**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**[4500090022]**

# Endangered and Threatened Wildlife and Plants; 12-Month Findings on Petitions To List 10 Species as Endangered or Threatened Species

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

**ACTION:** Notice of 12-month petition findings.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce 12-month findings on petitions to list 10 species as endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). After a review of the best available scientific and commercial information, we find that listing the Huachuca-Canelo population of the Arizona treefrog, the Arkansas darter, black mudalia, Highlands tiger beetle, *Dichanthelium (=panicum) hirstii* (Hirst Brothers' panic grass), two Kentucky cave beetles (Louisville cave beetle and Tatum Cave beetle), relict leopard frog, sicklefin redhorse sucker, and Stephan's riffle beetle is not warranted at this time. However, we ask the public to submit to us at any time any new information that becomes available concerning the stressors to any of the 10 species listed above or their habitats.

**DATES:** The findings announced in this document were made on [INSERT DATE OF FEDERAL REGISTER PUBLICATION].

**ADDRESSES:** Detailed descriptions of the basis for each of these findings are available on the Internet at

*http://www.regulations.gov* at the following docket numbers:

| Species | Docket Number |
|---|---|
| Arizona treefrog (Huachuca-Canelo population) | FWS–R2–ES–2016–0111 |
| Arkansas darter | FWS–R6–ES–2016–0113 |
| Black mudalia | FWS–R4–ES–2016–0112 |
| Highlands tiger beetle | FWS–R4–ES–2016–0114 |
| *Dichanthelium (=panicum) hirstii* (Hirst Brothers' panic grass) | FWS–R5–ES–2016-0105 |
| Kentucky cave beetles (Louisville cave beetle and Tatum Cave beetle) | FWS–R4–ES–2016–0115 |
| Relict leopard frog | FWS–R8–ES–2016–0116 |
| Sicklefin redhorse sucker | FWS–R4–ES–2016–0117 |
| Stephan's riffle beetle | FWS–R2 ES–2016–0118 |

Supporting information used to prepare these findings is available for public inspection, by appointment, during normal business hours, by contacting the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**. Please submit any new information, materials, comments, or questions concerning these findings to the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**.

**FOR FURTHER INFORMATION CONTACT:**

| Species | Contact Information |
|---|---|
| Arizona treefrog (Huachuca-Canelo population) | Nathan Allan, Acting Listing Coordinator, Southwest Regional Office, Ecological Services, 512-490-0057 |
| Arkansas darter | Jason Luginbill, Field Supervisor, Kansas Ecological Services Field Office,785-539-3474 |
| Black mudalia | Bill Pearson, Field Supervisor, Alabama Ecological Services Field Office, 251-441-5181 |
| Highlands tiger beetle | Roxanna Hinzman, Field Supervisor, South Florida Ecological Services Field Office, (772) 562-3909 |
| *Dichanthelium (=panicum) hirstii* (Hirst Brothers' panic grass) | Krishna Gifford, Listing Coordinator, Northeast Regional Office, Ecological Services, 413-253-8619<br><br>Submit any new information concerning the species' taxonomy, population status, or threats to: New Jersey Ecological Services Field Office, 4 E. Jimmie Leeds Road, Suite 4, Galloway, NJ 08205 |
| Kentucky cave beetles | Lee Andrews, Field Supervisor, Kentucky Ecological |

| | |
|---|---|
| (Louisville cave beetle and Tatum Cave beetle) | Services Field Office, 502-695-0468 |
| Relict leopard frog | Michael Senn, Field Supervisor, Southern Nevada Ecological Services Field Office, 702-515-5244 |
| Sicklefin redhorse sucker | Jason Mays, Asheville (North Carolina) Ecological Services Field Office, 828-258-3939 |
| Stephan's riffle beetle | Steve Spangle, Field Supervisor, Arizona Ecological Services Field Office, 602-242-0210 |

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**SUPPLEMENTARY INFORMATION:**

**Background**

Section 4(b)(3)(B) of the Act (16 U.S.C. 1533) requires that, within 12 months after receiving any petition to revise the Federal Lists of Endangered and Threatened Wildlife and Plants that contains substantial scientific or commercial information indicating that listing an animal or plant species may be warranted, we make a finding ("12-month finding"). In this finding, we determine whether listing the Huachuca-Canelo population of the Arizona treefrog, the Arkansas darter, black mudalia, Highlands tiger beetle, *Dichanthelium (=panicum) hirstii* (Hirst Brothers' panic grass), two Kentucky cave beetles (Louisville cave beetle and Tatum Cave beetle), relict leopard frog, sicklefin redhorse sucker, and Stephan's riffle beetle is: (1) not warranted; (2) warranted; or (3) warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are endangered or threatened species, and expeditious progress is being made to add or remove qualified species from the Federal Lists of Endangered and Threatened Wildlife and Plants ("warranted but precluded"). Section 4(b)(3)(C) of the Act requires that we

treat a petition for which the requested action is found to be warranted but precluded as though resubmitted on the date of such finding, that is, requiring a subsequent finding to be made within 12 months. We must publish 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 in 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 Federal Lists of Endangered and Threatened Wildlife and Plants. 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 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.

We summarize below the information on which we based our evaluation of the

five factors provided in section 4(a)(1) of the Act to determine whether the Huachuca-Canelo population of the Arizona treefrog, the Arkansas darter, black mudalia, Highlands tiger beetle, *Dichanthelium (=panicum) hirstii*, two Kentucky cave beetles (Louisville cave beetle and Tatum Cave beetle), relict leopard frog, sicklefin redhorse sucker, and Stephan's riffle beetle meet the definition of an endangered or threatened species. More detailed information about these species is presented in the species-specific assessment forms found on *http://www.regulations.gov* under the appropriate docket number (see **ADDRESSES**, above).

In considering what stressors under the Act's five factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat. In that case, we determine if that stressor rises to the level of a threat, meaning that it may drive or contribute to the risk of extinction of the species such that the species warrants listing as an endangered or threatened species as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely affected could suffice. The mere identification of stressors that could affect a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these stressors are operative threats to the species and its habitat, either singly or in combination, to the point that the species meets the definition of an endangered or a threatened species under the Act.

