these species, we will act to provide immediate protection.

References Cited

Lists of the references cited in the petition findings are available on the Internet at *http://www.regulations.gov* and upon request from the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**.

Authors

The primary authors of this document are the staff members of the Unified Listing Team, Ecological Services Program.

Authority

The authority for this section is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: September 7, 2016.

Stephen Guertin,

Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 2016–22453 Filed 9–20–16; 8:45 am]

BILLING CODE 4333–15–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2016–0037; 4500030113]

RIN 1018–BB55

Endangered and Threatened Wildlife and Plants; Threatened Species Status for Pearl Darter

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list the Pearl darter (*Percina aurora),* a fish from Mississippi, as a threatened species under the Endangered Species Act (Act). If we finalize this rule as proposed, it would extend the Act's protections to this species. The effect of this proposed regulation will be to add this species to the List of Endangered and Threatened Wildlife.

DATES: We will accept comments received or postmarked on or before November 21, 2016. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES** below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by November 7, 2016.

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

(1) *Electronically:* Go to the Federal eRulemaking Portal: *http://www.regulations.gov.* In the Search box, enter FWS–R4–ES–2016–0037, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on ''Comment Now!''

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R4–ES–2016–0037; U.S. Fish and Wildlife Service Headquarters, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (see *Public Comments* below for more information).

FOR FURTHER INFORMATION CONTACT: Stephen Ricks, Field Supervisor, U.S. Fish and Wildlife Service, Mississippi Ecological Services Field Office, 6578 Dogwood Parkway, Jackson, Mississippi 39213, by telephone 601–321–1122 or by facsimile 601–965–4340. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if we determine that a species is an endangered or threatened species throughout all or a significant portion of its range, we are required to promptly publish a proposal in the **Federal Register** and make a determination on our proposal within one year. Listing a species as an endangered or threatened species can only be completed by issuing a rule.

What this document does. This document proposes the listing of the Pearl darter *(Percina aurora)* as a threatened species. The Pearl darter is a candidate species for which we have on file sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which until now development of a listing regulation has been precluded by other higher priority listing activities. This proposed rule reassesses all available information regarding status of and threats to the Pearl darter.

This document does not propose critical habitat for the Pearl darter. We have determined that critical habitat is prudent, but not determinable at this time.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species based on any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that water quality decline from point and nonpoint source pollution continues to impact portions of this species' habitat. In addition, geomorphology changes attributed to past sand and gravel mining operations within the drainage are considered an ongoing threat. This species has been extirpated from the Pearl River watershed and is confined today to the Pascagoula River Basin where this species' small population size and apparent low genetic diversity increases its vulnerability to extirpation from catastrophic events.

We will seek peer review. We will seek comments from independent specialists to ensure that our designation is based on scientifically sound data, assumptions, and analyses. We will invite these peer reviewers to comment on our listing proposal.

Information Requested

Public Comments

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from the public, other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) The Pearl darter's biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species must be made ''solely on the basis of the best scientific and commercial data available.''

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via *http://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the Web site. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *http://www.regulations.gov.*

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

Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal.

Public Hearing

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

Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), we have sought the expert opinions of three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that our listing determination is based on scientifically sound data, assumptions, and analyses. The peer reviewers have expertise in the Pearl darter's biology, habitat, and physical or biological factors that will inform our determination.

Previous Federal Actions

We identified the Pearl darter (Pearl channel darter, *Percina* sp.) as a Category 2 Candidate in the November 21, 1991, Animal Candidate Review for Listing as Endangered or Threatened Species; Notice of Review (56 FR 58804). Category 2 Candidates were defined as species for which we had information that proposed listing was possibly appropriate, but conclusive data on biological vulnerability and threats were not available to support a proposed rule at the time. The species remained so designated in the subsequent November 15, 1994, annual Candidate Notice of Review (CNOR) (59 FR 58982). In the February 28, 1996, CNOR (61 FR 7596), we discontinued the designation of Category 2 species as candidates; therefore, the Pearl darter was no longer a candidate species.

Subsequently, in 1999, the Pearl darter was once again added to the candidate list (64 FR 57534, October 25, 1999). Candidates are now defined as those fish, wildlife, and plants for which we have on file sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which development of a listing regulation is precluded by other higher priority listing activities. The Pearl darter was included in all of our subsequent annual CNORs: 66 FR 54808, October 30, 2001; 67 FR 40657, June 13, 2002; 69 FR 24876, May 4, 2004; 70 FR 24870, May 11, 2005; 71 FR 53756, September 12, 2006; 72 FR 69034, December 6, 2007; 73 FR 75176, December 10, 2008; 74 FR 57804, November 9, 2009; 75 FR 69222, November 10, 2010; 76 FR 66370, October 26, 2011; 77 FR 69994, November 21, 2012; 77 FR 70104, November 22, 2013; 79 FR 72450, December 5, 2014; 80 FR 80584, December 24, 2015.

The Pearl darter has a listing priority number of 8, which reflects a species with threats that are both imminent and moderate to low in magnitude.

On May 11, 2004, we were sent a petition to list the Pearl darter by the Center for Biological Diversity. Because no new information was provided in the petition, and we had already determined the species warranted listing, no further action was taken on the petition.

On May 10, 2011, the Service announced a work plan to restore biological priorities and certainty to the Service's listing process. As part of an agreement with one of the agency's most frequent plaintiffs, the Service filed a work plan with the U.S. District Court for the District of Columbia. The work plan enables the agency to, over a period of 6 years, systematically review and address the needs of more than 250 species listed within the 2010 CNOR, including the Pearl darter, to determine if these species should be added to the Federal Lists of Endangered and Threatened Wildlife and Plants. This work plan enables the Service to again prioritize its workload based on the needs of candidate species, while also providing State wildlife agencies, stakeholders, and other partners clarity and certainty about when listing determinations will be made. On July 12, 2011, the Service reached an agreement with another frequent plaintiff group and further strengthened the work plan, which allows us to focus our resources on the species most in need of protection under the Act. These agreements were approved by the court on September 9, 2011. The timing of this proposed listing is, in part, an outcome of the work plan.

Background

Taxonomy and Species Description

The Pearl darter (*Percina aurora*) is a small fish with a blunt snout, horizontal mouth, large eyes located high on the head, and a medial black spot at the base of the caudal (tail) fin (Ross 2001,

p. 498). Described in 1994 (Suttkus *et al.* 1994, pp. 13–17) from the Strong River in Simpson County, MS (Ross 2001, p. 500), the Pearl darter is one of three members of the subgenus *Cottogaster.* The Pearl darter is closely allied to the channel darter (*P. copelandi*) (Ross *et al.* 1989, p. 25). It is distinguished from the channel darter by its larger body size, lack of tubercles (small, raised, skin structures) and heavy pigmentation of breeding males, high number of marginal spines on the belly scales of breeding males, and fully scaled cheeks. Breeding males have two dark bands across the spinous dorsal (back) fin, a broad, diffuse, dusky marginal band, and a pronounced dark band across the fin near its base. Breeding females lack pigmentation on their ventral body surface. The Pearl darter reaches a maximum standard length (SL) of 57 millimeters (mm) (2.2 inches (in.)) in females and 64 mm (2.5 in.) in males (Suttkus *et al.* 1994, p. 16).

