1) Actions that would alter the hydrology or water quality of dusky gopher frog wetland habitats. Such activities could include, but are not limited to, discharge of fill material; release of chemicals and/or biological pollutants; clearcutting, draining, ditching, grading, or bedding; diversion or alteration of surface or ground water flow into or out of a wetland (i.e., due to roads, fire breaks, impoundments, discharge pipes, etc.); discharge or dumping of toxic chemicals,

silt, or other pollutants (i.e., sewage, oil, pesticides, and gasoline); and use of vehicles within wetlands. These activities could destroy dusky gopher frog breeding sites; reduce hydroperiod below what is necessary for successful larval metamorphosis; and/or eliminate or reduce the habitat necessary for the growth and reproduction, and affect the prey base, of the dusky gopher frog.

(2) Forestry management actions in pine habitat that would significantly alter the suitability of dusky gopher frog terrestrial habitat. Such activities could include, but are not limited to, conversion of timber land to another use and timber management, including clearcutting, site preparation involving ground disturbance, prescribed burning, and unlawful pesticide application. These activities could destroy or alter the uplands necessary for the growth and development of juvenile and adult dusky gopher frogs.

(3) Actions that would significantly fragment and isolate dusky gopher frog wetland and upland habitats from each other. Such activities could include, but are not limited to, constructing new structures or new roads and converting forested habitat to other uses. These activities could limit or prevent the dispersal of dusky gopher frogs from breeding sites to upland habitat or vice versa due to obstructions to movement caused by structures, certain types of curbs, increased traffic density, or inhospitable habitat.

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Exclusions

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

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

Under section 4(b)(2) of the Act, the Secretary may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion will not result in the extinction of the species.

Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as

critical habitat. In order to consider economic impacts, we prepared a draft economic analysis of the proposed critical habitat designation and related factors (Industrial Economics 2011, pp. 1–87). The draft analysis, dated August 17, 2011, was made available for public comment from September 27, 2011, through November 28, 2011 (76 FR 59774, 77 FR 2254) and again from January 17, 2012 through March 2, 2012 (77 FR 2254). Following the close of the comment periods, a final analysis ((FEA) dated April 6, 2012) of the potential economic effects of the designation was developed taking into consideration the public comments and any new information (Industrial Economics 2012, entire).

The intent of the FEA is to quantify the economic impacts of all potential conservation efforts for the dusky gopher frog; some of these costs will likely be incurred regardless of whether we designate critical habitat (baseline). The economic impact of the final critical habitat designation is analyzed by comparing scenarios both "with critical habitat" and "without critical habitat." The "without critical habitat" scenario represents the baseline for the analysis, considering protections already in place for the species (e.g., under the Federal listing and other Federal, State, and local regulations). The baseline, therefore, represents the costs incurred regardless of whether critical habitat is designated. 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 economic impacts are those not expected to occur absent the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat above and beyond the baseline

costs; these are the costs we consider in the final designation of critical habitat. The analysis looks retrospectively at baseline impacts incurred since the species was listed, and forecasts both baseline and incremental impacts likely to occur with the designation of critical habitat.

The FEA also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The FEA measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. Decision makers can use this information to assess whether the effects of the designation might unduly burden a particular group or economic sector. Finally, the FEA looks retrospectively at baseline costs that have been incurred since 2001 (year of the species' listing) (66 FR 62993), and uses this information to inform the economic analysis which quantifies those costs that may occur in the 20 years following the designation of critical habitat, which was determined to be the appropriate period for analysis because limited planning information was available for most activities to forecast activity levels for projects beyond a 20-year timeframe.

The FEA quantifies economic impacts of dusky gopher frog conservation efforts associated with the following categories of activity: Active species management, residential and commercial development, timber management, and military activities. The FEA estimates present value incremental impacts of critical habitat designation of $102,000, $20.5 mil-

lion, or $34.0 million according to three scenarios (applying a 7 percent discount rate). This equates to $9,610, $1.93 million, and $3.21 million in annualized impacts (applying a 7 percent discount rate). This approach was taken because most of the estimated incremental impacts are related to possible lost development value in Unit 1; considerable uncertainty exists regarding the likelihood of a Federal nexus for development activities there; and potential exists for the Service to recommend conservation measures if consultation were to occur.

Under scenario 1, development occurring in Unit 1 avoids impacts to jurisdictional wetlands and as such, there is no Federal nexus (no Federal permit is required) triggering section 7 **[35,141]** consultation regarding dusky 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. Therefore, all incremental economic costs will be attributed to the administrative costs of future section 7 consultations in all other units. Total present value of 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 7 percent discount rate.

