DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2017–0063; 4500030113]

RIN 1018–BC16

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

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine threatened species status under the Endangered Species Act of 1973 (Act), as amended, for trispot darter (*Etheostoma trisella*), a fish species found in the Coosa River system in Alabama, Georgia, and Tennessee. This rule adds this species to the List of Endangered and Threatened Wildlife.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: This final rule is available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R4–ES–2017–0063, and at the U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office, 1208 Main Street, Daphne, AL 36526; telephone 251–441–5181**.** Comments and materials we received, as well as supporting documentation we used in preparing this rule, are available for public inspection at *http://www.regulations.gov* under Docket No. FWS–R4–ES–2017–0063, and by appointment, during normal business hours at the Alabama Ecological Services Field

Office.

FOR FURTHER INFORMATION CONTACT: Bill Pearson, Field Supervisor, U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office (see **ADDRESSES**). Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Previous Federal Actions

On October 4, 2017, we published a proposed rule in the *Federal Register* (82 FR 46183) to list the trispot darter as a threatened species under the Act (16 U.S.C. 1531 *et seq*.). Please refer to that proposed rule for a detailed description of previous Federal actions concerning this species.

Elsewhere in today's *Federal Register*, we propose to (1) designate critical habitat for the trispot darter under the Act; and (2) issue a rule under section 4(d) of the Act that provides measures necessary and advisable for the conservation of the trispot darter.

Background

Please refer to the October 4, 2017, proposed rule (82 FR 46183) and the Species Status Assessment (SSA) Report for a full summary of species information. Both documents are available at *http://www.regulations.gov* under Docket No. FWS–R4–ES–2017–0063, and on the Service's Southeast Region website at *https://www.fws.gov/southeast/*.

The trispot darter is a freshwater fish found in the Coosa River System in the Ridge and Valley ecoregion of Alabama, Georgia, and Tennessee. This fish has a historical range from the middle to upper Coosa River Basin with collections in the

mainstem Coosa, Oostanaula, Conasauga, and Coosawattee Rivers, and their tributaries. Currently, the trispot darter is known to occur in four populations in the Little Canoe Creek and tributaries (Coosa River), Ballplay Creek tributaries (Coosa River), Conasauga River and tributaries, and Coosawattee River and one tributary.

The trispot darter is a migratory species that utilizes distinct breeding and non-breeding habitats. From approximately April to October, the species inhabits its non-breeding habitat, which consists of small to medium river margins and lower reaches of tributaries with slower velocities. It is associated with detritus, logs, and stands of water willow, and the substrate consists of small cobbles, pebbles, gravel, and often a fine layer of silt. During low flow periods, the darters move away from the peripheral zones and toward the main channel; edges of water willow beds, riffles, and pools; and mouths of tributaries. In late fall, this migratory species shifts its habitat preference and begins movement toward spawning areas; this is most likely stimulated by precipitation, but temperature changes and decreasing daylight hours may also provide cues to begin migration. Migration into spawning areas begins approximately late November or early December with fish moving from the main channels into tributaries and eventually reaching adjacent seepage areas where they will congregate and remain for the duration of spawning, approximately until late April. Breeding sites are intermittent seepage areas and ditches with little to no flow; shallow depths (12 inches (30 centimeters) or less); moderate leaf litter covering mixed cobble, gravel, sand, and clay; a deep layer of soft silt over clay; and emergent vegetation. Trispot darters predominantly feed on mayfly nymphs and midge larvae and pupae.

The trispot darter was first described in 1963 from a single specimen collected in

Cowans Creek in Cherokee County, Alabama. This species was originally described as a member of the subgenus *Psychromaster* and was later moved to the subgenus *Ozarka* in 1980 where it remains today. Currently, the trispot darter is considered a valid taxon (Service 2017, p. 6).

Summary of Comments and Recommendations

In our October 4, 2017, proposed rule to list the trispot darter as a threatened species (82 FR 46183), we requested that all interested parties submit written comments on the proposal by December 4, 2017. 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 St. Clair News-Aegis, St. Clair Times, Chattanooga Times Free Press, Atlanta Journal Constitution, and The Daily Home. 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, by topic, below.

Peer Reviewer Comments

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review actions under the Act, we solicited expert opinion from four knowledgeable individuals with scientific expertise that included familiarity with trispot darter and its habitat, biological needs, and threats. We received responses from two of the peer reviewers.

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 final SSA Report as appropriate.

(1) Comment: One peer reviewer expressed doubt that hurricanes or other large storms can negatively affect stream fish communities.

