

greatest extent practicable and permitted by law. The EPA defines environmental justice (EJ) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” The EPA further defines the term fair treatment to mean that “no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies.”

The EPA performed an environmental justice analysis, as is described in section VI of this proposed rule, titled “Environmental Justice Considerations.” The analysis was done for the purpose of providing additional context and information about this rulemaking to the public, not as a basis of the action. Due to the nature of the action being taken here, this action is expected to have a neutral to positive impact on the air quality of the affected area. In addition, there is no information in the record upon which this decision is based inconsistent with the stated goal of E.O. 12898 of achieving environmental justice for people of color, low-income populations, and Indigenous peoples.

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Ammonia, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

**Authority:** 42 U.S.C. 7401 *et seq.*

Dated: December 12, 2023.

**Martha Guzman Aceves,**

*Regional Administrator, Region IX.*

[FR Doc. 2023–27686 Filed 12–19–23; 8:45 am]

**BILLING CODE 6560–50–P**

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

[Docket No. FWS–R5–ES–2023–0179; FF09E21000 FXES1111090FEDR 245]

RIN 1018–BH06

#### Endangered and Threatened Wildlife and Plants; Endangered Species Status for West Virginia Spring Salamander and Designation of Critical Habitat

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), propose to list the West Virginia spring salamander (*Gyrinophilus subterraneus*), an amphibian species from Greenbrier County, West Virginia, as an endangered species and to designate critical habitat under the Endangered Species Act of 1973, as amended (Act). This determination also serves as our 12-month finding on a petition to list the West Virginia spring salamander. After a review of the best available scientific and commercial information, we find that listing the species is warranted. We also propose to designate critical habitat for the West Virginia spring salamander under the Act. In total, approximately 3.5 kilometers (2.2 miles) in Greenbrier County, West Virginia, fall within the boundaries of the proposed critical habitat designation. We announce the availability of a draft economic analysis of the proposed designation of critical habitat for the West Virginia spring salamander. If we finalize this rule as proposed, it would extend the Act’s protections to the species and its designated critical habitat.

**DATES:** We will accept comments received or postmarked on or before February 20, 2024. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. eastern time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by February 5, 2024.

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

(1) *Electronically:* Go to the Federal eRulemaking Portal: <https://www.regulations.gov>. In the Search box, enter FWS–R5–ES–2023–0179, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the panel on the left

side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on “Comment.”

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R5–ES–2023–0179, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on <https://www.regulations.gov>. This generally means that we will post any personal information you provide us (see Information Requested, below, for more information).

*Availability of supporting materials:* Supporting materials, such as the species status assessment report, are available on the Service’s website at <https://www.fws.gov/office/west-virginia-ecological-services>, at <https://www.regulations.gov> at Docket No. FWS–R5–ES–2023–0179, or both. For the proposed critical habitat designation, the coordinates or plot points or both from which the maps are generated are included in the decision file for this critical habitat designation and are available at <https://www.regulations.gov> at Docket No. FWS–R5–ES–2023–0179 and on the Service’s website at <https://www.fws.gov/office/west-virginia-ecological-services>.

#### FOR FURTHER INFORMATION CONTACT:

Jennifer Norris, Field Supervisor, U.S. Fish and Wildlife Service, West Virginia Ecological Services Field Office, 6263 Appalachian Highway, Davis, WV 26260; telephone 304–866–3858. 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. Please see Docket No. FWS–R5–ES–2023–0179 on <https://www.regulations.gov> for a document that summarizes this proposed rule.

#### SUPPLEMENTARY INFORMATION:

##### Executive Summary

*Why we need to publish a rule.* Under the Act (16 U.S.C. 1531 *et seq.*), a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become an

endangered species within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the West Virginia spring salamander meets the Act's definition of an endangered species; therefore, we are proposing to list it as such and proposing a designation of its critical habitat. Both listing a species as an endangered or threatened species and designating critical habitat can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process (5 U.S.C. 551 *et seq.*).

*What this document does.* We propose to list the West Virginia spring salamander as an endangered species under the Act, and we propose to designate critical habitat 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 the West Virginia spring salamander is endangered due to the following threats: past collection for scientific purposes (Factor B); current climate change conditions, including the increased magnitude of major flood events (Factor A); and threats associated with small population size (Factor E).

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary), to the maximum extent prudent and determinable, to designate critical habitat concurrent with listing. Section 3(5)(A) of the Act defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protections; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species. Section 4(b)(2) of the Act states that the Secretary must make the designation on the basis of the best scientific data available and after taking into

consideration the economic impact, the impact on national security, and any other relevant impacts of specifying any particular area as critical habitat.

#### Information Requested

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

(1) The species' biology, range, and population trends, including:

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

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns and the locations of any additional populations of this species;

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

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

(2) Threats and conservation actions affecting the species, including:

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

(b) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species; and

(c) Existing regulations or conservation actions that may be addressing threats to this species.

(3) Additional information concerning the historical and current status of this species.

(4) Specific information on:

(a) The amount and distribution of West Virginia spring salamander habitat;

(b) Any additional areas occurring within the range of the species, in Greenbrier County, West Virginia, that should be included in the critical habitat designation because they (i) are occupied at the time of listing and contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection, or (ii) are

unoccupied at the time of listing and are essential for the conservation of the species;

(c) Special management considerations or protection that may be needed in critical habitat areas we are proposing, including managing for the potential effects of climate change; and

(d) Whether occupied areas are adequate for the conservation of the species, as this will help us evaluate the potential to include areas not occupied at the time of listing. Additionally, please provide specific information regarding whether or not unoccupied areas would, with reasonable certainty, contribute to the conservation of the species and contain at least one physical or biological feature essential to the conservation of the species. We also seek comments or information regarding whether areas not occupied at the time of listing qualify as habitat for the species.

(5) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(6) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation, and the related benefits of including or excluding specific areas.

(7) Information on the extent to which the description of probable economic impacts in the draft economic analysis is a reasonable estimate of the likely economic impacts.

(8) Whether the specific area we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding this area outweigh the benefits of including this area under section 4(b)(2) of the Act.

(9) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

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

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, do not provide substantial information necessary to support a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or a threatened

species must be made solely on the basis of the best scientific and commercial data available, and section 4(b)(2) of the Act directs that the Secretary shall designate critical habitat on the basis of the best scientific data available.

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

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

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <https://www.regulations.gov>.

Our final determination may differ from this proposal because we will consider all comments we receive during the comment period as well as any information that may become available after this proposal. Based on the new information we receive (and, if relevant, any comments on that new information), we may conclude that the species is threatened instead of endangered, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species. For critical habitat, our final designation may not include all areas proposed, may include some additional areas that meet the definition of critical habitat, or may exclude some areas if we find the benefits of exclusion outweigh the benefits of inclusion and exclusion will not result in the extinction of the species. In our final rule, we will clearly explain our rationale and the basis for our final decision, including why we made changes, if any, that differ from this proposal.

#### Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in **DATES**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place

of the hearing, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing. We may hold the public hearing in person or virtually via webinar. We will announce any public hearing on our website, in addition to the **Federal Register**. The use of virtual public hearings is consistent with our regulations at 50 CFR 424.16(c)(3).

#### Previous Federal Actions

On April 20, 2010, we received a petition from the Center for Biological Diversity, Alabama Rivers Alliance, Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council, West Virginia Highlands Conservancy, Tierra Curry, and Noah Greenwald to list 404 species, including the West Virginia spring salamander, as endangered or threatened under the Act. On September 27, 2011, we published in the **Federal Register** (76 FR 59836) a 90-day finding that the petition presented substantial scientific and commercial information indicating that listing the West Virginia spring salamander may be warranted. This document serves as our 12-month finding for the West Virginia spring salamander.

#### Peer Review

A species status assessment (SSA) team prepared an SSA report for the West Virginia spring salamander. 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 in listing actions under the Act, we solicited independent scientific review of the information contained in the West Virginia spring salamander SSA report. We sent the SSA report to five independent peer reviewers and received one response. Results of this structured peer review process can be found at <https://www.regulations.gov>. In preparing this proposed rule, we incorporated the results of the review, as appropriate, into the SSA report, which is the foundation for this proposed rule.

#### Summary of Peer Reviewer Comments

As discussed in Peer Review above, we received comments from one peer reviewer on the draft SSA report. We reviewed all comments we received from the peer reviewer for substantive issues and new information regarding the information contained in the SSA report.

The peer reviewer generally concurred with our methods and conclusions and provided additional information on the potential for hybridization of West Virginia spring salamanders with spring salamanders (*Gyrinophilus porphyriticus*). The peer reviewer also provided suggestions for clarifications in terminology and other editorial suggestions. We made no substantive changes to our analysis and conclusions within the SSA report, and peer reviewer comments are addressed in version 1.0 of the SSA report.

#### I. Proposed Listing Determination

##### Background

A thorough review of the taxonomy, life history, and ecology of the West Virginia spring salamander (*Gyrinophilus subterraneus*) is presented in the SSA report (version 1.0; Service 2023, pp. 13–38). The West Virginia spring salamander is endemic to a single small cave system (General Davis Cave) in southern Greenbrier County, West Virginia (see figure 1, below). The West Virginia spring salamander is a member of the *Gyrinophilus* complex, which are semi-aquatic or aquatic, large-bodied, lungless salamanders with a prolonged larval period. Limited information is available specific to the life history of the West Virginia spring salamander. Where appropriate, we apply what is known about other *Gyrinophilus* species, and specifically the spring salamander (*Gyrinophilus porphyriticus*), as a surrogate for the West Virginia spring salamander. The spring salamander is described as one of the most common and abundant salamander species encountered in West Virginia caves (Dearolf 1956, p. 205; Green and Brant 1966, p. 42; Osbourn 2005, p. 12) and is the only other member of the *Gyrinophilus* complex known to occur sympatrically with the West Virginia spring salamander in General Davis Cave. Although both larval and adult stage West Virginia spring salamanders resemble the spring salamander, the two species can be distinguished using a suite of morphological characteristics, genetic analyses, or both (Niemiller et al. 2009, p. 244; Niemiller et al. 2010, p. 34; Grant et al. 2022, p. 735).

