

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
CRUSTACEANS				
*	*	*	*	*
Crayfish, Miami cave .....	<i>Procambarus milleri</i> .....	Wherever found .....	T	[Federal Register citation when published as a final rule]; 50 CFR 17.46(e); <sup>4d</sup>
*	*	*	*	*

■ 3. Amend § 17.46 by adding paragraph (e) to read as follows:

**§ 17.46 Special rules—crustaceans.**

\* \* \* \* \*

(e) Miami cave crish (*Procambarus milleri*).

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

- (i) Import or export, as set forth at § 17.21(b) for endangered wildlife.
- (ii) Take, as set forth at § 17.21(c)(1) for endangered wildlife.
- (iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1) for endangered wildlife.
- (iv) Interstate or foreign commerce in the course of a commercial activity, as set forth at § 17.21(e) for endangered wildlife.

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

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

- (i) Conduct activities as authorized by a permit under § 17.32.
- (ii) Take, as set forth at § 17.21(c)(2) through (4) for endangered wildlife.
- (iii) Take, as set forth at § 17.31(b).
- (iv) Possess and engage in other acts with unlawfully taken wildlife, as set forth at § 17.21(d)(2) for endangered wildlife.

(v) Take incidental to an otherwise lawful activity caused by:

(A) Activities that will prevent further saltwater intrusion into the Biscayne Aquifer, such as coastal resiliency projects and canal maintenance or construction that prevent backflow of salt water; or

(B) Water management activities or coastal wetland restoration projects that improve freshwater and estuarine habitats; improve salinity distribution and reestablish productive nursery habitat along the shoreline; restore the quantity, quality, timing, and distribution of freshwater to Biscayne Bay and Biscayne National Park; restore the spatial extent of natural coastal glades habitat; or enhance natural infiltration into the Biscayne Aquifer.

**Martha Williams,**

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

[FR Doc. 2023–20293 Filed 9–19–23; 8:45 am]

**BILLING CODE 4333–15–P**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

[FF09E21000 FXES1111090FEDR 234]

**Endangered and Threatened Wildlife and Plants; One Species Not Warranted for Delisting and Six 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 one species is not warranted for delisting and six 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 delist the southern sea otter (*Enhydra lutris nereis*). We also find that is not warranted at this time to list the

Cascades frog (*Rana cascadae*), plains spotted skunk (*Spilogale interrupta*, formerly recognized as one of three subspecies of eastern spotted skunk (*Spilogale putorius interrupta*)), sicklefin chub (*Macrhybopsis meeki*), sturgeon chub (*Macrhybopsis gelida*), Tennessee cave salamander (*Gyrinophilus palleucus*), and Yazoo crayfish (*Faxonius hartfieldi*, formerly *Orconectes hartfieldi*). 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 September 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.
Cascades frog .....	FWS–R1–ES–2023–0127.
Plains spotted skunk	FWS–R3–ES–2023–0128.
Sicklefin chub .....	FWS–R6–ES–2023–0130.
Southern sea otter ....	FWS–R8–ES–2023–0132.
Sturgeon chub .....	FWS–R6–ES–2023–0131.
Tennessee cave salamander.	FWS–R4–ES–2023–0133.
Yazoo crayfish .....	FWS–R4–ES–2023–0134.

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
Cascades frog .....	Jeff Dillon, Endangered Species Division Manager, Oregon Fish and Wildlife Office, <a href="mailto:jeffrey_dillon@fws.gov">jeffrey_dillon@fws.gov</a> , 503–231–6179.
Plains spotted skunk .....	John Weber, Field Supervisor, Missouri Field Office, <a href="mailto:John_S_Weber@fws.gov">John_S_Weber@fws.gov</a> , 573–825–6048.

Species	Contact information
Sicklefin chub and sturgeon chub ..	Amity Bass, Field Supervisor, North and South Dakota Ecological Services, <a href="mailto:amity_bass@fws.gov">amity_bass@fws.gov</a> , 605–222–0228.
Southern sea otter .....	Steve Henry, Field Supervisor, Ventura Fish and Wildlife Office, <a href="mailto:steve_henry@fws.gov">steve_henry@fws.gov</a> , 805–644–1766.
Tennessee cave salamander .....	Dan Elbert, Field Supervisor, Tennessee FO, <a href="mailto:daniel_elbert@fws.gov">daniel_elbert@fws.gov</a> , 571–461–8964.
Yazoo crayfish .....	James Austin, Field Supervisor, Mississippi Ecological Field Office, 601–321–1129, <a href="mailto:james_austin@fws.gov">james_austin@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 (hereafter a “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 (16 U.S.C. 1532(16)). 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

species or a threatened species because of any of the following 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.

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

We use the term “threat” to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term “threat” includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term “threat” may encompass—either together or separately—the source of the action or condition or the action or condition itself. However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an “endangered species” or a “threatened species.” In determining whether a species meets either definition, we must evaluate all identified threats by considering the expected response by the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory

mechanisms or conservation efforts. The Secretary determines whether the species meets the Act’s 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 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’ 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.

In conducting our evaluation of the five factors provided in section 4(a)(1) of the Act to determine whether the Cascades frog, plains spotted skunk, sicklefin chub, southern sea otter, sturgeon chub, Tennessee cave salamander, and Yazoo crayfish meet the Act’s definition of “endangered species” or “threatened species,” we considered and thoroughly evaluated the best scientific and commercial information available regarding the past, present, and future stressors and threats. We reviewed the petitions, information available in our files, and other available published and unpublished

information for all these species. Our evaluation may include information from recognized experts; Federal, State, and Tribal governments; academic institutions; foreign governments; private entities; and other members of the public.

In accordance with the regulations at 50 CFR 424.14(h)(2)(i), this document announces the not-warranted findings on petitions to delist one species and list six species. We have also elected to include brief summaries of the analyses on which these findings are based. We provide the full analyses, including the reasons and data on which the findings are based, in the decisional file for each of the seven actions included in this document. The following is a description of the documents containing these analyses:

The species assessment forms for Cascades frog, plains spotted skunk, sicklefin chub, sturgeon chub, Tennessee cave salamander, and Yazoo crayfish contain more detailed biological information, a thorough analysis of the listing factors, a list of literature cited, and an explanation of why we determined that each species does not meet the Act's definition of an "endangered species" or a "threatened species." The species assessment form for the southern sea otter contains more detailed biological information, a thorough analysis of the listing factors, a list of literature cited, and an explanation of why we determined that the species continues to meet the Act's definition of a "threatened" species. To inform our status reviews, we completed species status assessment (SSA) reports for the Cascades frog, plains spotted skunk, sicklefin chub, southern sea otter, sturgeon chub, Tennessee cave salamander, and Yazoo crayfish. Each SSA report contains a thorough review of the taxonomy, life history, ecology, current status, and projected future status for each species. This supporting information can be found on the internet at <https://www.regulations.gov> under the appropriate docket number (see **ADDRESSES**, above).