Our Response: Large storms have been found to disturb aquatic habitats to the extent that stream fish assemblages have been observed to be altered as a result (Service 2017, p. 25; Service 2011, p. 9). Recovery of stream fish communities to assemblages seen before disturbances from large storms depends on adjacent source populations and the dispersal ability of specific species. In the case of rare species with isolated populations such as the trispot darter, large storms that are capable of causing a level of disturbance that alters fish communities can pose a substantial threat. A more thorough discussion of this threat can be found in the SSA Report (Service 2017, p. 25).

(2) Comment: One peer reviewer suggested that not enough information was available on the trispot darter to infer its historical range.

Our Response: We are required to use the best available commercial and scientific information available at the time we make our determination. Available resources at the time of rulemaking have described the range of the trispot darter as the upper Coosa River system. Based on recorded occurrences of the trispot darter in the mainstem of the Coosa River and tributaries to the Coosa River in Alabama, Georgia, and Tennessee, we

conclude that the historical range described as the upper Coosa River system is reasonably supported.

Public Comments

(3) Comment: One commenter expressed concern about the presence of the Conasauga Shale Field, a natural gas-bearing formation, within portions of the trispot darter's range. The commenter provided current research that demonstrated negative associations between hydraulic fracturing (fracking) and fish recruitment, and recommended the Service evaluate oil and gas exploration in the Conasauga Shale Field and its influence on trispot darter.

Our Response: We contacted the Alabama State Oil and Gas Board to assess the current and future status of natural gas exploration and exploitation of the Conasauga Shale Field in Alabama. Based on our correspondence, we find that fracking within the Conasauga Shale Field is unlikely to be a threat to the trispot darter within the foreseeable future. Currently, no new drilling permits have been approved, and all existing wells have been plugged and abandoned. Wells were abandoned due to low productivity and low gas prices. For these reasons, and because of low permeability of the rock formation, the Alabama State Oil and Gas Board expects that oil and gas extraction is unlikely to occur there within the foreseeable future.

(4) Comment: One commenter provided additional information on the effects of hypolimnetic releases from dams on riverine ecosystems and fish species present in tailwaters. Hypolimnetic refers to the part of a lake below the thermocline made up of water that is stagnant and of essentially uniform temperature except during the period of overturn. The commenter also noted that dams can create many kilometers of

unsuitable habitat because of changes in the temperature regime from hypolimnetic flow releases. Decreases in streamflow temperature as a result of hypolimnetic releases have been shown to adversely affect darter species by increasing the probability of local extinction in cold waters downstream of dams.

Our Response: We incorporated the information from the additional studies clarifying the effects of hydropower projects on aquatic species and have added them to the appropriate sections of the SSA Report. We also recognize that currently the trispot darter is exposed to releases from the Carters Reregulation Dam. However, past research has found that operation of the reregulation dam does not affect the system's ability to provide adequate dissolved oxygen for the trispot darter (Freeman 2011, p. 10); this system also still meets State water quality and temperature standards (USACE 2015, p. 4-13). Therefore, temperature and dissolved oxygen alterations are not viewed as stressors to the trispot darter in the Coosawattee River below the Carters Reregulation Dam.

(5) Comment: One commenter noted that the overall condition of the Little Canoe Creek Management Unit (MU) is ranked as moderate even though six of the seven factors considered in the ranking scored as "low" in the October 4, 2017, proposed rule to list the trispot darter as a threatened species (82 FR 46183).

Our Response: The overall condition for the Little Canoe Creek MU presented in the proposed rule (see 82 FR 46187) and the SSA Report (version 1.0) was in error. We have corrected the condition rank in this rule and the updated SSA Report (version 1.2). However, this correction does not change our assessment of future conditions in the SSA Report, nor our conclusions presented in the October 4, 2017, proposed rule.

Summary of Changes from the Proposed Rule

In preparing this final rule, we reviewed and fully considered comments from the public on the proposed rule. We did not make any substantive changes to this final rule after consideration of the comments we received. We did update the SSA Report (to version 1.2) based on comments and some additional information provided, as follows: (1) We made many small, nonsubstantive clarifications and corrections throughout the SSA Report, including ensuring consistency of colors on maps, providing details about data sources used, updating references, and making minor clarifications; and (2) we included in the updated version of the SSA Report the additional information we received regarding observations of the trispot darter, hypothesized historical range of the trispot darter, and more detailed life-history data for the species. However, the information we received during the comment period for the proposed rule did not change our determination that the trispot darter is a threatened species.

Summary of Biological Status and Threats

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

Our assessment evaluated the biological status of the species and threats affecting its continued existence. It was based upon the best available scientific and commercial data, including the SSA Report (Service 2018, entire), and the expert opinion of the SSA team members. Please refer to chapter 3 of the SSA Report (Service 2018, pp. 17-25) for a more detailed discussion of the factors affecting the trispot darter.