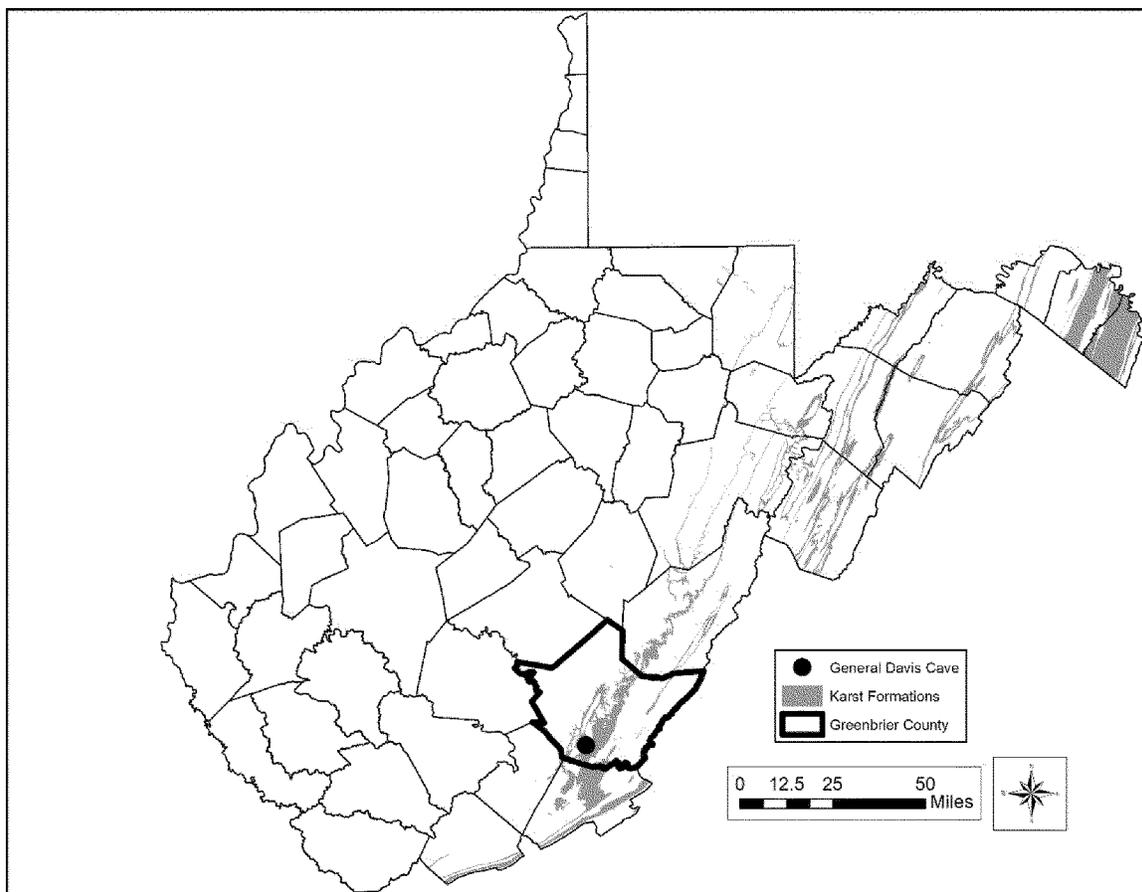


Figure 1. Location of General Davis Cave in Greenbrier County, West Virginia.

West Virginia spring salamanders inhabit aquatic habitats within the General Davis Cave system, including the cave stream, rimstone pools, drip pools, and seeps; adults also are found on the steep, muddy streambanks. West Virginia spring salamanders are found in the first 450 meters (m) (1,476 feet (ft)) (the maximum length that has been able to be accessed and sampled) of the General Davis Cave stream and on its banks, while spring salamanders are generally found in the first 200 m (656 ft) of the cave stream (Grant et al. 2022, p. 733). Nest sites have not been located, but it is thought that females lay eggs attached to submerged or partially submerged rocks or logs. Based on the one known observation of a gravid female West Virginia spring salamander in October, we suspect that the reproductive period for the West Virginia spring salamander is similar to those of cave-dwelling spring salamander populations and other members of the *Gyrinophilus* complex, which is from fall to early winter. We also assume the species has characteristics of other cave species and is relatively long-lived (approximately 9

to 20 or more years), with lower metabolic and growth rates, reduced reproduction, and slower development than their epigeal (aboveground) relatives.

West Virginia spring salamanders are considered generalist predators that feed mainly on small invertebrates found in the General Davis Cave stream and on its banks (Besharse and Holsinger 1977, p. 627; Osbourn 2005, pp. 159–161; Fong et al. 2007, pp. 145–146; Huntsman et al. 2011, p. 1753; Grant et al. 2018, p. 1).

The Nature Conservancy in West Virginia owns the main entrance to General Davis Cave and has a conservation easement on the cave passage. The main entrance to General Davis Cave is gated, and, since 1981, The Nature Conservancy has granted access for only a select group of researchers and cave mappers. The surface land above the cave is privately owned.

#### **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 endangered and threatened species. In 2019, jointly with the National Marine Fisheries Service, the Service issued a final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species' critical habitat (84 FR 45020; August 27, 2019). On the same day, 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 (84 FR 44753; August 27, 2019).

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 species' expected response 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 we 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 the 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 regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent our decision 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 the West Virginia spring salamander's viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years); redundancy is the ability of the species to withstand catastrophic events (for example, droughts, large pollution events); and representation is the ability of the species to adapt to both near-term and

long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). 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 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, which we then used 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-R5-ES-2023-0179 on <https://www.regulations.gov> and at <https://www.fws.gov/office/west-virginia-ecological-services>.

#### **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' condition, in order to assess the species' overall viability and the risks to that viability.

#### *Hydrogeological Setting*

General Davis Cave is located in the Davis Hollow subwatershed within the Greenbrier Valley. The cave system under Davis Hollow, which includes General Davis and Sinks of the Run Caves, is a relatively simple cave system, compared to the complexity of many other systems in karst topography, in that the cave system has one main subterranean stream course. The primary source of water for the General Davis Cave stream is the unnamed surface stream that enters the Sinks of the Run Cave through a swallow hole (opening where a stream descends underground) (Jones 2018, p. 33). Ninety percent of the water entering the Davis Hollow drainage basin enters at

Sinks of the Run Cave and continues through to enter the General Davis Cave through a siphon at the upstream extent of General Davis Cave (Jones 1997, pp. 20, 24, 32).

General Davis Cave has approximately 4,000 m (13,123 ft) of mapped passage, and is essentially one, long narrow stream passage that heads north/northeast from the main cave entrance. The cave can readily be traversed for approximately the first 450 m (1,476 ft) until a significant breakdown occurs; after that point, the cave can only be traversed by experienced cavers (Oxenrider 2021, pers. comm.; Grant et al. 2022, p. 733). For the first 450 m (1,476 ft), the stream banks are very steep and made of soft clay and mud on both sides, with deposits of coarse and fine particulate organic matter (Besharse and Holsinger 1977, p. 627; Bartkus 2009, p. 41; Niemiller et al. 2010, p. 34; Grant et al. 2022, p. 741). The cave banks are composed of organic material (mainly leaf litter) and can be up to 1.0 m (3.2 ft) deep in some areas along the cave stream, most notably in areas where small side passages flow into the main cave (Niemiller et al. 2010, p. 39). The streambed in this portion of the cave consists mainly of small cobble and gravel substrate, interspersed with long stretches of silt, mud, and periodic leaf litter buildup with occasional bedrock exposure (Bartkus 2009, p. 41; Niemiller et al. 2010, p. 34; Brand 2021, pers. comm.).

There are two major landowners within Davis Hollow drainage. Approximately 450 acres (ac) (182 hectares (ha)) in the southern part of Davis Hollow directly over General Davis Cave has been privately owned by one family for more than 200 years. Over this time, approximately 100 ac (40 ha) of the property has been used mainly as pasture for cattle grazing, with the rest being maintained as forest that has been subjected to occasional harvests (Powell 2021, pers. comm.). In the northern part of Davis Hollow, above the Sinks of the Run Cave and the area surrounding the headwaters of the unnamed surface stream that sinks and flows through both cave systems, approximately 500 ac (200 ha) are owned by a private timber company. We have no information on the management of this forested area, although timber harvests have been proposed in the past (Hammerson and Jackson 2019, p. 3). The Nature Conservancy owns approximately 1.56 acres (0.63 hectare) at the entrance to General Davis Cave and restricts access.

### *Species Needs*

Based upon the best available scientific and commercial information, and acknowledging existing ecological uncertainties, the resource and demographic needs for breeding, feeding, sheltering, and dispersal of the West Virginia spring salamander include: (1) adequate freshwater availability (water quantity), (2) sufficient water quality, (3) appropriate cave habitat, and (4) sufficient allochthonous materials (organic material originating outside the cave) to provide a prey base. We provide a summary here of each of the species needs; a more detailed review of the species needs can be found in the SSA report (Service 2023, pp. 38–41).

#### *Adequate Freshwater Availability (Water Quantity)*

Water availability is fundamental to the survival of the West Virginia spring salamander. All life stages rely on sufficient flow as their source of oxygenated water and for habitat availability during important life stages. West Virginia spring salamanders require sufficient water quantity for nests to be submerged or partially submerged during egg laying (Niemiller et al. 2009, p. 67). We assume that shallow pools and riffle habitat in the cave stream with water depths from 13–30 centimeters (5.9–11.8 inches) are needed for all life stages (Besharse and Holsinger 1977, p. 627; Niemiller et al. 2010, pp. 36–37, 39; Oxenrider 2021, pers. comm.; Grant et al. 2022, p. 729).

#### *Water Quality*

There is little information about specific water quality parameters necessary to support the species. However, we consider appropriate water quality as exhibiting the conditions present during species surveys and water sampling in 2003, 2004, and 2018. Water conditions in the cave stream of General Davis Cave were cool and well-oxygenated with a neutral to slightly basic pH (7.0–7.9), temperatures between 10.0–11.8 degrees Celsius (50.0–53.2 degrees Fahrenheit), dissolved oxygen around 8.2–9.9 milligrams per liter (mg/l), and no evidence of pesticides, herbicides, or other contaminants or pollutants (Osborn 2005, pp. 24, 31; Grant et al. 2022, p. 736; U.S. Geological Survey (USGS) 2022, entire).

#### *Cave Habitat Quality and Allochthonous Material Supply*

West Virginia spring salamanders require cave habitat that provides interstitial spaces, drip pools, rimstone pools, and other spaces isolated from

the main cave stream for larval-stage individuals to escape predation and/or strong flooding events, and for adults to escape flooding events and secure suitable nest sites (Niemiller et al. 2010, p. 39; Miller 2018, pers. comm.). Additionally, rocks or objects suitable for larvae and adults to use as cover objects within the stream are needed, as well as a sufficient amount of allochthonous material to support the species' prey base.

