DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2020–0094; FF09E21000 FXES11110900000 234]

RIN 1018–BE89

Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Sickle Darter

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine threatened status under the Endangered Species Act of 1973 (Act), as amended, for the sickle darter (*Percina williamsi*), a fish species from the upper Tennessee River drainage in North Carolina, Tennessee, and Virginia. This rule adds the species to the List of Endangered and Threatened Wildlife. We also finalize a rule under the authority of section 4(d) of the Act that provides measures that are necessary and advisable to provide for the conservation of the sickle darter.

DATES: This rule is effective December 8, 2022.

ADDRESSES: This final rule is available on the internet at *https://www.regulations.gov.* Comments and materials we received are available for public inspection at *https://www.regulations.gov* at Docket No. FWS–R4–ES–2020–0094. Supporting materials we used in preparing this rule, such as the species status assessment report, are available on the Service's website at *https://www.fws.gov/tennessee-ecological-services/library,* at *https://regulations.gov* at Docket No. FWS–R4–ES–2020–0094 or both.

FOR FURTHER INFORMATION CONTACT: Daniel Elbert, Field Supervisor, U.S. Fish and Wildlife Service, Tennessee Ecological Services Field Office, 446 Neal Street, Cookeville, TN 38501; telephone 913–528–6481. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

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. Whenever any species is listed as a threatened species, the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of such species. In addition, the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1) of the Act for endangered species. Listing a species as an endangered or threatened species and designation of critical habitat can only be completed by issuing a rulemaking.

What this document does. This final rule lists the sickle darter as a threatened species and adopts a rule issued under section 4(d) of the Act for the species.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species because of 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 threats to the sickle darter include habitat loss or degradation stemming from hydrologic alteration by impoundments, including dams and other barriers; land development that does not incorporate best management practices (BMPs); and diminished water quality from point and non-point source pollution and siltation (Factor A). These threats contribute to the negative effects associated with the species' reduced range and potential effects of climate change (Factor E).

We are not designating critical habitat for the sickle darter at this time. To the maximum extent prudent and determinable, we must designate critical habitat for any species that we determine to be an endangered or threatened species under the Act. A careful assessment of the economic impacts that may occur due to a critical habitat designation is still ongoing, and we are in the process of working with States and other partners in acquiring the complex information needed to perform that assessment. We will propose critical habitat once we have completed our economic assessment.

Previous Federal Actions

Please refer to the sickle darter's proposed listing rule (85 FR 71859; November 12, 2020) for a detailed description of previous Federal actions concerning this species.

Peer Review

A species status assessment (SSA) team prepared an SSA report for the sickle darter. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species.

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we solicited independent scientific review of the information contained in the sickle darter SSA report. As discussed in the proposed rule, we sent the SSA report to five independent peer reviewers and received four responses. The peer reviews can be found at *https://www.regulations.gov* under Docket No. FWS–R4–ES–2020–0094. In preparing the proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which was the foundation for the proposed rule and this final rule.

Summary of Changes From the Proposed Rule

This final rule incorporates several changes to our proposed rule (85 FR 71859; November 12, 2020) based on the comments we received. These changes are summarized below and discussed further under Summary of Comments and Recommendations. Minor, nonsubstantive changes and corrections are made throughout this rule in response to comments. However, the information we received during the public comment period on the proposed rule did not change our determination that the sickle darter is a threatened species.

We received substantive comments on the proposed rule issued under section 4(d) of the Act (''4(d) rule'') for the sickle darter. We have made changes to this rule as a result of the public comments we received. In summary, we modified the language for four

exceptions to incidental take prohibitions in the sickle darter 4(d) rule.

- We modified the exception to the incidental take prohibition for bank stabilization projects to add a requirement that appropriate ''native'' vegetation, including woody and herbaceous species appropriate for the region and habitat, be used for stabilization.
- We modified the exception to the incidental take prohibition for transportation projects to include actions that avoid the sickle darter spawning period to protect the fish during the sensitive life stage of spawning. Transportation projects that take place between April 1 and January 31 (outside the spawning period) are consistent with the timing of other exceptions to take prohibitions for sickle darter.
- We modified the exception to the incidental take prohibition for silviculture and forest management activities to apply throughout the year (*i.e.,* we removed the spawning period consideration from this exception based on implemented silvicultural BMPs as long as those activities implement State-approved BMPs and meet the conditions specified in the 4(d) rule. We modified the exception to the incidental take prohibition for silviculture and forest management activities to reflect language consistent with final 4(d) rules for species with similar habitat requirements (see *(6) Comment* under Summary of Comments and Recommendations, below).

I. Final Listing Determination

Background

Sickle Darter

A thorough review of the taxonomy, life history, and ecology of the sickle darter is presented in the SSA report (Service 2020a, pp. 9–30). The biological information for the sickle darter in the SSA report is summarized below.

The sickle darter is a small fish native to the upper Tennessee River drainage in North Carolina, Tennessee, and Virginia. The species currently has a disjunct distribution, with populations in the Emory River, Little River, Sequatchie River, and Emory River systems in Tennessee, and in the upper Clinch River, North Fork Holston River, and Middle Fork Holston River systems in Virginia. Populations within the French Broad River system in North Carolina and Tennessee, and within the South Fork Holston River, Powell River, and Watauga River systems in Tennessee are extirpated. A thorough review of the taxonomy, life history, and ecology of the sickle darter is presented in the SSA report (Service 2020a, pp. 9–13).

The sickle darter has a long, slender body reaching up to 120 millimeters (mm) (4.7 inches (in)) in length and an elongated, pointed snout. The upper body color is brown to olive with a white to pale yellow lower body. Spawning occurs in late winter (February to March), and the species has a maximum lifespan of 3 to 4 years. Sickle darters typically occupy flowing pools over rocky, sandy, or silty substrates in clear creeks or small rivers. Occupied streams tend to have good water quality, with low turbidity and negligible siltation (Etnier and Starnes 1993, p. 576; Alford 2019, p. 9). In these habitats, the species is most often associated with clean sand-detritus or gravel-cobble-boulder substrates, stands of American water willow (*Justicia americana*), or woody debris piles at water depths ranging from 0.4 to 1.0 meter (m) (1.3 to 3.3 feet (ft)) (Etnier and Starnes 1993, p. 576; Page and Near 2007, p. 609; Alford 2019, p. 8). Streams supporting sickle darters range from 9 to 33 m (29 to 108 ft) wide, and streamside tree canopy cover in these streams ranges from open to nearly closed (Alford 2019, p. 8). The species spends most of its time in the water column, often hovering a few inches above the stream or river bottom (Etnier and Starnes 1993, p. 576).

In winter, sickle darters have been observed in deep pools (depths of up to 3 m (10 ft)) or in slow-flowing, shallow pools in close proximity to cover (Etnier and Starnes 1993, p. 576; Service 2020b, p. 1). The species migrates from the deepest areas of pools to shallow, gravel shoals (riffles) in late winter or early spring (February to March) to spawn (Etnier and Starnes 1993, p. 576). Spawning begins when stream water temperatures reach 10 to 16 Celsius (°C) (50 to 60 Fahrenheit (°F)) (Petty et al. 2017, p. 3). Sexual maturity of males occurs at the end of the first year of life, while sexual maturity of females occurs at the end of their second year of life (Page 1978, p. 663; Petty et al. 2017, p. 3). Females produce up to 355 eggs per clutch, which hatch in 21 days at an average stream temperature of 10 °C (50 °F) (Etnier and Starnes 1993, p. 576). The incubation period is likely shorter (about 2 weeks) when stream temperatures are higher (Service 2020b, p. 1). The larvae move up and down in the water column and presumably feed on zooplankton and other small macroinvertebrates after depleting yolk sac nutrients (Etnier and Starnes 1993, p. 576; Petty et al. 2017, p. 3). After about 30 days, the larvae move to the stream bottom where they mature (Petty et al. 2017, p. 3). Except for their late winter movements from pools to riffles for spawning, no information is available on the movement behavior of the sickle darter. However, studies of two closely related species in the genus *Percina* (longhead darter and frecklebelly darter) indicate that the sickle darter likely exhibits seasonal upstream and downstream movements (Eisenhour et al. 2011, p. 15; Eisenhour and Washburn 2016, pp. 19–24).

Sickle darters feed primarily on larval mayflies and midges; minor prey items include riffle beetles, caddisflies, dragonflies, and several other groups of aquatic macroinvertebrates (Page and Near 2007, pp. 609–610; Alford 2019, p. 10). Crayfish have been reported as a common food item for the closely related longhead darter (Page 1978, p. 663), but have not been observed in the sickle darter's diet (Alford 2019, p. 10).

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for threatened and endangered species. In 2019, jointly with the National Marine Fisheries Service, the Service issued final rules that revised the regulations in 50 CFR parts 17 and 424 regarding how we add, remove, and reclassify threatened and endangered species and the criteria for designating listed species' critical habitat (84 FR 45020 and 84 FR 44752; August 27, 2019). At the same time the Service also issued final regulations that, for species listed as threatened species after September 26, 2019, eliminated the Service's general protective regulations automatically applying to threatened species the prohibitions that section 9 of the Act applies to endangered species (collectively, the 2019 regulations).