Distribution

Historical Range

The Pearl darter is historically known from localized sites within the Pearl and Pascagoula River drainages of Mississippi and Louisiana, based on collection records from 16 counties/parishes of Mississippi and Louisiana. The quantified range of the Pearl darter, expressed in river miles, has not been well-defined by researchers (Slack *et al.* 2005, pp. 5–10; Ross 2001, p. 499; Ross *et al.* 2000, pp. 5–8; Bart and Piller 1997, pp. 3–10; Bart and Suttkus 1996, pp. 3–4, Suttkus *et al.* 1994, pp. 15–18). However, a recent reanalysis of collection records compiled from the Mississippi Museum of Natural Science (MMNS) (2016, unpublished data) estimates the species' historical range to be approximately 708 kilometers (km) (440 miles (mi)) in the Pearl River and 539 km (335 mi) in the Pascagoula River system, for a total historical range of 1,247 km (775 mi).

Pearl River Watershed—Examination of site records of museum fish collections from the Pearl River drainage (compiled from Suttkus *et al.* 1994, pp. 15–18) suggest that the darter once inhabited the large tributaries and main channel habitats from St. Tammany Parish, LA, to Simpson County, MS. This area included approximately 364 km (226 mi) of the lower Pearl River, 21 km (13 mi) of the Strong River, and 322 km (200 mi) of Bogue Chitto River for a total of approximately 708 km (440 mi), all of which is below the Ross Barnett Reservoir (compiled from MMNS 2016, unpublished data; Slack *et al.* 2005, pp. 5–10; Ross 2001, p. 499; Ross *et al.* 2000, pp. 2–5, Bart and Piller 1997, pp. 3–10; Bart and Suttkus 1996, pp. 3–4; Suttkus *et al.* 1994, pp. 15–18).

Despite annual collection efforts by Suttkus from 1958 to 1973 (Bart and Suttkus 1996, pp. 3–4; Bart and Suttkus 1995, pp. 13–14; Suttkus *et al.* 1994, pp. 15–18), the Pearl darter was collected from only 14 percent of 716 fish collections from site-specific locations within the Pearl River drainage. There have been no records of Pearl darters from the Pearl River drainage since 1973, despite Suttkus' 64 fish collections from this time through the middle 1990s from the Pearl River (Bart and Piller 1997, p. 1) and other various collection efforts in the lower Pearl River system (Roberts 2015, pers. comm.; Slack *et al.* 2005, pp. 5–10; Ross 2001, p. 499). There are no records of Pearl darters in the upper Pearl River system (upstream of the Ross Barnett Dam), and collection efforts by Schaefer and Mickel in 2011 (p. 10) confirmed its absence from this part of the Pearl River. A recent survey at the type locality in the Strong River verified its absence from that area also (Roberts 2015, pers. comm.). There have been no verifiable records of the Pearl darter from the Pearl River drainage in over 40 years, thus, this species is considered extirpated from that system, representing a 57 percent loss of its historical range.

Pascagoula River Watershed—Site records from museum fish collections before 2005 suggested that the Pearl darter inhabited the main channels of large Pascagoula drainage tributaries from Jackson to Lauderdale Counties (Ross 2001, pp. 499–500). Although collection data from Ross (2001, p. 500), Bart and Piller (1997, p. 4), Bart and Suttkus (1996, p. 4), and Suttkus *et al.* (1994, p. 19) suggested that the Pearl darter was very rare in the Pascagoula River system. Bart and Piller (1997, p. 4) examined Suttkus' work before 1974 and found that only 19 Pearl darters were collected out of 19,300 total fish in 10 Tulane University Museum of Natural History collections. Additionally, from the Mississippi Freshwater Fishes Database, Ross (in Bart and Piller 1997, p. 4) estimated the rarity of the Pearl darter within the Pascagoula drainage from 379 collections (81,514 fish specimens) since 1973 and found that only one Pearl darter was collected for every 4,795 specimens. This species' historical range within the Pascagoula River system totaled approximately 539 km (335 mi), which included 48 km (30 mi) of the Pascagoula River, 11 km (7 mi) of Black Creek, 131 km (82 mi) of the Leaf River, 34 km (21 mi) of Okatoma Creek, 262 km (163 mi) of the Chickasawhay River, 39 km (24 mi) of the Bouie River, and 13 km (8 mi) of Chunky Creek (compiled from MMNS 2016 unpublished data; Slack *et al.* 2005, pp. 5–10; Ross 2001, p. 499; Ross *et al.* 2000, pp. 1–28; Bart and Piller 1997, pp. 3–10; Bart and Suttkus 1996, pp. 3–4; Suttkus *et al.* 1994, p. 19; Ross *et al.* 1992, pp. 2–10).

Current Range and Population Size

Today, Pearl darters are thought to occur only in scattered sites within approximately 449 km (279 mi) of the Pascagoula drainage, including the Pascagoula, Chickasawhay, Chunky, Leaf, and Bouie Rivers, and Okatoma and Black Creeks. In recent years, the species has been found sporadically within the Pascagoula, Chickasawhay, and Leaf Rivers. There have been no collecting attempts within the Bouie and Chunky Rivers, nor Okatoma and Black Creeks, in the last 15 years; thus, the status of populations in those systems is unknown.

Collections of Pearl darters over the last 20 years in the Pascagoula River drainage have included: 10 Pearl darters from 4 sites out of 27 fish collections in 1996 and 1997 from the Pascagoula River (Bart and Piller 1997, p. 3); 3 specimens from the Leaf River in 1998; and 7 collections (total of 45 Pearl darters) in the Pascagoula River at the confluence with Big Black Creek (Dead Lake) and downstream of Dead Lake for 22 km (14 mi) (Slack *et al.* 2002, p. 15). Slack *et al.* (2005, p. 5) sampled for Pearl darters within the Leaf and Chickasawhay rivers beginning near the confluence with the Pascagoula River and extending through portions of the Chickasaway and Leaf Rivers. The species was present in 78 localities among the 2 systems but were typically in low abundance when present. These survey efforts by Slack *et al.* (2005, pp. 1–15) indicated range of the Pearl darter within the Pascagoula drainage system was further upstream than previously known.