In making our 12-month findings, we considered and evaluated the best available scientific and commercial information regarding the past, present, and future stressors and threats. We reviewed the petition, information available in our files, and other available published and unpublished information. This evaluation may include information from recognized experts; Federal, State, and tribal governments; academic institutions; foreign governments; private entities, and other members of the public.

**Arizona Treefrog, Huachuca-Canelo Population (*Hyla wrightorum*)**

*Previous Federal Actions*

In our annual candidate notice of review (CNOR) published on December 6, 2007 (72 FR 69034), we recognized the Huachuca-Canelo population of the Arizona treefrog as a candidate for listing as a distinct population segment (DPS). Subsequently, we published similar findings in our CNORs on December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584). In 2007, the Huachuca-Canelo population of the Arizona treefrog was assigned a listing priority number (LPN) of 3, reflecting the taxonomic identity of the listable entity as a subspecies/population with threats that we considered to be imminent and high in magnitude. The LPN numbers range from 1 to 11, with 1 being the highest priority.

*Background*

The Arizona treefrog (*Hyla wrightorum*) is a small (4.6 centimeters (cm) (1.8 inches (in)) green frog with a dark eyestripe that extends past the shoulder onto the side of the body, and sometimes to the groin area. It occurs in Madrean oak woodland and

savannah, pine-oak woodland, mixed conifer forest, and Plains grasslands at elevations of approximately 1,525 to 2,590 meters (m) (5,000 to 8,500 feet (ft)), and requires ponds for successful reproduction.

The Arizona treefrog is known to occur within Arizona, New Mexico, and Mexico. In Arizona and New Mexico, the Arizona treefrog occurs along the Mogollon Rim (central Arizona and western New Mexico), in the Huachuca Mountains and Canelo Hills area (a disjunct mountain range on the Arizona/Sonora, Mexico border), and farther south in Mexico (in the Sierra Madre Occidental and sky island mountain ranges). We refer to these three areas as the Mogollon Rim, Huachuca-Canelo, and Mexico populations.

Within the Huachuca-Canelo population, historical information has documented Arizona treefrogs from three general localities at Rancho Los Fresnos, Sonora, Mexico, and from 13 to15 verified localities in the Huachuca Mountains and Canelo Hills, Arizona. The Huachuca-Canelo population of Arizona treefrog has continued to persist in Arizona sky island mountain range and Plains grassland habitats, and the treefrog has recently been found in new locations within grasslands and ciénegas (a swamp or marsh, especially one formed and fed by springs) in Arizona. These new locations in varied habitats indicate that the Arizona treefrogs may be less selective in choosing breeding habitat than previously thought. In addition, the species likely occurs in other wet canyons with suitable breeding habitat in the Huachuca Mountains, and perhaps in ciénegas in the vicinity of Rancho Los Fresnos.

The Huachuca-Canelo DPS of the Arizona treefrog was originally defined based on the historical locations. However, recently the Service has received information on

Arizona treefrog locations nearby, but outside of, the DPS area. This new information, along with many new location detections in the Huachuca Mountains and Canelo Hills, indicates that the Arizona treefrog is not only more numerous, but is much more widespread than we knew when the Service made this Arizona treefrog a candidate species as a DPS. There are now approximately more than 30 known localities in Arizona in the Huachuca Mountains and Canelo Hills, and the Arizona treefrog also occurs in areas outside of the DPS boundary, but within the vicinity of the Huachuca Mountains and Canelo Hills.

*Summary of Status Review*

Based on new information and review of previously referenced studies, we find that the Huachuca-Canelo population of the Arizona treefrog does not meet the requirements of the Service's Policy Regarding the Recognition of Distinct Vertebrate Population Segments (DPS Policy) published in the **Federal Register** on February 7, 1996 (61 FR 4722). The DPS Policy sets forth three elements for the Service to consider in determining whether a vertebrate population is a DPS that warrants listing: whether the population is discrete and whether the population is significant. If the population is determined to be both discrete and significant, then the DPS Policy requires the Service to evaluate the conservation status of the population to determine whether the population falls within the Act's definition of an "endangered species" or of a "threatened species."

On the basis of the best available scientific and commercial information, and in accordance with our DPS Policy, we conclude that the Huachuca-Canelo population of the Arizona treefrog is discrete but it is not significant (i.e., it is not biologically or ecologically important) to the taxon as a whole. Regarding discreteness, we have

reviewed the best available scientific and commercial information and the evidence relative to potential differences in physical, behavioral, morphological, and genetic attributes. We conclude that the Huachuca-Canelo population of the Arizona treefrog is discrete based on its geographical separation from the other two populations on the Mogollon Rim and in Mexico.

Regarding significance, we considered the four classes of information listed in the DPS Policy as possible considerations in making a determination, as well as all other information that might be relevant to making this determination for the Huachuca-Canelo population. The Huachuca-Canelo population of the Arizona treefrog does not appear to exhibit any direct or indirect habitat adaptation or behavioral advantage that would indicate that their persistence in the Huachuca Mountains and Canelo Hills area is biologically or ecologically important to the taxon as a whole. Moreover, we considered the other three considerations that the DPS Policy sets out for evaluating significance, and none of them provides evidence that the Huachuca-Canelo population is significant to the Arizona treefrog as a whole: (1) Loss of the Huachuca-Canelo population would not result in a significant gap in the range; (2) the Huachuca-Canelo population does not represent the only surviving natural occurrence of the Arizona treefrog; and (3) the Huachuca-Canelo population's genetic characteristics do not differ markedly from those of other Arizona treefrog populations.

*Finding*

Based on our review of the best available scientific and commercial information pertaining to the Act's five threat factors, we conclude that the Huachuca-Canelo population of the Arizona treefrog does not meet the significance criterion of the DPS

Policy, as detailed above and, therefore, is not a valid DPS under our DPS Policy. As a result, we find that the Huachuca-Canelo population of the Arizona treefrog is not a listable entity under section 3(16) of the Act. Therefore, we find that listing the Huachuca-Canelo population of Arizona treefrog as an endangered or a threatened species is not warranted throughout all or a significant portion of its range at this time, and consequently, we are removing it from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the Huachuca-Canelo population of the Arizona treefrog. A detailed discussion of the basis for this finding can be found in the species-specific assessment form for the Huachuca-Canelo population of the Arizona treefrog and other supporting documents (see **ADDRESSES**, above).