As with the proposed rule, we are applying the 2019 regulations for this final rule because the 2019 regulations are the governing law just as they were when we completed the proposed rule. Although there was a period in the interim—between July 5, 2022, and September 21, 2022—when the 2019 regulations became vacated and the pre-2019 regulations therefore governed, the 2019 regulations are now in effect and govern listing and critical habitat

decisions (*see Center for Biological Diversity* v. *Haaland,* No. 4:19–cv–05206–JST, Doc. 168 (N.D. Cal. July 5, 2022) (*CBD* v. *Haaland*) (vacating the 2019 regulations and thereby reinstating the pre-2019 regulations)) and *In re: Cattlemen's Ass'n,* No. 22–70194 (9th Cir. Sept. 21, 2022) (staying the vacatur of the 2019 regulations and thereby reinstating the 2019 regulations until a pending motion for reconsideration before the district court is resolved)).

The Act defines an ''endangered species'' as a species that is in danger of extinction throughout all or a significant portion of its range, and a ''threatened species'' as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an ''endangered species'' or a ''threatened species'' because of any of the following 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.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term ''threat'' to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term ''threat'' includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term ''threat'' may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an ''endangered species'' or a ''threatened species.'' In determining whether a species meets either definition, we must evaluate all identified threats by considering the expected response by the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an ''endangered species'' or a ''threatened species'' only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term ''foreseeable future,'' which appears in the statutory definition of ''threatened species.'' Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term ''foreseeable future'' extends only so far into the future as the Services can reasonably determine that both the future threats and the species' responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. ''Reliable'' does not mean ''certain''; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data available regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent a decision by the Service on whether the species should be proposed for listing as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies.

To assess sickle darter viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation supports the ability of the species to adapt to both near-term and long-term changes in the environment (for example, climate conditions, pathogen). In general, species viability will increase with increases in resiliency, redundancy, and representation. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA process involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket No. FWS–R4–ES–2020–0094 and on *https://www.regulations.gov.*

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resources, and the threats that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability. For sickle darter populations to be resilient, the needs of individuals (slow-flowing pools, substrate, food

availability, water quality, and aquatic vegetation or large woody debris) must be met at a larger scale. Stream reaches with suitable habitat must be large enough to support an appropriate number of individuals to avoid negative effects associated with small population size, such as inbreeding depression and the Allee effect (whereby low population density reduces the probability of encountering mates for spawning). Connectivity of stream reaches allows for immigration and emigration between populations and increases the likelihood of recolonization should a population be lost. At the species level, the sickle darter needs a sufficient number and distribution of healthy populations to withstand environmental stochasticity (resiliency) and catastrophes (redundancy) and adapt to biological and physical changes in its environment (representation). To evaluate the current and future viability of the sickle darter, we assessed a range of conditions to allow us to consider the species' resiliency, representation, and redundancy.

Factors Influencing Viability of Sickle Darter

Habitat loss and degradation resulting from siltation, water quality degradation, and impoundments pose the largest risk to the current and future viability of the sickle darter and are the primary contributors to the species' reduced range, population fragmentation, and population loss. The effects of population fragmentation and isolation may exacerbate the effects of other threats on the sickle darter. Climate change is a potential stressor that may impact the sickle darter in the future. We found the species does not face significant threats from overutilization, disease, predation, or invasive species. States provide some protections for the sickle darter and we found that inadequacy of regulatory mechanisms is not a threat to the species. A brief summary of relevant stressors is presented below; for a full description, refer to chapter 3 of the SSA report and the proposed rule (Service 2020a, entire; 85 FR 71864–71866).

Siltation can affect fishes through abrasion of gill tissues, suffocation of eggs or larvae, reductions in disease tolerance, degradation of spawning habitats, modification of migration patterns, and reductions in food availability (Berkman and Rabeni 1987, pp. 285–294; Waters 1995, pp. 5–7; Wood and Armitage 1997, pp. 211–212; Meyer and Sutherland 2005, pp. 2–3).

A variety of pollutants that may impact the sickle darter continue to degrade stream water quality within the upper Tennessee River drainage (Locke et al. 2006, pp. 197, 202–203; TDEC 2010, pp. 42–48; TDEC 2014, pp. 47–53; Zipper et al. 2016, p. 604; TDEC 2017, pp. 51–106; VDEQ 2020 (appendix 5), pp. 2387–2617). Major pollutants within the upper Tennessee River drainage include pathogens, domestic sewage, animal waste, nutrients, metals, and toxic organic compounds.

Impoundments have significantly influenced the species' current distribution within the upper Tennessee River drainage through physical, chemical, and biological changes to these systems (Etnier and Starnes 1993, p. 576; Jenkins and Burkhead 1994, pp. 101–106; Service 2020a, p. 3).

Sickle darter populations are localized and geographically isolated from one another due to impoundments and other habitat degradation, leaving them vulnerable to localized extinctions from toxic chemical spills, habitat modification, progressive degradation from runoff (non-point source pollutants), natural catastrophic changes to their habitat (*e.g.,* flood scour, drought), other stochastic disturbances, and decreased fitness from reduced genetic diversity.

Changing climate conditions can influence sickle darter viability through changes in water temperature and precipitation patterns that result in increased flooding, prolonged droughts, or reduced stream flows (McLaughlin et al. 2002, pp. 6060–6074; Cook et al. 2004, pp. 1015–1018; Thomas et al. 2004, pp. 145–148; IPCC 2014, pp. 58–83). The species' early spawning period (February to March) makes it vulnerable to warming temperatures and higher flows—conditions that could interrupt or prevent successful spawning in a given year (Service 2020b, p. 3).

Synergistic Effects

In addition to individually impacting the species, it is likely that several of the above summarized risk factors are acting synergistically or additively on the sickle darter. The combined impact of multiple stressors is likely more harmful than a single stressor acting alone. For example, impoundments in the upper Tennessee River drainage cause changes in riverine habitats, including increased sediment deposition (siltation). Additionally, sediment particles in urban and agricultural runoff carry bound nutrients (phosphorus and nitrogen) and other stream pollutants into streams and rivers.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species but have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

We delineated analytical units (populations) using the tributary systems the sickle darter historically occupied. Each population represents demographically linked interbreeding individuals; however, these populations are currently separated by long distances or isolated by impoundments. We identified 10 historical populations across the range of the sickle darter: Emory River, Clinch River, Powell River, Little River, French Broad River, North Fork Holston River, Middle Fork Holston River, South Fork Holston River, Watauga River, and Sequatchie River.

To assess resiliency, we evaluated six components that broadly relate to the species' physical environment or its population demography. Each population's physical environment was assessed by averaging three components determined to have the most influence on the species: physical habitat quality, connectivity, and water quality. The three components describing population demography were reproduction, occurrence extent (total length of occupied streams compared to historical range), and occupied stream length. Parameters for each component's condition category were established by evaluating the range of existing data and separating those data into categories based on our understanding of the species' demographics and habitat. Using the demographic and habitat parameters, we then categorized the overall condition of each population. We weighted each of the six components equally and determined the average score to describe each population's current condition (see table 1, below).

Due to a limited amount of species-specific genetic information for the sickle darter, we based our evaluation of the species' representation on the extent and variability of environmental diversity (habitat diversity) across the species' geographical range. Additionally, we assessed sickle darter redundancy (ability of species to withstand catastrophic events) by evaluating the number and distribution of resilient populations throughout the species' range. Highly resilient populations, coupled with a relatively broad distribution, have a positive relationship to species-level redundancy.

TABLE 1—COMPONENT CONDITIONS USED TO ASSESS RESILIENCY FOR SICKLE DARTER POPULATIONS

Component	Condition			
	High	Moderate	Low	0
Physical Habitat	Slow-flowing pools abundant (ample cover in pools); silt deposition low; no extensive or significant habitat alteration such as recent channelization or riparian clearing; >75% of available habitat suitable for the species.	Slow-flowing pools present but not abundant (some pools with cover); silt deposition moderate; habitat alteration at moderate level such that channelization or other habitat disturbance more widespread; 25–75% of available habitat suitable for the species.	Slow-flowing pools scarce (few pools with cover); silt deposition extensive; habitat severely altered and recognized as impacting the species; <25% of habitats suitable for the species.	Habitat unsuitable.
Connectivity	High immigration potential between populations (no dams or other barriers separating populations).	Moderate immigration potential between populations (populations separated by one low-head dam, and other partial barriers, such as narrow culverts, may be present).	Low immigration potential between populations (populations separated by ≥2 low-head dams or other barriers).	No connectivity (populations isolated; no immigration potential due to the presence of large reservoirs).
Water Quality	Minimal or no known water quality issues (*i.e.*, no 303(d) streams* impacting the species, area sparsely populated, few roads).	Water quality issues recognized that may impact species (*i.e.*, some 303(d) streams*, unpaved roads more common, moderate levels of developed land use).	Water quality issues prevalent within system, likely impacting populations (i.e., numerous 303(d) streams*).	Water quality unsuitable.
Reproduction	Clear evidence of reproduction, with multiple age classes present.	Clear evidence of reproduction, juveniles present, but multiple age classes not detected.	No direct evidence of reproduction (only adults present).	Extirpated.
Occurrence Extent	<10% decline from historical range.	10–50% decline from historical range.	>50% decline from historical range.	Extirpated.
Occupied Stream Length (Continuity).	≥22.5 km (≥14 mi)	11.3–22.5 km (7–14 mi)	<11.3 km (<7 mi)	Extirpated.