Over the last 15 years, Pearl darters have been found from late summer through fall in the upper Pascagoula River drainage (Leaf and Chickasawhay Rivers) and in the lower Pascagoula River proper in spring and summer (Clark and Schaeffer 2015, pp. 3, 9–10, 19, 23; Slack *et al.* 2002, p. 8). Young of Year (YOY) (fish from the current breeding season) were collected in both 2013 and 2014 in the Chickasawhay and Leaf Rivers, indicating the existence of reproducing populations and recruitment in both of those systems (Clark and Schaeffer 2015, pp. 10, 19, 23). Schaefer and Mickle (2011, pp. 1–

3) highlighted similarities in numbers of Pearl darters collected historically from the Pascagoula River Basin museum collections from 2000 to 2009 and found them to trend closely with the CPUE (Catch per Unit Effort) of 1980 to 1999 collections. Clark and Schaefer (2015, pp. 5, 9) recently resampled collection sites of Slack *et al.* (2005, pp. 1–13) in the Leaf and Chickasawhay Rivers, within the upper Pascagoula River, and found CPUE similar between the 2004 and 2014 surveys. Together, Clark and Schaefer (2015, pp. 5, 9), Schaefer and Mickle (2011, pp. 1–3) and Slack *et al.* (2005, pp. 1–13) suggest a stable population of Pearl darters has existed within these rivers in the upper Pascagoula River Basin over the last decade and speculate that populations may exist in small numbers within the other systems not recently sampled (*e.g.,* Chunky and Bouie Rivers, Okatoma and Black creeks).

Habitat

The Pearl darter occurs in low-gradient, coastal plain rivers (Suttkus *et al.* 1994, p. 13). The species is considered rare and is infrequently collected; however, its preference for deep water, main channels, and its association with woody debris accumulations can make sampling difficult (Bart and Piller 1997, p. 1). Pearl darters have been collected from gravel riffles and rock outcrops; deep runs over gravel and sand pools below shallow riffles; swift (90 cm per sec (35 in. per sec)), shallow water over firm gravel and cobble in mid-river channels; and swift water near brush piles. Slack *et al.* (2002, p. 10) found Pearl darters associated with scour holes on the inside bend of the river downstream from point bars and in substrata of coarse sand with detritus in troughs perpendicular to the shore line. Other collectors (Clark and Schaefer, 2015, pp. 11, 12, 19; Slack *et al.* 2005, p. 9; Bart and Piller 1997, p. 10) have found Pearl darters in areas with finer substrate (*i.e.,* loose sand, mud, silt), including a collection in loose detritus formed from a large scouring flood event (Clark and Schaefer 2015, p. 19). Very little aquatic vegetation was found in the areas where Slack *et al.* (2005, p. 9) collected the species.

Biology

Very little is known about the reproductive biology and general ecology of the Pearl darter (Ross 2001, p. 499). Most Pearl darters mature in 1 year. Female Pearl darters are sexually mature at 39 mm (1.5 in) SL, while males are mature at 42 mm (1.7 in.) SL (Suttkus *et al.* 1994, pp. 19–20). Breeding males have been observed during May in shallow water (15 cm (5.9 in.)) over firm gravel and cobble in mid channel in water temperatures from 17 to 21 degrees Celsius (°C) (62.6 to 69.8 degrees Fahrenheit (°F)) (Bart and Piller 1997, p. 9; Suttkus *et al.* 1994, p. 19). It is thought that subadult Pearl darters migrate upstream during the fall and winter to spawn in gravel reaches (Bart *et al.* 2001, p. 14). Spawning of Pearl darters in the Pearl and Strong Rivers (Mississippi) has been documented during March through May in the upper reaches of the Bogue Chitto River (Mississippi and Louisiana) (Suttkus *et al.* 1994, pp. 19–20). YOY Pearl darters were collected in June from the Pearl River (Suttkus *et al.* 1994, p. 19). Bart and Pillar (1997, pp. 6–7) described the Strong River rapids area, near the geological outcroppings, as an important historical spawning habitat for the species in the Pearl River system.

Summary of Biological Status and Threats

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations in title 50 of the Code of Federal Regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below:

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

All members of *Cottogaster* are undergoing range contractions and are of potential conservation concern throughout their respective distributions (Dugo *et al.* 2008, p. 3; Warren *et al.* 2000, pp. 7–8; Goodchild 1994, pp. 433–435). The Pearl darter has been extirpated from the Pearl River drainage, representing an approximately 57 percent loss of its historical range. Suttkus *et al.* (1994, p. 19) attributed the loss of the Pearl darter in the Pearl River to increasing sedimentation from habitat modification caused by the removal of riparian vegetation and extensive cultivation near the river's edge. In addition, the decline of the species in the Pearl River was likely exacerbated by the construction of low sill dams by the West Pearl Navigation Waterway, which blocked fish passage and is thought to have led to the extirpation of the Alabama shad (*Alosa alabamae*) from the system (Mickel *et al.* 2010, p. 158).

Water Quality Degradation

Similar to the Pearl River system, the Pascagoula River system suffers from acute and localized water quality degradation by nonpoint source pollution in association with land surface, stormwater, and effluent runoffs from urbanization and municipal areas (Mississippi Department of Environmental Quality (MDEQ) 2005c, p. 23; 2005d, p. 16). TMDLs (Total Maximum Daily Loads; regulatory term in the U.S. Clean Water Act describing a benchmark set for a certain pollutant to bring water quality up to the applicable standard) have been established for 89 segments of the Pascagoula River Basin, many of which include portions of the Pearl darter's range (MDEQ 2014a, pp. 18–21). For sediment, one of the most pervasive pollutants, the State of Mississippi has TMDLs for various tributaries and main stems of the Leaf and Chickasawhay Rivers. To date, efforts by the State of Mississippi to improve water quality in the Pascagoula River basin to meet these TMDL benchmarks have been inadequate (MDEQ 2014a, pp. 18–21). Thirty-nine percent of the Pascagoula River Basin tributaries are rated fair or poor due to pollution impacts (MDEQ 2014a, pp. 18–21; MDEQ 2008a, p. 17).

Nonpoint source pollution is a localized threat to the Pearl darter within the drainage, and is more prevalent in areas outside those lands protected by The Nature Conservancy and other areas managed by the State of Mississippi where Best Management Practices (BMPs) are utilized. Most water quality threats outside of protected lands are due to increased sediment loads and variations in pH (MDEQ 2014a, pp. 1–51; 2008a, pp. 13–15). Sediment in stormwater runoff increases water turbidity and temperature and originates locally from poorly maintained construction sites, timber harvest tracts, agricultural fields, clearing of riparian vegetation, and gravel extraction in the river floodplain. Excessive sediments disrupt feeding and spawning of fish and aquatic insects, abrade and suffocate periphyton (mixture of algae, bacteria, microbes, and detritus that is attached to submerged surfaces), and impact fish growth, survival, and reproduction (Waters 1995, pp. 55–62). A localized

portion of the Chickasawhay River is on the State Section 303(d) List of Water Bodies as impaired due to sediment (MDEQ 2005b, p. 17).