Risk Factors Influencing Viability of Trispot Darter

As discussed above, we considered the five factors set forth in section 4(a)(1) of the Act in assessing whether the species meets the definition of an endangered or a threatened species. A multitude of natural and anthropogenic factors may impact the status of species within aquatic systems. The largest threats to the future viability of the trispot darter involve habitat degradation from factors influencing four habitat elements: water quality, water quantity, instream habitat, and habitat connectivity (Factor A). All of these factors are exacerbated by the effects of climate change (Factor E). A brief summary of these primary stressors is presented below; for a full description of the factors, refer to chapter 4 of the SSA Report.

Hydrologic Alteration

Activities that lead to hydrologic alteration include reservoir construction and operation, excessive water withdrawals, and an increase in impervious surfaces.

Hydrologic alteration in the system occupied by the trispot darter has two components: increases in storm flow frequency and intensity, and a decrease in base flows, which together create a "flashy" hydrologic regime. In a natural forested system, most rainfall soaks into the soil and is carried into nearby streams via subsurface flow. Some evaporates or transpires, and a relatively small amount becomes surface runoff. In

the trispot darter's system, which is urbanized with large amounts of impervious cover such as roads, parking lots, and rooftops, this cycle is altered; most stormwater hits impervious surfaces and becomes runoff, which then is channeled quickly to streams via stormwater drain pipes or ditches. Relatively little infiltrates into the soil. As a result, storm flows in the receiving stream are higher and more frequent, although briefer in duration, and base flows are lower, than in natural systems. The storm discharge of urban streams can be twice that of rural streams draining a watershed of similar size, and the frequency of channel-forming events can be 10 times that of pre-development conditions. These "flashy" stream flows and frequent, smaller high-flow events negatively affect structural habitat on which the trispot darter depends. Increases in flow frequency or intensity can result in channel widening through bank erosion or deepening to accommodate the additional discharge. This results in increased downstream sedimentation and unstable beds, both of which degrade channel complexity and feeding and refugia habitat for fish species. Increased storm flows, in addition, can cause physical washout of eggs and larval fishes, stress on adults, and negatively alter the stream's food web, affecting many fish species. There is also a decrease in channel complexity and a reduction in instream cover and natural substrates like boulders, cobble, and gravel.

Reservoirs can substantially alter hydrology downstream, especially when operated for hydroelectric power generation. Hydropeaking dams produce high flows only when power generation is needed. Hydropeaking dams, Carters Dam and Reregulation Dam, exist on the Coosawattee River. Rapid flow increases and decreases from hydropeaking can reduce stream insect abundance, potentially decreasing food

availability for darters. Furthermore, managed rivers can exhibit substantially altered and novel food webs that affect native communities and their ability to withstand perturbations. Non-hydropeaking reservoirs, farm ponds, amenity lakes, and other impoundments may also substantially alter hydrologic regimes by storing water during low flow periods, effectively dampening moderate to high flows and in some cases augmenting flows. Fish are adapted to the natural seasonal variations of flow, and alterations to this regime affect their life-history strategies.

Hydrologic alteration can also lead to other stressors, such as sedimentation and a loss of connected suitable habitat.

Sedimentation

Sedimentation can affect fish species by degrading physical habitat used for foraging, sheltering, and spawning; altering food webs and decreasing stream productivity; forcing fish to change their behaviors; and even injuring or killing individual fish. Chronic exposure to sediment has been shown to have negative impacts to fish gills, which in addition to causing gill damage can possibly reduce growth rates. Sedimentation causes reduced visibility, impacting fishes' abilities to feed and interact.

A wide range of activities (including agricultural activities, construction activities, some forestry activities if certified best management practices are not used, and dredging), as well as stormwater runoff, unpaved roads, and utility crossings, can lead to sedimentation within streams. Historical land use practices have substantially altered hydrological and geological processes such that sediments continue to be input into streams for several decades after those activities cease. Examples of these activities occurring within the range of the trispot darter include urban impacts in the Springville,

Alabama, and Dalton, Georgia, areas; agricultural practices in the Conasauga River basin; and livestock access to streams in the Little Canoe Creek watershed.

Reduced Connectivity

Connectivity relates to a species' ability to disperse to and from habitat patches. Excess groundwater withdrawal, causing sections of streams to become dry for parts of the year, can reduce connectivity. Dams and reservoirs reduce connectivity by creating a physical barrier between fish populations and by changing habitat from flowing streams to standing water, which is not suitable habitat for this darter. Road crossings, some of which have impassible culverts that reduce connectivity, are also more prevalent in highly populated urban areas. All of these factors have occurred or are occurring in the range of the trispot darter.