* A 303(d) stream is a stream listed under section 303(d) of the Clean Water Act of 1972 (33 U.S.C. 1251 *et seq.*) as a water body impaired by pollutants.

Current Condition of Sickle Darter

Historically, the sickle darter was known from 10 river system in Tennessee, Virginia, and North Carolina. Of these 10, sickle darter populations have been extirpated from the Powell River, French Broad River, South Fork Holston River, and Watauga River systems, including the species' only population within the Blue Ridge ecoregion. Currently, the sickle darter is known from six tributary systems in the upper Tennessee River drainage: Emory River, Little River, Clinch River, North Fork Holston River, Middle Fork Holston River, and Sequatchie River. The Sequatchie River population was discovered in 2014; the other 5 river systems were historically occupied. Impoundments and water pollution in the upper Tennessee River drainage were major factors in the decline of the sickle darter and several other fishes during the early to mid-20th century (Etnier and Starnes 1993, pp. 15, 576). Current factors affecting the condition of sickle darter populations include habitat and water quality degradation, low connectivity, and small population size (*e.g.,* Clinch River). As shown in table 2, below, the Emory River and Little River populations exhibit moderate resiliency, as evidenced by the species' persistence within these systems for over 45 years, recent and repeated evidence of reproduction and recruitment, a relatively long occupied reach in each system (more than 22.5 kilometers (km) (14 miles (mi))), and the physical habitat condition and water quality in both systems. The remaining four populations exhibit low resiliency. They are represented by fewer documented occurrences, no evidence of recruitment, and shorter occupied reaches, and they occur in areas with limited habitat and water quality.

The species' adaptive potential (representation) is low because of its reduced range (and presumably associated reduction in genetic diversity), and the loss of connectivity caused by dam construction. The sickle darter occupies only two of three Environmental Protection Agency (EPA) Level III ecoregions, where it historically occurred the Ridge and Valley and the Southwestern Appalachians. The species has not been observed from the Blue Ridge ecoregion (French Broad River, North Carolina) since the 1940s. This reduction in the extent and variability of environmental diversity (habitat diversity) has likely reduced the sickle darter's ability to adapt to changing environmental conditions over time. Species isolation due to multiple large impoundments

also reduces the opportunities for or preventing the exchange of novel or beneficial adaptations and reducing the species' ability to migrate to more suitable habitats when necessary.

We assessed the number and distribution of resilient populations across the sickle darter's range as a measure of its redundancy. Construction of dams across the upper Tennessee River drainage has eliminated connectivity between extant populations. However, within the currently occupied streams, large barriers are absent, although some small barriers that hamper movement are present (*e.g.,* defunct low-head mill dams, low-water bridges, narrow or partially blocked culverts). As such, there is connectivity within each occupied stream and opportunity for movement of individuals, decreasing the effect of localized stochastic events. Four of ten historical sickle darter populations have been extirpated, leading to reduced redundancy from historical levels. Overall, the sickle darter exhibits a low degree of redundancy based on the number of moderately resilient populations across the range, and the lack of connectivity between occupied streams, increasing the species' vulnerability to catastrophic events.

Future Scenarios

For details regarding the predicted future condition for the sickle darter under each scenario, see chapter 5 of the SSA report (Service 2020a, pp. 54–68). In our SSA report, we defined viability as the ability of the species to sustain populations in the wild over time. To help address uncertainty associated with the degree and extent of potential future stressors and their impacts on the species' needs, the concepts of resiliency, redundancy, and representation were assessed using three plausible future scenarios. We devised these scenarios by identifying information on the following primary threats anticipated to affect sickle darter in the future: land cover, urbanization, climate change, and conservation activity. The three scenarios capture the range of uncertainty in the changing landscape and how sickle darter will respond to the changing conditions (see table 2, below). We used the best available data and models to project 50 years into the future (*i.e.,* 2070), a timeframe in which we were reasonably certain we could forecast the patterns in land use change, urbanization, and climate models (future threats) in the species' range and the sickle darter's response to those threats, given the species' life span.

Under Scenario 1 (continuation of current trend), no significant increases or decreases are expected with respect to land cover, urbanization, or habitat conditions, and habitat restoration efforts (*e.g.,* livestock fencing, riparian plantings, streambank restoration) by the Service and its partners are projected to continue at current levels. In addition, climate change would track representative concentration pathway (RCP) 4.5. Three of six extant sickle darter populations, Emory River, Little River, and Sequatchie River, are projected to maintain their resiliency categories at current levels. The other three extant populations, Clinch River, Middle Fork Holston River, and North Fork Holston River are projected to become extirpated within 30 years. The species' redundancy and representation are expected to remain at low levels.

Under Scenario 2 (improving trend), habitat conditions throughout the upper Tennessee River drainage are projected to improve due to increased conservation efforts and improving land use practices (*e.g.,* greater forest cover and reduced agricultural and development effects). Based on these factors, resiliency of all extant populations would remain at current levels or increase, and the species may be rediscovered or will be reintroduced into portions of the Powell River system and French Broad River system. The species has been successfully propagated in captivity and has been reintroduced in one location, although monitoring at the site has not occurred. If reintroduction efforts occur as projected under Scenario 2, the species' redundancy would increase the current level because populations will occur in two additional (historically occupied) river systems, increasing the number of extant populations from 6 to 8. In spite of the two added populations, representation would remain low because individuals would have the same genetic composition of parental stock in the rivers from which they were sourced, or will be founded from very small, previously undetected populations.

Under Scenario 3 (worsening trend), habitat conditions are projected to decline within the upper Tennessee River drainage due to reductions in forest cover, increased urbanization and agricultural activities, and a climate trend that tracks RCP 8.5. Combined with reduced conservation efforts, these factors will have a negative effect on population resiliency, with projected extirpations of the Clinch River, North Fork Holston River, Middle Fork Holston River, and Sequatchie River populations. Loss of these populations would reduce redundancy and representation, with overall species' redundancy and representation remaining at low levels.

TABLE 2—FUTURE CONDITION OF THE SICKLE DARTER BY THE YEAR 2070 UNDER THREE FUTURE SCENARIOS

Analytical unit (population)	Current condition	Scenario 1: current trend	Scenario 2: improving trend	Scenario 3: worsening trend
Emory River	Moderate	Moderate	Moderate	Low.
Clinch River	Low	Likely Extirpated	Low	Likely Extirpated.
Powell River	Extirpated	Likely Extirpated	Low*	Likely Extirpated.
Little River	Moderate	Low	Moderate	Low.
French Broad River	Extirpated	Likely Extirpated	Low*	Likely Extirpated.
Middle Fork Holston River	Low	Likely Extirpated	Low	Likely Extirpated.
North Fork Holston River	Low	Likely Extirpated	Low	Likely Extirpated.
South Fork Holston River	Extirpated	Likely Extirpated	Likely Extirpated	Likely Extirpated.
Sequatchie River	Low	Low	Low	Likely Extirpated.
Watauga	Extirpated	Likely Extirpated	Likely Extirpated	Likely Extirpated.

* Scenario 2 anticipates successful reintroduction or rediscovery of the species in two river systems.

Conservation Efforts and Regulatory Mechanisms

The sickle darter is listed as threatened by Tennessee (Tennessee Wildlife Resources Commission (TWRC) 2016, p. 3) and Virginia (Virginia Department of Game and Inland Fisheries (VDGIF) 2018, p. 1), making it unlawful to take the species or damage its habitat without a State permit. Additionally, the sickle darter is identified as a species of greatest conservation need in the Tennessee and Virginia Wildlife Action Plans, which outline actions to promote species conservation. A propagation effort for the sickle darter was initiated in 2015, producing 25 juveniles that were released to the wild. The status of the released fish is unknown, but the effort demonstrates that propagation may be a useful conservation tool to augment sickle darter populations or reintroduce the species to historical localities in the future.

The sickle darter and its habitats are afforded some protection from water quality and habitat degradation under the Clean Water Act, the Surface Mining Control and Reclamation Act, Tennessee's Nongame and Endangered or Threatened Wildlife Species Conservation Act of 1974 (Tennessee Code Annotated (T.C.A.), section 70–8–101 *et seq.*), Tennessee's Water Quality Control Act of 1977 (T.C.A., section 69–3–101 *et seq.*), Virginia's State Water Control Act (Virginia Code, section 62.1–44.2 *et seq.*), and additional Tennessee and Virginia statutes and regulations regarding natural resources and environmental protection. While it is clear that the protections afforded by these statutes and regulations have not prevented the degradation of some habitats used by the sickle darter, the species has undoubtedly benefited from improvements in water quality and habitat conditions stemming from these regulatory mechanisms.