#### *Threats Influencing the West Virginia Spring Salamander*

The primary threat facing the West Virginia spring salamander is impacts from current climate change conditions, including the increased frequency and intensity of major flood events (Factor A). Secondary threats potentially impacting the species in conjunction with the primary threat include past collection for scientific purposes (Factor B) and factors associated with small population size (Factor E). Although human collection of West Virginia spring salamanders is no longer considered a threat, past collection of salamanders has likely had a negative impact on their current status. In the SSA report (Service 2023, pp. 86–91), we evaluated other threats that could impact the West Virginia spring salamander, including habitat alteration from changes in land use (Factor A), disease (Factor C), hybridization (Factor E), and other climate change impacts including drought (Factor A), but we found that these threats are not currently impacting the species. Below, we provide an overview of the factors that have influenced the current condition of the West Virginia spring salamander.

#### *Flood Events*

General Davis Cave is a stream-passage cave prone to some degree of flooding on an annual basis (Pauley et al. 1985 p. 2; Osborn 2005, p. 69). The intensity of these yearly flooding events is uncertain, but debris and mud have been observed on the cave ceiling, on stalactites, and well above stream elevation, indicating occasional strong flood events that would fill the entire cave (Grant et al. 2022, p. 741). Recent preliminary monitoring of the Sinks of the Run Cave has indicated that it has a consistent flood response at various times throughout the year, likely in response to local precipitation events with short-lived flood pulses (lasting hours to a day), particularly during repeated rainfall events across multiple days (Brooks 2020, pers. comm.). Given the connectedness and proximity of Sinks of the Run Cave to General Davis

Cave, we assume General Davis Cave has a similar flooding regime, with peak flows moderately above average flow, occurring in response to local precipitation events.

Major (catastrophic) flood events are defined by the National Weather Service (NWS) as events causing extensive inundation of structures and roads, and typically have a 50- to 100-year recurrence interval (NWS 2023, entire). There have been 17 catastrophic flood events across West Virginia since recordkeeping began in 1844; 6 of these have occurred in the Greenbrier River watershed where the General Davis Cave is located (Wiley and Atkins 2010, p. 4; Thurkettle 2019, p. 17; Austin et al. 2018, p. 11). The USGS gauging station at Alderson, West Virginia, located approximately 10.1 kilometers (km) (6.3 miles (mi)) downstream of General Davis Cave, is the nearest gauging station and, given its proximity, likely reflects major flood events around General Davis Cave. When the river gauge reaches approximately 4.2 m (14.0 ft) at Alderson, it triggers the flood stage warning.

Yearly peak flows at the Alderson gauge station have been increasing over the past 125 years, and three catastrophic flooding events have occurred in the area within the past 36 years (1985 to 2021). In 1985, a strong storm system caused a flood event, during which water reached 7.3 m (23.9 ft) at the Alderson gauge. This is the second highest recorded water level at this gauge since monitoring began in 1844 (Grote et al. 2019, p. 8; Thurkettle 2019, p. 25; National Oceanic Atmospheric Administration (NOAA) 2022, entire). In 1996, a widespread rain-on-snow flooding event caused flooding throughout the Mid-Atlantic and Appalachian regions and caused the highest ever flood levels recorded in the area, with the Alderson gauge topping out at 7.4 m (24.3 ft) (Grote et al. 2019, p. 8; Thurkettle 2019, p. 25; NOAA 2022, entire). In 2016, the third largest flood event was recorded, with water levels reaching approximately 6.7 m (22.0 ft) (Grote et al. 2019, p. 9; Thurkettle 2019, p. 25; NOAA 2022, entire).

Additionally, catchment basins in the Greenbrier Valley are known to be very flashy in response to storm events (Jones 1997, pp. 48–51; Jones 2018, pp. 23–24), and anecdotal observations provide evidence that localized flooding events have occurred in Davis Hollow but were not recorded as flood-stage events at a large scale. For example, in January 2006, the secondary overflow entrance to General Davis Cave, which is located near the ceiling of the cave, was

observed to be flooded (Powell 2021, pers. comm.; Service 2023, p. 59). Flow from the secondary entrance is an uncommon event and would occur only at very high water levels within General Davis Cave. Accordingly, we assume that flood events occur on a more frequent basis (albeit, an unknown frequency) in Davis Hollow than in the Greenbrier River watershed, due to the topography and flashy nature of Davis Hollow, and because of this observation of flood waters flowing from the cave entrance when no flood stage was indicated in the Greenbrier River (Service 2023, p. 121).

The flood return interval for the major floods in the Greenbrier River watershed in 1996 and 2016 is estimated at 50 to 200 years and 200 to more than 500 years, respectively (Thurkettle 2019, pp. 69–70; Grote et al. 2019, p. 19). However, these flood events occurred within 20 years of each other. This increased frequency of recent major flood events, combined with the rising level of peak flows for the Greenbrier River at Alderson, indicates that major flood events are increasing in both frequency and intensity in the area, as is predicted with most climate change models (Service 2023, pp. 69–71, 110–112).

Flooding has long been recognized as a key disturbance in karst ecosystems and described as being important to cave fauna (Hawes 1939, entire), but the specifics of how flood events affect cave species and cave communities are largely unstudied (Niemi et al. 2010, pp. 37–38; Simon 2019, p. 226). The basis of the food web in most caves is allochthonous input, and for caves with limited surface connectivity, such as General Davis Cave, these organic materials are mainly transported into the cave via the cave stream during flood events (Service 2023, p. 39). Thus, cave fauna is dependent on some degree of periodic flooding. The right balance of flood intensity and frequency that will replenish organic material in General Davis Cave, but also maintain suitable habitat, while only displacing a minimum number of individuals from the cave and allowing suitable recovery time for the population, is vital for the continued viability of the West Virginia spring salamander.

Many cave species, including crayfish, fish, copepods, and other cave-obligate salamanders are known to be swept out of caves during severe flood events, or can be displaced to areas within the cave that have fewer resources or more stressors (Juberthie 2004, p. 766; Graening et al. 2006, pp. 377, 379; Aljančić et al. 2014, p. 72; Bradley 2018, p. 49; Service 2019, p. 22;

Miller 2021, pers. comm.). Other potential effects of flood events are large sediment and debris deposits, which may reduce habitat by burying rock substrates. Thus, food sources, areas available for egg deposition, and escape cover may be compromised.

Extreme variation in precipitation events impacts survivorship of some cave-dwelling or cave-associated salamanders (Rudolph 1978, p. 155). Similarly, flooding events or extreme variability in stream flows may alter the demography of some surface stream-dwelling salamanders (Nickerson et al. 2007, pp. 115–116; Lowe et al. 2019, pp. 19564–19565). For example, Lowe et al. (2019, pp. 19565–19566) found that larger-sized larval spring salamanders were inordinately affected by altered stream flows, as, unlike smaller larvae, they were too large to bury into interstitial spaces in the streambed to avoid strong floods or drought conditions, and yet unable to leave the stream for terrestrial refuge, as adults are expected to do. Thus, over time, the lower survivorship of larger-sized larvae contributed to a decline in overall abundance of the population. We may expect the different life stages of the West Virginia spring salamander to behave in a similar fashion during typical flooding events to avoid or limit physical exposure to flood waters and debris. It is likely that small West Virginia spring salamander larvae would bury into the interstitial spaces of the stream substrate, while adults retreat to side channels out of the main cave stream or find refuge under larger cover items. However, as with the spring salamander, later stage West Virginia spring salamander larvae may be too large to get into interstitial spaces in the cave stream but are unable to move out of the cave stream to seek shelter in other areas of the cave during altered streamflow (Lowe et al. 2019, pp. 19565–19566), leaving this life stage especially vulnerable to flood events.

#### Collection

There are at least 40 West Virginia spring salamander specimens that have been collected from the General Davis Cave between 1973 and 1988 (Besharse and Holsinger 1977, p. 625; VertNet 2023, entire; National Museum of Natural History (NMNH) 2023, entire). However, there is an unknown number of specimens not recorded in online collections records. For example, there are at least two specimens that were not included in any of these records (Pauley 2021, pers. comm.).

Eighteen individuals, both adults and larvae of different sizes, were removed from General Davis Cave from 1973 to

1975 (Besharse and Holsinger 1977, p. 625). The second significant collection event occurred in 1976 and 1977, when Blaney and Blaney (1978, entire) removed at least 12 more adult stage individuals from the cave in October 1976 (2 individuals) and October 1977 (10 individuals). It is unknown how many larval-stage individuals were collected during this event (Pauley et al. 1985, p. 1). Two additional individuals (unknown life stage) were removed from General Davis Cave in 1980, five individuals (unknown life stage) were collected in 1984, and three individuals (unknown life stage) were collected in October 1988 (Howard et al. 1984, pp. 3–4; VertNet 2023, entire; NMNH 2023, entire).

While all collection events affect the West Virginia spring salamander at an individual level, it is also likely that these past collection events had negative effects at the population and species level. Because the species is believed to breed infrequently and exhibits life-history characteristics typical of other cave Gyrinophilus species (and other cave fauna), in which individuals have slow growth rates, reduced reproduction, slower development, a long larval period, and longer lifespans, these collection events are more likely to have a negative impact on the population, due to the length of time needed to replace lost individuals. Furthermore, since adult female West Virginia spring salamanders are believed to be gravid from late fall to early winter, the removal of a relatively high number of adults in the fall (October), at least some of which were female, is likely to have further reduced the reproductive capacity of the species.

While these past collection events have had a direct impact on the West Virginia spring salamander at the individual level, and likely at the population and species level (see Current Condition, below), we know of no additional individuals being removed from General Davis Cave in more than three decades (last documented collection was in 1988). However, there have been at least three instances of researchers taking tissue samples (tail tips) for genetics work. While this type of sampling typically causes little negative effect to individual salamanders, as they readily regenerate lost body parts (including tail tips), there is uncertainty about the effect of this type of sampling on the West Virginia spring salamander. Given the presumptive low metabolic and growth rates of the West Virginia spring salamander, individuals may be slow to recover, and it is possible that the

energy expenditure of regenerating a tail tip could translate into some reduction in reproductive output or survivorship for individuals. However, it is also possible that individuals losing tail tips during encounters with predators is not uncommon and individuals are able to recover with little effect. A larval West Virginia spring salamander with a missing tail tip was documented during the 2018 survey of General Davis Cave (Grant et al. 2018, p. 12).

We estimate it is likely that any further scientific collection of the West Virginia spring salamander would occur sparingly and would be limited to tissue samples, rather than individuals. Furthermore, West Virginia State Code (chapter 20, article 7A, section 20–7A–4) prohibits the removal of cave organisms from any cave within the State, unless a scientific collection permit is issued by the West Virginia Department of Natural Resources (DNR). West Virginia State regulations at title 58, series 73, sections 58–73–1 through 58–73–5 (known as the State reptile and amphibian rule) prohibit the take and possession of most salamander species in the State, including the West Virginia spring salamander.