Loss of Riparian Vegetation

This fish has adapted to occupy habitats that are surrounded by vegetation, which moderates temperature by blocking solar radiation; provides a source for terrestrial plant material that forms the base of the food web and provides shelter and foraging habitat for this fish; and helps to maintain clear, clean water and substrate through filtration. Removal of riparian vegetation can destabilize stream banks, increasing sedimentation and turbidity; increase the contaminants and nutrients that enter the water from runoff; increase water temperatures and light penetration, which also increases algae production; and alter available habitat by reducing woody plant debris and leaf litter, which in turn decreases overall stream productivity. All of these events decrease habitat suitability for the trispot darter. Removal of riparian vegetation has occurred where urban and agricultural practices are prevalent, such as increased development in Dalton,

Chatsworth, and Ellijay, and occurrences of row crops and pastures in the Conasauga River basin generally.

Contaminants

Contaminants, including metals, hydrocarbons, pesticides, and other potentially harmful organic and inorganic compounds, can be toxic to fish and are common in urban streams, including those within the range of the trispot darter. Exposure to contaminants may cause physiological stress to the trispot darter as seen in other members of the genus *Etheostoma*, and streams affected by multiple sources of contaminants may induce higher levels of stress on the fish (Diamond *et al*. 2016; p. 133).

Contamination in the mainstem of the Coosa River by polychlorinated biphenyl (PCBs) has been attributed to past industrial activity adjacent to the river. In the Coosawattee River, PCBs caused by nonpoint sources are also identified as a source of impairment. PCBs have toxic effects to the endocrine system, nervous system, reproductive system, blood, skin, and liver of animals, and have likely impacted the trispot darter in both basins.

Pesticides and herbicides are frequently found in streams draining agricultural land uses, with herbicides being the most commonly detected. Many agricultural streams still contain dichlorodiphenyltrichloroethan (DDT) and its degradation products. Pesticides also are heavily used in urban and suburban areas, and many of these find their way into streams and groundwater. Glyphosates and other inert ingredients found in herbicides can be toxic to fish and other aquatic organisms, causing stress and reduced fitness; herbicide use where the trispot darter occurs in the Conasauaga River is prevalent and increasing.

Agriculture

Agriculture is a predominant land use within the range of the trispot darter. Livestock grazing is prevalent in some areas, and poultry farming is also common.

Poultry Litter: Poultry litter is a mixture of chicken manure, feathers, spilled food, and bedding material that frequently is used to fertilize pastureland or row crops. Each poultry house has an estimated ability to produce up to 100 tons of litter a year. Surface-spreading of litter results in runoff from heavy rains carrying the poultry litter into waterways, bringing phosphorus and nitrogen from manure into nearby streams. Additionally, repeated or over application of poultry litter can result in phosphorus buildup in the soil, which then runs off into streams. Excess phosphorus and nitrogen in streams increases algae and undesirable aquatic plants that rob water of oxygen, causing fish kills. Poultry litter also contains endocrine disruptors, such as estrogen, which have been identified as a significant stressor within the Conasauga River basin. Estrogens have been found in water and sediment samples within the watershed at concentrations high enough to be disruptive to the endocrine system in fish. Increased levels of estrogens affect reproductive biology and result in reduced breeding success. In a recent study of endocrine disruptors on fishes in the Conasauga River, approximately 7.5 percent of male fishes surveyed were found to have female reproductive cells in male reproductive organs.

Livestock Access to Streams: On many farms, livestock is grazed on pastures adjacent to streams and rivers, and is allowed free access to the water. Livestock accessing riparian buffers and, subsequently, the stream proper leads to habitat

destruction and decreased water quality. Livestock can destabilize stream banks, which, as discussed above, creates increased sediment loads within small systems.

Urbanization

In addition to contributing to individual stressors such as changes in flow regime and contamination, urbanization is anticipated to increase the magnitude of nearly all other stressors, and thus is expected to affect the trispot darter across its range, which is close to the growing Atlanta metropolitan area, the expanding Chattanooga and Birmingham areas, and intervening areas with growing human populations and increasing development.

Weather Events

Weather events that affect stream flows are considered to be most relevant to the species. Broadly, these events include extreme storms and droughts. Increased flows can cause physical washout of eggs and larval fishes, cause stress on adults, and alter the production in a stream. Within the range of the trispot darter, extreme flows associated with hurricanes have been reported to have negative effects on stream fish populations. On the other hand, reduced baseflows due to droughts can also cause population declines, habitat loss, reduced water quality (decreased dissolved oxygen and temperature alteration) leading to death, crowding of individuals leading to stress, and decreased reproduction in stream fish populations.