Summary of Comments and Recommendations

In the proposed rule published on November 12, 2020 (85 FR 71859), we requested that all interested parties submit written comments on the proposal. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the Asheville Citizen-Times on November 18, 2020, and in the Knoxville Daily Sun on November 22, 2020. We did not receive any requests for a public hearing. All substantive information provided during the comment period has either been incorporated directly into this final determination or is addressed below.

Peer Reviewer Comments

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought peer review of the SSA report. We sent the sickle darter SSA report to five independent peer reviewers; all peer reviewers had expertise that included familiarity with sickle darter and its habitats, biological needs, and threats. We received responses from four peer reviewers for the sickle darter SSA report.

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

(1) Comment: One peer reviewer noted that a recent study of the frecklebelly darter (*Percina stictogaster*), an ecologically and morphologically similar species to the sickle darter, documented frequent upstream and downstream movements, and the reviewer hypothesized a relationship to the pelagic nature of the frecklebelly darter. The reviewer postulated this information supports the relatively ''migratory'' nature of the sickle darter.

Our Response: We reviewed the information provided by the reviewer and included the information in the SSA report. Specifically, we recognize the similarities of the sickle darter with congeneric species, including the frecklebelly darter, and describe the behavior of the sickle darter and frecklebelly darter as pelagic (*i.e.,* inhabiting the water column) in the SSA report (Service 2020a, pp. 12–13). We also describe the potential for similar upstream and downstream movements of the two species in the SSA report under *Reproduction and Life History* (Service 2020a, pp. 12–13). We note that the pelagic behavior of sickle darter juveniles and adults supports the hypothesis that sickle darters have some ability to disperse and/or move within a stream system. Additionally, we describe the movement behavior of the longhead darter (*Percina macrocephala*) and frecklebelly darter in chapter 2 of the SSA report.

(2) Comment: One peer reviewer noted that survey sampling methodology may vary, and population estimates should note if all habitat types were sampled or only the run habitat likely to harbor sickle darter.

Our Response: Darter survey methodologies can vary in site selection, study design, equipment or gear used, or other factors. For the SSA report, we used population estimates based on snorkeling survey data (total abundance of sickle darters in each reach) collected at several survey reaches in each system (Alford 2019, pp. 24–33). Reaches were selected based on historical occurrence records and additional river reaches that included pool and riffle-run macrohabitat in the Emory, Little, Sequatchie, and Middle Fork Holston rivers and Little Rock Creek. This study employed multiple sampling methods including backpack or boat electrofishing and seines followed by snorkeling. Surveyors searched all habitat (entire channel width) in the selected river reach.

Our population estimates in the SSA report for the Emory River and Little River populations were based on an approach to estimate population size for the congeneric longhead darter, a species with similar life-history and biological needs in Kinniconick Creek, Kentucky (Eisenhour et al. 2011, p. 15). Based on the methodology in the longhead darter study, we expected that 20 to 50 percent of sickle darters were observed in each survey reach, and we extrapolated from the total survey reach length to the occupied reach length in each system to arrive at our population estimates. Population estimates were not calculated for other systems due to the low abundance in those systems (fewer than 10 individuals observed since 2005). We revised the SSA report to more clearly explain the population estimate process and the survey methodology (Service 2020a, p. 67).

Public Comments

During the comment period, we received 22 public comments on the proposed rule. A majority of the comments supported the listing determination, none opposed the determination, and some included suggestions on how we could refine or improve the 4(d) rule for the sickle darter. All substantive information provided to us during the comment period has been incorporated directly into this final rule or is addressed below.

(3) Comment: One commenter stated that the sickle darter should be listed as

endangered because of the threat of climate change.

Our Response: As described in Determination of Sickle Darter Status, below, we considered whether the sickle darter is presently in danger of extinction throughout all or a significant portion of its range and determined that the species does warrant listing as an endangered species in all or a significant portion of its range. The current conditions as assessed in the SSA report show that the species occurs in six different populations (river systems) over a majority (67 percent) of the species' historical range. The sickle darter currently exhibits representation across two of the three historical physiographic regions, and extant populations remain across the range. In addition, the best available science does not indicate that climate change is currently affecting status of the sickle darter. Our analysis reveals that climate change is a factor that is likely to affect the status of the sickle darter in the foreseeable future, which is consistent with our determination of threatened status for the species. In short, while the primary threats are currently acting on the species and many of those threats, as well as climate change, are expected to impact the species' viability in the future, we did not find that the species is currently in danger of extinction throughout all or a significant portion of its range.

(4) Comment: Another commenter requested the Service provide additional information regarding the impact of climate change on the sickle darter and the expected time those impacts will be experienced by the species.

Our Response: In the SSA report, we describe the expected impacts of climate change on the sickle darter (Service 2020a, pp. 27–28). Briefly, increases in water temperatures and higher flows during the spawning period and an increase in the frequency, duration, and intensity of droughts are expected to negatively affect the resiliency and viability of the sickle darter, although the best available science does not provide insight regarding the extent and timing of those effects. We based our analysis of future condition on projections from available models for urbanization, land use, and climate change, threats that are projected to affect the viability of the species (see 85 FR 71859, November 12, 2020, at pp. 71866–71867). For the SSA, we developed three plausible future scenarios that included varying levels of climate change impacts. Based on these projections, we determined the species will be impacted by the effects of climate change within the next 50 years.

(5) Comment: We received several comments stating that the proposed 4(d) rule's language referring to ''highest-standard best management practices'' was too vague or confusing. The commenters recommended removing the phrase ''highest-standard best management practices'' from the exception for incidental take associated with certain activities. They suggested replacing it with language referring to existing State BMPs that are based on the best available scientific and commercial information where species occur in similar habitats and have similar life-history and are affected by similar threats.

Our Response: In the proposed rule, rather than specifying a particular set of best management practices currently in existence, we used ''highest-standard best management practices'' to refer to the most stringent ones available at the time of project implementation. Our intent was for this language to encompass changes made to BMPs as new information became available.

We carefully considered the issues raised by the commenters and addressed them by revising the 4(d) rule to specify the habitat management goals necessary to provide for the breeding, feeding, and sheltering needs of the sickle darter, rather than prescribing a particular management practice (*e.g.,* specified streamside management zone widths, logging road grade, timing of water bar installation, etc.) with which to achieve necessary habitat protection. In doing so, we revised the phrase ''highest-standard best management practices'' in the 4(d) rule (see III. Final Rule Issued Under Section 4(d) of the Act for the Sickle Darter, below, for more information). To clarify the terminology, we removed the term ''highest-standard'' from 4(d) rule and now refer to these practices (the most stringent ones currently available) as ''State-approved'' best management practices, which we intend to encompass changes made to BMPs as new information becomes available and informs those practices. We also added language to the exception to specify the factors that the BMPs must address for those BMPs to qualify under this exception. Accordingly, while the language of the exception has changed, our intent in the scope of this exception has not.

(6) Comment: Several commenters highlighted language in published proposed and final listing, 4(d), and critical habitat rules for other aquatic species that describe the BMPs the Service has referred to in those rules. They asked us to consider incorporating similar standardized language in the 4(d) rule for the sickle darter and other species as appropriate. The commenters suggested the Service use similar language for species with comparable needs when existing State-approved forestry BMPs are sufficient for protection of a species (*i.e.,* these BMPs appear as an exception to the incidental take prohibition) in a 4(d) rule. They indicated this language should apply to the 4(d) rule for sickle darter.

Our Response: A 4(d) rule for a threatened species is intended to establish species-specific regulations to provide for the conservation of the species. Where appropriate, they may also incentivize beneficial actions for the species and reduce the regulatory burden on forms of take that are compatible with the conservation of the species. The species-specific nature of 4(d) rules indicates that they do not set an example, template, or precedent for other species; however, it may be practical to consider how 4(d) rules are implemented for species that may be similar or have overlapping geographic ranges and habitat needs. Our regulations at 50 CFR 17.31(c) state that the species-specific 4(d) rule will contain all the applicable prohibitions and exceptions for the protection of the species.

Standardizing language across 4(d) rules, when appropriate, can be helpful for public understanding and implementation. We have revised the language pertaining to silvicultural and forest management BMPs in the 4(d) rule for the sickle darter to be consistent with other 4(d) rules published in the **Federal Register** that include the same provisions (see Provisions of the 4(d) Rule, below) for species with similar life-history requirements, habitat requirements, and threats. However, 4(d) rules are species-specific, and language applicable to one species may not be applicable to another, so standardized language can only be applied when it is appropriate to a given species. Several of the comments referenced language in listing, 4(d), and critical habitat rules for other aquatic species that have life-history characteristics requirements, threats, and habitat condition needs that differ from those of the sickle darter. Due to these differences, we have carefully reviewed the language the commenters describe, and have developed the species-specific 4(d) rule for the sickle darter based on what is necessary and advisable to provide for the conservation this particular species.