**Arkansas Darter (*Etheostoma cragini)***

*Previous Federal Actions*

The Arkansas darter was first identified as a candidate for listing under the Act in 1989 (54 FR 554; January 6, 1989), as a Category 2 candidate species. Category 2 candidate species were identified as those taxa for which the Service possessed information indicating proposing to list the taxa was possibly appropriate, but for which

conclusive data on biological vulnerability and threats sufficient to support a proposed listing rule was lacking. On February 28, 1996, the CNOR (61 FR 7596) discontinued recognition of Categories 1-3. Because listing the Arkansas darter was warranted but precluded, we assigned the species an LPN of 5. In 2002, we changed the LPN from 5 to 11 (67 FR 40657; June 13, 2002).

On May 11, 2004, the Service received a petition dated May 4, 2004, from the Center for Biological Diversity and others to list 225 species, including the Arkansas darter. The Service published a 12-month finding in the **Federal Register** on May 11, 2005, with a reaffirmed determination that listing was warranted but precluded and that the taxon had an LPN of 11 (70 FR 24870). We have continued to evaluate the status of the candidate taxon through our annual CNOR and maintained the LPN of 11 for this species (see September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584)).

*Background*

The Arkansas darter (*Etheostoma cragini*) is a small fish in the perch family native to the Arkansas River basin. The species occurs most often in sand- or pebble-bottomed pools of small, spring-fed streams and marshes, with cool water, and broad-leaved aquatic vegetation. Arkansas darters prefer flowing, spring-fed streams and pools in contact with groundwater sources. However, the species is very tolerant to periods of very poor water quality, including high water temperatures, low dissolved oxygen, high

turbidity, and hyper-eutrophication.

The Arkansas darter's range includes eastern Colorado, southwest and central Kansas, northwest and northeast Oklahoma, southwest Missouri, and northwest Arkansas. Recent surveys have expanded our knowledge of occupied Arkansas darter populations. We currently consider to be extant a total of 80 populations within 15 metapopulations rangewide. This is more than we knew of for previous assessments of this species.

*Summary of Status Review*

In completing our status review for the Arkansas darter, we reviewed the best available scientific and commercial information and compiled this information in the Species Status Assessment Report (SSA Report) for the Arkansas darter. In previous candidate assessments and findings for this species, the identified threats we considered were water depletion, water quality degradation, urbanization and development, confined-animal feeding operations, dams and reservoirs, salt cedar invasion, disease, and predation. Although localized negative effects have been observed, all of these stressors (other than water depletion) occur at a limited scale and scope, and the overall impact at the population and species level is minimal.

Water depletion is the stressor with the largest potential impact to the Arkansas darter's viability, affecting approximately 25 percent of the geographic range, resulting mainly from groundwater withdrawals for agriculture. Seasonal low flows and intermittency of streams are common within the Great Plains portion of its range, and it appears the species is adapted to this phenomenon. However, the continued existence of the species in these areas is dependent on localized areas of refugia. Typically refugia

exist where groundwater flows come to the surface and create permanent pools or small wetland areas along the stream course. When seasonal precipitation occurs and the streams become flowing systems, typically in the spring, the stream then provides habitat for spawning, rearing, and dispersal of young and adult individuals throughout the watershed. Climate change projections forecast minimal change in average annual precipitation in the Arkansas River basin and do not forecast reduced or diminished streamflow as a result of future changes in precipitation patterns. Therefore, we do not expect to see climate-change-driven decreased trends in precipitation and related stream flows.

Water depletion results in decreased resiliency of populations affected in the portions of the range in southwestern Kansas, northwestern Oklahoma, and parts of Colorado, approximately 25 percent of the range. However, the species has endured over 40 years of groundwater withdrawals in these areas, indicating continued resiliency of these populations. The large number of populations (80) spread across the multi-State range provides the Arkansas darter species with a high level of redundancy should a catastrophic event occur somewhere within its occupied range. Multiple populations and metapopulations currently occupying the unique ecological settings of the three unique physiogeographic areas, the same physiogeographic areas that this species was known to occupy historically, allow the species to maintain adaptive potential and the underlying genetic makeup to adapt to changing environmental conditions.

Over the next 30 years, under our expected scenario, we are likely to see a continuation of similar levels of impact from the stressors affecting this species as we have in the past. We believe a continued rate of groundwater usage and continued rates of

impact from other stressors over the next 30 years would not likely result in significant effects to the occupied range of the Arkansas darter. Although we expect little change on a rangewide basis, we could see some range contraction in the western Cimarron and upper Rattlesnake Creek basin in Kansas and Oklahoma due to water depletion, as well as small portions of the Colorado range. Additionally, we could see range contraction in the eastern portion of the range (Arkansas, Kansas, Missouri, and Oklahoma) due to development effects. However, we do not expect to see a reduction in redundancy of the species overall (e.g., no the loss of entire populations).

*Finding*

Based on our review of the best available scientific and commercial information pertaining to the Act's five threat factors, we find that the stressors acting on the species and its habitat, either singly or in combination, are not of sufficient imminence, intensity, or magnitude to indicate that the Arkansas darter is currently in danger of extinction (an endangered species), or likely to become endangered within the foreseeable future (a threatened species). In conclusion, we find that this species no longer warrants listing throughout its range.

We evaluated the current range of the Arkansas darter to determine if there is any apparent geographic concentration of potential threats for the species. Groundwater withdrawals are currently impacting portions of the upper, central, and lower Arkansas River basins in Kansas, Oklahoma, and Colorado, an area representing approximately 25 percent of geographic range of the Arkansas darter. Additional stressors outside of this area are generally low level, localized impacts not affecting entire populations. The 25 percent of the range affected by groundwater withdrawal does not meet the biologically

based definition of "significant" (i.e., the loss of that portion clearly would not be expected to increase the vulnerability to extinction of the entire species). If that 25 percent of the range were lost, the species would still have approximately 75 percent of its geographic range in areas that are not expected to be subject to the negative effects of water depletion. Therefore, we determined that there are no significant portions of the species' range where the Arkansas darter meets the definition of an endangered or a threatened species and that the best available scientific and commercial information indicates this species is no longer in danger of extinction (endangered) or likely to become endangered within the foreseeable future (threatened) throughout all or a significant portion of its range.