Climate models for the southeastern United States project that average annual temperatures will increase, cold days will become less frequent, the freeze-free season will lengthen, temperatures exceeding 95 degrees Fahrenheit will increase, heat waves will become longer, and the number of major hurricanes will increase. While these

climate models predict wide variability in weather patterns into the future, overall they suggest that the region will be subjected to more frequent large storms (hurricanes) as well as low flows from droughts.

Other Stressors

In our analysis of the factors affecting these species, we found no evidence of population- or species-level impacts from overutilization for commercial, recreational, scientific, or educational purposes (Factor B). Also, there was no evidence of any impacts due to disease or predation (Factor C). No existing regulatory mechanisms adequately address the threats to the trispot darter such that it does not warrant listing under the Act (Factor D).

Conservation Actions

The trispot darter is recognized by Alabama, Georgia, and Tennessee as a species of concern. This species is listed as Priority 2/High Conservation Concern by the State of Alabama, endangered by the State of Georgia, and threatened by the State of Tennessee. Priority watersheds within the range of the trispot darter have been designated as Strategic Habitat Units by the Alabama Rivers and Streams Network (ARSN). ARSN is an organized partnership of state and federal entities as well as NGOs and corporations. Currently, the trispot darter is found in the Big Canoe Creek SHU and the Upper Coosa River tributaries SHU. The Strategic Habitat Unit project was developed for species restoration and enhancement. To work towards these goals, a thorough threats analysis is conducted in each SHU by partners to the ARSN, and the results of the threats analyses guide State and Federal agencies in prioritizing projects that reduce and remove the identified threats and ultimately improve habitat and water quality for listed and at risk

species. The Atlantic Coast Conservancy holds a tract of land within Ballplay Creek that could offer some protection in the watershed. The U.S. Department of Agriculture's Natural Resources Conservation Service's Working Lands for Wildlife partnership within the basin will help farmers develop and implement strategies to improve water quality.

Current Condition of Trispot Darter

To assess viability for the trispot darter, we used the three conservation biology principles of resiliency, representation, and redundancy (together, the 3Rs). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes); and redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, hurricanes). In general, the more redundant and resilient a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we used the 3Rs to evaluate individual life-history needs of all three darters. In the next stage, we assessed the historical and current condition of each species' demographics and habitat characteristics, including an explanation of how the species arrived at their current conditions. In the final stage of the SSA we made predictions about the species' responses to positive and negative environmental and anthropogenic

influences. This process used the best available information to characterize viability as the ability of each species to sustain populations in the wild over time.

To qualitatively assess resiliency, we considered seven components that broadly relate to either the physical environment ("Habitat Elements") or characteristics about the population specifically ("Population Elements"). Habitat elements consisted of an evaluation of physical habitat, connectivity, water quality, and hydrologic regime. Population elements consisted of an estimation of approximate abundance, the extent of occurrence (total length of occupied streams), and an assessment of occurrence complexity. Representation describes the ability of a species to adapt to changing environmental conditions over time. For trispot darters to exhibit high representation, resilient populations should occur in all ecoregions to which they are native, and maintain some level of connectivity between populations. These occupied physiographic provinces represent the ecological setting in which the darters have evolved. Redundancy is characterized by having multiple resilient and representative populations distributed throughout its range. Furthermore, these populations should maintain natural levels of connectivity between them. Connectivity allows for immigration and emigration between populations and increases the likelihood of recolonization should a population become extirpated. An overall resiliency condition was estimated by combining habitat and population elements. Population elements were weighted two times higher than habitat elements because they are considered direct indicators of population condition. Conditions were classified as "Low", "Moderate", or "High". After analyzing current conditions for the species, we described how current viability of the three darters may change over a period of 50 years. As with current conditions, we

evaluated species viability in terms of resiliency at the population scale, and representation and redundancy at the species scale. In the SSA report, we described three plausible future scenarios and whether there will be a change, from current conditions, to resiliency, representation, or redundancy under each scenario. These scenarios capture the range of likely viability outcomes that the trispot darter is predicted to exhibit by the end of 2070. The future scenarios differ in two main elements of predicted change: urbanization and climate. To forecast future urbanization, we considered future scenarios that incorporate the SLEUTH (Slope, Land use, Excluded area, Urban area, Transportation, Hillside area) model. This model simulates patterns of urban expansion that are consistent with spatial observations of past urban growth and transportation networks. Regarding climate, the Intergovernmental Panel on Climate Change utilized a suite of alternative scenarios in the Fifth Assessment Report to make near-term and long-term climate projections. In our assessments, we used these projections to help understand how climate may change in the future and what effects may be observed that impact the trispot darter.