#### *Cascades Frog*

##### Previous Federal Actions

On July 11, 2012, we received a petition from the Center for Biological Diversity to list 53 amphibian and reptile species, including Cascades frog (*Rana cascadae*), as an endangered or threatened species under the Act. On July 1, 2015, we published a 90-day finding (80 FR 37568) that the petition contained substantial information indicating listing may be warranted for

the species. This document constitutes our 12-month finding on the July 11, 2012, petition to list Cascades frog under the Act.

##### Summary of Findings

The Cascades frog is a medium-sized frog typically less than 71 millimeters (mm) (2.8 inches (in)) in length; males are smaller than females. The Cascades frog is greenish brown with variation among frogs in spot appearance. The species is generally associated with middle to high elevations (approximately 400 to 2,500 meters (m) (1,312 to 8,202 feet (ft))); its current and historical range extends along the Cascade Mountain Range from near the United States-Canada border south through Washington and Oregon to California just south of Lassen Peak. The species can also be found within the Klamath Mountains of California and the Olympic Mountains in Washington. The species may be extirpated within Lassen Volcanic National Park.

The Cascades frog is primarily aquatic, using lakes, ponds, wet meadows, and streams, where they are often found along shorelines or on emergent rocks or logs. It uses habitats that are maintained by cold winters with deep snowpack and spring snowmelt. A diversity of aquatic features is needed to support all life stages, breeding, foraging, and dispersal, and to provide areas of refuge from predators. Precipitation is important in supporting aquatic habitats and movement of individuals across the landscape. The Cascades frog overwinters in aerobic sediments at the bottom of aquatic features that have stable thermal conditions and do not completely freeze over.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Cascades frog, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these threats. The primary threats affecting the Cascades frog's biological status include climate change, the chytrid fungus *Batrachochytrium dendrobatidis* (*Bd*), and nonnative trout.

We separated the species' range into five representative units (Olympics, Washington Cascades, Oregon Cascades, California North, and California South) to analyze current and future condition. Our current condition analysis finds that resiliency of the Cascades frog is variable across the range, with all representative units having conditions to support healthy populations. However, the California units are less

resilient than those in Oregon and Washington. The distribution of healthy (*i.e.*, good to fair resiliency) populations of the species across a broad geographic range ensures that catastrophic events such as volcanic eruptions, presence of *Bd*, and wildfire are not likely to cause risk of Cascades frog extinction. Further, the Cascades frog continues to occupy historical sites throughout all representative units, and factors such as habitat, distribution of occurrences, connectivity, and natural geological and elevational gaps in the range all contribute to the species' overall adaptive capacity. Therefore, we conclude that Cascades frog is not currently in danger of extinction throughout all of its range and does not meet the Act's definition of an endangered species.

In considering the foreseeable future as it relates to the status of the Cascades frog, we considered the relevant risk factors (threats/stressors) acting on the species and whether we could draw reliable predictions about the species' response to these factors. Our analysis in the SSA report of future scenarios over a an approximately 50-year timeframe encompasses the best available information for future projections of habitat suitability based on maximum temperature, minimum temperature, precipitation, snow water equivalent, soil moisture, and potential evapotranspiration under two different climate change futures (representative concentration pathways (RCP) 4.5 and 8.5). We determined that this approximately 50-year timeframe enabled us to consider the threats/stressors acting on the species and draw reliable predictions about the species' response to these factors.

Based on the 3Rs (resiliency, representation, and redundancy) analyzed in the SSA report, the Cascades frog is projected to maintain multiple resilient populations, based on adequate suitable habitat availability, across the landscape for approximately 50 years into the future. The species is expected to withstand both stochastic and catastrophic events and have sufficient adaptive capacity to endure future climate change. Thus, after assessing the best available information, we conclude that Cascades frog is not likely to become endangered within the foreseeable future throughout all of its range.

Having determined that the Cascades frog is not in danger of extinction or likely to become so in the foreseeable future throughout all of its range, we considered whether it may be in danger of extinction or likely to become so in the foreseeable future in a significant

portion of its range—that is, whether there is any portion of the species' range for which it is true that both (1) the portion is significant; and (2) the species is in danger of extinction now or likely to become so in the foreseeable future in that portion. Depending on the case, it might be more efficient for us to address the “significance” question or the “status” question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

We identified the Olympics and California South representative units as portions that might have a different status than the species rangewide. We examined the following threats: climate change, *Bd*, and nonnative trout, including cumulative effects.

The Olympics representative unit has fewer analysis units (AUs) (6) than most of the other representative units. However, the largest AU (unit 15) comprises nearly the entire Olympics representative unit and contains the majority of the Cascades frogs in that unit. Currently, this representative unit has populations with sufficient resiliency to withstand stochastic events, and the well-distributed largest population, which can be found across nearly the entire representation unit with good resiliency, is likely to withstand catastrophic events. We, therefore, determine that the Cascades frog is not in danger of extinction in the Olympics part of the range.

The Olympics have more snow-fed aquatic systems, indicating that they could be more sensitive to climate change impacts than habitat in other parts of the Cascades frog's range. However, these climate effects depend on the kind of wetland habitat affected, the distribution of wetland types, and the degree of change in hydrologic patterns under different future climates. We do not know explicit linkages of climate effects to specific Cascades frog habitat. Despite this caveat, our future conditions analysis indicates that the largest AU (unit 15), which covers the majority of the representation unit, will maintain fair habitat suitability across all future scenarios. Further, there does not appear to be widespread adult mortality consistent with *Bd* in the Olympics. While nonnative trout are in wetlands of the Washington Olympics and will likely continue to be a stressor, there are areas within the Olympics range (e.g., national parks) where this stressor is not likely to exacerbate any projected declines. Based on the projected future conditions, we

conclude that the Cascades frog is not in danger of extinction within the foreseeable future in the Olympics portion of its range.