According to scenarios 2 and 3, the vast majority of the incremental impacts would stem from the lost development value of land in Unit 1. Under scenarios 2 and 3, less than one percent of the incremental impacts stem from the administrative costs of future section 7 consultations. Under scenario 2, the analysis assumes the proposed development of Unit 1 requires a Section 404 permit from the Corps due to the presence of jurisdictional wetlands. The devel-

opment would therefore be subject to section 7 consultation considering critical habitat for the dusky gopher frog. This scenario further assumes that the Service works with the landowner to establish conservation areas for the dusky gopher frog within the unit. The Service anticipates that approximately 40 percent of the unit may be developed and 60 percent is managed for dusky 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 $20.4 million. Total present value incremental impacts of critical habitat designation across all units are therefore $20.5 million ($1.93 million in annualized impacts), applying a 7 percent discount rate.

Scenario 3 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 $33.9 million. Total present value incremental impacts of critical habitat designation across all units are therefore $34.0 million ($3.21 million in annualized impacts), applying a 7 percent discount rate.

The FEA also discusses the potential economic benefits associated with the designation of critical habitat. However, because the Service believes that the direct benefits of the designation are best expressed in biological terms, this analysis does not quantify or monetize benefits; only a qualitative discussion of economic benefits is provided.

Our economic analysis did not identify any disproportionate costs that are likely to result from the designation. Consequently, the Secretary is not exercising his discretion to exclude any areas from this designation of critical habitat for the dusky gopher frog based on economic impacts.

A copy of the FEA with supporting documents may be obtained by contacting the Mississippi Ecological Services Field Office (see **ADDRESSES**) or by downloading from the Internet at *http://www.regulations.gov*.

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[35,144] * * *

References Cited

A complete list of all references cited in this rulemaking is available on the Internet at *http://www.regulations.gov* and upon request from the Mississippi Ecological Services Field Office (see **ADDRESSES**).

Author

The primary author of this rulemaking is Linda LaClaire of the Mississippi Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation. **[35,145]**

Regulation Promulgation

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

PART 17—[AMENDED]

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

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625,100 Stat. 3500; unless otherwise noted.

■ 2. Amend § 17.11(11), the List of Endangered and Threatened Wildlife, as follows:

■ a. By removing the entry for "Frog, Mississippi gopher" under "AMPHIBIANS"; and

■ b. By adding an entry for "Frog, dusky gopher" in alphabetical order under "AMPHIBIANS" to read as follows:

§17.11 Endangered and threatened wild life.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common Name	Scientific Name						
*	*	*	*	*	*		*
AMPHIBIANS							
*	*	*	*	*	*		*
Frog, dusky, gopher	*Rana sevosa* ...	U.S.A. (AL, LA, MS)	Entire	E	718	17.95(d)	NA
*		*	*	*	*		*

§17.95—[Amended]

■ 3. In § 17.95, amend paragraph (d) by adding an entry for "Dusky Gopher Frog (*Rana sevosa*)," in the same alphabetical order that the species appears in the table at § 17.11(h), to read as follows:

§17.95 Critical habitat—fish and wildlife.

* * * * *

(d) *Amphibians.*

* * * * *

Dusky Gopher Frog (*Rana sevosa*)

(1) Critical habitat units are depicted for St. Tammany Parish, Louisiana, and Forrest, Harrison, Jackson, and Perry Counties in Mississippi, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the dusky gopher frog are:

(i) *Ephemeral wetland habitat.* Breeding ponds, geographically isolated from other waterbodies and embedded in forests historically dominated by longleaf pine communities, that are small (generally <0.4 to 4.0 hectares (<1 to 10 acres)), ephemeral, and acidic. Specific conditions necessary in breeding ponds to allow for successful reproduction of dusky gopher frogs are:

(A) An open canopy with emergent herbaceous vegetation for egg attachment;

(B) An absence of large, predatory fish that prey on frog larvae;

(C) Water quality such that frogs, their eggs, or larvae are not exposed to pesticides or chemicals and sediment associated with road runoff; and

(D) Surface water that lasts for a minimum of 195 days during the breeding season to allow a sufficient period for larvae to hatch, mature, and metamorphose.