Additionally, some contaminants may bind with one another within the Pascagoula River drainage (*i.e.,* heavy metals bind with sediments or other contaminants in the water column). These bound chemical contaminants have not been addressed in TMDLs. Only seven TMDLs for metals have been completed (MDEQ 2008a, pp. 1–55). The Davis Dead River, a tributary at the most downstream site of the Pearl darter's range, is considered critically impaired by mercury (MDEQ 2011, pp. 1–29), and fish consumption advisories continue for mercury in certain gamefish species in the Pascagoula River main stem (MDEQ 2008a, p. 43).

There are 15 permitted point source discharge sites within the Bouie River system (MDEQ 2005a, p. 6) and an unknown amount of nonpoint runoff sites. Municipal and industrial discharges during periods of low flow (*i.e.,* no or few rain events) intensify water quality degradation by increasing water temperatures, lowering dissolved oxygen, and changing pH. Within the Pascagoula River basin, pollutants causing specific channel or river reach impairment, (*i.e.,* those pollutants preventing the water body from reaching its applicable water quality standard (Environmental Protection Agency (EPA) 2012, pp. 1–9), include sedimentation (117 km (73 mi)); chemicals and nutrients in the water column (50 km (31 mi)); and various toxins, such as heavy metals like lead or cadmium (137 km (85 mi)). TMDLs were completed for pesticides such as DDT, toxaphene, dioxin, and pentachlorophenol, although much of the data and results are not finalized and remain unavailable for the designated reaches (EPA 2012, pp. 1–7; MDEQ 2003, pp. 5–10; Justus *et al.* 1999, p. 1; MDEQ 1994, pp. 1–13). No Pearl darters have been collected in the Bouie River (Bart *et al.* 2001, pp. 6–7) since 1997 (Ross *et al.* 2000, p. 3), though there is no specific data correlating the species' decline to the presence of these toxins.

Localized wastewater effluent into the Leaf River from the City of Hattiesburg is negatively impacting water quality (Hattiesburg American 2015, pp. 1–2; Mississippi River Collaboration 2014, p. 1; The Student Printz 2014, pp. 1–2). Existing housing, recreational cabins, and trailers along the banks of the Leaf River between I–59 to the town of Estabutchie add nutrient loading through sewage and septic water effluent (Mississippi River Collaboration 2014, p. 1). In 1997, Bart and Piller (p. 12) noted extensive algal growth during warmer months in the Leaf and Bouie Rivers, indicating nutrient and organic enrichment and decreases in dissolved oxygen and pH changes. Today, at specific locations, the water quality of the Bouie and Leaf Rivers continues to be negatively impacted by organic enrichment, low dissolved oxygen, fecal coliform and elevated nutrients (MDEQ 2005a, pp. 1–26; 2004, pp. 1–29).

Oil and Gas Development

Nonpoint and point source pollution from oil and gas exploration, including drill field construction, active drilling, and pipeline easements, may add localized pollutants into the Pascagoula River Basin during stormwater runoff events if BMPs are not used. There is one major oil refinery within the basin along with 6 oil pumping stations, 10 major crude pipelines, 4 major product oil pipelines, and 5 major gas and more than 25 lesser gas lines stretching hundreds of miles and crisscrossing the main stem Pascagoula, Bouie, Leaf, and Chickasawhay Rivers and tributaries; in addition, there are more than 100 active oil producing wells within the Pearl darters' watersheds (compiled from Oil and Gas map of Mississippi in Phillips 2013, pp. 10, 23). All have the potential to rupture and/or leak and cause environmental and organismal damage as evidenced by the Genesis Oil Co. and Leaf River oil spill of 2000 (Environmental Science Services, Inc. 2000, pp. 1–50; Kemp Associates, PA, 2000, pp. 4–5; The Clarion-Ledger, December 23, 1999, p. 1B) and Genesis Oil spill in Okatoma Creek in February 2016 (Drennen pers. observ. 2016). In addition to gas pipelines, there are numerous railways that cross Pearl darter habitat that are subject to accidental and catastrophic spilling of toxins such as fuel oil, methanol, resin, and fertilizer (MDEQ 2014b, pp. 1–23).

Alternative oil and gas collection methods (*i.e.,* hydraulic fracturing (''fracking'') and horizontal drilling and injection) have allowed for the expansion of oil and gas drilling into deposits that were previously inaccessible (Phillips 2013, p. 21), which has led to increased activity within southern Mississippi, including portions of the Pascagoula River Basin. There are more than 100 water injection disposal wells and enhanced oil recovery wells within the Basin (compiled from Active Injection Well Map of Mississippi in Phillips 2013, p. 49). A variety of chemicals (*e.g.,* hydrochloric acid, surfactants, potassium chloride) are used during the drilling and fracking process (Colborn *et al.* 2011, pp. 1040–1042), and their wastes are stored in open pits (retention basins) or storage facilities. Spills during transport or releases due to retention basin failure or overflow pose a risk for surface and groundwater contamination, which can cause significant adverse effects to water quality and aquatic organisms that inhabit these watersheds (Osborn *et al.* 2011, pp. 8172–8176; Kargbo *et al.* 2010, pp. 5680–5681; Wiseman 2009, pp. 127–142). There is currently no routine water quality monitoring in areas where the Pearl darter currently occurs, so it is unlikely that the effects of a leak or spill would be detected quickly to allow for a timely response.

Geomorphology Changes

Pearl darters are not found in impounded waters and are intolerant of lentic (standing water) habitats that may be formed by gravel mining or other landscape-altering practices. The results of historical sand and gravel dredging impacts have been a concern for the Bouie and Leaf Rivers (MDEQ 2000, pp. 1–98). Historically, the American Sand and Gravel Company (ASGC) (1995, p. B4) has mined sand and gravel using a hydraulic suction dredge, operating within the banks or adjacent to the Bouie and Leaf Rivers. Large gravel bars of the river and its floodplain have been removed over the past 50 years, creating open-water areas that function as deep lake systems (ASGC 1995, pp. B4–B8). The creation of these large, open-water areas has accelerated geomorphic processes, specifically headcutting (erosional feature causing an abrupt drop in the streambed), that has adversely affected the flora and fauna of many coastal plain streams (Patrick *et al.* 1993, p. 90). Mining in active river channels typically results in incision upstream of the mine by knickpoints (break in the slope of a river or stream profile caused by renewed erosion attributed to a bottom disturbance that may retreat upstream), sediment deposition downstream, and an alteration in channel morphology that can have impacts for years (Mossa and Coley 2004, pp. 1–20). The upstream migration of knickpoints, or headcutting, may cause undermining of structures, lowering of alluvial water tables (aquifer comprising unconsolidated materials deposited by water and typically adjacent to rivers), channel destabilization and widening, and loss of aquatic and riparian habitat. This geomorphic change may cause the extirpation of riparian and lotic (flowing water) species (Patrick *et al.* 1993, p. 96). Lyttle (1993, p. 70) and Brown and Lyttle (1992, pp. 2, 46) found that

instream gravel mining reduces overall fish species diversity in Ozark streams and favors a large number of a few small fish species, such as the Central stoneroller (*Campostoma anomalum*) and most darters (*Etheostoma* sp.).