Arkansas darter populations appear to be resilient to threats identified in previous status assessments; these threats are now believed to have fewer impacts on the Arkansas darter than previously understood; the species is expected to maintain a high level of redundancy and representation into the future; we know of more currently-occupied populations then we have in previous assessments; and while groundwater withdrawals affecting water depletion are expected to continue in approximately 25 percent of the range, we do not expect to see a reduction in redundancy of the species overall (e.g., no loss of Arkansas darter populations). Therefore, we find that listing the Arkansas darter as an endangered or threatened species is not warranted at this time, and consequently we are removing it from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by

September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the Arkansas darter, and constitutes the Service's 12-month finding on the May 4, 2004, petition to list the Arkansas darter as an endangered or threatened species. A detailed discussion of the basis for this finding can be found in the Arkansas darter's species-specific assessment form, SSA Report, and other supporting documents (see **ADDRESSES**, above).

**Black Mudalia (*Elimia melanoides)***

*Previous Federal Actions*

The Service first identified black mudalia as a candidate for listing in the September 12, 2006, CNOR and assigned an LPN of 2 based on imminent, high-magnitude threats (71 FR 53756). In the December 6, 2007, CNOR, we concluded that the threats were at the time moderate in magnitude and changed the LPN to 8 (72 FR 69034). We retained the LPN of 8 in all subsequent CNORs (see December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584)).

On April 20, 2010, we received a petition from the Center for Biological Diversity requesting that the Service list 404 species, including black mudalia, as endangered or threatened. No new information regarding black mudalia was presented in the petition, and on September 27, 2011, we published a 90-day finding (76 FR 59836).

*Background*

The species formerly described as the black mudalia is a small species of aquatic snail growing to 13 millimeters (mm) (0.5 inches (in)) in length and belongs to the aquatic snail family of Pleuroceridae. The species formerly described as the black mudalia was found clinging to clean gravel, cobble, boulders, and/or logs in flowing water on shoals and riffles within five streams in the Locust Fork drainage in Jefferson and Blount Counties, Alabama.

*Summary of Status Review*

The following summary is based on our review of the best available scientific and commercial information. No new information was provided in the petition we received on April 20, 2010. The species was described from "rivers in North Alabama" by T.A. Conrad as *Anculosotus melanoides,* but he failed to provide a specific type of locality. For the second half of the 20th century, the black mudalia was considered to be extinct. However, in 2003, Dr. Russell Minton published a paper on the apparent rediscovery of the species, with a re-description of what he believed was Conrad's black mudalia. He designated an individual from the upper Black Warrior Basin as the neotype—a biological specimen that is selected as the type specimen when the holotype (a single specimen chosen for designation of a new species), lectotype (a specimen chosen from syntypes to designate types of species), or any syntypes (any one specimen of a series used to designate a species when the holotype has not been selected) have been lost or destroyed—and restricted the type locality to one site on the Little Warrior River in Blount County, Alabama; however, the neotype is currently unavailable for study.

Recently, the Service's Alabama Ecological Services Field Office learned that a

specimen at the Museum of Comparative Zoology in Boston, Massachusetts, identified by T.A. Conrad as *A. melanoides* is not the same species that was described by Minton *et al*. (2003). Therefore, we cannot with any certainty determine the status of either the entity that Conrad (1834) first described as *A. melanoides*, or the entity that Minton *et al*. (2003) re-described as *E. melanoides*. Additional taxonomic review, led by the Smithsonian Institution, is underway as of early 2016. The results of this review will require additional efforts to define *Elimia* spp. boundaries, status, and distribution within the Black Warrior River Basin.

*Finding*

The Act only allows listing of "species" as defined under Section 3(16)—that is, recognized species, subspecies, or distinct population segments of vertebrates. Based on our review of the best available scientific and commercial information, and in light of the best available scientific information regarding taxonomic uncertainty described above, we conclude that the black mudalia is not currently a recognized "species." We are therefore removing the black mudalia from candidate status pending further study.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the black mudalia, and constitutes the Service's 12-month finding on the April 20, 2010, petition to list the

black mudalia as an endangered or threatened species. A detailed discussion of the basis for this finding can be found in the black mudalia's species-specific assessment form and other supporting documents (see **ADDRESSES**, above).

**Highlands Tiger Beetle (*Cicindela highlandensis*)**

*Previous Federal Actions*

The Highlands tiger beetle was first recognized as a candidate species on November 21, 1991 (56 FR 58804), when we assigned the species an LPN of 2. In the October 30, 2001, CNOR (66 FR 54808), we changed the LPN for the Highlands tiger beetle from 2 to 5, because the immediacy of threats to the species' scrub habitat had decreased with the acquisition of scrub habitat by the State of Florida and conservation groups. On May 11, 2004, the Service received a petition dated May 4, 2004, from the Center for Biological Diversity and others to list 225 species as endangered or threatened, including the Highlands tiger beetle. The species was maintained as a candidate with an LPN of 5 through the 2015 CNOR (see June 13, 2002 (67 FR 40657); May 4, 2004 (69 FR 24876); May 11, 2005 (70 FR 24870); September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584)).

*Background*

The Highlands tiger beetle is elongate with an oval shape and bulging eyes, and is one of the smallest (7.0–9.5 mm) (0.28–0.37 in) tiger beetles in the United States. As is typical of other tiger beetles, adult Highlands tiger beetles are active diurnal predators

that use their keen vision to detect movement of small arthropods and run quickly to capture prey with their well-developed mandibles (jaws). Tiger beetle larvae have an elongate white grub-like body and a dark or metallic head with large mandibles. Larvae are sedentary sit-and-wait predators occurring in permanent burrows flush with the ground surface. When feeding, larvae position themselves at the burrow mouth and quickly strike at and seize small arthropods that pass within a few centimeters of the burrow mouth. Larvae prey on small arthropods, similar to adults.