Populations within the California South representative unit have experienced declines, local extirpations, and low population viability due in part to *Bd*, droughts, nonnative trout stocking, and lack of connectivity to other habitat. Despite declines in the California South part of the range, 75 percent of the AUs are currently in fair condition, indicative of relatively healthy populations. These fair condition AUs are distributed throughout the representative unit, thus providing redundancy to both stochastic and catastrophic events. We, therefore, determine that the Cascades frog is not in danger of extinction in the California South part of the range.

Our future conditions analysis shows that all AUs within the California South representation unit either maintain fair habitat condition or improve to good habitat condition approximately 50 years into the future. Although habitat suitability is predicted to increase, the potential for the Cascades frog to colonize suitable habitat is dependent on the health of source populations, connectivity, and habitat features to support the species across all life stages, and there is some uncertainty as to the extent that this could happen in the future. The projected future distribution of fair/good condition AUs throughout the California South unit provide redundancy to stochastic and catastrophic events. Based on this assessment, we conclude that the Cascades frog is not in danger of extinction within the foreseeable future in the California South portion of its range.

Because we determined that there are no portions within the species range that are currently in danger of extinction or likely to become so in the foreseeable future, we do not need to consider whether any portion of the range is significant. Nonetheless, we did undertake this further step for California South as a part of our evaluation of significant portion of the range. Considerations for significance can include whether the portion constitutes a large geographic area relative to the rest of the range, whether the portion constitutes habitat of high quality relative to the remaining portions of the range, or whether the portion constitutes high or unique value habitat for the species. California South is not a large representative unit relative to the rest of the range. It does not have unique or high value habitat nor high quality habitat relative to any other habitat

throughout the range, and while the Lassen Mountains are different from other mountains in the range, they provide similar habitat features for the frogs, and thus they do not result in a meaningful difference in the ecology of the species. For these reasons, the California South portion is not considered significant. Therefore, the California South portion is not a significant portion of the range.

Thus, after assessing the best available information, we conclude that the Cascades frog is not in danger of extinction or likely to become in danger of extinction within the foreseeable future throughout all of its range or in any significant portion of its range. Therefore, we find that listing the Cascades frog as an endangered species or threatened species under the Act is not warranted.

A detailed discussion of the basis for this finding can be found in the Cascades frog species assessment form and other supporting documents on <https://www.regulations.gov> under Docket No. FWS-R1-ES-2023-0127 (see ADDRESSES, above).

#### Peer Review

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994) and the Service's August 22, 2016, Director's Memo on the Peer Review Process, we solicited independent scientific reviews of the information contained in the Cascades frog SSA report. The Service sent the SSA report to three independent peer reviewers and received two responses. Results of this structured peer review process can be found at <https://www.regulations.gov>. We incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for this finding.

#### Plains Spotted Skunk

##### Previous Federal Actions

On July 18, 2011, we received a petition from Mr. David Wade and Dr. Thomas Alton, requesting that multiple grassland thicket species or subspecies be listed as endangered or threatened under the Act, including the plains spotted skunk (*Spilogale interrupta*, formerly recognized as one of three subspecies of eastern spotted skunk (*Spilogale putorius interrupta*)). On December 4, 2012, we published a 90-day finding in the **Federal Register** (77 FR 71759) concluding that the petition presented substantial scientific or commercial information indicating that listing the plains spotted skunk may be warranted. This document constitutes our 12-month finding on the July 18,

2011, petition to list the plains spotted skunk under the Act.

#### Summary of Finding

The plains spotted skunk is a small mammal in the weasel family, most notable for its vivid black and white fur markings, that occurs in a wide range of habitat types across the Great Plains region of the contiguous United States. States with current occurrences (observed from 2000 to the present) include Arkansas, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming.

This generalist species exhibits relatively high adaptability related to its diet and foraging, habitat use, and activity patterns. The habitat elements that we identified as important to plains spotted skunk individuals at each life stage include freshwater of sufficient quantity, food availability, den availability, and habitat complexity that provides protective cover. Plains spotted skunks are opportunistic omnivores, whose diet varies across seasons and habitats along with the availability and abundance of food items. Adult plains spotted skunks are typically solitary with the exception of mating pairs, females with dependent young, and adults denning during cold weather for thermoregulation. Despite their solitary nature, plains spotted skunks show no signs of territoriality.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the plains spotted skunk, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these threats. The primary threats affecting the plains spotted skunk's biological status include habitat loss and fragmentation due to agricultural and urban development, and climate change. Impacts from climate change include exacerbation of drought conditions and a decrease of available habitat along the Gulf Coast due to sea level rise. We also examined a number of other factors, including infectious pathogens, pesticides, invasive species, predation, competition, overexploitation, human-wildlife conflict, and direct mortality from other sources, but these factors did not rise to such a level that affected the species as a whole.

To assess the current condition of plains spotted skunks we analyzed one demographic factor (percent of counties with current location) and two habitat factors (habitat availability and freshwater availability) across six

population analysis units that cover the current range of the species. The analysis units cover an extensive range with a wide diversity of habitats distributed across diverse environmental conditions. All analysis units had high habitat availability and at least moderate freshwater availability. The demographic factor scores ranged from low (two units) to moderate (four units). Largely due to their extensive range, plains spotted skunks have a high redundancy and are at a low risk for experiencing rangewide negative impacts from a catastrophic event at a given point in time. Similarly, the species demonstrates great adaptive capacity to adjust to environmental change and, thus, currently exhibits high representation.

We evaluated two scenarios to characterize the full range of uncertainty regarding plausible futures for the plains spotted skunk within a 30-year timeframe. Resiliency of the six analysis units was assessed under each scenario. Scenario 1 assumes intermediate to low sea level rise, RCP 4.5 emissions, and land use changes at 2050 from urbanization and agriculture. Scenario 2 assumes high sea level rise, RCP 8.5 emissions, and the same land use change projections as scenario 1. Considering both scenarios, we projected the effect of the scenarios on two habitat factors important to resiliency in the future: habitat availability and freshwater availability. Under both future scenarios, we projected some reduction in freshwater availability across the range. Under scenario 1, we projected one unit scoring low (unit 1) for freshwater availability, four scoring moderate (units 2–5), and one unit remaining high (unit 6). Under scenario 2, we projected two units scoring low for freshwater availability (units 1 and 3), one scoring moderate (unit 2), and three units remaining high (units 4–6). Under both scenarios, we projected only minimal reduction in current habitat availability across the range. Under both scenarios, we project climate-induced expansion of plains spotted skunks into new habitats and regions, especially for analysis units 1, 2, and 3. For habitat availability under both scenarios, we project five units (units 1–5) to retain high habitat availability and one unit (unit 6) to have moderate habitat availability. This reduction from currently high habitat availability in unit 6 to moderate in the future is attributed to sea level rise on the Gulf Coast of Texas. In either future scenario, we expect most analysis units to have high to moderate resiliency in terms of

the habitat factors important to the viability of the plains spotted skunk. Based on an evaluation of the plausible catastrophes likely to adversely impact plains spotted skunk populations in 2050, we predict the species will maintain high redundancy in both future scenarios. Similarly, our analyses of the species' adaptive capacity based on scenarios 1 and 2 support the likelihood that the species will continue to exhibit high representation 30 years into the future.