The decline of the Pearl darter in the Bouie River and Black Creek may be from sedimentation caused by unstable banks and loose and unconsolidated streambeds (Bart and Piller 1997, p. 12). Mossa and Coley (2004, p. 17) determined that, of the major tributaries in the Pascagoula basin, the Bouie River was the least stable. Channel enlargement of the Bouie River showed higher than background values associated with avulsions (the rapid abandonment of a river channel and the formation of a new river channel) into floodplain pits and increased sedimentation. In addition, channel enlargement of 400 to 500 percent in the Bouie River has occurred at specific sites due to instream gravel mining (Mossa *et al.* 2006, entire; Mossa and Coley 2004, p. 17). Ayers (2014, pp. 43–45) also found significant and lengthy instream channel form changes in the Chickasawhay River floodplain. Clark and Schaefer (2015, pp. 13–14) noted a slight decrease in fish species richness in the upper Pascagoula River basin from their 2004 sampling, which they attributed to past anthropogenic influences such as gravel mining, bankside practices, and construction.

In the Bogue Chitto River of the Pearl River basin, Stewart *et al.* (2005, pp. 268–270) found that the assemblages of fishes had shifted over 27 years. In this time period, the sedimentation rates within the system had increased dramatically and caused the decrease in the relative abundance of all fish in the family Percidae (Stewart *et al.* 2005, pp. 268–270) from 35 percent to 9 percent, including the extirpation of Pearl darters. Ross *et al.* (1992, pp. 8–9) studied threats to the Okatoma Creek (Pascagoula Basin) fish diversity and predicted that geomorphic changes to the stream would reduce the fish habitat diversity resulting in a decline of the fish assemblages, including the rare Pearl darter.

Impoundments

The proposed damming of Little and Big Cedar Creeks, tributaries to the Pascagoula River, for establishment of two recreational lakes (George County Lakes) (U.S. Army Corps of Engineers 2015, pp. 1–13) has prompted the American Rivers organization to recently list the Pascagoula River as the 10th most endangered river in the country (American Rivers 2016, pp. 20–21). Though the proposed project is not directly within known Pearl darter habitat, the lakes will decrease water quantity entering the lower Pascagoula Basin, and will likely concentrate pollutants, reduce water flow, and alter downstream food webs and aquatic productivity (Poff and Hart 2002, p. 660).

Summary of Factor A

Habitat modification and resultant water quality degradation are occurring within the Pearl darter's current range. Increased sedimentation from the removal of riparian vegetation and extensive cultivation is thought to have led to the extirpation of the Pearl darter from the Pearl River drainage. Water quality degradation occurs locally from point and nonpoint source pollution in association with land surface, stormwater, and effluent runoff from urbanization and municipal areas. Increased sediment from a variety of sources, including geomorphological changes and bank instability from past habitat modification, appears to be the major contributor to water quality declines in this species' habitat. Localized sewage and waste water effluent also pose a threat to this species and its habitat. The Pearl darter's vulnerability to catastrophic events, particularly the release of pollutants in its habitat from oil spills, train derailments, and hydraulic fracturing, is also a concern due to the abundance of oil wells, pumping stations, gas lines, and railways throughout its habitat, and the increased interest in alternative oil and gas collection methods in the area. The proposed damming of Big and Little Cypress creeks may decrease water flow and increase nutrients and sedimentation into the Pascagoula River. These threats continue to impact water quality and habitat conditions through much of this species' current range. Therefore, we conclude that habitat degradation is presently a moderate threat to the Pearl darter that is expected to continue and possibly increase into the future.

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

In general, Pearl darters are unknown to the public and are not used for either sport or bait purposes. Therefore, collection of this species by the public is not currently identified as a threat. Scientific collecting is controlled by the State through permits; thus, scientific collecting and take by private and institutional collectors are not presently identified as threats. Therefore, overutilization for commercial, recreational, scientific, or educational purposes does not pose a threat to the Pearl darter now or in the future.

Factor C: Disease or Predation

Predation on the Pearl darter by other fish, reptiles, and other organisms undoubtedly occurs; however, there is no evidence to suggest that any predators threaten this species. There is also no evidence that disease is a threat. Therefore, neither disease nor predation poses a threat to the Pearl darter now or in the future.

Factor D: The Inadequacy of Existing Regulatory Mechanisms

The State of Mississippi classifies the Pearl darter as endangered in the State (Mississippi Natural Heritage Program 2015, p. 2), and prohibits the collection of the Pearl darter for scientific purposes without a State-issued collecting permit. However, as discussed under Factor B, we have no evidence to suggest that scientific collection poses a threat to this species. This State endangered designation conveys no legal protection for the Pearl darter's habitat nor prohibits habitat degradation, which is the primary threat to the species. The Pearl darter receives no protection in Louisiana, where it is considered historic in the State (Louisiana Department of Wildlife and Fisheries 2016, p. 5).

The Pearl darter and its habitats are afforded some protection from water quality and habitat degradation under the Clean Water Act of 1972 (33 U.S.C. 1251 *et seq.*) and the Mississippi Water Pollution Control Law, as amended, 1993 (Code of Mississippi, §§ 49–17–1, *et seq.*) and regulations promulgated thereunder by the Mississippi Commission on Environmental Quality. Although these laws have resulted in some temporary enhancement in water quality and habitat for aquatic life, they have been inadequate in fully protecting the Pearl darter from sedimentation and other nonpoint source pollutants.

The State of Mississippi maintains water-use classifications through issuance of National Pollutant Discharge Elimination System permits to industries, municipalities, and others that set maximum limits on certain pollutants or pollutant parameters. For water bodies on the Clean Water Act section 303(d) list, the State is required to establish a TMDL for the pollutants of concern that will improve water quality to the applicable standard. The establishment of TMDLs for 89 river or stream segments and ratings of fair to poor for 39 percent of the tributaries within the Pascagoula basin are indicative of pollution impacts within the Pearl darter's habitat (MDEQ 2008a,

p. 17). TMDLs are not an enforced regulation, and only reflect benchmarks for improving water quality; they have not been successful in reducing water quality degradation within this species' habitat.