The Highlands tiger beetle occurs primarily in open sandy patches of Florida scrub habitat on the Lake Wales Ridge in Highlands and Polk Counties. The Lake Wales Ridge is one of the largest and oldest Florida scrub ecosystems. The harsh environment on the Lake Wales Ridge is characterized by hot weather, nutrient-poor sandy soils, and (historically) frequent wildfires. The Highlands tiger beetle is often associated with evergreen scrub oaks, as well as high pineland with deciduous turkey oak (*Quercus laevis*) and longleaf pine (*Pinus palustris*). High-quality habitat for the species is primarily scrub or sandhill having natural or management-created interior patches with a high percent of open sand (greater than 50 percent) that is continuous or connected to adjacent open patches by lightly disturbed trails or paths. The known extant range of the Highlands tiger beetle exists in the core of the suitable (scrub) habitat in the central and south-central portion of the Lake Wales Ridge, approximately 90 km (56 mi) in length and about 10 km (6 mi) in width).

*Summary of Status Review*

The following summary is based on information contained in our files. The Highlands tiger beetle is narrowly distributed and restricted to areas of bare sand within

scrub and sandhill on ancient sand dunes of the Lake Wales Ridge in Polk and Highlands Counties, Florida. Adult tiger beetles have been found in 56 of the total 71 sites surveyed at the core of the Lake Wales Ridge. In 2004-2005 surveys, a total of 1,574 adults were found at four sites. A total of 643 adults at 31 sites were found in 1996, 928 adults at 31 sites in 1995, and 742 adults at 21 sites in 1993. A visual reference count of 2,231 adults was found from 46 sites in 2014. This increase in index counts over time can be attributed to new survey sites and finding a large number of beetles at these sites. Estimates from the visual reference (index) counts are used to provide an estimate of the populations. Results from a limited removal study suggest that the actual population size at some survey sites can be as much as two to three times as high as the visual reference. In addition, surveys for Highland tiger beetles were not exhaustive, and there are additional potential suitable habitats. An estimate of beetle numbers likely present in these additional potential habitats added to the modified index count produces an estimated minimum total abundance of 10,438 adults in at least 16 populations. Based on these expanded surveys and the findings of additional large beetle populations at these sites, it is determined that the Highland tiger beetle is more abundant than previously documented, and its habitat is of much better quality than previously documented. Of the 15 sites with the largest populations, 7 sites show an increase in number of individuals. The number of occupied sites identified as high or good quality also increased from 13 in 2005, to 21 in 2014, and of the currently known sites nearly half of them (21 of 46) are of high or good quality.

We evaluated all known potential impacts to the Highlands tiger beetle, including the Act's five threat factors. While these impacts were previously believed to pose

imminent or significant threats to the species, and some may have caused losses to individuals or habitat, the updated information we received regarding species' occurrence and population size has improved our understanding on how the stressors affect the status of species. In our current candidate assessment, we evaluated the best available scientific and commercial information, and concluded that the species is resilient to these stressors and that current impacts to the species are not as strong as previously believed. Approximately 43.4 percent of the existing potential suitable habitat for the species is protected conservation lands. While fragmentation of the Lake Wales Ridge scrub and sandhill habitats exists, 63 percent of the Highlands tiger beetle populations occur on these protected conservation lands, including three of the largest known populations. These lands are managed for the scrub habitat and species, including the Highlands tiger beetle, through government and private partnership prescribed burn programs, invasive species control, best management practices, and enforcement and protection of the resources. Fragmentation of the habitat was identified as a stressor compromising the dispersal capabilities of Highlands tiger beetle populations. However, the new information on the number and distribution of occupied sites and population size indicates that the threat to the dispersal capabilities of the species is not as high as previously reported. New sites have been identified in four populations across the north to south range of the species, and the Lake Wales Ridge as a whole has areas of open lands, remnant scrub and sandhill, and patchworks of scrub roadside habitat that can act as corridors or "stepping stones" for Highlands tiger beetle movement and flight, making active migration to new sites or the exchange of individuals between sites feasible for this

species. In addition, storm winds, water flow, rafting transport, and animals are possible means of stochastic dispersal of individual beetles.

As a result of the new information and analysis, we no longer consider the threats originally identified in our previous 12-month finding for the Highlands tiger beetle to be current or foreseeable threats for the following reasons: (1) The species is larger in individual numbers and occurs in more sites across its range than previously documented; (2) the populations occur primarily on protected conservation lands; (3) more than half of the potential suitable habitat for the species consists of protected lands under conservation management, with new conservation lands and conservation banks acquired in 2014; (4) the species occurs in 16 populations across 225,920 acres (91,426 hectares) or 353 square miles (920 square kilometers), and existing unsurveyed suitable habitat occurs in the species' range; (5) new survey information has identified an increased number of sites graded as "high" and "good" quality habitat for the Highlands tiger beetle; (6) the analysis reveals annual prescribed burning schedules are being implemented across the range of the Highlands tiger beetle on government and private conservation lands; and (7) the stressors identified in the 2015 candidate assessment, including collections, occur at the individual level but are not rising to the level of population or species impacts.

Overall, current information from additional surveys indicates an increase in occupied sites with a large increase in the number of beetles. Most threats are being addressed through the presence of large populations of the species occurring on protected lands and through the management actions that occur on these lands. Any actual impact from threats occurs at the individual, not population or species, level, and no impact,

individually or cumulatively, rises to the level that it contributes to making the species meet the definition of "threatened species" or "endangered species."