(ii) *Upland forested nonbreeding habitat.* Forests historically dominated by longleaf pine, adjacent to and accessible to and from breeding ponds, that are

maintained by fires frequent enough to support an open canopy and abundant herbaceous ground cover and gopher tortoise burrows, small mammal burrows, stump holes, or other underground habitat that the dusky gopher frog depends upon for food, shelter, and protection from the elements and predation.

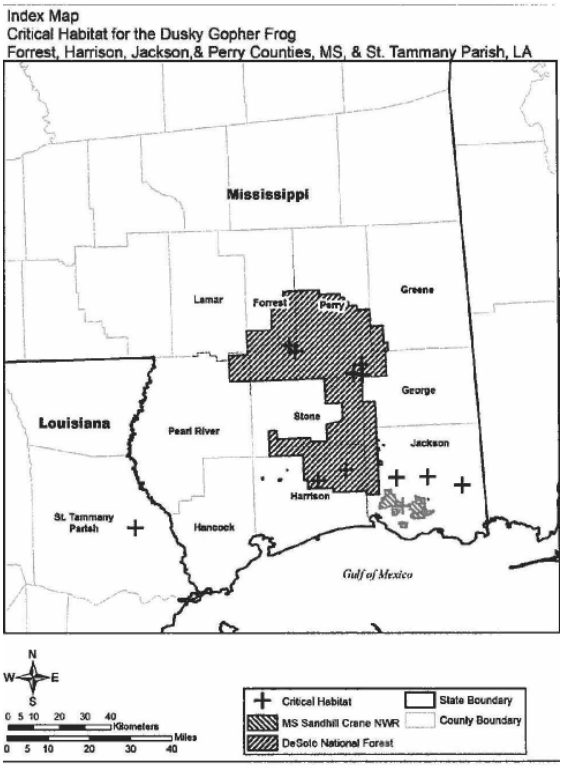
(iii) *Upland connectivity habitat*. Accessible upland habitat between breeding and nonbreeding habitats to allow for dusky gopher frog movements between and among such sites. This habitat is characterized by an open canopy, abundant native herbaceous species, and a subsurface structure that provides shelter for dusky gopher frogs during seasonal movements, such as that created by deep litter cover, clumps of grass, or burrows.

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

(4) *Critical habitat unit maps*. Data layers defining map units were developed from USGS 7.5' quadrangles, and critical habitat units were then mapped using Universal Transverse Mercator (UTM) coordinates.

(5) **Note**: Index map of the critical habitat units for the dusky gopher frog follows:

BILLING CODE 4310-55-P [35,146]



(6) Unit 1: St. Tammany Parish, Louisana.

(i) From USGS 1:24,000 quadrangle map Hickory, Louisiana. Land bounded by the following UTM Zone 16N, NAO 83 coordinates, (E, N): 228777, 3368004;

229406, 3365105; 229384, 3365104;

229362, 3365105; 229339, 3365106;

229317, 365108; 229295, 3365110;

229273, 3365114; 229252, 3365118;

229230, 3365123; 229209, 3365129;

229188, 3365136; 229167, 3365143;