Mississippi Surface Mining and Reclamation Law, Miss. Code Ann. § 53–7–1 *et seq.,* and Federal laws regarding oil and gas drilling (42 U.S.C. 6921) are generally designed to protect freshwater resources like the Pearl darter, but these regulatory mechanisms do not contain specific provisions requiring an analysis of project impacts to fish and wildlife resources. They also do not contain or provide for any formal mechanism requiring coordination with, or input from, the Service or the Mississippi Department of Wildlife, Fisheries and Parks regarding the presence of federally endangered, threatened, or candidate species, or other rare and sensitive species. In the case of surface mining, penalties may be assessed if damage is serious, but there is no immediate response for remediation of habitats or species. As demonstrated under Factor A, periodic declines in water quality and degradation of habitat for this species are ongoing despite these protective regulations. These mechanisms have been inadequate to protect the species from sediment runoff and turbidity within its habitat associated with land surface runoff and municipal/industrial discharges, as described under Factor A. There are currently no requirements within the scope of other statewide environmental laws to specifically consider the Pearl darter or ensure that a project will not significantly impact the species.

The Pearl darter likely receives ancillary protection (*i.e.,* water quality improvements, protection from geomorphological changes) where it co-occurs with two other federally listed species, the Gulf sturgeon (*Acipenser oxyrhynchus desotoi*) and yellow blotched map turtle (*Graptemys flavimaculata*), during the course of consultation on these species under section 7 of the Act. However, protective measures through section 7 of the Act would only be triggered for those projects having a Federal nexus, which would not address many of the water quality disturbances caused by industry, municipalities, agriculture, or private landowners.

Additional ancillary protection of 53,520 hectares (ha) (132,128 acres (ac)) within the Pascagoula basin watershed occurs due to the Mississippi Wildlife, Fisheries and Parks' management of six Wildlife Management Areas (WMAs) within the drainage for recreational hunting and fishing. Point and nonpoint sediment sources are decreased or reduced by using and monitoring BMP's during silviculture, road maintenance, and other landscape-altering methods. Four of the six WMAs (Chickasawhay and Leaf Rivers, Mason and Red Creeks) do not directly border the river system, but they do contain and protect parcels of upland buffer, wetland, and tributaries to the basin. The Pascagoula River and Ward Bayou WMAs include 20,329 ha (50,234 ac) consisting of mainly wetland buffer and river/stream reach of the basin within the current range of the Pearl darter, protecting approximately 106 km (66 mi) of the Pascagoula River main stem (Stowe, pers. comm., 2015). The Nature Conservancy (TNC) protects 14,164 ha (35,000 ac) within the Pascagoula River watershed and approximately 10 km (6 mi) of the Pascagoula River shoreline in Jackson County, Mississippi. Of that amount, the Charles M. Deaton Nature Preserve (1,336 ha, 3,300 ac) protects the headwaters of the Pascagoula River, where the Leaf and Chickasawhay Rivers converge, and is part of a 19,020-ha (47,000-ac) swath of public lands surrounding the Pascagoula River, which includes approximately 8 km (5 mi) of the Chickasawhay River and approximately 7 km (4 mi) of the Leaf River shorelines (Becky Stowe 2015, pers. comm.).

These State-managed WMAs and TNC preserves provide a measure of protection for approximately 134 km (84 mi) or 30 percent of the river reaches within this species' current range. Even though 116 of these 134 km (72 of 84 mi) are located within the Pascagoula River mainstem, only short segments of shoreline are protected in the Chickasawhay and Leaf Rivers. The remaining segments, not within WMA's and TNC preserves, are vulnerable to farming and timbering to the bankside edge, and construction of structures such as houses, septic facilities, dams, and ponds. Each land management action increases stormwater runoff laden with sediment and agricultural and wastewater chemicals.

Summary of Factor D

Outside of the areas protected or managed by the State and TNC, and despite existing authorities, such as the Clean Water Act, pollutants continue to impair the water quality throughout much of the current range of the Pearl darter. State and Federal regulatory mechanisms have helped reduce the negative effects of point source and nonpoint source discharges, yet there is inconsistency in the implementation of these regulations and BMPs, which are not mandatory for all activities. Thus, we conclude that existing regulatory mechanisms do not adequately protect the Pearl darter from the impact of other threats.

Factor E: Other Natural or Manmade Factors Affecting Its Continued Existence

Small Population Size and Loss of Genetic Diversity

The Pearl darter is included on the Southeastern Fishes Council list of the 12 most imperiled species (Kuhajda *et al.* 2009, pp. 17–18). This species has always been considered rare (Deacon *et al.* 1979, p. 42) and is currently restricted to localized sites within the Pascagoula River drainage. Genetic diversity has likely declined due to fragmentation and separation of reproducing Pearl darter populations. Kreiser *et al.* (2012, p. 12) found that disjunct populations of Pearl darters within the Leaf and Chickasawhay Rivers showed some distinct alleles suggesting that gene flow between the two rivers was restricted and perhaps that the total gene pool diversity was declining.

Species that are restricted in range and population size are more likely to suffer loss of genetic diversity due to genetic drift, potentially increasing their susceptibility to inbreeding depression, decreasing their ability to adapt to environmental changes, and reducing the fitness of individuals (Allendorf and Luikart 2007, pp. 117–146; Soulé 1980, pp. 157–158). It is likely that some of the Pearl darter populations are below the effective population size required to maintain long-term genetic and population viability (Soulé 1980, pp. 162–164). Collecting data (Ross 2001, p. 500; Bart and Piller 1997, p. 4; Bart and Suttkus 1996, p. 4; Suttkus *et al.* 1994, p. 19) indicate that the Pearl darter is rare in the Pascagoula River system, as when this species is collected it is typically in low numbers and a disproportionately low percentage of the total fish collected.

In addition, preliminary information indicates that there may be low genetic diversity within the Pearl darter populations, especially among populations within the Leaf and Chickasawhay Rivers where it appears gene flow between the two rivers may be restricted (Kreiser *et al.* 2013, pp. 14–17). The long-term viability of a species is founded on the conservation of numerous local populations throughout its geographic range (Harris 1984, pp. 93–104). The presence of viable, separate populations is essential for a species to recover and adapt to

environmental change (Noss and Cooperrider 1994, pp. 264–297; Harris 1984, pp. 93–104). Inbreeding and loss of neutral genetic variation associated with small population size reduce the fitness of the population (Reed and Frankham 2003, pp. 230–237) and accelerate population decline (Fagan and Holmes 2006, pp. 51–60). The species' small numbers within scattered locations coupled with its lack of genetic variability may decrease the species' ability to adapt or recover from major hydrological events that impact potential spawning habitat (Clark and Schaeffer 2015, pp. 18–22).