Collection records used in the analysis were compiled and provided to the Service by State partners. These records did not exhibit standardization: the numbers of individuals collected was inconsistently recorded and sampling methods varied among records. Therefore, we were unable to analyze exact numbers collected for each record. Instead, abundance was estimated for each record categorically.

According to our analysis, all of the current management units (MUs) have resiliency ranked as "low" in the analysis (see Table 1, below). Ballplay Creek MU has a low resiliency because of reduced genetic diversity, the abundance is qualitatively low,

reservoirs and poor water quality remove connectivity to other MUs, the impairment of the Coosa River within the watershed, and the extent of the occupied habitat is small. The Little Canoe Creek MU has a low resiliency to stochastic events because water quality and abundance are low (although the occurrence complexity is high), Coosa River reservoirs remove connectivity to other MUs, and the extent of the occupied habitat is small. Because of the PCBs known in the area, the Coosawattee River has low resiliency due to hydrologic alteration from the hydroelectric dam, PCBs in the river contributing to low water quality, lower abundance of fish per collection record, a small and reduced distribution, and overall simple occurrence spatial arrangement. The Conasauga River MU has low resiliency due to low water quality in the middle and lower river, low abundance of fish per collection record, a reduced population, and overall simple occurrence spatial arrangement. For aquatic species that inhabit rivers, complex spatial occurrence relates to a species occupying multiple tributaries and the main-stem river as opposed to only inhabiting the main-stem river. A more complex and dendritic (tree-like) spatial arrangement of occupied habitat will be more resilient (Service 2017, p. 27).

Historically, the trispot darter was found from the confluence of Holly Creek to Chatsworth, Georgia and is now only known from just upstream of Chatsworth. Currently, the trispot darter occupies approximately 20 percent of its historically known range. While it is clear the species has lost some of its historical range, the best available data do not indicate a declining trend in abundance in the remaining areas from historical to the present. This species is rare and difficult to detect. Combined with the inconsistent survey methodology and lack of standard collection records, this creates uncertainty in any analysis of trends or the ability to compare data across years.

A full analysis for each unit's current condition can be found in the SSA Report and the proposed rule.

Table 1. Current species resiliency summary of the trispot darter.

	Approximate Abundance	Occurrence Extent	Occurrence Complexity	Physical Habitat	Connectivity	Water Quality	Hydrologic Regime	Overall Condition
Little Canoe Creek	Low	Low	High	Low	Low	Low	Low	Low
Ballplay Creek	Low	Low	Low	Low	Low	Low	Low	Low
Conasauga River	Low	Low	Low	Low	Moderate	Low	Low	Low
Coosawattee River	Low	Low	Low	Moderate	Moderate	Low	Low	Low

Future Conditions of Trispot Darter

For the purpose of this assessment, we define viability as the ability of the species to sustain populations in the wild over time. To address uncertainty associated with the degree and extent of potential future stressors and their impacts on species' requisites, we assessed the 3Rs using three plausible future scenarios. These scenarios were based, in part, on the results of urbanization and climate models that predict changes in habitat used by the trispot darter. The models that were used to forecast both urbanization and climate change projected 50 years into the future (the year 2070).

For example, in one scenario, current environmental regulations and policy, land use management techniques, and conservations measures remain the same over the next 50 years. We anticipate the current trend in greenhouse gas emissions to continue and moderate impacts from extreme weather events including intense drought, floods, and storm events to occur. Rapid urbanization will continue at the current estimated rate for the Piedmont region of the southeastern United States, which will increase demand for water resources and introduce multiple additional stressors into local streams and rivers. Despite an overall growth in population and increases in developed areas, some regions will remain predominantly in agriculture and experience associated water quality declines. In pace with current trends, we anticipate declines in habitat and water quantity and quality as a result of rapid urbanization, climate change, agricultural practices, and an overall lack of voluntary conservation measures being implemented. Under this scenario, two populations, Ballplay Creek and Conasauga River, are expected to become extirpated, while the remaining two, Little Canoe Creek and Coosawattee River, are projected to persist but in low resiliency condition. Because of the expected future

extirpation of trispot darters predicted for Salacoa Creek (Coosawattee population) in this scenario, the fish would then be found only in the Coosawattee River mainstem (no longer in any tributaries), making it more vulnerable to catastrophic events. Redundancy decreases to two populations (Little Canoe Creek and Conasauga), which are completely isolated from one another due to the Weiss Dam. This means that genetic material will not be exchanged, reducing adaptive potential of the species. In the SSA Report, we describe conditions and results for all three scenarios that represent the likely range of plausible future outcomes for development, possible climate changes, and the species' expected response to threats. Results for our full future condition analysis for the future projections are provided in table 2, below and are discussed more fully in the SSA Report and the proposed rule.