The plains spotted skunk is a generalist species that eats a wide variety of foods and lives in a wide variety of habitats across six analysis units that extend across many U.S. States. Current resiliency, redundancy, and representation are all ranked as moderate to high. Although there is low distribution in two analysis units, the species' resiliency overall is moderate to high. The species exhibits high redundancy, greatly reducing the potential for catastrophic events to impact the species at the population level, and the species' high representation indicates a high capacity to adapt to changing environments. There are no identified threats currently affecting the species' viability across its range. Based on this information, the plains spotted skunk is not in danger of extinction throughout all of its range.

The 3Rs analysis in the SSA report provides evidence that the 30-year outlook for the species' projected condition under two future scenarios is still moderate to high. For resiliency, there is almost no change in habitat availability except for analysis unit 6 (the smallest unit) due to sea level rise. Freshwater availability drops under both scenarios, but only two analysis units are projected to be in low condition, although one of those is analysis unit 3, the largest unit. No units ranked "extremely low" under any future scenarios. Redundancy and representation are projected to be in the moderate to high range under both future scenarios. Based on this analysis, the species is not likely to become endangered in the foreseeable future.

We also evaluated the range of the plains spotted skunk to determine if the species is in danger of extinction now or likely to become so within the foreseeable future in any significant portion of its range. Although there is currently low distribution in two analysis units, the habitat and freshwater availability in those units is high to moderate, and there are no barriers to movement or distribution (other than the Mississippi River on the eastern border of its range). No threats have been identified that are currently

affecting any portion of the species' range. Two units are projected to be in low condition for freshwater availability in the future, and sea level rise is predicted to decrease habitat availability in another unit. However, we do not expect freshwater availability to be low enough to be limiting, and given the retention of high habitat availability, we expect these units to support the species in the foreseeable future, especially in light of the plains spotted skunk's high adaptive capacity. There are no geographic portions of the range in which the species is potentially endangered or threatened.

After assessing the best available information, we concluded that the plains spotted skunk is not in danger of extinction or likely to become in danger of extinction within the foreseeable future throughout all of its range or in any significant portion of its range. Therefore, we find that listing the plains spotted skunk as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the plains spotted skunk species assessment form and other supporting documents on <https://www.regulations.gov> under Docket No. FWS-R3-ES-2023-0128 (see **ADDRESSES**, above).

#### Peer Review

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994) and the Service's August 22, 2016, Director's Memo on the Peer Review Process, we solicited independent scientific reviews of the information contained in the plains spotted skunk SSA report. The Service sent the SSA report to four independent peer reviewers and received two responses. Results of this structured peer review process can be found at <https://www.regulations.gov>. We incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for this finding.

#### Sturgeon Chub and Sicklefin Chub

##### Previous Federal Actions

On August 15, 2016, we received a petition dated August 11, 2016, from WildEarth Guardians requesting that the sturgeon chub (*Macrhybopsis gelida*) and sicklefin chub (*M. meeki*) be listed as endangered or threatened and that critical habitat be designated for these species under the Act. On December 20, 2017, we published a 90-day finding (82 FR 60362) that the petition contained substantial information indicating that listing may be warranted for these species. We were later challenged by

WildEarth Guardians for our failure to complete a 12-month finding for these species. Based on this litigation, we are now required by a September 30, 2021, court order to submit our 12-month finding for these species to the **Federal Register** by September 30, 2023. This document constitutes our 12-month finding on the August 11, 2016, petition to list sturgeon chub and sicklefin chub under the Act.

#### Summary of Finding

The sturgeon chub is a small minnow adapted to benthic riverine habitats with a slender streamlined body that inhabits turbid mainstem sections of the Missouri River and Mississippi River and some of their tributaries. The species has a widespread distribution and currently occupies 53 percent of its historical range across 12 U.S. States.

The sicklefin chub is a small minnow that inhabits large, turbid rivers, including the mainstem Missouri and Mississippi Rivers. Like sturgeon chub, sicklefin chub have also evolved specific adaptations to turbid, riverine habitats. It is distinguished from the sturgeon chub by long, sickle-shaped pectoral fins and the absence of ridge-like projections on its scales. This species also has a widespread distribution and currently occupies 75 percent of its historical range across 13 U.S. States.

Sicklefin chub primarily utilize mainstem river habitats, whereas sturgeon chub utilize both mainstem river and tributary habitat in both the Missouri and Mississippi River basins. Populations of both species need large enough areas of connected riverine habitat to fulfill their life-history needs (e.g., spawning, egg/larval drift distances, suitable water temperatures, feeding/sheltering habitat) and provide refugia from habitat-altering stochastic events (e.g., extreme flows from intense, sustained drought or increased variability in precipitation). Eggs are spawned in the water column during the summer months and develop (mediated by water temperature) into larva. Larval chubs continue to drift in river currents and swim vertically in the water column with energy provided by the egg yolk sac. Length of unfragmented reaches needed for larval development varies and is dependent on water temperature, flow velocity, and habitat complexity, among other variables. If larvae drift into a reservoir or still water habitat before they become a horizontal swimmer, it is presumed they settle to the bottom and experience high mortality. Neither species occupies the large stretches of reservoir habitat

produced by dams along the Missouri River system.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the sturgeon chub and sicklefin chub, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these threats. The past construction of mainstem Missouri River dams and associated reservoirs is the main threat that led to the largest reduction in habitat for both species. In the future, changes in stream discharge from climate change is the only threat identified that could potentially lead to population-level impacts. We also evaluated the effects of channel modification, water quality, tributary barriers, pollutants, impingement and entrainment, predation, and hybridization. These threats are likely impacting both species at an individual level and not occurring at a scope or scale that would impact entire populations of these species.