*Finding*

Based on our review of the best available scientific and commercial information pertaining to the Act's five threat factors, we find that the current stressors acting on the species and its habitat are not of sufficient imminence, intensity, or magnitude to make the Highlands tiger beetle warrant listing throughout the species' range at this time. Because the distribution of the species is relatively stable across its range and stressors are similar throughout the species' range, we found no concentration of stressors that suggests that the Highlands tiger beetle may be in danger of extinction or likely to become so in any portion of its range. With the documentation of 16 newly identified occupied sites, the identification of improved habitat quality, and the existing estimated adult beetle count of over 10,000 individuals in 56 sites, we find that Highlands tiger beetle is no longer in danger of extinction (endangered) or likely to become endangered within the foreseeable future (threatened) throughout all of its range or any portion of its range. Therefore, we find that listing the Highlands tiger beetle as an endangered or a threatened species is not warranted throughout all or a significant portion of its range at this time, and consequently we are removing this species from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that

were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the Highlands tiger beetle, and constitutes the Service's 12-month finding on the May 11, 2004, petition to list the Highlands tiger beetle as an endangered or threatened species. A detailed discussion of the basis for this finding can be found in the Highland tiger beetle's species-specific assessment form and other supporting documents (see **ADDRESSES**, above).

***Dichanthelium (=panicum) hirstii* (Hirst Brothers' Panic Grass)**

*Previous Federal Actions*

In 1975, *Panicum hirstii* (i.e., *Dichanthelium hirstii*'s former scientific name; see *Summary of Status Review*, below) was 1 of more than 3,000 vascular plants included in a Smithsonian Institution report entitled "Report on Endangered and Threatened Plants of the United States" (Report) that the Service subsequently treated as a petition under the Act (40 FR 27824; July 1, 1975). The **Federal Register** notice indicated that *P. hirstii* and the other plants were under consideration for listing, and the notes of endangered or threatened after each species' name solely represented the views of the authors of the Report. The Report indicated that *P. hirstii* occurred in Georgia and placed it in the endangered category. The Service did not publish another species notice of review until 1980.

In 1980, *Panicum hirstii* was considered a Category 2 candidate species (45 FR 82480; December 15, 1980). Category 2 candidate species were identified as those taxa for which the Service possessed information indicating proposing to list the taxa was possibly appropriate, but for which conclusive data on biological vulnerability and threats

sufficient to support a proposed listing rule was lacking. *Panicum hirstii* remained a Category 2 candidate species in the subsequent plant notices of review in 1983, 1985, 1990, and 1993 (48 FR 53640, November 28, 1983; 50 FR 39526, September 27, 1985; 55 FR 6184, February 21, 1990; 58 FR 51144, September 30, 1993). The Service did not publish any other notices of review for plants during this time period.

The Service revised candidate categories in 1996, and *Panicum hirstii* was not included as a candidate species under the updated categorization (61 FR 7596; February 28, 1996). The revised categories further defined a candidate species as a species for which we have on file sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which development of a listing regulation is precluded by other higher-priority listing activities.

In 1999, the Service included *Panicum hirstii* as a new candidate species, using the updated definition, through its own internal assessment process (i.e., not via a petition), and assigned it an LPN of 5, meaning it was a species with a high magnitude of nonimminent threats (64 FR 57534, October 25, 1999). *Panicum hirstii* was included in the subsequent annual CNORs with an LPN of 5 in 2001, 2002, and 2004 (66 FR 54808, October 30, 2001; 67 FR 40657, June 13, 2002; 69 FR 24876, May 4, 2004). The Service did not publish a CNOR in 2003.

On May 11, 2004, we received a petition dated May 4, 2004, from the Center for Biological Diversity and other groups and individuals requesting that the Service list *Panicum hirstii* and 225 other candidate species as endangered species or threatened species under the Act. In 2005, the Service again made a warranted-but-precluded finding for the plant, with an LPN of 5, but noted a change in its scientific name to

*Dichanthelium hirstii* (70 FR 24870, May 11, 2005). In 2006 through 2014, *D. hirstii* remained a candidate with an LPN of 5 (see September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), and December 5, 2014 (79 FR 72450)). In 2015, *D. hirstii* was included as a candidate in the CNOR, but the LPN was elevated from 5 to 2, indicating a species with a high magnitude of imminent threats (80 FR 80584, December 24, 2015).

*Background*

*Dichanthelium hirstii*, as referenced in some literature, is a perennial, wetland-obligate grass that is currently estimated to occur in eight locations distributed across four States: New Jersey (Barkwoods Pond, Labounsky Pond, and Berlin Avenue Bogs North in Atlantic County, and Hampton Furnace Pond in Burlington County); Delaware (Assawoman Pond in Sussex County); North Carolina (Starretts Meadow and Lyman Road in Onslow County); and Georgia (Leslie Pond in Sumter County). A ninth location, in Calhoun County, Georgia, is considered historical.

*Summary of Status Review*

The plant that the Service has been referring to as either *P. hirstii* or *D. hirstii* has always had a complex taxonomic history, and has undergone several changes to its scientific name as understanding about its distribution and morphology has evolved. The Flora of North America (FNA) is one source of information available to the Service and is considered the taxonomic authority for plants in North America because it is a comprehensive, systematic taxonomic account of the plants of North America. While

several authors have published regional flora and descriptions that recognize *Panicum hirstii*/*Dichanthelium hirstii* as a separate entity, few have published taxonomic treatments. The last taxonomic treatment was the 2003 FNA, which is a complete taxonomic treatment of the *Dichanthelium* genus and the species therein, that explicitly relegates *P. hirstii*/*D. hirstii* to a synonym of *D. dichotomum* ssp. *roanokense* (Ashe). This indicates that the plant the Service had considered a candidate species is not a valid taxon and is a component of a larger, more widespread species that appears to grow on the coastal plain from Delaware to southeastern Texas and in the West Indies. Although the Integrated Taxonomic Information System (ITIS; *http://www.itis.gov/*) reports that *Dichanthelium hirstii* is an accepted species and the Service often relies on ITIS as a reliable database source of taxonomic information, in this instance ITIS is incorrect. Given this closer review of the taxonomic history of *P. hirstii*/*D. hirstii*, the Service recognizes that we overlooked the significance of the synonymy information, and in retrospect should not have included *P. hirstii* or *D. hirstii* as a candidate species. While the 2015 published and draft documents of McAvoy *et al*. and Weakley, respectively, and the ITIS database information are more recent than the 2003 FNA's published treatment, those documents and database do not individually or collectively represent a more comprehensive systematic analysis of the plant's taxonomic status because they are not full taxonomic treatments of *Panicum* and *Dichanthelium*. Therefore, the Service considers the FNA's 2003 treatment of *Panicum* and *Dichanthelium* as representing the best available scientific and commercial information regarding the plant's taxonomic status. The FNA's treatment indicates that neither *P. hirstii* nor *D. hirstii* is considered a species, subspecies, or variety. Therefore, the best available scientific and commercial

information indicates that *P. hirstii*/*D. hirstii* does not meet the Act's definition of a species.