Table 2. Future condition of the trispot darter by the year 2070 under three future scenarios.

Management Unit	Status Quo	Best Case	Worst Case
Little Canoe	Low	Moderate	Likely Extirpated
Ballplay	Likely Extirpated	Low	Likely Extirpated
Conasauga	Likely Extirpated	Moderate	Likely Extirpated
Coosawattee	Low	Moderate	Likely Extirpated

Determination

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the trispot darter. Our analysis of the trispot darter's current and future conditions, as well as the conservation efforts discussed above, show that the population and habitat factors used to determine the resiliency, representation, and redundancy for trispot darter will continue to decline such that it is likely to become in danger of extinction within the foreseeable future.

We considered whether the trispot darter is presently in danger of extinction throughout its range. The current conditions as assessed in the SSA Report show extant populations in four river systems (MUs) across its range, including 65 river miles (105 river kilometers) of occupied habitat in the Conasauga River. The best available data do not indicate a declining trend in abundance, and it is likely that the low abundance (and, therefore, low resiliency) indicated in our analysis is due to the species being naturally rare and difficult to detect. The inconsistent survey methodology and lack of standard collection records also creates uncertainty in any analysis of trends or the ability to compare data across years. While threats are currently acting on the species and many of those threats are expected to continue into the future, we did not find that the species is currently in danger of extinction throughout its range.

Based on our analysis of plausible future conditions of the trispot darter, we concluded that the resiliency, redundancy, and representation will be impacted by threats and the species will have reduced viability in the foreseeable future. While our future scenarios were developed using models that predicted out 50 years, the short lifespan of the species (2 to 3 years) and the lack of data and research specific to trispot darters regarding evidence of threats directly impacting the species creates uncertainty when predicting the species' response to threats into

the future. Forecasting beyond 8 to 10 generations (i.e., 16 to 24 years) would be speculative, and we do not have robust population data to support a foreseeable future that could accurately predict how the trispot darter may respond to threats beyond a 20-year timeframe. Accordingly, we have concluded that approximately 20 years is the appropriate foreseeable future for the trispot darter.

Our analysis concludes that 30 years beyond our foreseeable future timeframe, our range of plausible future scenarios predicts the trispot darter may continue to persist in as many as all four of the populations; however, the entire risk profile indicates that all four populations could also possibly be extirpated in 50 years. It is reasonable to assume that at an intermediate timeframe of 16 to 24 years, these scenarios will not have been realized completely; however, many populations that persist are likely to have low resiliency and continue to face threats. Considering this species' vulnerability to a loss of connectivity between breeding and nonbreeding habitats, and the effect that situation has on reproductive success, we expect negative impacts to the resiliency, redundancy, and representation of the species in the foreseeable future. The trispot darter's unique reproductive strategy of utilizing distinct areas of rivers and streams for breeding and nonbreeding habitats makes the loss of connectivity especially detrimental to viability. A lack of protected lands within the current range of the trispot darter creates more uncertainty regarding land use, threats, and the ability of these four populations to withstand the expected loss of one or two populations. This expected reduction in both the number and distribution of resilient populations is likely to make the species vulnerable to catastrophic disturbance. Therefore, on the basis of the best available scientific and commercial information, we find that the species is likely to become in danger of extinction within the foreseeable future throughout its range.

Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. Because we have determined that the trispot darter is likely to become an endangered species within the foreseeable future throughout its range, we find it unnecessary to proceed to an evaluation of potentially significant portions of the range. Where the best available information allows the Services to determine a status for the species rangewide, that determination should be given conclusive weight because a rangewide determination of status more accurately reflects the species' degree of imperilment and better promotes the purposes of the statute. In this way, assigning the rangewide status to the species (rather than potentially assigning a different status based on a review of only a portion of the range) best implements the statutory distinction between threatened and endangered species. Maintaining this fundamental distinction is important for ensuring that conservation resources are allocated toward species according to their actual level of risk.

We also note that Congress placed the "all" language before the "significant portion of its range" phrase in the definitions of "endangered species" and "threatened species." This suggests that Congress intended that an analysis based on consideration of the entire range should receive primary focus, and thus that the agencies should do a "significant portion of its range" analysis as an alternative to a rangewide analysis only if necessary. Under this reading, we should first consider whether listing is appropriate based on a rangewide analysis and proceed to conduct a "significant portion of its range" analysis if, and only if, a species does not qualify for listing as either endangered or threatened according to the "all" language. We note that this interpretation is also consistent with the 2014 Final Policy on Interpretation of the Phrase "Significant Portion of its Range" (SPR Policy) (79 FR 37578; July 1, 2014). That policy is the subject of ongoing

litigation, including litigation against the Service in the United States District Court for the Northern District of California, which has vacated the "significant portion" part of the Services' SPR Policy (*Desert Survivors v. Department of the Interior*, No. 16-cv-01165-JCS (N.D. Cal. Aug. 24, 2018)). However, our approach in this rule, explained above, has been reached and applied independently of the SPR Policy, and is not inconsistent with the court's holding in *Desert Survivors*.