Both sturgeon and sicklefin chubs have high effective population sizes. Given the amount of habitat fragmentation that occurred historically, the presence of robust genetics and effective population estimates, despite the level of fragmentation, is indicative of highly resilient populations. Current occupancy and abundance information indicates that populations are in moderate to high condition. Furthermore, populations of both species currently occupy habitats with one or more stream fragments meeting or exceeding the minimum thresholds to meet life-history needs. Sturgeon and sicklefin chubs currently exhibit high resiliency in multiple populations spread throughout a large portion of their historical ranges, providing redundancy against potential catastrophic events. There are no identified threats currently affecting these species' viability across their ranges at a population level. Thus, after assessing the best available information, we conclude that the sturgeon and sicklefin chub are not in danger of extinction throughout all of their ranges.

When looking to the future, we have no indication that the construction of additional dams, the demolition of existing dams, or major differences in dam operations are likely to occur. Similarly, we have no information to indicate that any of the other potential stressors identified are going to change in the future at levels that would impact sturgeon and sicklefin chub populations. The primary stressor to these species in the future is the

potential for habitat loss and degradation from climate change. In the future, we project populations of both species to be relatively unchanged from their highly resilient current condition. These populations largely occupy mainstem river habitat, which is not likely to experience significant impacts from the effects of climate change on stream discharge. Here, we predict effective population size, occupancy and abundance, and unfragmented stream length to remain largely stable in light of potential changes to stream discharge. After assessing the best available information, we conclude that the sturgeon and sicklefin chub are not likely to become endangered within the foreseeable future throughout all of their ranges.

We also evaluated the range of the sturgeon and sicklefin chub to determine if these species are in danger of extinction now or likely to become so within the foreseeable future in any portion of their ranges. For the sturgeon chub, we examined the following threats: Missouri River mainstem dams and reservoir operations, tributary barriers and habitat fragmentation, channel modifications, water quality, climate change, pollutants, impingement/entrainment, predation, and hybridization, including cumulative effects of the stressors. Except for climate change, these threats are ubiquitous across the range of the species and acting on the sturgeon chub more or less equally rangewide. Although the effect of climate change will impact the entire range of the species as well, the future impact of climate change on stream discharge may be more pronounced in the upper reaches of secondary tributary habitat in two sturgeon chub populations. These stream reaches are much smaller and as a result less buffered from future changes in stream discharge resulting from climate change than the much larger and more stable mainstem river reaches that this species inhabits. These are the only portions we identified as potentially having a difference in status than the rangewide status, and therefore worth considering further for the purposes of this analysis.

The secondary tributary habitats in the two sturgeon chub populations mentioned above that may be subject to higher impacts from climate change constitute approximately 348 stream km (216 mi) out of 5,455 km (3,390 mi) of currently occupied stream km, or approximately 6 percent of the occupied range. These areas are smaller in wetted area and overall stream discharge than the mainstem river sections occupied by this species, and as a result may

experience larger climate related swings in stream discharge which could negatively impact chubs living in those sections. These areas may be used opportunistically by the species when conditions allow, but these areas offer nothing ecologically unique and are not required by the sturgeon chub for any particular point of their life history. The mainstem river sections in these populations contain more sturgeon chub individuals and contain all of the same habitat features needed to meet the species' needs, including sufficient unfragmented stream length for the sturgeon chub to complete their life cycle and maintain resilient populations into the future. Based on the small size of this portion relative to the rest of the range, and the lack of unique habitat features, we do not consider secondary tributary habitats to be significant for the purposes of this analysis.

For the sicklefin chub, we examined the following threats: Missouri River mainstem dams and reservoir operations, tributary barriers and habitat fragmentation, channel modifications, water quality, climate change, pollutants, impingement/entrainment, predation, and hybridization, including cumulative effects. These threats are ubiquitous across the range of the species and acting on the sicklefin chub more or less equally rangewide. There are no areas with disproportionate impacts on sicklefin chub from these threats. Both sicklefin chub populations are currently high in resiliency and expected to continue to be so into the future despite the potential impact of the threats considered. Neither of the two populations considered as portions on their own meets the definition of an endangered or threatened species. We found no biologically meaningful portion of the sicklefin chub's range where threats are impacting individuals differently from how they are affecting the species elsewhere in its range, or where the biological condition of the species differs from its condition elsewhere in its range such that the status of the species in that portion differs from its status in any other portion of the species' range. We found no portion of either species' range that was both significant and in danger of extinction now or likely to become so within the foreseeable future in that portion. Therefore, we find that these species are not in danger of extinction now or likely to become so within the foreseeable future in any significant portion of their ranges.

After assessing the best available information, we concluded that sturgeon chub and sicklefin chub are not in danger of extinction or likely to

become in danger of extinction within the foreseeable future throughout all of their ranges or in any significant portion of their ranges. Therefore, we find that listing the sturgeon chub and sicklefin chub as endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the sturgeon chub and sicklefin chub species assessment form and other supporting documents on <https://www.regulations.gov> under Docket No. FWS-R6-ES-2023-0131 for the sturgeon chub and Docket No. FWS-R6-ES-2023-0130 for the sicklefin chub (see ADDRESSES, above).

#### Peer Review

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994) and the Service's August 22, 2016, Director's Memo on the Peer Review Process, we solicited appropriate and independent scientific reviews of the information contained in the sturgeon chub and sicklefin chub SSA report. The Service sent the SSA report to five independent peer reviewers and received three responses. Results of this structured peer review process can be found at <https://www.regulations.gov>. We incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for these findings.

#### Tennessee Cave Salamander

##### 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, and West Virginia Highlands Conservancy to list 404 aquatic, riparian, and wetland species, including the Tennessee cave salamander (*Gyrinophilus palleucus*), as an endangered or threatened species under the Act. On September 27, 2011, we published a 90-day finding in the **Federal Register** (76 FR 59836) concluding that the petition presented substantial scientific or commercial information indicating that listing may be warranted. This document constitutes our 12-month finding on the April 20, 2010, petition to list the Tennessee cave salamander under the Act.