In summary, past collection of a relatively large number of West Virginia spring salamanders from the General Davis Cave has likely impacted species viability. Because the species is believed to have slow growth rates, reduced reproduction, and a long larval period, past collection events are more likely to have a negative impact on the population due to the length of time needed to replace lost individuals. Furthermore, since adult females are believed to be gravid in fall and winter, the removal of a relatively high number of adults in the fall, at least some of which were female, is likely to have further reduced the reproductive capacity of the species.

#### Cave Species Characteristics and the Effects of Small Population Size

The West Virginia spring salamander's small population size and restricted range contribute to its vulnerability to impacts from catastrophic flooding. Cave species, such as the West Virginia spring salamander, have geographically restricted ranges, are typically numerically rare (*i.e.*, found at low abundance), generally have a low tolerance for changes in abiotic conditions, and tend to have lower metabolic and growth rates and reduced reproduction than surface populations; thus, they are vulnerable to even relatively minor or very localized disturbances in their environment

(Urich 2002, p. 42; Niemiller et al. 2010, p. 40; Culver and Pipan 2019, p. 226; Mammola et al. 2019, p. 646; Niemiller and Taylor 2019, pp. 824–825). The ability of a population to recover from human-caused change (*e.g.*, collection) in their environment or a stochastic or catastrophic event (*e.g.*, flooding) leading to the loss of individuals or suitable habitat is limited for cave species, as their populations cannot be as readily augmented by the immigration of new individuals (as in surface populations), they seldom have the capability or option of moving to another suitable habitat, and their life histories are such that it will take a longer period of time (due to their lower growth rates, reduced reproduction, and slower development than their aboveground relatives) to recover to pre-disturbance numbers.

The reduced genetic diversity that is typical of small populations further complicates recovery for cave-dwelling species, as small populations are often associated with a higher likelihood of individuals with decreased fitness (the ability to produce viable offspring) and greater expression of deleterious recessive genes (Allendorf and Luikart 2007, pp. 306, 315). With small populations, genetic drift (random change in gene frequencies) is also more likely to result in reduced genetic diversity, which may cause the loss of genes that help allow populations to adapt to environmental change. These factors can increase the likelihood of extirpation (Allendorf and Luikart 2007, p. 355). Thus, populations of cave species that are subjected to an ecological stress that results in a reduction of individuals will have a smaller breeding population size for a longer period of time (compared to their aboveground relatives), increasing the risk of extinction (Urich 2002, p. 42; Culver and Pipan 2019, p. 230; Niemiller and Taylor 2019, p. 825).

The West Virginia spring salamander is a single-site endemic with a troglitic (cave-dwelling) life-history and which has likely always been isolated in a restricted range that supports a small population with limited genetic diversity. However, the species has apparently been able to maintain population viability with this low level of genetic diversity for presumably thousands of years. Thus, for some narrow endemics, such as the West Virginia spring salamander, the low level of genetic diversity inherent in the species may not necessarily translate into deleterious genetic effects leading to reduced fitness of individuals within the population, as described above. However, at the species level, low

genetic diversity poses an inherent vulnerability, because the species may lack the behavioral, morphological, or genetic diversity that would allow it to readily adapt to alterations to the cave habitat, with potentially significant negative impacts to the species (Niemiller et al. 2010, p. 40; Miller 2018, pers. comm.; West Virginia DNR 2020, p. 81; Grant et al. 2022, p. 741).

In summary, the West Virginia spring salamander is assumed to exhibit multiple life-history elements characteristic of cave fauna (slow metabolic and growth rates, breeds biennially at a maximum, low clutch sizes, and extended time in the nonbreeding or larval stage) that limit its ability to recover from stressors and disturbance events. While the West Virginia spring salamander has low genetic diversity (Grant et al. 2022, p. 734), it is not clear that this has resulted in deleterious effects on individuals. However, at the species level, lower genetic diversity means that the species has less capacity to adapt to changes in its environment or reductions in its population size.

*Current Condition*

Resiliency

Resiliency is the ability of a species to withstand environmental and demographic stochasticity. Resiliency is measured based on metrics of population health, such as the size and growth rate of populations and how quickly they are able to rebound in numbers after an event results in loss of individuals or populations. For a species to maintain viability, its populations, or some portion of its populations, must be sufficiently resilient. For the West Virginia spring salamander, only one population (in the General Davis Cave) is known to exist. Stochastic events that have the potential to affect the West Virginia spring salamander include extreme weather events (such as flooding) and the introduction of disease.

To evaluate current resiliency, we evaluated abundance data and trends in population growth rate (Grant et al. 2022, pp. 736, 738–740); these data are considered the best available information and encompass the entire 45-year period over which abundance

data were collected (from 1973 to 2018; see table 1, below; Service 2023, pp. 101–102).

Overall population abundance is difficult to quantify given surveys have only been conducted within the first 450 m (1,476 ft) of the cave. The rest of the cave is inaccessible and not logistically amenable to standard sampling, which limits our ability to truly evaluate population abundance for this species. That said, multiple surveys have been conducted for this species since 1973 and provide our best estimate of the current population status.

There was high variation in the observed number of individuals during the 1973–2018 survey period (see table 1, below). The highest number of individuals observed during a survey event was 34 salamanders in 1979, and the lowest number of individuals observed during a survey event was 2 salamanders in 2001 (see table 1, below). The most recent survey in 2018 reported six West Virginia spring salamanders (five adults and one larval stage individual).

TABLE 1—SURVEY DATA FOR THE WEST VIRGINIA SPRING SALAMANDER IN GENERAL DAVIS CAVE FROM 1973 THROUGH 2018

Date	Adult	Larvae	Total	Length of cave surveyed in meters <sup>1,2</sup>
October 1973 .....	1	3	4	180
1973 or 1974 .....	<sup>3</sup> N/A	<sup>3</sup> N/A	14	<sup>3</sup> N/A
September 1974 .....	<sup>3</sup> N/A	<sup>3</sup> N/A	11	<sup>3</sup> N/A
May 1975 .....	6	1	7	290
September 1976 .....	1	7	8	290
October 1978 and October 1979 .....	15	<sup>3</sup> N/A	15	<sup>3</sup> N/A
September 1979 .....	34	0	34	213
September 1979 .....	10	2	12	290
April 1980 .....	14	1	15	213
June 1980 .....	4	13	17	213
July 1982 .....	2	3	5	290
1982 .....	4	5	9	<sup>3</sup> N/A
July 1983 .....	4	8	12	290
September 1984 .....	3	9	12	290
May 1985 .....	9	4	13	213
September 1986 .....	1	6	7	290
October 1988 .....	1	13	14	290
September 1990 .....	1	6	7	290
October 1993 .....	0	5	5	290
September 1995 .....	0	5	5	290
October 1998 .....	2	6	8	290
September 2001 .....	0	2	2	290
August 2002 .....	3	23	26	290
October 2003 .....	3	12	15	290
August 2007 .....	1	28	29	290
October 2008 .....	1	15	16	290
January 2015 .....	2	5	7	450
August 2018 .....	5	1	6	450

<sup>1</sup> All surveys begin at the intersection of the cave entrance and the cave stream.  
<sup>2</sup> Length of cave surveyed is reported in meters and is considered an approximation.  
<sup>3</sup> N/A indicates information that is not available.

Over the past 45 years, surveys have recorded high variation in the counts observed for the West Virginia spring salamander (Grant et al. 2022, pp. 739–740; see figure 2, below). Because the length of the cave surveyed differed among sampling occasions, Grant et al. (2022, pp. 733, 740) calculated an observed density of salamanders for each survey occasion (count per meter). After accounting for high variation in the counts, Grant et al. (2022, p. 736) found that the observed population density of the West Virginia spring

salamander in General Davis Cave appears to have declined over the 45-year sampling period and the overall population growth rate is negative (Grant et al. 2022, p. 738; see figure 2, below). Calculating the probability of decline over the entire dataset resulted in an 81.4 percent probability that the West Virginia spring salamander population is in decline (Grant et al. 2022, p. 736). Even when the results of the two most recent survey efforts (2015 and 2018), which had fewer individuals overall, are excluded from analysis, the

West Virginia spring salamander population still exhibits a declining population trend, with the probability of population decline approximately 57.6 percent. The observed density of the West Virginia spring salamander over the 45-year survey period was 0.049 individuals per meter of cave stream and bank surveyed, although most surveys completed since 1990 have had densities lower than this overall mean (Grant et al. 2022, p. 736).

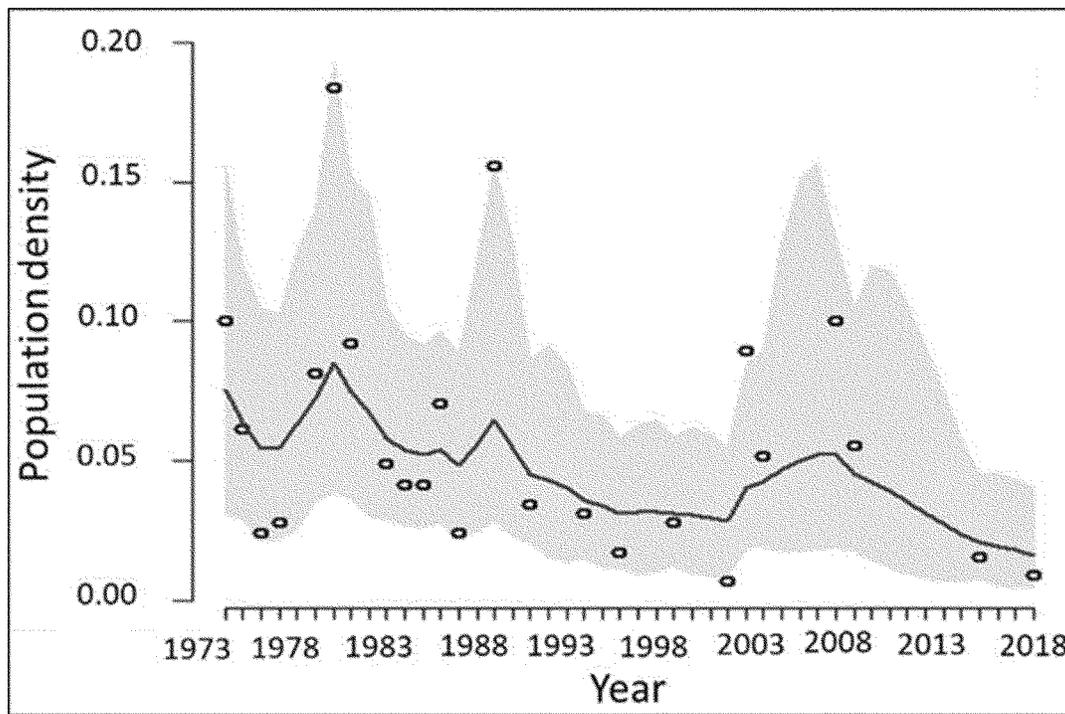


Figure 2. Trends in West Virginia spring salamander abundance and growth rate based on 24 surveys in General Davis Cave from 1973 to 2018. The line is the fitted mean, the observed data are the open circles, and the 95 percent confidence interval is shaded in gray. Figure modified and used with permission from Grant et al. (2022, entire).