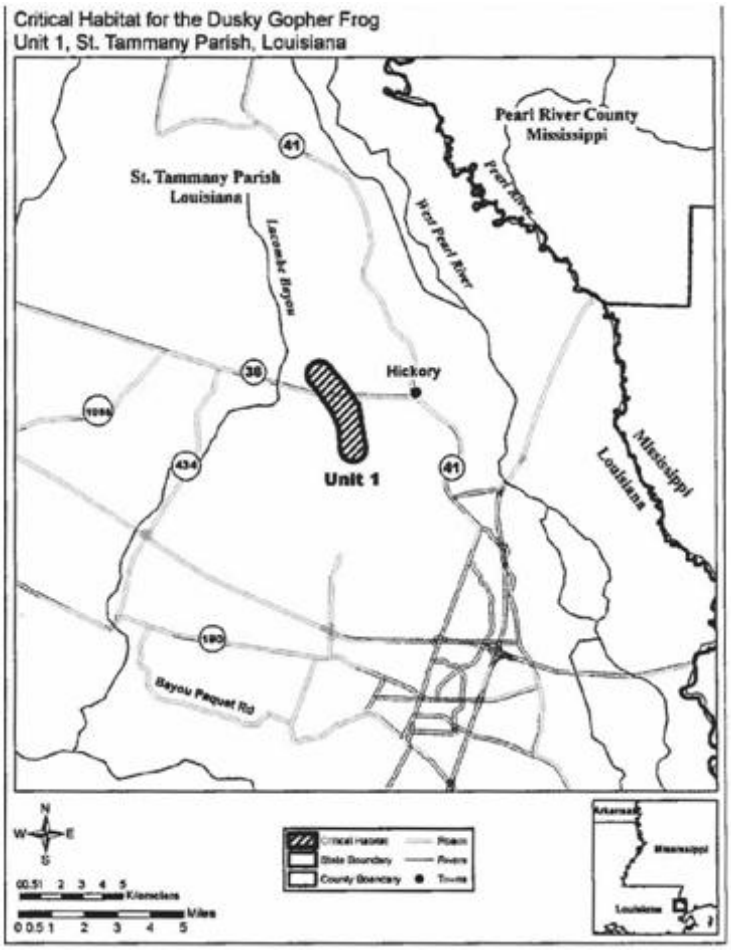
229146, 3365151; 229126, 3365160;
229106, 3365170; 229086, 3365180;
229067, 3365191; 229048, 3365203;
229030, 3365215; 229012, 3365228;
228994, 3365242; 228977, 3365256;
228961, 3365271; 228945, 3365286;
228929, 3365302; 228914, 3365318;
228900, 3365335; 228887, 3365353;
228874, 3365371; 228861, 3365389;
228850, 3365408; 228839, 3365428;
228828, 3365447; 228819, 3365467;
228810, 3365487; 228802, 3365508;
228794, 3365529; 228788, 3365550:
228782, 3365572; 228777, 3365593;
228773, 3365615; 228769, 3365637:
228766, 3365659; 228764, 3365681;
228763, 3365700; 228688, 3366732;
228321, 3367548; 227537, 3368623;
227307, 3368893; 227292, 3368909;
227278, 3368926; 227264, 3368944;
227251, 3368962; 227239, 3368980;
227227, 3368999; 227216, 3369018;
227206, 3369038; 227196, 3369058;
227187, 3369078; 227179, 3369099; **[35,147]**
227172, 3369120; 227165, 3369141;
227159, 3369163; 227154, 3369184;

227150, 3369206; 227146, 3369228;
227144, 3369250; 227142, 3369272;
227140, 3369294; 227140, 3369316;
227140, 3369338; 227142, 3369360;
227144, 3369382; 227146, 3369404;
227150, 3369426; 227154, 3369448;
227159, 3369470; 227165, 3369491;
227172, 3369512; 227179, 3369533;
227187, 3369554; 227196, 3369574;
227206, 3369594; 227216, 3369614;
227227, 3369633; 227239, 3369652;
227251, 3369670; 227264, 3369688;
227278, 3369706; 227292, 3369723;
227307, 3369739; 227322, 3369755;
227338, 3369771; 227354, 3369785;
227371, 3369800; 227389, 3369813;
227407, 3369826; 227425, 3369839;
227444, 3369850; 227463, 3369861;
227483, 3369871; 227503, 3369881;
227523, 3369890; 227544, 3369898;
227565, 3369905; 227586, 3369912;
227608, 3369918; 227629, 3369923;
227651, 3369927; 227673, 3369931;
227695, 3369934; 227717, 3369936;
227739, 3369937; 227761, 3369937;
227783, 3369937; 227805, 3369936;

227827, 3369934; 227849, 3369931;
227871, 3369927; 227893, 3369923;
227915, 3369918; 227936, 3369912;
227957, 3369905; 227978, 3369898;
227999, 3369890; 228019, 3369881;
228039, 3369871; 228059, 3369861;
228078, 3369850; 228097, 3369839;
228115, 3369826; 228133, 3369813;
228151, 3369800; 228168, 3369785;
228184, 3369771; 228200, 3369755;
228216, 3369739; 228230, 3369723;
228245, 3369706; 228254, 3369693;
228903, 3368930; 228918, 3368913;
228932, 3368896; 228946, 3368879;
228959, 3368861; 228971, 3368843;
228983, 3368824; 229573, 3367995;
229585, 3367977; 229597, 3367958;
229608, 3367938; 229618, 3367919;
229628, 3367899; 229636, 3367878;
229645, 3367858; 229652, 3367837;
229659, 3367816; 229664, 3367794;
229670, 3367773; 229674, 3367751;
229677, 3367729; 229679, 3367716;
229989, 3365862; 229990, 3365857;
229995, 3365835; 229998, 3365814;
230001, 3365792; 230003, 3365769;