##### Summary of Finding

The Tennessee cave salamander is a large, obligate subterranean aquatic salamander that currently occurs in 89 caves in central and southern middle Tennessee, northern Alabama, and

northwestern Georgia and one spring in Tennessee. Distribution of the Tennessee cave salamander has not changed significantly since its discovery in the mid-1940s and extirpation is only known from one site. Two historical sites were rediscovered with increased survey efforts in 2018.

Little information is available on many aspects of the Tennessee cave salamander's life history, including egg deposition sites, incubation, larval habitat and diet, and breeding behavior. The Tennessee cave salamander requires sufficient water quality and availability, low sediment load, suitable substrate and cover, and adequate food sources in a cave ecosystem. The extent of suitable habitat in occupied cave systems is not mapped, but the three-dimensional nature of the habitat includes extensive areas that cannot be accessed and surveyed.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Tennessee cave salamander and evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these threats. The primary threats affecting the Tennessee cave salamander's biological status include habitat destruction or modification (e.g., groundwater pollution from a variety of sources, sedimentation, mining and quarrying, groundwater extraction, and cave disturbance), disease, and climate change as well as the cumulative effects of the various threats on the landscape. Of the known threats, habitat destruction or modification currently is the primary threat rangewide to the species' current and future viability. Impacts to the species' habitat rangewide are caused by groundwater pollution from contaminants, and sedimentation associated with urbanization, agriculture, and silviculture. Impacts to individuals and populations may occur as a result of mining and quarrying, human visitation, and disease. The best available information does not indicate that the influence of climate change alone on the species' current condition is significant, but the effects of climate change may act synergistically with other threats to exacerbate the effects of urbanization, drought, and water withdrawal, particularly in the future.

Although the Tennessee cave salamander is a cryptic species that occurs in relatively inaccessible subterranean habitat, the best available information indicates that the species is present in all 12 historically occupied AUs. The Tennessee cave salamander

currently exhibits high resiliency in two AUs and moderate resiliency in eight AUs. The two AUs in high resiliency make up the stronghold of the species' range. The two low resiliency AUs occur on the periphery of the species' range, and each is characterized by relatively few sites with species occurrence. Approximately 33 percent of known sites and over 50 percent of sites in the two AUs that make up the stronghold of the range occur on protected lands that confer some degree of protection to the species from threats caused by land use. Representation and redundancy have not declined from historical levels and are sufficient to support current Tennessee cave salamander viability. Overall, no threat is acting to an extent or severity such that the Tennessee cave salamander is at risk of extinction throughout its range.

The Tennessee cave salamander is expected to remain extant in all 12 AUs in all future scenarios. Our future condition analysis projected slight declines or declines in resiliency in one to nine AUs depending on the scenario and time step. There are minor projected increases in some threats that may affect the availability of suitable habitat across the species' range. We expect the loss of forest cover to have a negative impact on the habitat conditions for the species, but there is limited information quantitatively linking changes in forest cover surface condition and cave environments in the species' range. The species' response to projected changes also has not been observed or quantified.

In the future, the impacts under scenario 1 (status quo minimum) projected very minor changes to resiliency with only a slight decrease in one unit in 2040 and three units in 2060. Under scenario 2 (status quo maximum), with incorporation of a greater magnitude of forest loss, nine AUs are projected to exhibit no change in resiliency while only two units are projected to decrease by 2060 (only one unit by 2040). Under scenario 3 (increased impacts scenario), the magnitude of impact is greatest, with 5 of 12 AUs projected to exhibit decreased resiliency in both 2040 and 2060. Nevertheless, even in the greatest impact scenario, 6 of 12 AUs are projected to exhibit moderate or high resiliency. The resiliency of the two AUs that make up the stronghold of the range is not projected to change under any scenario and time step. No analysis unit-level extirpations are projected. Although representation and redundancy are projected to decline as a function of resiliency decreases under some scenarios and time steps, the

species maintains sufficient adaptive capacity and ability to withstand catastrophic events to support future viability.

Although threats are similar throughout the range of the species, some local sites may be more affected by specific threats. For example, the species' response to threats is more pronounced in the Lower Tennessee and Lower Elk AUs. These AUs currently exhibit low resiliency driven primarily by low abundance, a lower degree of forest, and a higher degree of agricultural land use surrounding the low number of known sites in each AU (three sites in the Lower Tennessee and one site in the Lower Elk). Given the species' condition within the Lower Tennessee and Lower Elk AUs, we have identified the two units on the periphery of the species' range as areas that may be in danger of extinction now or within the foreseeable future due to the low current resiliency. Both AUs are projected to decline in resiliency in the future.

We then proceeded to the question of significance, asking whether the Lower Tennessee or Lower Elk AU meets the current understanding of significance. Although the Lower Tennessee and Lower Elk AUs contribute to the overall species-level representation and redundancy, the two AUs do not contain any high quality or high value habitat or any habitat or resources unique to the area and necessary to the Tennessee cave salamander's life history. In addition, the AUs encompass a low number of known sites with species' occurrences and do not make up a large geographic area of the species' range or contain a high proportion of its habitat or populations. Accordingly, we do not find the Lower Tennessee or Lower Elk AU, singly or collectively, to be a significant portion of the range.

After assessing the best available information, we conclude that the Tennessee cave salamander is not in danger of extinction or likely to become in danger of extinction within the foreseeable future throughout all of its range or in any significant portion of its range. Therefore, we find that listing the Tennessee cave salamander as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Tennessee cave salamander species assessment form and other supporting documents on <https://www.regulations.gov> under Docket No. FWS-R4-ES-2023-0133 (see **ADDRESSES**, above).

## Peer Review

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994) and the Service's August 22, 2016, Director's Memorandum on the Peer Review Process, we solicited independent scientific reviews of the information contained in the Tennessee cave salamander SSA report. The Service sent the SSA report to five independent peer reviewers and received four responses. Results of this structured peer review process can be found at <https://www.regulations.gov>. We incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for this finding.

## Yazoo Crayfish

### Previous Federal Actions

The Yazoo crayfish (*Faxonius hartfieldi*, formerly *Orconectes hartfieldi*) was included in a listing petition from the Center for Biological Diversity et al. (CBD 2010, pp. 792–793) in April 2010. The petition requested that the Service list 404 aquatic, riparian, and wetland species as endangered or threatened under the Act. In 2011, the Service found that this petition presented substantial scientific or commercial information indicating that listing may be warranted for the Yazoo crayfish (76 FR 59836; September 27, 2011). This document constitutes our 12-month finding on the April 2010 petition to list the Yazoo crayfish under the Act.