Additionally, the species-specific nature of 4(d) rules is inherently resistant to standardization, because the Service must consider the needs of the species being listed as threatened and

issue regulations deemed necessary and advisable to provide for the conservation of that species. The 4(d) rule for the sickle darter does not prescribe management restrictions; rather, it outlines prohibitions (*e.g.,* take) to ensure the species and its habitat are not adversely affected, and exceptions to those prohibitions for incidental take resulting from activities that are not expected to adversely affect the species and that may provide conservation benefits. The 4(d) rule's exceptions provide specific information on the conditions required for actions excepted from incidental take; they do not prohibit other forms of silvicultural or forestry management activities. Those activities not falling within the stated exceptions simply would require consultation with the Service under section 7, or a conservation agreement under section 10, of the Act. The 4(d) rule's exceptions, including the conditions necessary to meet those exceptions, are intended to provide some relief from regulatory burden, while avoiding adverse impacts to the species and adverse modification of the species' habitat.

(7) Comment: Four commenters stated that State BMPs are sufficient for the protection of the sickle darter year-round because BMP implementation rates are high for silviculture and forestry management activities in North Carolina, Tennessee, and Virginia. Some commenters also stated their views that assessments of water quality using aquatic insects (benthic macroinvertebrates) as indicators confirm that BMPs are protective of water quality and habitat for aquatic species; therefore, BMPs are sufficient for protecting the sickle darter as well. The commenters requested we provide an exception for incidental take for all State-approved BMPs and asked that we do not exclude from that exception forestry practices during the spawning period that adhere to the BMPs from this exception in the 4(d) rule.

Response: As discussed above under Summary of Biological Status and Threats, sediment is one of the most frequently cited water quality concerns and is one of the top causes of river and stream impairment in the United States. Sedimentation is one of the primary stressors to the sickle darter and one of the primary stressors of streams in the upper Tennessee River drainage (Service 2020a, chapter 3). However, we agree with commenters that when used and properly implemented, BMPs can offer a substantial improvement to water quality through reduced sedimentation, siltation, runoff, and erosion compared to forestry operations where BMPs are not properly implemented. We recognize that silvicultural operations and forestry activities are widely implemented in accordance with State-approved BMPs (as reviewed by Cristan et al. 2018, entire), and the adherence to these BMPs broadly protects water quality, particularly related to sedimentation (as reviewed by Cristan et al. 2016; Warrington et al. 2017, entire; and Schilling et al. 2021, entire). While we note that forest management is not completely risk-free for wildlife or water quality, we understand that the development and refinement of BMPs have resulted in substantial improvements to forestry's impacts on water quality in recent decades and have created a culture of water stewardship in the forest landowner community, making this stakeholder group an important ally in the conservation of imperiled species. In consideration of the comments received, we determined that the reduced risks to water quality resulting from adherence to State-approved BMPs justify the Service's inclusion of an exception for incidental take associated with these forestry BMPs in the 4(d) rule for the sickle darter.

Much of the literature shared by commenters on the effectiveness of BMPs for protecting aquatic species and their habitats relies on aquatic macroinvertebrate assessments, mostly of aquatic insects. While aquatic insects are a commonly used in rapid field assessments for monitoring or measuring water quality, there is a gap in the best available science about how that such results relate to vertebrates, such as fish (*e.g.,* sickle darter). Most aquatic insects are not rare species, and immigration by aquatic insects back into an affected stream reach may be facilitated by downstream drift or other mechanisms, including the adult winged flight stage, which allows immigration from other nearby waterbodies or from downstream reaches. Although we have concerns about the applicability of aquatic macroinvertebrate assessment in our analysis, in the absence of more precise measures, we incorporated aquatic insect community and other water quality measures in determining the protective effects of implemented BMPs on the sickle darter and its habitat.

In this final rule, we have revised the 4(d) rule to except incidental take resulting from silvicultural practices and forest management activities that implement State-approved BMPs, for the entire year, including the spawning period. When considering this revision, in addition to assessing the effectiveness of silviculture BMPs, we noted the life-history characteristics of the species, including that sickle darters inhabit larger upland streams and small to medium rivers in Tennessee and Virginia. The effects of sedimentation and siltation, while detrimental to aquatic organisms including the sickle darter, are expected to be somewhat reduced in those larger streams and small to medium rivers when compared to their effects on small headwater streams with the same sediment input (Johansen 2021, pers. comm.). On a landscape scale in the range of the species, we expect many silvicultural and forest management activities will occur outside the riparian area adjacent to occupied reaches of sickle darter habitat. The long, occupied reaches of sickle darter habitat provide space for individual fish to disperse from areas of temporarily unsuitable conditions to suitable habitat. Although some sedimentation may occur as a result of forestry activities, we have determined that the overall outcome of the excepted silviculture and forestry activities is necessary and advisable to provide for the conservation of the species. Therefore, as we state above, this final 4(d) rule excepts incidental take resulting from silvicultural practices and forest management activities that implement State-approved BMPs, for the entire year, including the spawning period.

(8) Comment: Several commenters referenced the exception of silvicultural practices under section 404 of the Clean Water Act as long as 15 baseline conditions are met, including the required protection of threatened and endangered species and critical habitat (see 33 CFR 323.4(a)(6)(i)–(xv)). Similarly, one commenter noted that the Environmental Protection Agency (EPA) does not regulate stormwater discharges from forest roads under section 402(p)(6) of the Clean Water Act, in part due to existing State, Federal, regional, and private sector programs that address water quality issues caused by discharges from forest roads (see 81 FR 43492; July 5, 2016). Commenters concluded that existing silvicultural BMPs developed to meet the conditions of the Clean Water Act exemptions are sufficient to protect the sickle darter throughout the year, including during the February and March spawning period when the proposed exception to the incidental take prohibition would not apply. Commenters requested that we revise the final rule to include an exception to incidental take prohibitions for silviculture and forest management activities for the entire year.

Our Response: Under section 404(f)(1) of the Clean Water Act (CWA) and its implementing regulations at 33 CFR 323.4(a)(1), established (ongoing) farming, ranching, and silvicultural activities such as plowing, seeding, cultivating, minor drainage, harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices are not prohibited by or otherwise subject to regulation under section 404 of the CWA. Silvicultural activities that represent a new use of water or that would result in reach or impairment flow or circulation of waters of the United States would not qualify for this exemption. This exemption also does not apply to any activity within a navigable water of the United States for which a permit is required under section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). In addition, BMPs related to road construction or maintenance must be met to meet the exemption criteria under section 404(f)(1) of the CWA (see 33 CFR 323.4(a)(6)). These BMPs are intended to assure the flow and circulation patterns and chemical and biological characteristics of waters of the United States are not impaired. The provision of 33 CFR 323.4(a)(6)(ix) noted in the comments states that the discharge shall not take, or jeopardize the continued existence of, a threatened or endangered species as defined under the Endangered Species Act, or adversely modify or destroy the critical habitat of such species.

In the 2016 decision not to regulate forest road discharges under the CWA (see 81 FR 43492; July 5, 2016), the EPA recognized that discharges from forest roads have significant impacts on water quality in many parts of the country; however, the agency concluded the most effective way to make further progress in addressing these issues was to support existing programs. The EPA also noted that some programs will necessarily be more rigorous than others and the variability was considered, but EPA determined the challenges of implementation outweighed the benefits of nationwide consistency.

The sickle darter and its habitats are afforded some protection from water quality and habitat degradation under the CWA, the Surface Mining Control and Reclamation Act, Tennessee's Nongame and Endangered or Threatened Wildlife Species Conservation Act of 1974, Tennessee's Water Quality Control Act of 1977, Virginia's State Water Control Act, and additional Tennessee and Virginia statutes and regulations regarding natural resources and environmental protection. While it is clear that the protections afforded by these statutes and regulations have not prevented the degradation of some habitats used by the sickle darter, sickle darter spawning has not been precluded by the changes in habitat condition. In addition, the species has undoubtedly benefited from improvements in water quality and habitat conditions stemming from these regulatory mechanisms. We recognize the water quality and habitat protections afforded the sickle darter through the CWA and also note the implementation of BMPs (see our response to *(7) Comment*). These measures offer protection of water quality in sickle darter habitat throughout the year and these protections are adequate during the spawning period as well. We have revised the 4(d) rule to except incidental take resulting from silvicultural practices and forest management activities that implement State-approved BMPs, for the entire year, including the spawning period.

(9) Comment: Two commenters expressed concern that the spawning period exclusion in the exception from incidental take for silvicultural practices and forest management activities in the proposed 4(d) rule for sickle darter would act as a moratorium, and that this would set a precedent in limiting a landowner's financial interest in lands in silviculture and forestry management. One commenter asked about areas where the 4(d) rule would apply, including questions about States or river basins where the species is extirpated, critical habitat, and analytical units (used to assess populations in the SSA). The commenter also requested information about how a landowner could determine if their property contains or is adjacent to sickle darter spawning habitat and another requested information about specific forest management practices that would fall under the 4(d) rule.

Response: As discussed above in our responses to *(7) Comment* and *(8) Comment,* we have revised the 4(d) rule to except incidental take resulting from silvicultural practices and forest management activities that implement State-approved BMPs, for the entire year, including during the spawning period. Therefore, a number of concerns regarding the 4(d) rule presented by commenters are no longer applicable. However, the comments and questions presented here indicate that there may be some misunderstanding about the function and purpose of the 4(d) rule, the exceptions to the Act's section 9 take prohibitions, the definitions of analytical units and critical habitat, and how a landowner can determine the presence of endangered or threatened species on or near their property. Therefore, although some of the commenters' concerns have been already addressed, we offer clarification and explanation below to address the other issues and questions raised.