*Finding*

Based on the best available scientific and commercial information, we find that *Dichanthelium hirstii* does not meet the Act's definition of "species" and is, therefore, not a listable entity under the Act. *Dichanthelium hirstii* was subsumed into *D. dichotomum* ssp. *roanokense* (Ashe), which "grows on the coastal plain from Delaware to southeastern Texas and in the West Indies." As a result, we are removing *Dichanthelium hirstii* from the candidate list.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the Hirst Brothers' panic grass, and constitutes the Service's 12-month finding on the May 4, 2004, petition to list the Hirst Brothers' panic grass as an endangered or threatened species. A detailed discussion of the basis for this finding, including a complete review of the taxonomic history, can be found in the Hirst Brothers' panic grass's species-specific assessment form and other supporting documents (see **ADDRESSES**, above).

**Two Kentucky Cave Beetles (Louisville Cave Beetle (*Pseudanophthalmus troglodytes*) and Tatum Cave Beetle (*Pseudanophthalmus parvus*)**

*Previous Federal Actions*

The Louisville cave beetle and Tatum Cave beetle were added to the Federal list of candidate species in the November 15, 1994, CNOR (59 FR 58982) as Category 2 species. Category 2 candidate species were identified as those taxa for which the Service possessed information indicating proposing to list the taxa was possibly appropriate, but for which conclusive data on biological vulnerability and threats sufficient to support a proposed listing rule was lacking. The February 28, 1996, CNOR (61 FR 7596) discontinued recognition of categories, so both species were no longer considered candidate species and were therefore removed from the candidate list.

In the October 30, 2001, CNOR, the Service re-evaluated both cave beetle species, and placed them back on the candidate list through the Service's own internal process with an LPN of 5 (66 FR 54808). The Service received a petition from the Center for Biological Diversity and others, dated May 11, 2004, to list eight cave beetles, including the Louisville cave beetle and Tatum Cave beetle, as endangered or threatened species. In the May 11, 2005, CNOR (70 FR 24870), the Service determined that listing the Louisville cave beetle and Tatum Cave beetle was warranted but precluded by higher priority listing decisions. Further, we have included both species addressed in this finding in every CNOR since 2001 (see October 30, 2001 (66 FR 54808); June 13, 2002 (67 FR 40657); May 4, 2004 (69 FR 24876); May 11, 2005 (70 FR 24870); September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584)).

*Background*

These two species are small (about 4 mm (0.16 in)) in length), predatory cave beetles that occupy moist habitats containing organic matter transported from sources outside the cave environment. Members of the *Pseudanophthalmus* genus vary in rarity from fairly widespread species that are found in many caves to species that are extremely rare and commonly restricted to one or only a few cave habitats. The Louisville cave beetle is restricted to four caves in Jefferson County, Kentucky, while the Tatum Cave beetle is known from one cave (Tatum Cave) in Marion County, Kentucky.

*Summary of Status Review*

When the Louisville cave beetle and Tatum Cave beetle were identified as candidates for protection under the Act in the October 30, 2001, CNOR (66 FR 54808), the Service considered both species to be vulnerable to toxic chemical spills, discharges of large amounts of polluted water, closure or alterations of cave entrances, and the disruption of cave energy processes by highway construction and industrial, residential, and commercial development. Our general perception was that both species were vulnerable to these habitat stressors, and we suspected that these stressors were significant and the species' overall population trends were likely decreasing. We also noted the lack of State or Federal regulations to ameliorate those threats. In the May 11, 2005, CNOR (70 FR 24870), we noted both species' limited distribution and how that would increase their vulnerability to isolated events that would have only a minimal effect on more wide-ranging members of the genus *Pseudanophthalmus*. Both species were assigned an LPN of 5.

Louisville Cave Beetle

Over the last 2 years, field surveys for the Louisville cave beetle have provided new information on the species' distribution and stressors. Based on this new information, we have re-examined the species' status and re-evaluated the magnitude and imminence of its threats. Lewis and Lewis confirmed the continued presence of *P. troglodytes* in Eleven Jones Cave (a period of 20 years) and observed the species in three new caves (Sauerkraut Cave, Cave Hill Cave, and Cave Creek Cave), demonstrating that the species is more abundant and widespread than previously believed. The species was difficult to find in each of these caves (one to four individuals observed), but this is not unusual for the genus *Pseudanophthalmus*, which is often difficult to find and is frequently observed in low numbers. Population estimates or discernable trends for these populations have not been possible due to the low number of individuals observed and the difficulty in finding specimens during repeat visits. We acknowledge that caves within the species' range likely continue to be affected by many of the same stressors identified by previous investigators: reduced energy inputs, sedimentation, pollution, and human visitation. However, we have no evidence that these stressors are operative threats that are adversely affecting *P. troglodytes* at a population level.

Tatum Cave Beetle

With respect to the Tatum Cave beetle, we have no evidence suggesting that the species is still extant in Tatum Cave. The species was relatively abundant (20 individuals) in Tatum Cave when first observed by C. H. Krekeler in 1957, but the species appeared to be less common in 1965, when T. C. Barr observed only two individuals. Since 1965, extensive surveys of Tatum Cave have been completed on eight separate occasions, using search techniques similar to those used by C. H. Krekeler and T. C. Barr (i.e., methodical

visual searches of all available habitats). Three of these survey efforts also involved the use of baited pitfall traps (small cups buried in the substrate and baited with limburger cheese) placed in several locations within Tatum Cave for a period of one week. Despite all of these searches, no Tatum Cave beetles have been observed in Tatum Cave since the last observation by Barr in 1965 (a period of 51 years).