### Summary of Finding

The Yazoo crayfish is a stream-dwelling species distributed among scattered locations in the Yazoo and Big Black River drainages in Mississippi. The species is small growing to 50 to 70 mm (2 to 3 in) in total length. Historically, the Yazoo crayfish was known from the Yazoo to the Big Black River drainage in Mississippi. The Yazoo crayfish currently occupies a wide range of stream sizes from small headwater streams such as the first order Little Mouse Creek (watershed area: 11 square kilometers (km<sup>2</sup>) (4.25 square miles (m<sup>2</sup>))) to large streams such as Fourteen mile Creek (watershed area: 644 km<sup>2</sup> (249 m<sup>2</sup>)). Occupied streams have moderate gradients and are located in the Lower and Upper Gulf Coastal Plain ecoregions.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Yazoo crayfish and evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and

conservation measures addressing these threats. The primary threat identified for the Yazoo crayfish is habitat fragmentation resulting from a number of factors such as stream channelization, sedimentation, road crossings, impoundments, and development. Other primary stressors affecting the species' biological status include regulated river flows, pollution, and climate change. Sedimentation in streams is often a result of within channel erosion of banks, head cutting, and stream incisement, which are usually the result of past land cover and land use practices (e.g., channelization). Increased sedimentation from a variety of sources (e.g., timber harvest that does not use best management practices, row crop agriculture, and urbanization) is detrimental to stream habitats for a variety of reasons.

Currently, the Yazoo crayfish occupies 12 analytical units across 20 hydrologic unit code (HUC)–12 watersheds in four HUC 8 watersheds and three level IV ecoregions. Five analytical units are considered to be high resiliency, three to be moderate resiliency, and four to be low resiliency. The highest resiliency analytical units are those with a higher number of occupied watersheds, lower channelization, lower fragmentation, and higher forest cover. In general, current land use practices do not appear to have an appreciable negative impact on the resiliency, redundancy, and representation. Moreover, habitat conditions for the species have been improving over the past 10–20 years (reduction in agriculture, increase in forested habitat within occupied watersheds, developed landcover has decreased). Lingering effects of prior land uses and management practices continue to impact the species, but there is evidence that streams are recovering from these land uses and habitat may be improving. Although threats are present on the landscape, the Yazoo crayfish has multiple moderate and high resilient populations distributed across the landscape, providing the species with adequate redundancy and representation. Therefore, the threats appear to have low imminence and magnitude such that they currently are not significantly affecting the species' viability. The SSA report describes some of the uncertainties in the species' occurrence, populations, and response to threats; however, considering the available data, the risk of extinction is low due to the distribution of multiple high and moderate resiliency units across the species' range. Thus, after assessing the best available information,

we conclude that the Yazoo crayfish is not in danger of extinction throughout all of its range.

Land use patterns are projected to continue over the next 30 years. Human population density is low in most of the range, so impacts related to urbanization and development are generally low and show minimal change under future scenarios B1 and A2 in 2040. Future scenarios in 2060 demonstrate an increase of urbanization in some analytical units, resulting in a decrease in resiliency of four analytical units under scenario B1 and five analytical units under scenario A2; however, seven analytical units remain in moderate or high condition in scenario B1, while eight units remain in moderate or high condition in scenario A2. Although change is predicted to occur due to threats on the landscape, our analysis indicates that the magnitude of change under both scenarios and timesteps does not indicate a significant risk to future viability of the Yazoo crayfish. The species is expected to experience slight reductions in resiliency by 2060, but moderate and high resiliency populations are expected to remain across the species' range. In addition, recent increases in sampling efforts have resulted in significant expansion of the species' current range, and it is predicted that future increases in sampling efforts will produce similar results. After assessing the best available information, we conclude that the Yazoo crayfish is not likely to become endangered within the foreseeable future throughout all of its range.

We evaluated the range of the Yazoo crayfish to determine if it is in danger of extinction now or likely to become so within the foreseeable future in any portion of its range. The species is a range-limited, stream-dwelling species that occurs within a very small area distributed among scattered locations in the Yazoo and Big Black River drainages of Mississippi. The range of a species theoretically can be divided into portions in an infinite number of ways. We focused our analysis on portions of the species' range that may meet the Act's definition of an "endangered species" or a "threatened species." We considered whether the threats or their effects on the Yazoo crayfish are greater in any biologically meaningful portion of the species' range than in other portions such that the species is in danger of extinction now or likely to become so within the foreseeable future in that portion. Based on the best available science, these factors are not concentrated within a specific portion

of the species' range but spread throughout its range.

Currently, there are moderate and high resiliency populations occurring in each ecoregion. In Northern Hilly Gulf Coastal Plain, there are two moderate resiliency populations and one low resiliency population. In Southern Hilly Gulf Coastal Plain, there are two low resiliency populations and one high resiliency population. In Loess Plain, there are two moderate resiliency populations and four high resiliency populations. We project in the future at least one moderate and/or high resiliency population occurring in each ecoregion: In Northern Hilly Gulf Coastal Plain, there are projected to be two low resiliency populations and one moderate resiliency population; in Southern Hilly Gulf Coastal Plain, there are projected to be two very low resiliency populations and one moderate resiliency population; and in Loess Plain, there are projected to be three moderate resiliency populations and three high resiliency populations. The current and future condition analyses of the Yazoo crayfish indicate sufficient resiliency, representation, and redundancy in each ecoregion. As a result, there are no portions of the species' range where the species has a different biological status from its rangewide biological status. Therefore, we conclude that there are no portions of the species' range that warrant further consideration, and the species is not in danger of extinction or likely to become so within the foreseeable future in any significant portion of its range.

After assessing the best available information, we conclude that the Yazoo crayfish is not in danger of extinction within the foreseeable future throughout all of its range or in any significant portion of its range. Therefore, we find that listing the Yazoo crayfish as an "endangered species" or "threatened species" under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Yazoo crayfish species assessment form and other supporting documents on <https://www.regulations.gov> under Docket No. FWS-R4-ES-2023-0134 (see **ADDRESSES**, above).

#### Peer Review

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994) and the Service's August 22, 2016, Director's Memo on the Peer Review Process, we solicited independent scientific reviews of the information contained in the Yazoo crayfish SSA report. The Service sent the SSA report

to five independent peer reviewers and received two responses. Results of this structured peer review process can be found at <https://www.regulations.gov>. We incorporated the results of these reviews, as appropriate, in the SSA report, which is the foundation for this finding.