230004, 3365747; 230005, 3365725;
230004, 3365703; 230003, 3365681;
230001, 3365659; 229998, 3365637;
229995, 3365615; 229990, 3365593;
229985, 3365572; 229980, 3365550;
229973, 3365529; 229966, 3365508;
229957, 3365487; 229949, 3365467;
229939, 3365447; 229929, 3365428;
229918, 3365408; 229906, 3365389;
229894, 3365371; 229881, 3365353;
229867, 3365335; 229853, 3365318;
229838, 3365302; 229823, 3365286;
229807, 3365271; 229790, 3365256;
229773, 3365242; 229756, 3365228;
229738, 3365215; 229719, 3365203;
229701, 3365191; 229681, 3365180;
229662, 3365170; 229642, 3365160;
229621, 3365151; 229601, 3365143;
229580, 3365136; 229559, 3365129;
229537, 3365123; 229516, 3365118;
229494, 3365114; 229472, 3365110;
229450, 3365108; 229428, 3365106;
229406, 3365105.

(ii) **Note**: Map of Unit 1 follows: **[35,148]**



* * *

[35,161] * * *

Dated: May 29, 2012

Rachel Jacobson,

Acting Assistant Secretary for Fish and Wildlife and Parks.

* * *

Erratum to Petition Appendix

The following two diagrams were mistakenly omitted from the Petition Appendix. They originally appeared in Judge Jones's opinion dissenting from Denial of Rehearing En Banc.

The following diagram should have appeared after the last paragraph at Pet. App. 137a.

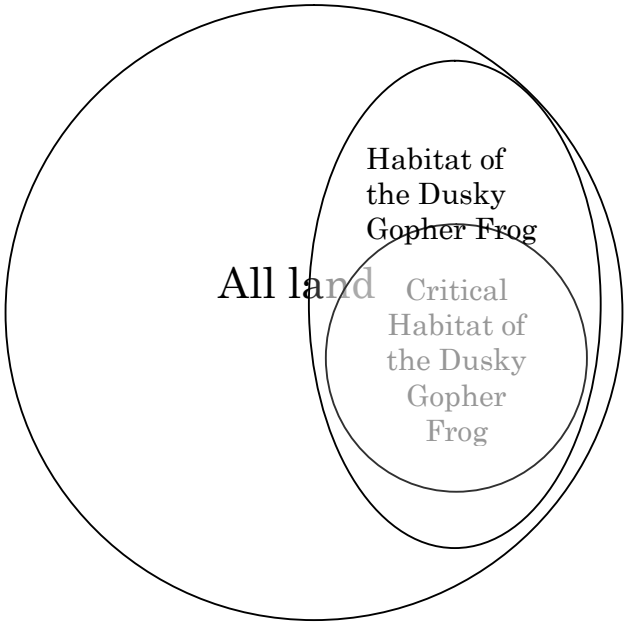


Figure 1: Under the ESA, a species' critical habitat is necessarily a subset of the species' habitat.

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The following diagram should have appeared after the first paragraph at Pet. App. 138a.

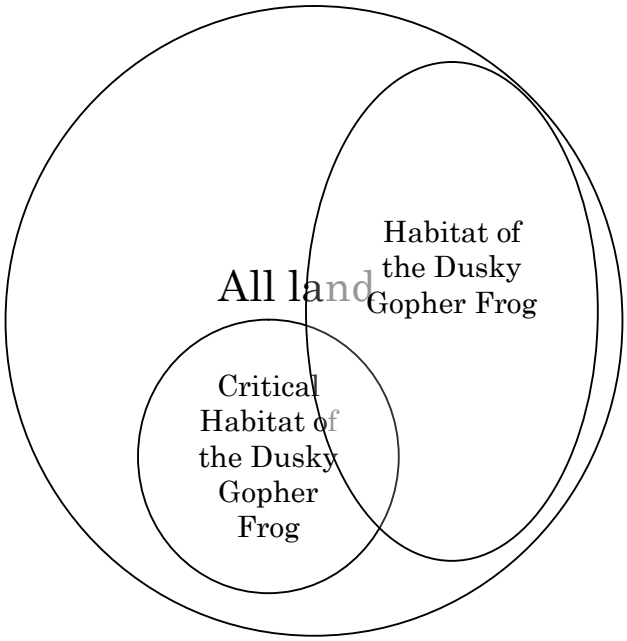

Figure 2: The panel majority's erroneous belief that the ESA has no habitability requirement means that, as the panel majority held here, land that is uninhabitable by a species can nonetheless be its critical habitat.