The proposed 4(d) rule did not establish a moratorium on forestry management and silviculture activities. Section 4(d) of the Act directs the Service to issue regulations deemed necessary and advisable to provide for the conservation of threatened species. It allows the Service to promulgate species-specific rules for species listed as threatened (not endangered) that provide flexibility in implementing the Act. We use 4(d) rules to, among other things, extend take prohibitions where it is necessary to conserve the species. This targeted approach can allow take associated with some activities that do not substantially harm the species, while focusing our efforts on the take associated with those activities that threaten the species and that make a difference to the species' recovery. Activities that may involve take of a threatened species where the take is not excepted from the Act's section 9 take prohibitions by a 4(d) rule can still occur as long as there is consultation with the Service under section 7 of the Act or a permit is issued under section 10 of the Act. Accordingly, not excepting take associated with a certain activity in a 4(d) rule does not constitute a moratorium on that activity.

On and following the effective date of this rule (see **DATES**, above), the 4(d) rule applies to the listed species wherever it is found. Accordingly, the current range of the species is described in the SSA report (Service 2020a, pp. 16–19), the proposed rule (85 FR 71859; November 12, 2020), and this final rule. However, range information changes over time. Therefore, information regarding the sickle darter, including range information, may be found on the species profile page in the Service's Environmental Conservation Online System (ECOS) at *https://ecos.fws.gov/ecp/species/9866.* In addition, a landowner or project proponent can use the Service's Information for Planning and Consultation (IPaC) online system (*https://ecos.fws.gov/ipac/*) to assist in project planning within the range of the sickle darter or contact their local Ecological Services Field Office for more information and assistance.

Analytical units were delineated and described in the SSA report for the purpose of analyzing the resiliency of sickle darter populations and the viability of the species. These units do not have a regulatory function. In

addition, this rule does not propose or designate critical habitat. We have determined that designation of critical habitat is prudent, but not determinable because we lacked specific information on the impacts of our designation (85 FR 71864). A careful assessment of the economic impacts that may occur due to a critical habitat designation is still ongoing, and we are in the process of working with States and other partners in acquiring the complex information needed to perform that assessment. A proposed rule to designate critical habitat will be published once we have the required information.

We understand that there may be confusion and concern about the effect of this listing and 4(d) rule and future critical habitat designation for the sickle darter. We encourage any landowners with an endangered or threatened species present on their properties and who think they carry out activities that may negatively impact that endangered or threatened species to work with the Service (see **FOR FURTHER INFORMATION CONTACT**). We can help those landowners determine whether a habitat conservation plan (HCP) or safe harbor agreement (SHA) may be appropriate for their needs. These plans or agreements provide for the conservation of the endangered or threatened species while providing the landowner with a permit for incidental take of the species during the course of otherwise lawful activities.

We have found that restrictions alone are neither an effective nor a desirable means for achieving the conservation of endangered and threatened species. We prefer to work collaboratively with private landowners, and strongly encourage individuals with listed species on their property to work with us to develop incentive-based measures such as SHAs or HCPs, which have the potential to provide conservation measures that effect positive results for the species and its habitat while providing regulatory relief for landowners. The conservation and recovery of endangered and threatened species, and the ecosystems upon which they depend, is the ultimate objective of the Act, and the Service recognizes the vital importance of voluntary, nonregulatory conservation measures that provide incentives for landowners in achieving that objective. In addition, as discussed under Provisions of the 4(d) Rule, below, we may issue permits to carry out otherwise prohibited activities involving threatened wildlife under certain circumstances, including economic hardship. Regulations governing permits are codified at 50 CFR 17.32.

Determination of Sickle Darter Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an ''endangered species'' as a species in danger of extinction throughout all or a significant portion of its range, and a ''threatened species'' as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of an endangered species or a threatened species because of any of the following 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.

Status Throughout All of Its Range

The current conditions as assessed in the sickle darter SSA report show that the species exists in six populations, in six tributary systems within two ecoregions. Two populations, Little River and Emory River, have moderate resiliency, and four populations have low resiliency. Although there are six separate populations distributed within the upper Tennessee River drainage, redundancy is low because four populations have low resiliency. Representation is currently low because genetic variation has likely been reduced over time as populations became disconnected, isolated, and reduced in size. Further, representation has been diminished with the loss of the species from the Blue Ridge ecoregion. However, it is unlikely that the sickle darter is in danger of extinction from a near-term catastrophic event. The species' occurrence in separate rivers of two populations, which are both in moderate condition and regularly recruiting new age classes (generations), greatly diminishes the possibility that such an event would simultaneously cause extirpation of the two populations, nor is it likely that such an event would simultaneously have the same level of impact on the other four populations in low condition.

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that the risk factors acting on the sickle darter and its habitat, either singly or in combination, are not of sufficient imminence, intensity, or magnitude to indicate that the species is in danger of extinction now (an endangered species) throughout all of its range. Current and ongoing threats to the sickle darter include habitat loss or degradation stemming from hydrologic alteration by impoundments, including dams and other barriers; land development that does not incorporate best management practices (BMPs); and diminished water quality from point and non-point source pollution and siltation (Factor A). Neither overutilization, disease or predation appear to be a significant threat to the sickle darter. Habitat-related threats contribute to the negative effects associated with the species' reduced range and potential effects of climate change (Factor E). Although the species is State-listed throughout its current range, this protection and the existing regulatory mechanisms are not adequate to address the threats of habitat modification and climate change such that the species does not warrant listing.

Our analysis of the sickle darter's future conditions shows that the population and habitat factors used to determine resiliency, representation, and redundancy will continue to decline. The primary threats are currently acting on the species and are likely to continue into the future. We selected 50 years as the foreseeable future to assess the sickle darter's future condition because this timeframe includes projections from available models for urbanization, land use, and climate change, threats which will affect the status of the species over that timeframe. We selected this timeframe because over this period we can reliably predict both the threats to the species as well as the species' response to those threats.

The range of plausible future scenarios of the sickle darter's habitat conditions and water quality factors portend reduced viability into the future. Under the current trend scenario, resiliency is moderate in one population and low in two populations, and three populations are likely extirpated so that redundancy and representation are reduced. Under the worsening trend scenario, resiliency is low in two populations, and four populations are likely extirpated so that redundancy and representation are substantially reduced. This expected reduction in both the number and distribution of resilient populations is likely to make the species vulnerable to catastrophic disturbance. Thus, after assessing the best available information, we conclude

that the sickle darter is not currently in danger of extinction but is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity* v. *Everson,* 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), vacated the aspect of 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'' (Final Policy; 79 FR 37578; July 1, 2014) that provided that the Service does not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluate whether the species is endangered in any significant portion of its range—that is, whether there is any portion of the species' range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the ''significance'' question or the ''status'' question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

Following the court's holding in *Everson,* we now consider whether there are any significant portions of the species' range where the species is in danger of extinction now (*i.e.,* endangered). In undertaking this analysis for the sickle darter, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the species faces to identify any portions of the range where the species is endangered.

For the sickle darter, we considered the species viability in various portions, including whether threats are geographically concentrated in any portion of the species' range at a biologically meaningful scale, which may indicate a portion is likely to have a different status. We examined the following current threats in the context of the species' viability: Habitat loss and degradation through siltation; water quality degradation; and impoundments, their effects, and the associated effects of the species' reduced range. We also examined the cumulative effects of these threats. Our analysis revealed that these threats are likely to continue into the foreseeable future, or approximately 50 years. Siltation and water quality degradation resulting from nutrients, pathogens, municipal and residential development, agriculture, and logging are present in all watersheds where the sickle darter occurs. Land use changes associated with extraction of energy resources (coal, oil, and gas) are restricted to the Clinch (including Emory River) and Powell River systems, but the stressors associated with these activities, including sedimentation and water quality degradation, also come from sources (*e.g.,* urbanization, grazing, logging) that are common to all watersheds where the species occurs. Isolation as a result of habitat fragmentation affects all sickle darter populations similarly, and all populations experience the effects of changing climate conditions similarly. Additionally, resiliency of the remaining populations would decline, as our continuing trends and worsening trends future scenarios respectively project three or four of the six extant populations will become extirpated. The Little River watershed has the highest amount of land affected by urbanization (development) currently, and that is projected to continue in the future (Service 2020a, pp. 86–87). However, current land use and future rates of land use change are not substantially different among the watersheds occupied by the six populations.

The populations in the North Fork Holston, Middle Fork Holston, Clinch, and Sequatchie rivers exhibit low current resiliency, and the cumulative effects of the other identified threats may impact those populations to a greater extent than more resilient populations. However, although the species occurs in a reduced area in these rivers from its historical condition and the Middle Fork Holston, Clinch, and Sequatchie rivers occupy a limited stream length, none of the four populations has physical habitat and water quality in low condition, and the habitat conditions in those areas are such that the sickle darter's requirements are presently being met.