#### *Southern Sea Otter*

##### Previous Federal Actions

On January 14, 1977, we published a final rule (42 FR 2965) to list the southern sea otter as a threatened species. On March 10, 2021, we received a November 2020 petition from the Pacific Legal Foundation, counsel for California Sea Urchin Commission and Commercial Fishermen of Santa Barbara, requesting that the southern sea otter (*Enhydra lutris nereis*) be removed from the Federal List of Endangered and Threatened Wildlife (*i.e.*, "delisted") because the species does not meet the Act's definition of an endangered or a threatened species. On August 23, 2022, we published a 90-day finding (87 FR 51635) that the petition presented substantial scientific or commercial information indicating that delisting the southern sea otter may be warranted. This document constitutes our 12-month finding on the March 10, 2021, petition to delist southern sea otter.

##### Summary of Finding

The southern sea otter historically ranged from Oregon in the United States (which is thought to have been a transition zone between the northern and southern subspecies), to the species' southern range terminus near Punta Abreojos, Baja California, Mexico. The maritime fur trade of the 18th and 19th centuries caused the near-extinction of sea otters throughout their North Pacific range. All present-day southern sea otters descended from a small remnant population that survived the fur trade near Bixby Creek in Monterey County, California. Currently, the subspecies occurs only in portions of California: along roughly 500 km (310 mi) of the mainland coastline from San Mateo County to Santa Barbara County, and in the waters surrounding San Nicolas Island, Ventura County, although occasionally individuals are documented in other areas.

Southern sea otters occupy a variety of coastal marine habitats, including rocky exposed coastline, sandy embayments, and estuaries. Sea otter habitat in California is typically defined by the 40 m (131 ft) or 60 m (197 ft) depth contour. Depending on local bathymetry, most sea otters in California reside within 2 km (1.2 mi) of shore. At

the individual level, sea otters need benthic invertebrate prey, coastal marine waters less than 40 m (131 ft) in depth, and sheltered resting habitat consisting of canopy-forming kelp, shallow protected waters (*e.g.*, estuaries), or haul out areas. At the population level, sea otters need sufficient abundance and adequate rates of survival, recruitment, and dispersal to rebound from disturbance and persist at the population or metapopulation scale. At the species level, sea otters need adequate redundancy to spread the risk of large-scale, high-impact (*i.e.*, catastrophic) events among multiple populations or areas; they also need adequate genetic and environmental diversity to be able to adapt to changing environmental conditions.

For additional information on the physical characteristics, genetics, taxonomy, habitat, life history, and historical and current distribution, see chapter 3 of the SSA report (Service 2023, pp. 12–26. For additional information on population and species needs, see chapter 3 of the SSA report (Service 2023, pp. 22–23).

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the southern sea otter, and we evaluated all relevant factors under the five listing factors including any regulatory mechanisms and conservation measures addressing these threats. We examined the following threats: curtailment of its range; harmful algal or cyanobacterial bloom intoxication; shark bite mortality; end-lactation syndrome; cardiac disease; protozoal infection; acanthocephalan peritonitis; infections (other); natural causes (other); human causes (shootings, boat strikes, and entanglements); human causes (oil spills); loss of genetic diversity; and climate change, including synergistic and cumulative effects. Of these threats, the southern sea otter is currently most imperiled by high shark bite mortality, curtailment of its range, and changes related to climate.

Due in part to listing under the Act in 1977 and ongoing conservation efforts, the range-wide population index for southern sea otters has increased to 2,962 as of 2019 (the most recent year a full census was completed); the mainland range has increased by approximately 210 km (130 mi) to encompass roughly 500 km (310 mi) of linear coastline; and a translocated subpopulation has taken hold at San Nicolas Island. Although current numbers and range remain restricted, the southern sea otter is likely to sustain populations in the wild in the near term. The current abundance of 2,962

otters is far below estimated carrying capacity of California, but above the roughly 50 animals that remained in 1914. Seven of 29+ subpopulations are currently extant. However, the results of population projections based on three plausible future scenarios indicated that meaningful improvements in resiliency, redundancy, and representation are unlikely to occur within the foreseeable future.

As noted above, the southern sea otter remains most imperiled by high shark bite mortality, the curtailment of its range, and climate change and associated effects. Based on our projections of future conditions for the species, and the existing and increased threats in the future on the species from shark bite mortality, range curtailment, and impacts of climate change, the species will experience continued and increasing impacts on its abundance and connectivity between populations that will most likely cause the species to be increasingly less able to support itself into the future. Additionally, existing regulatory mechanisms and conservation measures do not appear to be sufficient to protect the southern sea otter from emerging or intensifying threats.

After assessing the best available information, we concluded that southern sea otter is likely to become in danger of extinction within the foreseeable future throughout all of its range. Therefore, we find that delisting

the southern sea otter under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the southern sea otter species assessment form and other supporting documents on <https://www.regulations.gov> under Docket No. FWS-R8-ES-2023-0132 (see **ADDRESSES**, above).

#### Peer Review

In accordance with our July 1, 1994, peer review policy (59 FR 34270; July 1, 1994) and the Service's August 22, 2016, Director's Memo on the Peer Review Process, we solicited independent scientific reviews of the information contained in the southern sea otter SSA report. The Service sent the SSA report to three independent peer reviewers and three partner reviewers. We received responses back from one peer reviewer and one partner reviewer. Results of this structured peer review process can be found at <https://www.regulations.gov>. We incorporated the results of these reviews, as appropriate, into the SSA report, which is the foundation for this finding.

#### New Information

We request that you submit any new information concerning the taxonomy, biology, ecology, status of, or stressors to the Cascades frog, plains spotted skunk, sicklefin chub, southern sea otter, sturgeon chub, Tennessee cave salamander, or Yazoo crayfish to the

appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**, whenever it becomes available. New information will help us monitor these species and make appropriate decisions about their conservation and status. We encourage local agencies and stakeholders to continue cooperative monitoring and conservation efforts.

#### References Cited

A list of the references cited in each petition finding is available in the relevant species assessment form, which is available on the internet at <https://www.regulations.gov> in the appropriate docket (see **ADDRESSES**, above) and upon request from the appropriate person (see **FOR FURTHER INFORMATION CONTACT**, above).

#### Authors

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

#### Authority

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

#### Martha Williams,

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

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