Hurricanes

Fish and aquatic communities and habitat, including that of the Pearl darter, may be changed by hurricane influences (Schaefer *et al.* 2006, pp. 62–68). In 2005, Hurricane Katrina destroyed much of the urban and industrial areas along the lower Pascagoula River basin and also impacted the ecology upriver to the confluence with the Leaf and Chickasawhay Rivers. Many toxic chemicals that leaked from grounded and displaced boats and ships, storage facilities, vehicles, septic systems, business sites, and other sources were reported in the rivers, along with saltwater intrusion from the Gulf of Mexico. Initial assessment identified several fish kills and increased surge of organic material into the waters, which lowered dissolved oxygen levels (Schaefer *et al.* 2006, pp. 62–68).

Climate Change

The Intergovernmental Panel on Climate Change (IPCC) concluded that warming of the climate system is unequivocal (IPCC 2014, p. 3). Numerous long-term climate changes have been observed including changes in arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns, and aspects of extreme weather including droughts, heavy precipitation, heat waves, and the intensity of tropical cyclones (IPCC 2014, p. 4). Species that are dependent on specialized habitat types, limited in distribution, or at the extreme periphery of their range may be most susceptible to the impacts of climate change (see 75 FR 48911, August 12, 2010); however, while continued change is certain, the magnitude and rate of change is unknown in many cases.

Climate change has the potential to increase the vulnerability of the Pearl darter to random catastrophic events (Thomas *et al.* 2004, pp. 145–148; McLaughlin *et al.* 2002, pp. 6060–6074). An increase in both severity and variation in climate patterns is expected, with extreme floods, strong storms, and droughts becoming more common (IPCC 2014, pp. 58–83). Thomas *et al.* (2004, pp. 145–148) report that frequency, duration, and intensity of droughts are likely to increase in the Southeast as a result of global climate change. Kaushal *et al.* (2010, p. 465) reported that stream temperatures in the Southeast have increased roughly 0.2–0.4 °C (0.3–0.7 °F) per decade over the past 30 years, and as air temperature is a strong predictor of water temperature, stream temperatures are expected to continue to rise. Predicted impacts of climate change on fishes, related to drought, include disruption to their physiology (*e.g.,* temperature tolerance, dissolved oxygen needs, and metabolic rates), life history (*e.g.,* timing of reproduction, growth rate), and distribution (*e.g.,* range shifts, migration of new predators) (Comte *et al.* 2013, pp. 627–636; Strayer and Dudgeon 2010, pp. 350–351; Heino *et al.* 2009, pp. 41–51; Jackson and Mandrak 2002, pp. 89–98). However, estimates of the effects of climate change using available climate models typically lack the geographic precision needed to predict the magnitude of effects at a scale small enough to discretely apply to the range of a given species. Therefore, there is uncertainty about the specific effects of climate change (and their magnitude) on the Pearl darter; however, climate change is almost certain to affect aquatic habitats in the Pascagoula River basin through increased water temperatures and more frequent droughts (Alder and Hostetler 2013, pp. 1–12), and species with limited ranges, fragmented distributions, and small population size are thought to be especially vulnerable to the effects of climate change (Byers and Norris 2011, p. 18). Thus, we consider climate change to be a threat to the Pearl darter.

Summary of Factor E

Because the Pearl darter has a limited geographic range, small population numbers, and low genetic diversity, it is vulnerable to several other ongoing natural and manmade threats. These threats include the loss of genetic fitness, susceptibility to spills and other catastrophic events, and impacts from climate change. These threats are current and are likely to continue or increase in the future.

Cumulative Effects of Factors A Through E

The threats that affect the Pearl darter are important on a threat-by-threat basis but are even more significant in combination. Due to the loss of the species from the Pearl River system, the Pearl darter is now confined to a single drainage system. The species is continuing to experience water quality degradation from point and nonpoint source pollution in association with land-altering activities, discharges from municipalities, and geomorphological changes from past gravel mining. The laws and regulations directed at preventing water quality degradation have been ineffective at providing for the conservation of the Pearl darter. Furthermore, these threats and their effect on this species are exacerbated due to the Pearl darter's small population numbers and low genetic diversity, which reduce its genetic fitness and resilience to possible catastrophic events. Though projecting possible synergistic effects of climate change on the Pearl darter is somewhat speculative, climate change and its effects of increased water temperatures and more frequent droughts will have a greater negative impact on species with limited ranges and small population sizes, such as the Pearl darter. While these threats or stressors may act in isolation, it is more probable that many stressors are acting simultaneously (or in combination) on the Pearl darter.

Proposed Determination

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Pearl darter. As described in detail above, the Pearl darter has been extirpated from about 57 percent of its historical range and it is now confined to the Pascagoula River watershed. The species occurs in low numbers within its current range, and continues to be at risk throughout all of its range due to the immediacy, severity, and scope of threats from habitat degradation and range curtailment (Factor A) and other natural or manmade factors affecting its continued existence (Factor E). Existing regulatory mechanisms have been inadequate in ameliorating these threats (Factor D).

Anthropogenic activities such as land development, agriculture, silviculture, oil and gas development, inadequate sewage treatment, stormwater runoff, past gravel mining and resultant geomorphological changes, and construction of dams or sills, have all contributed to the degradation of stream habitats and particularly water quality within this species' range (Factor A). These land use activities have led to chemical and physical changes in the mainstem rivers and tributaries that continue to affect the species through negative impacts to its habitat. Specific

threats include inputs of sediments, siltation of stream substrates, turbidity, and inputs of dissolved solids. These threats, especially the inputs of dissolved solids and sedimentation, have had profound negative effects on Pearl darter populations and have been the primary factor in the species' decline. Existing regulatory mechanisms (*e.g.,* the Clean Water Act) have provided for some improvements in water quality and habitat conditions across the species' range, but these laws and regulations have been inadequate in protecting the species' habitat (Factor D), as evidenced by the extirpation of the species within the Pearl River basin and the number of section 303(d) listed streams within the species' historical range. The Pearl darter's vulnerability to these threats is even greater due to its reduced range, fragmented populations, small population sizes, and low genetic diversity (Factor E). The effects of certain threats, particularly habitat degradation and loss, increase in magnitude when population size is small (Primack 2012, pp. 150–152).