#### Summary of Current Resiliency

The West Virginia spring salamander appears to be experiencing a population decline, with lower numbers of salamanders observed in recent survey years (Grant et al. 2022, p. 736). The number of individuals collected, the timing of those collections, and the current overall low number of West Virginia spring salamanders in General Davis Cave (six salamanders) have likely contributed to the negative population growth trend. Since current trend data

indicate a negative population growth, we consider current resiliency for the West Virginia spring salamander to be low. The reason(s) behind this population decline remain unclear. At present, the cave habitat, water quality and quantity, and supply of allochthonous material in General Davis Cave appear to be in good condition (Service 2023, pp. 96–97). We could find no evidence of major changes in land use within Davis Hollow since before 1950, and the water quality of the cave and surface stream were unimpaired as of 2018 (Grant et al. 2022, p. 737; USGS 2022, entire). However, past collection of a relatively large number of West Virginia spring salamanders from the General Davis Cave has likely had a negative impact on the population due to the length of time needed to replace lost individuals, specifically from catastrophic flooding events. In the past 35 years, there has

been an increase in the frequency of storm events leading to higher intensity flooding in Davis Hollow and in the Greenbrier River watershed, which may have directly affected the number of West Virginia spring salamanders in General Davis Cave. Because we know that cave fauna can be killed or displaced from caves or moved around within caves during flood events (Hawes 1939, pp. 3–4; Barr 1967, pp. 476, 485), we postulate that individual West Virginia spring salamanders are negatively impacted during intense flood events. The most recent flood event in 2016 in General Davis Cave reached such high levels that the entire cave, floor to ceiling, was filled with flood waters and bits of debris were left on the cave ceiling (Grant et al. 2022, p. 741). Given the increase in frequency and intensity of storm events projected with current climate change models, we expect effects on individuals from

higher intensity floods to continue, with the potential for the reduced recovery time between such events to compound these impacts, resulting in a continued reduction in species viability (Service 2023, pp. 108–118).

#### Redundancy

Redundancy is defined at the species level and is a measure of a species' ability to withstand natural or anthropogenic catastrophic events. Redundancy is about spreading the species-level risk, as measured through the distribution of populations (or individuals in a large population) across the species' range. Redundancy guards against potential species-level risks, such as hurricanes, intense drought, or variable precipitation (including extreme flooding). Greater redundancy is exhibited when a species' populations are not completely isolated and when movement between populations is achievable. The West Virginia spring salamander is an endemic species found in a single cave in Greenbrier County, West Virginia. As initially described, and at present, all individuals have been observed within the first 450 m (1,476 ft) of the cave due to lack of access beyond that point. Even if the entire cave system were occupied, the species is likely restricted to a single population, thus, we consider this species to have no redundancy.

#### Representation

Representation is the ability of a species to adapt to both near-term and long-term changes in its physical and biological environments. It can be measured through ecological diversity (environmental variation) and genetic diversity within and among populations. Based on a recent analysis of genetic data, the West Virginia spring salamander has relatively low genetic diversity (Grant et al. 2022, p. 734), which is somewhat expected in a species with a small population (Service 2023, pp. 13–23). As there is only one cave population, we do not expect any significant behavioral or ecological variation within this population (Mammola et al. 2019, entire). Thus, we consider representation of the West Virginia spring salamander to be inherently low.

#### Summary of Current Condition

The species currently has low resiliency with only six individual salamanders detected in the most recent survey in 2018, and an overall declining population growth rate. The species is not considered to have redundancy since it is a narrow, cave endemic found only within the General Davis Cave.

Representation is considered to be low given the overall low genetic diversity and low morphological and ecological variability.

As part of the SSA, we also developed three future condition scenarios to capture the range of uncertainties regarding future threats and the projected responses by the West Virginia spring salamander. Our scenarios assumed a moderate or enhanced probability of more frequent flood events, and either changes in land use (that would impact water quality in the cave) or no changes in land use. Because we determined that the current condition of the West Virginia spring salamander is consistent with an endangered species (see Determination of the West Virginia Spring Salamander's Status, below), we are not presenting the results of the future scenarios in this proposed rule. Please refer to the SSA report (Service 2023, pp. 108–118) for the full analysis of future scenarios.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have analyzed the cumulative effects of identified threats and conservation actions on the species. To assess the current and future condition of the species, we evaluate the effects of all the relevant 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.

#### Conservation Efforts and Regulatory Mechanisms

The Nature Conservancy owns a conservation easement at the General Davis Cave passage, and holds the title to the main entrance, which is thought to be the only entrance accessible to humans. The Nature Conservancy installed a gate at the cave entrance in 1981 to restrict access and, since that time, has approved cave access requests only sparingly. For example, just three entry requests by researchers and/or cave mappers have been approved in the past 14 years (Powell 2021, pers. comm.).

#### State Conservation Actions and Laws

The West Virginia spring salamander is listed as a Priority 1 (S1) Species of Greatest Conservation Need in the West Virginia State Wildlife Action Plan (West Virginia DNR 2015, p. 25). West

Virginia DNR has also developed an individual cave management plan for General Davis Cave, which provides broad guidelines for conservation of the cave, and includes protection of groundwater and surface water resources, the pursuit of general cave conservation actions, and restriction on visitation to the cave (West Virginia DNR 2020, p. 81). However, the extent to which this cave management guidance can be implemented remains unclear, as the surface above the cave system remains privately owned and the guidelines within the management plan remain voluntary.

Since 1977, General Davis Cave (and all caves in the State) are afforded some legal protection under West Virginia State Code (chapter 20, article 7A). This State law protects the cave habitat itself, by making it illegal in West Virginia for any person, without express, prior, written permission of the owner, to willfully or knowingly cause disturbance of any type to the cave (West Virginia State Code, chapter 20, article 7A, section 20–7A–2; West Virginia DNR 2020, p. 6). Cave organisms (including plants) are also protected from collection without a scientific collection permit from West Virginia DNR (West Virginia State Code, chapter 20, article 7A, section 20–7A–4). Additionally, West Virginia recently passed its State reptile and amphibian rule (West Virginia State regulations at title 58, series 73, sections 58–73–1 through 58–73–5). This rule, which went into effect on March 23, 2021, bans the possession of 80 species of herpetofauna, including the West Virginia spring salamander.

#### Federal Laws

While there are no Federal cave protections offered to caves that are not located on Federal lands, General Davis Cave does have a known wintering colony of the federally endangered Indiana bat (*Myotis sodalis*). Therefore, the Act offers some protection for species within General Davis Cave, as disturbance to the cave from any Federal action would be required to go through section 7 consultation under the Act. While any section 7 consultation would be specific to listed bats and may not necessarily provide protections for other species within the cave, access to the cave during the Indiana bat's hibernation season (November 15 through March 31) is restricted and would provide additional protections for the West Virginia spring salamander during that time period.

It is also unlawful under the Lacey Act (see 16 U.S.C. 3372(a)(2)(A)) to import, export, transport, sell, receive,

acquire, or purchase in interstate or foreign commerce any wildlife taken, possessed, transported, or sold in violation of any law or regulation of any State. Because the possession of West Virginia spring salamanders is illegal in West Virginia, interstate or international sale of individuals collected is prohibited by the Lacey Act.

#### **Determination of the West Virginia Spring Salamander's 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*

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, the West Virginia spring salamander has limited resiliency, redundancy, and representation in order to maintain viability over time. Only one population of West Virginia spring salamander is known to exist (within General Davis Cave, Greenbrier County, West Virginia), and this population currently has low resiliency. The last survey in 2018 observed only six individuals (five adults and one larval stage individual) and supported an overall negative population growth trend. Because there is only one known population, the species has no redundancy. A single catastrophic event, such as a severe storm that results in major flooding, could result in the extinction of the species. As there is only one cave population for this species, we do not expect any significant behavioral, ecological, or genetic variation within this population, and the species is considered to have low representation. The current and

projected near-term increase in the frequency of catastrophic floods exacerbates the current condition for the West Virginia spring salamander. We do not find the West Virginia spring salamander meets the definition of a threatened species because the species has already shown declines in abundance and resiliency of its population. Because the West Virginia spring salamander lacks redundancy and representation is limited, the species is vulnerable to catastrophic flooding events. Thus, after assessing the best available information, we conclude that the West Virginia spring salamander is in danger of extinction 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 within the foreseeable future throughout all or a significant portion of its range. We have determined that the West Virginia spring salamander is in danger of extinction throughout all of its range and accordingly did not undertake an analysis of any significant portion of its range. Because the West Virginia spring salamander warrants listing as endangered throughout all of its range, our determination does not conflict with the decision in *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020), which vacated the provision 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" (79 FR 37578; July 1, 2014) providing that if the Service determines that a species is threatened throughout all of its range, the Service will not analyze whether the species is endangered in a significant portion of its range.

#### *Determination of Status*

Our review of the best available scientific and commercial information indicates that the West Virginia spring salamander meets the Act's definition of an endangered species. Therefore, we propose to list the West Virginia spring salamander as an endangered species in accordance with sections 3(6) 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 as a listed species, planning and implementation of

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, including the Service, 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 goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. 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. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (<https://www.fws.gov/program/endangered-species>), or from our West Virginia

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.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of West Virginia would be eligible for Federal funds to implement management actions that promote the protection or recovery of the West Virginia spring salamander. Information on our grant programs that are available to aid species recovery can be found at: <https://www.fws.gov/service/financial-assistance>.

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

Section 7 of the Act is titled, "Interagency Cooperation" and mandates all Federal action agencies to use their existing authorities to further the conservation purposes of the Act and to ensure that their actions are not likely to jeopardize the continued existence of listed species or adversely modify critical habitat. Regulations implementing section 7 are codified at 50 CFR part 402.

Section 7(a)(2) states that each Federal action agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Each Federal agency shall review its action at

the earliest possible time to determine whether it may affect listed species or critical habitat. If a determination is made that the action may affect listed species or critical habitat, formal consultation is required (50 CFR 402.14(a)), unless the Service concurs in writing that the action is not likely to adversely affect listed species or critical habitat. At the end of a formal consultation, the Service issues a biological opinion containing its determination of whether the Federal action is likely to result in jeopardy or adverse modification.