Overall, the current threats are acting on the species and its habitat similarly across its range. After assessing the best available information, we found no portions of the species' range where the species is likely to have a different status from its rangewide status. Therefore, no portion of the species' range provides a basis for determining that the species is in danger of extinction in a significant portion of its range, and we determine that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This does not conflict with the courts' holdings in *Desert Survivors* v. *Department of the Interior,* 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018) and *Center for Biological Diversity* v. *Jewell,* 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not apply the aspects of the Final Policy, including the definition of ''significant'' that those court decisions held to be invalid.

Determination of Status

Our review of the best available scientific and commercial information indicates that the sickle darter meets the definition of a threatened species. Therefore, we are listing the sickle darter as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

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. Section 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 identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened (''downlisting'') or removal from protected status (''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. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (*https://ecos.fws.gov/ecp/species/9866,* or from our Tennessee 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 ranges 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.

Once 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, North Carolina, Tennessee, and Virginia will be eligible for Federal funds to implement management actions that promote the protection or recovery of the sickle darter. Information on our grant programs that are available to aid species recovery can be found at: *https://www.fws.gov/service/financial-assistance.*

Please let us know if you are interested in participating in recovery efforts for the sickle darter. 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 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)(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 any endangered or threatened 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 may include, but are not limited to, management and any other landscape-altering activities on Federal lands administered, or on private lands seeking funding, by Federal agencies, which may include, but are not limited to, the Tennessee Valley Authority, U.S. Department of Agriculture (USDA) U.S. Forest Service, USDA Farm Service Agency, USDA Natural Resources Conservation Service, and Federal Emergency Management Agency; issuance of section 404 Clean Water Act (33 U.S.C. 1251 *et seq.*) permits by the U.S. Army Corps of Engineers; and construction and maintenance of roads or highways by the Federal Highway Administration.

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 listing on proposed and ongoing activities within the range of a listed species. The discussion below regarding protective regulations under section 4(d) of the Act complies with our policy.

II. Critical Habitat

Prudency Determination

As described in the proposed listing rule, we have determined that designation of critical habitat for the sickle darter is prudent, but not determinable at this time (85 FR 71869–71870). There is currently no imminent threat of collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA report and proposed listing determination for the sickle darter, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to the sickle darter and that those threats in some way can be addressed by the Act's section 7(a)(2) consultation measures. The species occurs wholly within the jurisdiction of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because there are no other circumstances the Secretary has identified for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the sickle darter.

Critical Habitat Determinability

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

(i) Data sufficient to perform required analyses are lacking, or

(ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of ''critical habitat.''

When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

For the sickle darter, the species' needs are sufficiently well known, but a careful assessment of the economic impacts that may occur due to a critical habitat designation is ongoing. Until these efforts are complete, information sufficient to perform a required analysis of the impacts of the designation is lacking, and, therefore, we find designation of critical habitat for the sickle darter to be not determinable at this time. In the future, we plan to

publish a proposed rule to designate critical habitat for the sickle darter concurrent with the availability of a draft economic analysis of the proposed designation.

III. Final Rule Issued Under Section 4(d) of the Act for the Sickle Darter

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language like ''necessary and advisable'' demonstrates a large degree of deference to the agency (see *Webster* v. *Doe,* 486 U.S. 592 (1988)). Conservation is defined in the Act to mean 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. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9.

The courts have recognized the extent of the Secretary's discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section 4(d) as a valid exercise of agency authority where they prohibited take of threatened wildlife or include a limited taking prohibition (see *Alsea Valley Alliance* v. *Lautenbacher,* 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council* v. *National Marine Fisheries Service,* 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (see *State of Louisiana* v. *Verity,* 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, ''once an animal is on the threatened list, the Secretary has an almost infinite number of options available to [her] with regard to the permitted activities for those species. [She] may, for example, permit taking, but not importation of such species, or [she] may choose to forbid both taking and importation but allow the transportation of such species'' (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

Exercising our authority under section 4(d) of the Act, we have developed a rule that is designed to address the sickle darter's specific threats and conservation needs. Although the statute does not require the Service to make a ''necessary and advisable'' finding with respect to the adoption of specific prohibitions under section 9, we find that this rule as a whole satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the sickle darter. As discussed above under Summary of Biological Status and Threats, we have concluded that the sickle darter is likely to become in danger of extinction within the foreseeable future primarily due to habitat degradation or loss stemming from hydrologic alterations by impoundments, including dams and other barriers; land development that does not incorporate BMPs; and diminished water quality from point and nonpoint source pollution and siltation. These threats contribute to the negative effects associated with the species' reduced range and the potential effects of climate change. The provisions of this 4(d) rule will promote conservation of the sickle darter by encouraging management of the landscape in ways that meet both watershed and riparian management considerations and the species' conservation needs. The provisions of this rule are one of many tools that the Service will use to promote the conservation of the sickle darter.

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.

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

This obligation does not change in any way for a threatened species with a species-specific 4(d) rule. Actions that result in a determination by a Federal agency of ''not likely to adversely affect'' continue to require the Service's written concurrence and actions that are ''likely to adversely affect'' a species require formal consultation and the formulation of a biological opinion.

Provisions of the 4(d) Rule

This 4(d) rule will provide for the conservation of the sickle darter by extending to the species the following prohibitions and provisions of section 9(a)(1) of the Act, except as otherwise authorized or permitted: Import or export; take; possession and other acts with unlawfully taken specimens; delivery, receipt, transport, or shipment in interstate or foreign commerce in the course of commercial activity; or sale or offer for sale in interstate or foreign commerce.

Threats to the species are noted above and described in detail under Summary of Biological Status and Threats. The most significant threat expected to affect the species in the foreseeable future is loss and fragmentation of habitat from siltation, water quality degradation, and impoundments. A range of activities have the potential to affect the sickle darter, including commercial activities, agriculture, resource extraction, and land development. Regulating take associated with these activities will help preserve the sickle darter's remaining populations, slow the rate of population decline, and decrease synergistic, negative effects from other stressors. Therefore, regulating take associated with activities that increase siltation, diminish water quality, alter stream flow, or reduce fish passage will help preserve and potentially provide for expansion of remaining populations and decrease synergistic, negative effects from other threats.

Under the Act, ''take'' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Some of these provisions have been further defined in regulations at 50

CFR 17.3. Take can result knowingly or otherwise, by direct and indirect impacts, intentionally or incidentally. Regulating intentional and incidental take will help preserve the species' remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other threats. Protecting the sickle darter from direct forms of take, such as physical injury or killing, whether incidental or intentional, will help preserve and recover the species. Therefore, we prohibit intentional take of sickle darter, including, but not limited to, capturing, handling, trapping, collecting, or other activities. Also, as discussed above under Summary of Biological Status and Threats, habitat loss and degradation from stressors including impoundments, siltation, and water quality degradation are affecting the status of the sickle darter. Across the species' range, stream and water quality have been degraded physically by siltation; pollution and contaminants; stream channelization; removal of riparian vegetation; and impoundments due to development; agricultural practices; land conversion; forest activities not following BMPs; dams and barriers; and energy production and mining. Therefore, we prohibit incidental take of the sickle darter by destroying, altering, or degrading the habitat in any of the manners described above. Regulating incidental take associated with these activities will help preserve sickle darter populations, slow the rate of population decline, and decrease synergistic, negative effects from other stressors.

During the proposed rule's public comment period, we received comments on the exception for incidental take resulting from silvicultural practices and forest management activities and the proposed exclusion from that exception for activities occurring during the spawning period (see Summary of Comments and Recommendations, above). State-approved BMPs, when properly implemented, protect water quality and help conserve aquatic species, including the sickle darter. Forest landowners who properly implement those BMPs are helping conserve the darter, and this 4(d) rule is an incentive for all landowners to properly implement them to avoid any take implications. Further, those forest landowners who are third-party-certified (attesting to the sustainable management of a working forest) to a credible forest management standard are providing audited certainty that BMP implementation is taking place across the landscape.

To address any uncertainty regarding which silvicultural and forest management BMPs will satisfy this exception for incidental take resulting from silvicultural practices and forest management activities, our regulations specify the conditions that must be met. We revised our section 4(d) language to clarify that the BMPs must result in protection of the habitat features that provide for the breeding, feeding, sheltering, and dispersal needs of the sickle darter, which will provide for the conservation of the species. In waterbodies that support listed aquatic species, wider streamside management zones (SMZs) and modern BMPs are more effective at reducing sedimentation and maintaining lower water temperatures through shading (Fraser et al. 2012, p. 652). Sickle darters require good water quality, including low turbidity and negligible siltation in slow-flowing pools and riffles with a clean stream bottom substrate with stands of water willow or woody debris piles (Service 2020a, p. 14). A lack of these features limits the sickle darter's population abundance, growth, and dispersal of individuals. Aquatic habitat and suitable water quality can be maintained even during logging operations when streamside vegetation is left intact (Virginia Department of Forestry (VDOF) 2011, p. 37). The exception for incidental take associated with these activities seeks to ensure these characteristics are maintained for the conservation of the sickle darter.