The Act defines an endangered species as any species that is ''in danger of extinction throughout all or a significant portion of its range'' and a threatened species as any species ''that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future.'' We find that the Pearl darter is likely to become endangered throughout all or a significant portion of its range within the foreseeable future, based on the immediacy, severity, and scope of the threats currently impacting the species. The overall range has been reduced substantially and the remaining habitat and populations are threatened by a variety of factors acting in combination to reduce the overall viability of the species over time. The risk of becoming endangered is high because populations are confined to a single watershed, most are small in size, and numerous threats are impacting them. However, we find that endangered species status is not appropriate. Despite low population numbers and numerous threats, populations in the Chickasawhay and Leaf Rivers, which are the largest, appear to be stable and reproducing. In addition, the magnitude of threats is considered to be moderate overall, since the threats are having a localized impact on the species and its habitat. For example, water quality degradation, the most prevalent threat, is not as pervasive within areas protected with BMPs, and geomorphic changes, caused by past sand and gravel mining, are also sporadic within its habitat. Therefore, on the basis of the best available scientific and commercial information, we propose listing the Pearl darter as threatened in accordance with sections 3(6) and 4(a)(1) of the Act.

Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. Because we have determined that Pearl darter is threatened throughout all of its range, no portion of its range can be ''significant'' for purposes of the definitions of ''endangered species'' and ''threatened species.'' See the Final Policy on Interpretation of the Phrase ''Significant Portion of Its Range'' in the Endangered Species Act's Definitions of ''Endangered Species'' and ''Threatened Species'' (79 FR 37577, July 1, 2014).

Critical Habitat

Section 3(5)(A) of the Act defines 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 physical or biological features (I) Essential to the conservation of the species and (II) 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 by the Secretary that such areas are essential for the conservation of the species.''

Section 4(a)(3) of the Act and implementing regulations (50 CFR 424.12) require that we designate critical habitat at the time a species is determined to be an endangered or threatened species, to the maximum extent prudent and determinable. Our regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species; or (2) such designation of critical habitat would not be beneficial to the species. There is currently no imminent threat of take attributed to collection or vandalism under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, a finding that designation is prudent is warranted. Here, the potential benefits of designation include: (1) Triggering consultation under section 7 of the Act, in new areas for action in which there may be a Federal nexus where it would not otherwise occur because, for example, it is unoccupied; (2) focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing inadvertent harm to the species. Accordingly, because we have determined that the designation of critical habitat will not likely increase the degree of threat to the species and may provide some measure of benefit, we determine that designation of critical habitat is prudent for the Pearl darter.

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the species is determinable. Our regulations (50 CFR 424.12(a)(2)) further state that critical habitat is not determinable when one or both of the following situations exist: (i) Information sufficient to perform required analysis of the impacts of the designation is lacking; or (ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

As discussed above, we have reviewed the available information pertaining to the biological needs of the species and habitat characteristics where the species is located. On the basis of a review of available information, we find that critical habitat for the Pearl darter is not determinable because the specific information sufficient to perform the required analysis of the impacts of the designation is currently lacking, such as information on areas to be proposed for designation and the potential economic impacts associated with designation of these areas. We are in the process of obtaining this information. We will make a determination on critical habitat no later than 1 year following any final listing determination.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies

and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed and preparation of a draft and final recovery plan. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for downlisting or delisting, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. If the species is listed, the recovery outline, draft recovery plan, and the final recovery plan would be available on our Web site (*http://www.fws.gov/endangered*), or from our Mississippi Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (*e.g.,* restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands. If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of Mississippi would be eligible for Federal funds to implement management actions that promote the protection or recovery of the Pearl darter. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants.*

Although the Pearl darter is only proposed for listing under the Act at this time, please let us know if you are interested in participating in conservation efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph include management and any other landscape-altering activities on Federal lands administered by the U.S. Forest Service; issuance of section 404 Clean Water Act permits by the U.S. Army Corps of Engineers; construction and maintenance of gas and oil pipelines and power line rights-of-way by the Federal Energy Regulatory Commission; Environmental Protection Agency pesticide registration; and construction and maintenance of roads or highways by the Federal Highway Administration.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to threatened wildlife. The prohibitions of section 9(a)(1) of the Act, as applied to threatened wildlife and codified at 50 CFR 17.31, make it illegal for any person subject to the jurisdiction of the United States to take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) threatened wildlife within the United States or on the high seas. In addition, it is unlawful to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving threatened wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. There are also certain statutory exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing. Based on the best available information, the following actions are unlikely to result in a violation of section 9, if these activities are carried out in accordance with existing regulations and permit requirements; this list is not comprehensive:

(1) Normal agricultural and silvicultural practices, including

herbicide and pesticide use, which are carried out in accordance with existing regulations, permit and label requirements, and best management practices.

(2) Normal residential and urban landscape activities, such as mowing, edging, fertilizing, etc.

(3) Normal pipeline/transmission line easement maintenance.

(4) Normal bridge, culvert, and roadside maintenance consistent with appropriate best management practices for these activities.

Based on the best available information, the following activities may potentially result in a violation of section 9 of the Act; this list is not comprehensive:

(1) Unauthorized handling or collecting of the species.

(2) Introduction of nonnative fish that compete with or prey upon the Pearl darter.

(3) Discharge or dumping of toxic chemicals, contaminants, sediments, waste water effluent, or other pollutants into waters supporting the Pearl darter that kills or injures individuals, or otherwise impairs essential life-sustaining behaviors such as spawning, feeding, or sheltering.

(4) Destruction or alteration of the species' habitat (*e.g.,* unpermitted instream dredging, impoundment, water diversion or withdrawal, channelization, discharge of fill material, modification of tributaries, channels, or banks) that impairs essential behaviors such as spawning, feeding, or sheltering, or results in killing or injuring a Pearl darter.

(5) Mining, oil and gas processes, silviculture, and agricultural processes that result in direct or indirect destruction of riparian bankside habitat or in channel habitat in waters supporting the Pearl darter that kills or injures individuals, or otherwise impairs essential life-sustaining behaviors such as spawning, feeding, or sheltering.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Mississippi Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Required Determinations

Clarity of the Rule

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

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

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

National Environmental Policy Act

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with listing a species as an endangered or threatened species under the Endangered Species Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. There are no tribal lands located within the range of this species.

References Cited

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

Authors

The primary authors of this proposed rule are the staff members 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.

Proposed Regulation Promulgation

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

PART 17—[AMENDED]

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

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

■ 2. In § 17.11(h), add an entry for ''Darter, Pearl'' to the List of Endangered and Threatened Wildlife in alphabetical order under FISHES to read as set forth below:

§ 17.11 Endangered and threatened wildlife.

* * * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	* * *
FISHES				

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	* *	*	*	* *
Darter, Pearl	*Percina aurora*	Wherever found	T	[**Federal Register** citation when published as a final rule].
*	* *	*	*	* *

Dated: August 30, 2016.

James W. Kurth,

Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 2016–22752 Filed 9–20–16; 8:45 am]

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