In contrast, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. Although the conference procedures are required only when an action is likely to result in jeopardy or adverse modification, action agencies may voluntarily confer with the Service on actions that may affect species proposed for listing or critical habitat proposed to be designated. In the event that the subject species is listed or the relevant critical habitat is designated, a conference opinion may be adopted as a biological opinion and serve as compliance with section 7(a)(2) of the Act.

Examples of discretionary actions for the West Virginia spring salamander that may be subject to conference and consultation procedures under section 7 are land management or other landscape-altering activities on Federal lands administered by the U.S. Department of Agriculture as well as 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 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. Federal agencies should coordinate with the local Service Field Office (see **FOR FURTHER INFORMATION CONTACT**) with any specific questions on section 7 consultation and conference requirements.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit or to cause to be committed any of the following: (1) import endangered wildlife into, or export from, the United States; (2) take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) endangered wildlife within the United States or on the high seas; (3) possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any such wildlife that has been taken illegally; (4) deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or (5) sell or offer for sale in interstate or foreign commerce. Certain exceptions to these prohibitions apply to employees or agents 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 endangered wildlife under certain circumstances. Regulations governing permits for endangered wildlife are codified at 50 CFR 17.22. With regard to endangered wildlife, a permit may be issued for scientific purposes, for enhancing the propagation or survival of the species, or for take incidental to otherwise lawful activities. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

It is the policy of the Service, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify, to the extent known at the time a species is listed, specific activities that will not be considered likely to result in violation of section 9 of the Act. To the extent possible, activities that will be considered likely to result in violation will also be identified in as specific a manner as possible. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing.

At this time, we are unable to identify specific activities that will or will not be considered likely to result in a violation of section 9 of the Act beyond what is already clear from the descriptions of prohibitions or already excepted through our regulations at 50 CFR 17.21

(e.g., any person may take endangered wildlife in defense of his own life or the lives of others (see 50 CFR 17.21(c)(2))). Also, as mentioned above, certain activities that are prohibited under section 9 may be permitted under section 10 of the Act. Questions regarding whether specific activities would or would not constitute a violation of section 9 of the Act should be directed to the West Virginia Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

## II. Critical Habitat

### Background

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

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

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

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

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

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (*i.e.*, range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (*e.g.*, migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals).

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the

requirement that each Federal action agency ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of designated critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation also does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Rather, designation requires that, where a landowner requests Federal agency funding or authorization for an action that may affect an area designated as critical habitat, the Federal agency consult with the Service under section 7(a)(2) of the Act. If the action may affect the listed species itself (such as for occupied critical habitat), the Federal agency would have already been required to consult with the Service even absent the designation because of the requirement to ensure that the action is not likely to jeopardize the continued existence of the species. Even if the Service were to conclude after consultation that the proposed activity is likely to result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must implement "reasonable and prudent alternatives" to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat).

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

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

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information from the SSA report and information developed during the listing process for the species. Additional information sources may include any generalized conservation strategy, criteria, or outline that may have been developed for the species; the recovery plan for the species; articles in peer-reviewed journals; conservation plans developed by States and counties; scientific status surveys and studies; biological assessments; other unpublished materials; or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species; and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas

may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of the species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

### Physical or Biological Features Essential to the Conservation of the Species

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate as critical habitat from within the geographical area occupied by the species at the time of listing, we consider the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. The regulations at 50 CFR 424.02 define “physical or biological features essential to the conservation of the species” as the features that occur in specific areas and that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity. For example, physical features essential to the conservation of the species might include gravel of a particular size required for spawning, alkaline soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or absence of a particular level of nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic essential to support the life history of the species.

In considering whether features are essential to the conservation of the species, we may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance.

As described in the *Species Needs* section in the Proposed Listing Determination, above, and the SSA report (Service 2023, pp. 38–41), the resource and demographic needs for breeding, feeding, sheltering, and dispersal of the West Virginia spring salamander include:

- Appropriate cave habitat;
- Sufficient allochthonous materials (organic material originating outside the cave) to provide a prey base;
- Adequate freshwater availability (water quantity) and sufficient water quality

#### *Summary of Essential Physical or Biological Features*

We derive the specific physical or biological features essential to the conservation of the West Virginia spring salamander from studies of the species’ habitat, ecology, and life history, as described above. Additional information can be found in the SSA report (Service 2023, entire; available on <https://www.regulations.gov> under Docket No. FWS–R5–ES–2023–0179). We have determined that the following physical or biological features in the General Davis Cave in Greenbrier County, West Virginia, are essential to the conservation of the West Virginia spring salamander:

- (1) Cave habitat, including the cave stream and banks, interstitial spaces, rocks and other objects suitable for use as cover and nest sites, and drip and rimstone pools away from the main cave stream (to provide protected nest site habitats);
- (2) Sufficient amounts and regular replenishment of allochthonous (organic material from outside the cave) inputs to support the invertebrate prey base in the cave; and
- (3) Water conditions in the cave stream that are cool; are well-oxygenated with a neutral pH; have no evidence of excessive sediments, nutrients, pesticides, or herbicides; and

have a cave stream flow and pattern consistent with current seasonal flows.

### Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. The features essential to the conservation of the West Virginia spring salamander may require special management considerations or protection to reduce threats posed by climate change (increased frequency of major flood events) and human activities (cave access for cave exploration, research activities, or recreational activities).

Management activities that could ameliorate these threats include, but are not limited to, minimizing human access to the cave; following applicable management plans and/or laws for cave visitation and recreational use; and conducting restoration and debris cleanup around or near the General Davis Cave after major flood events. These activities should be conducted in a way that minimizes disturbance to West Virginia spring salamanders and their habitat.

### Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat. We are not currently proposing to designate any areas outside the geographical area occupied by the species because the West Virginia spring salamander is endemic to one cave. We determined that the occupied area, General Davis Cave, is sufficient for the conservation of the West Virginia spring salamander and, therefore, we are not proposing to designate any unoccupied areas as critical habitat for the species.

In summary, for areas within the geographical area occupied by the species at the time of listing, we delineated the critical habitat unit’s boundaries using the following criteria:

- (1) Geographic extent—To maintain viability of the West Virginia spring

salamander population, the critical habitat unit should encompass the entire range of the species which is limited to the subterranean area of the General Davis cave.

Sources of data used for the delineation of critical habitat units included:

(1) U.S. Geological Survey digital ortho-photo quarter-quadrangles base layer map using Universal Transverse Mercator (UTM) Zone 17N coordinates, was used to delineate the critical habitat unit.

(2) Environmental Systems Research Institute's (ESRI's) Aeronautical Reconnaissance Coverage Geographical Information System (ArcGIS) online basemap aerial imagery was used to cross-check the base layer map.

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

We propose to designate as critical habitat lands that we have determined are occupied at the time of listing (*i.e.*, currently occupied) and that contain one or more of the physical or biological features that are essential to support the life-history processes of the species.

We propose to designate one critical habitat unit based on the presence of the physical or biological features essential to the West Virginia spring salamander's life-history processes. The proposed unit contains all of the identified essential physical or biological features and supports multiple life-history processes.

The proposed critical habitat designation is defined by the map, as modified by any accompanying regulatory text, presented at the end of this document under Proposed Regulation Promulgation. We include

more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which the map is based available to the public on <https://www.regulations.gov> at Docket No. FWS-R5-ES-2023-0179 and on our internet site at <https://www.fws.gov/office/west-virginia-ecological-services>.

#### Proposed Critical Habitat Designation

We are proposing one unit as critical habitat for the West Virginia spring salamander. The critical habitat area we describe below constitutes our current best assessment of the area that meets the definition of critical habitat for West Virginia spring salamander. The area we propose as critical habitat is the General Davis Cave in Greenbrier County, West Virginia. We present a brief description of the unit, and reasons why it meets the definition of critical habitat for West Virginia spring salamander, below.

#### General Davis Cave Unit

The General Davis Cave consists of approximately 3.5 km (2.2 mi) of subterranean area in Greenbrier County, West Virginia. The General Davis Cave is considered occupied by the West Virginia spring salamander and represents the entire known range of the species. Based on our review, we concluded that the proposed unit is representative of the species' historical range, and it constitutes our best assessment of the area that meets the definition of critical habitat for the West Virginia spring salamander. The proposed unit is considered occupied year-round. The proposed unit contains the physical or biological features in the appropriate quantity and spatial arrangement essential to the conservation of the West Virginia spring salamander and to support multiple life-history processes for the species. Therefore, the conservation function of the unit is to provide for all life stages of the species.

The land above the proposed subterranean unit is entirely privately owned. Approximately 450 ac (182 ha) directly over General Davis Cave has been privately owned by one family for more than 200 years. Over this time, approximately 100 ac (40 ha) of the property has been used mainly as pasture for cattle grazing, with the rest being maintained as forest that has been subjected to occasional harvests (Powell 2021, pers. comm.). West Virginia DNR has developed an individual cave management plan for General Davis Cave, which provides broad guidelines for the conservation of the cave, and

includes protection of groundwater and surface water resources, the pursuit of general cave conservation actions, and restrictions on visitation to the cave (West Virginia DNR 2020, p. 81). The physical and biological features in this unit may require special management considerations or protection such as minimizing human access to the cave; following applicable management plans and/or laws for cave visitation and recreational use; and conducting restoration and debris cleanup around or near the General Davis Cave after major flood events. These activities should be conducted in a way that minimizes disturbance to West Virginia spring salamanders and their habitat.

#### Effects of Critical Habitat Designation

##### Section 7 Consultation

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

We published a final rule revising the definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

Compliance with the requirements of section 7(a)(2) is documented through our issuance of:

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

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

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define "reasonable

and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during formal consultation that:

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

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

(3) Are economically and technologically feasible, and

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

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

Regulations at 50 CFR 402.16 set forth requirements for Federal agencies to reinitiate consultation if any of the following four conditions occur: (1) the amount or extent of taking specified in the incidental take statement is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the identified action. The reinitiation requirement applies only to actions that remain subject to some discretionary Federal involvement or control. As provided in 50 CFR 402.16, the requirement to reinitiate consultations for new species listings or critical habitat designation does not apply to certain agency actions (*e.g.*, land management plans issued by the Bureau of Land Management in certain circumstances).

#### *Destruction or Adverse Modification of Critical Habitat*

The key factor related to the destruction or adverse modification determination is whether implementation of the proposed Federal action directly or indirectly alters the designated critical habitat in a way that appreciably diminishes the value of the critical habitat for the conservation of the listed species. As discussed above, the role of critical habitat is to support the physical or biological features essential to the conservation of a listed

species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may violate section 7(a)(2) of the Act by destroying or adversely modifying such habitat, or that may be affected by such designation.