Under this final 4(d) rule, all prohibitions and provisions of section 9(a)(1) of the Act apply to the sickle darter, except that incidental take resulting from the following actions will not be prohibited:

(1) Channel restoration projects that create natural, physically stable, ecologically functioning streams (or stream and wetland systems) and that take place between April 1 and January 31. These projects can be accomplished using a variety of methods, but the desired outcome is a natural channel with low shear stress (force of water moving against the channel); bank heights that enable reconnection to the floodplain; a reconnection of surface and groundwater systems, resulting in perennial flows in the channel; riffles and pools composed of existing soil, rock, and wood instead of large imported materials; low compaction of soils within adjacent riparian areas; and inclusion of riparian wetlands.

(2) Bank stabilization projects that use bioengineering methods to replace pre-existing, bare, eroding stream banks with vegetated, stable stream banks, thereby reducing bank erosion and instream sedimentation and improving habitat conditions for the species and that take place between April 1 and January 31. Following these bioengineering methods, stream banks may be stabilized using native species live stakes (live, vegetative cuttings inserted or tamped into the ground in a manner that allows the stake to take root and grow), native species live fascines (live branch cuttings, usually willows, bound together into long, cigar shaped bundles), or native species brush layering (cuttings or branches of easily rooted tree species layered between successive lifts of soil fill). Native species vegetation includes woody and herbaceous species appropriate for the region and habitat conditions. These methods will not include the sole use of quarried rock (riprap) or the use of rock baskets or gabion structures.

(3) Bridge and culvert replacement/removal projects or low head dam removal projects that remove migration barriers or generally allow for improved upstream and downstream movements of sickle darters while maintaining normal stream flows, preventing bed and bank erosion, and improving habitat conditions for the species and that take place between April 1 and January 31.

(4) Transportation projects that provide for fish passage at stream crossings and that take place between April 1 and January 31.

(5) Silvicultural practices and forest management activities that implement State-approved BMPs. In order for this exception to apply to forestry-related activities, these BMPs must achieve all of the following:

(a) Establish a streamside management zone alongside the margins of each waterway.

(b) Restrain visible sedimentation caused by the forestry-related activity from entering the waterway.

(c) Maintain native groundcover within the streamside management zone of the waterway, and promptly re-establish native groundcover if disturbed.

(d) Limit installation of vehicle or equipment crossings of the waterway to only where necessary for the forestry-related activity. Such crossings must:

- Have erosion and sedimentation control measures installed to divert surface runoff away and restrain visible sediment from entering the waterway;
- Allow for movement of aquatic organisms within the waterway; and
- Have native groundcover applied and maintained through completion of the forestry-related activity.

(e) Prohibit the use of tracked or wheeled vehicles for reforestation site

preparation within the streamside management zone of the waterway.

(f) Prohibit locating log decks, skid trails, new roads, and portable mill sites in the streamside management zone of the waterway.

(g) Prohibit obstruction and impediment of the flow of water within the waterway that is caused by direct deposition of debris or soil by the forestry-related activity.

(h) Maintain shade over the waterway similar to that observed prior to the forestry-related activity.

(i) Prohibit discharge of any solid waste, petroleum, pesticide, fertilizer, or other chemical into the waterway.

Habitat restoration actions excepted by the 4(d) rule may result in some minimal level of harm or temporary disturbance to the sickle darter. For example, a culvert replacement project would likely elevate suspended sediments for several hours and the darters would need to move out of the sediment plume to resume normal feeding behavior. Overall, habitat restoration activities and silvicultural activities that implement State-approved BMPs benefit the species by expanding suitable habitat and reducing within-population fragmentation, contributing to conservation and recovery, and are expected to have a net benefit. Across the species' range, instream habitats have been degraded physically by sedimentation and by direct channel disturbance. The activities in the 4(d) rule will correct some of these problems, creating more favorable habitat conditions for the species.

This 4(d) rule also contains certain standard exceptions to the prohibitions. We may issue permits to carry out otherwise prohibited activities, including those described above, 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 propagation or survival, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the Act. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, candidate, and at-risk species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Service in implementing all aspects of the Act. In this regard, section 6 of the Act provides that the Service shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, will be able to conduct activities designed to conserve the sickle darter that may result in otherwise prohibited take without additional authorization.

Nothing in this 4(d) rule will change in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the sickle darter. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between Federal agencies and the Service.

Required Determinations

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

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

Government-to-Government Relationship With Tribes

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

References Cited

A complete list of references cited in this rule is available on the internet at *https://www.regulations.gov* and upon request from the Tennessee Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this rule are the staff members of the U.S. Fish and Wildlife Service's Species Assessment Team and the Tennessee Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

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

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—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

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

■ 2. Amend § 17.11, in paragraph (h), by adding an entry for ''Darter, sickle'' in alphabetical order under FISHES to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	* * *
FISHES				
*	*	*	*	* * *
Darter, sickle	*Percina williamsi*	Wherever found	T	87 FR [INSERT **FEDERAL REGISTER** PAGE WHERE THE DOCUMENT BEGINS], 11/8/2022; 50 CFR 17.44(ee).[4d]
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■ 3. Amend § 17.44 by adding paragraph (ee) to read as follows:

§ 17.44 Special rules—fishes.

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(ee) Sickle darter (*Percina williamsi*). (1) *Prohibitions.* The following prohibitions that apply to endangered wildlife also apply to the sickle darter. Except as provided under paragraphs (ee)(2) and (3) of this section and §§ 17.4 and 17.5, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.21(b) for endangered wildlife.

(ii) Take, as set forth at § 17.21(c)(1) for endangered wildlife.

(iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1) for endangered wildlife.

(iv) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.21(e) for endangered wildlife.

(v) Sale or offer for sale, as set forth at § 17.21(f) for endangered wildlife.

(2) *General exceptions from prohibitions.* In regard to this species, you may:

(i) Conduct activities as authorized by a permit under § 17.32.

(ii) Take, as set forth at § 17.21(c)(2) through (4) for endangered wildlife.

(iii) Take, as set forth at § 17.31(b).

(iv) Possess and engage in other acts with unlawfully taken wildlife, as set forth at § 17.21(d)(2) for endangered wildlife.

(3) *Exceptions from prohibitions for specific types of incidental take.* You may take sickle darter while carrying out the following legally conducted activities in accordance with this paragraph (ee)(3):

(i) Channel restoration projects that create natural, physically stable, ecologically functioning streams (or stream and wetland systems) and that take place between April 1 and January 31. These projects can be accomplished using a variety of methods, but the desired outcome is a natural channel with low shear stress (force of water moving against the channel); bank heights that enable reconnection to the floodplain; a reconnection of surface and groundwater systems, resulting in perennial flows in the channel; riffles and pools composed of existing soil, rock, and wood instead of large imported materials; low compaction of soils within adjacent riparian areas; and inclusion of riparian wetlands.

(ii) Bank stabilization projects that use bioengineering methods to replace pre-existing, bare, eroding stream banks with vegetated, stable stream banks, thereby reducing bank erosion and instream sedimentation and improving habitat conditions for the species and that take place between April 1 and January 31. Following these bioengineering methods, stream banks may be stabilized using native species live stakes (live, vegetative cuttings inserted or tamped into the ground in a manner that allows the stake to take root and grow), native species live fascines (live branch cuttings, usually willows, bound together into long, cigar shaped bundles), or native species brush layering (cuttings or branches of easily rooted tree species layered between successive lifts of soil fill). Native species vegetation includes woody and herbaceous species appropriate for the region and habitat conditions. These methods will not include the sole use of quarried rock (riprap) or the use of rock baskets or gabion structures.

(iii) Bridge and culvert replacement/removal projects or low head dam removal projects that remove migration barriers or generally allow for improved upstream and downstream movements of sickle darters while maintaining normal stream flows, preventing bed and bank erosion, and improving habitat conditions for the species and that take place between April 1 and January 31.

(iv) Transportation projects that provide for fish passage at stream crossings and that take place between April 1 and January 31.

(v) Silvicultural practices and forest management activities that implement State-approved best management practices. In order for this exception to apply to forestry-related activities, these best management practices must achieve all of the following:

(A) Establish a streamside management zone alongside the margins of each waterway.

(B) Restrain visible sedimentation caused by the forestry-related activity from entering the waterway.

(C) Maintain native groundcover within the streamside management zone of the waterway, and promptly re-establish native groundcover if disturbed.

(D) Limit installation of vehicle or equipment crossings of the waterway to only where necessary for the forestry-related activity. Such crossings must:

(*1*) Have erosion and sedimentation control measures installed to divert surface runoff away and restrain visible sediment from entering the waterway;

(*2*) Allow for movement of aquatic organisms within the waterway; and

(*3*) Have native groundcover applied and maintained through completion of the forestry-related activity.

(E) Prohibit the use of tracked or wheeled vehicles for reforestation site preparation within the streamside management zone of the waterway.

(F) Prohibit locating log decks, skid trails, new roads, and portable mill sites in the streamside management zone of the waterway.

(G) Prohibit obstruction and impediment of the flow of water within the waterway that is caused by direct deposition of debris or soil by the forestry-related activity.

(H) Maintain shade over the waterway similar to that observed prior to the forestry-related activity.

(I) Prohibit discharge of any solid waste, petroleum, pesticide, fertilizer, or other chemical into the waterway.

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