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 requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

Recovery Actions

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires 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 site-specific management actions that set a trigger for review of the five factors that control whether a species remains endangered or may be reclassified from endangered to threatened ("downlisted") or removed from listing ("delisted"), 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 other 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 (*http://www.fws.gov/endangered*) or from our Alabama Ecological Services field office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (*e.g.*, restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To

achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

Following publication of this final listing rule, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the States of Alabama, Georgia, and Tennessee will be eligible for Federal funds to implement management actions that promote the protection or recovery of the trispot darter. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants*.

Please let us know if you are interested in participating in recovery efforts for the trispot 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**).

Critical Habitat

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.

Elsewhere in today's *Federal Register*, we propose to designate critical habitat for the trispot darter under the Act.

Regulatory Provisions

Under section 4(d) of the Act, the Service has discretion to issue regulations that we find necessary and advisable to provide for the conservation of threatened species. The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to threatened wildlife. The prohibitions of section 9(a)(1) of the Act, as applied to threatened wildlife and codified at 50 CFR 17.31, make it illegal for any person subject to the jurisdiction of the United States to take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) threatened wildlife within the United States or on the high seas. In addition, it is unlawful to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

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

Section 4(d) of the Act specifies that, for threatened species, the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of the species. This discretion includes authority to prohibit by regulation with respect to a threatened species any act prohibited by section 9(a)(1) of the Act. At 50 CFR 17.31(a), the Service, by delegation from the Secretary, exercised this discretion to extend the take and other prohibitions set forth in section 9(a)(1) of the Act to all threatened species. The provisions at 50 CFR 17.31(c), however, also provide that the prohibitions included at 50 CFR 17.31(a) do not apply if the Service promulgates a rule under section 4(d) of the Act tailored to provide for the conservation needs of a specific threatened species. Elsewhere in today's *Federal Register*, we propose to issue a rule under section 4(d) of the Act ("4(d) rule") that is tailored to the specific threats to and conservation needs of the trispot darter. Until a 4(d) rule is made final for this species, all prohibitions included at 50 CFR 17.31(a) apply to the trispot darter.

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 final listing on proposed and ongoing activities within the range of a listed species. Activities that the Service believes could potentially harm the trispot darter and result in "take" include, but are not limited to:

(1) Unauthorized handling or collecting of the species;

(2) Destruction or alteration of the species' habitat by discharge of fill material, dredging, snagging, impounding, channelization, or modification of natural or artificial wet weather conveyances or ephemeral, intermittent, or perennial stream channels or banks;

(3) Destruction of riparian habitat directly adjacent to natural or artificial wet weather conveyances or ephemeral, intermittent, or perennial stream channels that causes significant increases in sedimentation and destruction of natural stream banks or channels;

(4) Discharge of pollutants into a natural or artificial wet weather conveyances or ephemeral, intermittent, or perennial stream channels, or into areas hydrologically connected to a natural or artificial wet weather conveyances or ephemeral, intermittent, or perennial stream channel occupied by the species;

(5) Diversion or alteration of surface or ground water flow; and

(6) Pesticide/herbicide applications in violation of label restrictions.

Questions regarding whether specific activities constitute a violation of section 9 of the Act should be directed to the Alabama Ecological Services Field Office (see **ADDRESSES**).

Required Determinations

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

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

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to

communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. There are no tribal interests affected by this rule.

References Cited

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

Authors

The primary authors of this final rule are the staff members of the Alabama Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

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

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(h) by adding an entry for "Darter, trispot" to the List of Endangered and Threatened Wildlife in alphabetical order under FISHES to read as set forth below:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* * * * * * *				
FISHES				
* * * * * * *				
Darter, trispot	*Etheostoma trisella*	Wherever found	T	83 FR [insert *Federal Register* page where the document begins], [Insert date of publication in the *Federal Register*].
* * * * * * *				

Dated: October 25, 2018

Signed:

James W. Kurth
Deputy Director,
U.S. Fish and Wildlife Service,
Exercising the Authority of the Director,
U.S. Fish and Wildlife Service.

Billing Code 4333–15

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