Activities that we may, during a consultation under section 7(a)(2) of the Act, consider likely to destroy or adversely modify critical habitat include, but are not limited to, agricultural practices, forestry practices, and/or development/urbanization activities that alter the quality or quantity of water within the General Davis Cave stream. These activities, particularly in the absence of proper application of best management practices, could eliminate or reduce the quality or quantity of the General Davis Cave stream habitat by increasing stream sedimentation, introducing pesticides and herbicides, or changing the water flow pattern of the cave stream.

#### **Exemptions**

##### *Application of Section 4(a)(3) of the Act*

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DoD), or designated for its use, that are subject to an integrated natural resources management plan (INRMP) prepared under section 101 of the Sikes Act Improvement Act of 1997 (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation. No DoD lands with a completed INRMP are within the proposed critical habitat designation.

#### **Consideration of Impacts Under Section 4(b)(2) of the Act**

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. Exclusion decisions are governed by the regulations at 50 CFR 424.19 and the

Policy Regarding Implementation of Section 4(b)(2) of the Endangered Species Act (hereafter, the “2016 Policy”); 81 FR 7226, February 11, 2016), both of which were developed jointly with the National Marine Fisheries Service (NMFS). We also refer to a 2008 Department of the Interior Solicitor’s opinion entitled, “The Secretary’s Authority to Exclude Areas from a Critical Habitat Designation under Section 4(b)(2) of the Endangered Species Act” (M–37016).

In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise discretion to exclude the area only if such exclusion would not result in the extinction of the species. In making the determination to exclude a particular area, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor. In our final rules, we explain any decision to exclude areas, as well as decisions not to exclude, to make clear the rational basis for our decision. We describe below the process that we use for taking into consideration each category of impacts and any initial analyses of the relevant impacts.

#### *Consideration of Economic Impacts*

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation of critical habitat. To assess the probable economic impacts of a designation, we must first evaluate specific land uses or activities and projects that may occur in the area of the critical habitat. We then must evaluate the impacts that a specific critical habitat designation may have on restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas proposed. We then identify which conservation efforts may be the result of the species being listed under the Act versus those attributed solely to the designation of critical habitat for this particular species. The probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios both “with critical habitat” and “without critical habitat.”

The “without critical habitat” scenario represents the baseline for the analysis, which includes the existing

regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (e.g., under the Federal listing as well as other Federal, State, and local regulations). Therefore, the baseline represents the costs of all efforts attributable to the listing of the species under the Act (*i.e.*, conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The “with critical habitat” scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts would not be expected without the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These are the costs we use when evaluating the benefits of inclusion and exclusion of particular areas from the final designation of critical habitat should we choose to conduct a discretionary section 4(b)(2) exclusion analysis.

Executive Order (E.O.) 14094 supplements and reaffirms E.O. 12866 and E.O. 13563 and directs Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities. Section 3(f) of E.O. 12866 identifies four criteria when a regulation is considered a “significant regulatory action” and requires additional analysis, review, and approval if met. The criterion relevant here is whether the designation of critical habitat may have an economic effect of \$200 million or more in any given year (section 3(f)(1), as amended by E.O. 14094). Therefore, our consideration of economic impacts uses a screening analysis to assess whether a designation of critical habitat for the West Virginia spring salamander is likely to exceed the economically significant threshold.

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was

then used to develop a screening analysis of the probable effects of the designation of critical habitat for the West Virginia spring salamander (IEC 2023, entire). We began by conducting a screening analysis of the proposed designation of critical habitat in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographical areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (*i.e.*, absent critical habitat designation) and includes any probable incremental economic impacts where land and water use may already be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species.

Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. The presence of the listed species in occupied areas of critical habitat means that any destruction or adverse modification of those areas is also likely to jeopardize the continued existence of the species. Therefore, designating occupied areas as critical habitat typically causes little if any incremental impacts above and beyond the impacts of listing the species. As a result, we generally focus the screening analysis on areas of unoccupied critical habitat (unoccupied units or unoccupied areas within occupied units). Overall, the screening analysis assesses whether designation of critical habitat is likely to result in any additional management or conservation efforts that may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM constitute what we consider to be our draft economic analysis (DEA) of the proposed critical habitat designation for the West Virginia spring salamander; our DEA is summarized in the narrative below.

As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the West Virginia spring salamander, first we identified, in the IEM dated July 25, 2023, probable incremental

economic impacts associated with agricultural activities. Additionally, we considered whether the activities have any Federal (*e.g.*, U.S. Department of Agriculture) involvement. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. If we list the species, in areas where the West Virginia spring salamander is present, Federal agencies would be required to consult with the Service under section 7 of the Act on activities they authorize, fund, or carry out that may affect the species. If, when we list the species, we also finalize this proposed critical habitat designation, Federal agencies would be required to consider the effects of their actions on the designated habitat, and if the Federal action may affect critical habitat, our consultations would include an evaluation of measures to avoid the destruction or adverse modification of critical habitat.

In our IEM, we attempted to clarify the distinction between the effects that would result from the species being listed and those attributable to the critical habitat designation (*i.e.*, difference between the jeopardy and adverse modification standards) for the West Virginia spring salamander's critical habitat. Because the designation of critical habitat for the West Virginia spring salamander is being proposed concurrently with the listing, it has been our experience that it is more difficult to discern which conservation efforts are attributable to the species being listed and those which will result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would likely adversely affect the essential physical or biological features of occupied critical habitat are also likely to adversely affect the species itself. The IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this proposed designation of critical habitat.

The proposed critical habitat designation for the West Virginia spring salamander is currently occupied by the

species and totals approximately 3.5 km (2.2 miles) of subterranean cave habitat, with the surface area above the cave entirely privately owned lands. It is unlikely that there will be economic costs related to implementing this proposed critical habitat designation through section 7 of the Act given the absence of activities that may trigger section 7 consultation. This finding is based on a lack of historical consultations for other species in or near the proposed critical habitat unit, and no future project activities reported by Federal agencies. Therefore, the rule is unlikely to meet the threshold for an economically significant rule as defined in E.O. 14094.

We are soliciting data and comments from the public on the DEA discussed above. During the development of a final designation, we will consider the information presented in the DEA and any additional information on economic impacts we receive during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under the authority of section 4(b)(2) of the Act, our implementing regulations at 50 CFR 424.19, and the 2016 Policy. We may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of this species.

#### *Consideration of National Security Impacts*

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (e.g., a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), then national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of “critical habitat.” However, the Service must still consider impacts on national security, including homeland security, on those lands or areas not covered by section 4(a)(3)(B)(i) because section 4(b)(2) requires the Service to consider those impacts whenever it designates critical habitat. Accordingly, if DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns, or we have otherwise identified national-security or homeland-security impacts from designating particular areas as critical

habitat, we generally have reason to consider excluding those areas.

However, we cannot automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, we must conduct an exclusion analysis if the Federal requester provides information, including a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If we conduct an exclusion analysis because the agency provides a reasonably specific justification or because we decide to exercise the discretion to conduct an exclusion analysis, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary section 4(b)(2) exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

In preparing this proposal, we have determined that the lands within the proposed designation of critical habitat for the West Virginia spring salamander are not owned or managed by the DoD or DHS, and, therefore, we anticipate no impact on national security or homeland security.

#### *Consideration of Other Relevant Impacts*

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security discussed above. To identify other relevant impacts that may affect the exclusion analysis, we consider a number of factors, including whether there are

permitted conservation plans covering the species in the area—such as HCPs, safe harbor agreements, or candidate conservation agreements with assurances—or whether there are non-permitted conservation agreements and partnerships that may be impaired by designation of, or exclusion from, critical habitat. In addition, we look at whether Tribal conservation plans or partnerships, Tribal resources, or government-to-government relationships of the United States with Tribal entities may be affected by the designation. We also consider any State, local, social, or other impacts that might occur because of the designation.

#### *Summary of Exclusions Considered Under Section 4(b)(2) of the Act*

In preparing this proposal, we have determined that no HCPs or other management plans for the West Virginia spring salamander currently exist, and the proposed designation does not include any Tribal lands or trust resources or any lands for which designation would have any economic or national security impacts. Therefore, we anticipate no impact on Tribal lands, partnerships, or HCPs from this proposed critical habitat designation and thus, as described above, we are not considering excluding any particular areas on the basis of the presence of conservation agreements or impacts to trust resources.

However, if through the public comment period we receive information that we determine indicates that there are economic, national security, or other relevant impacts from designating particular areas as critical habitat, then as part of developing the final designation of critical habitat, we will evaluate that information and may conduct a discretionary exclusion analysis to determine whether to exclude those areas under authority of section 4(b)(2) of the Act and our implementing regulations at 50 CFR 424.19. If we receive a request for exclusion of a particular area and after evaluation of supporting information we do not exclude, we will fully explain our decision in the final rule for this action. (Please see **ADDRESSES**, above, for instructions on how to submit comments.)

#### **Required Determinations**

##### *Clarity of the Rule*

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

- (1) Be logically organized;

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

(3) Use clear language rather than jargon;

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

(5) Use lists and tables wherever possible.

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

*Regulatory Planning and Review (Executive Orders 12866, 13563, and 14094)*

Executive Order (E.O.) 14094 reaffirms the principles of E.O. 12866 and E.O. 13563 and states that regulatory analysis should facilitate agency efforts to develop regulations that serve the public interest, advance statutory objectives, and are consistent with E.O. 12866, E.O. 13563, and the Presidential Memorandum of January 20, 2021 (Modernizing Regulatory Review). Regulatory analysis, as practicable and appropriate, shall recognize distributive impacts and equity, to the extent permitted by law. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this proposed rule in a manner consistent with these requirements.

E.O. 12866, as reaffirmed by E.O. 13563 and E.O. 14094, provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) will review all significant rules. OIRA has determined that this rule is not significant.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.*, small businesses, small organizations, and small government

jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

Under the RFA, as amended, and as understood in light of recent court decisions, Federal agencies are required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies would be directly regulated if we adopt the proposed critical habitat

designation. The RFA does not require evaluation of the potential impacts to entities not directly regulated.

Moreover, Federal agencies are not small entities. Therefore, because no small entities would be directly regulated by this rulemaking, the Service certifies that, if made final as proposed, the proposed critical habitat designation will not have a significant economic impact on a substantial number of small entities.

In summary, we have considered whether the proposed designation would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if made final, the proposed critical habitat designation would not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare statements of energy effects to the extent permitted by law when undertaking actions identified as significant energy actions (66 FR 28355; May 22, 2001). E.O. 13211 defines a “significant energy action” as an action that (i) is a significant regulatory action under E.O. 12866 (or any successor order, including most recently E.O. 14094 (88 FR 21879; Apr. 11, 2023)); and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy. This proposed rule is not a significant regulatory action under E.O. 12866 or E.O. 14094. Therefore, this action is not a significant energy action, and there is no requirement to prepare a statement of energy effects for this action.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following finding:

(1) This proposed rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)–(7). “Federal intergovernmental mandate” includes a regulation that

“would impose an enforceable duty upon State, local, or Tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or Tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions are not likely to destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because it will not produce a Federal mandate of \$100 million or more (adjusted annually for inflation) in any year, that is, it is not a “significant regulatory action” under

the Unfunded Mandates Reform Act. Therefore, a small government agency plan is not required.

#### *Takings—Executive Order 12630*

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the West Virginia spring salamander in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership or establish any closures or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed for the proposed designation of critical habitat for West Virginia spring salamander, and it concludes that, if adopted, this designation of critical habitat does not pose significant takings implications for lands within or affected by the designation.

#### *Federalism—Executive Order 13132*

In accordance with E.O. 13132 (Federalism), this proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the proposed rule does not have substantial direct effects either on the States, or on the relationship between the Federal Government and the States, or on the distribution of powers and responsibilities among the various levels of government. The proposed designation may have some benefit to

these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical or biological features of the habitat necessary for the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist State and local governments in long-range planning because they no longer have to wait for case-by-case section 7 consultations to occur.

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) of the Act would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

#### *Civil Justice Reform—Executive Order 12988*

In accordance with E.O. 12988 (Civil Justice Reform), the Office of the Solicitor has determined that this proposed rule would not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the physical or biological features essential to the conservation of the species. The proposed area of critical habitat is presented on a map, and the proposed rule provides several options for the interested public to obtain more detailed location information, if desired.

#### *Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain information collection requirements, and a submission to OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) is not required. We may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB control number.

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

Regulations adopted pursuant to section 4(a) of the Act are exempt from

the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) and do not require an environmental analysis under NEPA. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This includes listing, delisting, and reclassification rules, as well as critical habitat designations. In a line of cases starting with *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), the courts have upheld this position.

*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), E.O. 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 federally recognized Tribes on a government-to-government basis. In accordance with Secretaries’ 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 determined that no Tribal lands fall within the boundaries of the proposed critical habitat designation for the West Virginia spring salamander, so no Tribal lands would be affected by the proposed designation.

**References Cited**

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

**Authors**

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service’s Species Assessment Team and the West Virginia 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.

**Proposed Regulation Promulgation**

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

**PART 17—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. In § 17.11, in paragraph (h), amend the List of Endangered and Threatened Wildlife by adding an entry for “Salamander, West Virginia spring” in alphabetical order under AMPHIBIANS to read as follows:

**§ 17.11 Endangered and threatened wildlife.**

\* \* \* \* \*  
(h) \* \* \*

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
<b>Amphibians</b>				
Salamander, West Virginia spring.	<i>Gyrinophilus subterraneus</i> .	Wherever found .....	E	[ <b>Federal Register</b> citation when published as a final rule]; 50 CFR 17.95(d). <sup>CH</sup>
*	*	*	*	*

■ 3. In § 17.95, amend paragraph (d) by adding an entry for “West Virginia Spring Salamander (*Gyrinophilus subterraneus*)” after the entry for “San Marcos Salamander (*Eurycea nana*),” to read as follows:

**§ 17.95 Critical habitat—fish and wildlife.**

\* \* \* \* \*  
(d) *Amphibians*.  
\* \* \* \* \*

**West Virginia Spring Salamander (*Gyrinophilus subterraneus*)**

(1) The critical habitat unit is depicted for Greenbrier County, West Virginia, on the map in this entry.  
(2) Within these areas, the physical or biological features essential to the conservation of the West Virginia spring salamander consist of the following components in the General Davis Cave in Greenbrier County, West Virginia:

- (i) Cave habitat, including the cave stream and banks, interstitial spaces, rocks and other objects suitable for use as cover and nest sites, and drip and rimstone pools away from the main cave stream (to provide protected nest site habitats);
  - (ii) Sufficient amounts and regular replenishment of allochthonous (organic material from outside the cave) inputs to support the invertebrate prey base in the cave; and
  - (iii) Water conditions in the cave stream that are cool; are well-oxygenated with a neutral pH; have no evidence of excessive sediments, nutrients, pesticides, or herbicides; and have a cave stream flow and pattern consistent with current seasonal flows.
- (3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they

are located existing within the legal boundaries on the effective date of the final rule.

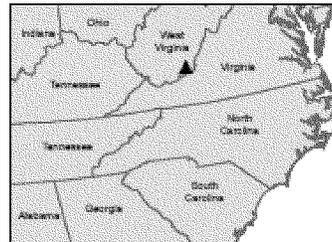
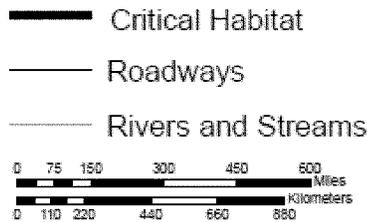
(4) Data layers defining map units were created on a base of U.S. Geological Survey digital ortho-photo quarter-quadrangles, and the critical habitat unit was then mapped using Universal Transverse Mercator (UTM) Zone 17N coordinates. The map in this entry, as modified by any accompanying regulatory text, establishes the boundaries of the critical habitat designation. The coordinates or plot points or both on which the map is based are available to the public at the Service’s internet site at <https://www.fws.gov/office/west-virginia-ecological-services>, at <https://www.regulations.gov> at Docket No. FWS–R5–ES–2023–0179, and at the field office responsible for this

designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) General Davis Cave Unit; Greenbrier County, West Virginia.  
(i) The General Davis Cave Unit consists of 3.5 kilometers (2.2 miles) in Greenbrier County, West Virginia, and is composed entirely of private lands.

(ii) Unit map follows:  
Figure 1 to West Virginia Spring Salamander (*Gyrinophilus subterraneus*) paragraph (5)(ii)

Critical Habitat for West Virginia Spring Salamander (*Gyrinophilus subterraneus*)  
General Davis Cave Unit  
Greenbrier County, West Virginia



\* \* \* \* \*

**Martha Williams,**  
 Director, U.S. Fish and Wildlife Service.  
 [FR Doc. 2023-27741 Filed 12-19-23; 8:45 am]  
 BILLING CODE 4333-15-P

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

[FF09E21000 FXES1111090FEDR245]

**Endangered and Threatened Wildlife and Plants; Ten Species Not Warranted for Listing as Endangered or Threatened Species**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notification of findings.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce findings that 10 species are not warranted for listing as endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). After a thorough review of the best available scientific and commercial information, we find that it is not warranted at this time to list Hupp’s Hill cave beetle (*Pseudanophthalmus parvicollis*), Hubbard’s cave beetle (*Pseudanophthalmus hubbardi*), overlooked cave beetle (*Pseudanophthalmus praetermissus*), Shenandoah cave beetle (*Pseudanophthalmus limicola*), Little Kennedy cave beetle

(*Pseudanophthalmus cordicollis*), Holsinger’s cave beetle (*Pseudanophthalmus holsingeri*), Hubricht’s cave beetle (*Pseudanophthalmus hubrichti*), silken cave beetle (*Pseudanophthalmus sericus*), Pinaleño talussnail (*Sonorella grahamensis*), and San Xavier talussnail (*Sonorella eremita*). However, we ask the public to submit to us at any time any new information relevant to the status of any of the species mentioned above or their habitats.

**DATES:** The findings in this document were made on December 20, 2023.

**ADDRESSES:** Detailed descriptions of the bases for these findings are available on the internet at <https://www.regulations.gov> under the following docket numbers:

Species	Docket No.
Holsinger’s cave beetle .....	FWS-R5-ES-2023-0233
Hubbard’s cave beetle .....	FWS-R5-ES-2023-0235
Hubricht’s cave beetle .....	FWS-R5-ES-2023-0236
Hupp’s Hill cave beetle .....	FWS-R5-ES-2023-0237
Little Kennedy cave beetle .....	FWS-R5-ES-2023-0238
Overlooked cave beetle .....	FWS-R5-ES-2023-0239
Pinaleño talussnail .....	FWS-R2-ES-2023-0240
San Xavier talussnail .....	FWS-R2-ES-2023-0241
Shenandoah cave beetle .....	FWS-R5-ES-2023-0242
Silken cave beetle .....	FWS-R5-ES-2023-0243

Those descriptions are also available by contacting the appropriate person as specified under **FOR FURTHER INFORMATION CONTACT**. Please submit any

new information, materials, comments, or questions concerning this finding to the appropriate person, as specified

under **FOR FURTHER INFORMATION CONTACT**.

**FOR FURTHER INFORMATION CONTACT:**

Species	Contact Information
Hupp’s Hill cave beetle, Hubbard’s cave beetle, overlooked cave beetle, Shenandoah cave beetle, Little Kennedy cave beetle, Holsinger’s cave beetle, Hubricht’s cave beetle, and silken cave beetle.	Cindy Schulz, Field Office Supervisor, Virginia Ecological Services Field Office, 804-654-1842, <a href="mailto:cindy_schulz@fws.gov">cindy_schulz@fws.gov</a> .
Pinaleño talussnail and San Xavier talussnail .....	Heather Whitlaw, Arizona Ecological Services Field Office Supervisor, 806-773-5932, <a href="mailto:heather_whitlaw@fws.gov">heather_whitlaw@fws.gov</a> .

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: Background**

Under section 4(b)(3)(B) of the Act (16 U.S.C. 1531 *et seq.*), we are required to make a finding on whether or not a petitioned action is warranted within 12 months after receiving any petition that we have determined contains

substantial scientific or commercial information indicating that the petitioned action may be warranted (“12-month finding”). We must make a finding that the petitioned action is: (1) Not warranted; (2) warranted; or (3) warranted, but precluded by other listing activity. We must publish a notification of these 12-month findings in the **Federal Register**.

**Summary of Information Pertaining to the Five Factors**

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations at part 424 of title 50 of the Code of Federal Regulations (50 CFR part 424) set forth procedures for adding species to, removing species from, or

reclassifying species on the Lists of Endangered and Threatened Wildlife and Plants (Lists). The Act defines “species” as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. The Act defines “endangered species” as any species that is in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)), and “threatened species” as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)). Under section 4(a)(1) of the Act, a species may be determined to be an endangered