The Tatum Cave beetle is small in size and may be more difficult to locate than some cave organisms; however, both Krekeler and Barr were able to find the species using methodical, visual searches of suitable habitats in Tatum Cave. Subsequent researchers have used identical search methods on eight separate occasions in the exact same habitats within Tatum Cave, but no Tatum Cave beetles have been observed. Therefore, based on our review of the best available scientific and commercial information, the Service believes the Tatum Cave beetle to be extinct. We acknowledge that it is difficult, if not impossible, to verify a species' extinction. There is considerable uncertainty about the actual status of the species, and we acknowledge that, as suggested by Lewis and Lewis, there is some chance that the species remains extant but occurs in low numbers and is simply undetectable using traditional search methods. However, considering the best available scientific and commercial information, we believe that it is reasonable to conclude that the species is extinct. The Service encourages continued surveys for the Tatum Cave beetle in Tatum Cave, as time and funding allow. If the species is subsequently found to be extant, we can reevaluate its legal status under the Act in the future.

*Finding*

Louisville Cave Beetle

Based our review of the best available scientific and commercial information pertaining to the Act's five threat factors and our review of the species' status, we conclude that the Louisville cave beetle is not subject to the degree of threats sufficient to indicate that it is in danger of extinction (an endangered species), or likely to become endangered within the foreseeable future (a threatened species), throughout all of its range.

We evaluated the current range of the Louisville cave beetle to determine if there is any apparent geographic concentration of potential threats for this species. It has a relatively small range that is limited to four caves. We examined potential stressors including human visitation and disturbance, commercial and residential development, sources of water quality impairment, and small population size. We found no concentration of stressors that suggests that the species may be in danger of extinction in any portion of its range. Therefore, we find that listing the Louisville cave beetle as an endangered species or a threatened species under the Act throughout all or a significant portion of its range is not warranted at this time, and consequently we are removing it from candidate status.

Tatum Cave Beetle

A review of the best available scientific and commercial information, leads us to believe that the Tatum Cave beetle is extinct, and, as such, it is not eligible for listing as an endangered species or a threatened species under the Act. Therefore, we did not further evaluate whether the Tatum Cave beetle is in danger of extinction throughout its range (an endangered species), likely to become in danger of extinction throughout its range in the foreseeable future (a threatened species), or whether the species is an

endangered or threatened species in a significant portion of its range.

Therefore, we find that listing the Louisville cave beetle and Tatum Cave beetle as endangered or threatened species under the Act throughout all or a significant portion of their respective ranges is not warranted at this time, and consequently we are removing both species from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the Louisville cave beetle and Tatum Cave beetle, and constitutes the Service's 12-month finding on the May 11, 2004, petition to list the Louisville cave beetle and Tatum Cave beetles as endangered or threatened species under the Act. A detailed discussion of the basis for this finding can be found in the Louisville cave beetle's and Tatum Cave beetle's species-specific assessment form and other supporting documents (see **ADDRESSES**, above).

**Relict Leopard Frog (*Lithobates onca*)**

*Previous Federal Actions*

On May 9, 2002, the Service received a petition from the Center for Biological Diversity and Southern Utah Wilderness Alliance (SUWA) seeking to list the relict leopard frog and designate critical habitat, under the authority of the Act. The petition identified information regarding the species' ecology, historical and current distribution,

present status, and actual and potential causes of decline.

Prior to receipt of the May 2002 petition, the Service was involved in coordinated conservation efforts for the relict leopard frog among multiple partners and was aware of the species' status. On June 13, 2002, the Service's CNOR determined the species (as *Rana onca*) warranted listing but that listing was precluded by higher priorities; therefore, it became a candidate species with an LPN of 5 (67 FR 40657).

In 2006, the species' LPN was lowered to 11, and remained at that LPN through the 2010 CNOR (see September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), and November 10, 2010 (75 FR 69222)). The lower priority ranking resulted from the development of the 2005 Relict Leopard Frog Conservation Agreement and Strategy (Conservation Agreement) and implementation of conservation actions by the relict leopard frog Conservation Team (Conservation Team), which led to an overall reduction in most threats and an overall improvement in the species' status. On October 26, 2011 (76 FR 66370), we changed the species' LPN to 8, due in part to the discovery of chytrid fungus (*Batrachochytrium dendrobatidis* (Bd)) in relict leopard frogs in 2010, and we maintained an LPN of 8 for the species through the 2015 CNOR (see November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584)). In 2010, we recognized the scientific name of the relict leopard frog as *Lithobates onca* (see November 10, 2010 (75 FR 69222)).

*Background*

Relict leopard frogs are endemic to the Colorado, Virgin, Santa Clara, and Muddy Rivers and associated springs in Nevada, Arizona, and Utah. Relict leopard frogs appear

to require habitat heterogeneity (consisting of diverse habitat types) in the aquatic and terrestrial environments. Relict leopard frogs historically occupied a variety of habitats including springs, streams, and wetlands characterized by clean, clear water with various depths, and cover such as submerged, emergent, and perimeter vegetation. Nonnative predators such as Louisiana red swamp crayfish (*Procambarus clarki*), American bullfrogs (*Lithobates catesbeiana*), and nonnative fish are associated with extirpation of relict leopard frogs.

The relict leopard frog currently occurs at 8 natural sites—three in the Northshore Springs Complex (along the base of the Muddy Mountains near the Overton Arm area of Lake Mead) and five in the Black Canyon (below Lake Mead). Natural sites are those sites that support wild populations of relict leopard frogs that were not established through translocation effort.

The Northshore Springs Complex and Black Canyon populations represent distinct relict leopard frog metapopulations, wherein each metapopulation consists of smaller, spatially separated populations that occasionally interact through the movement of individuals between them, but do not interact with the other metapopuation. Within the Northshore Springs Complex, dispersal of relict leopard frogs may be possible between Blue Point and Rogers Springs. Migration and dispersal among sites also appears likely in Black Canyon but not between the two metapopulations.

In addition to natural sites, relict leopard frogs were introduced to 15 sites, 11 of which are extant. Introduction sites are those estimated by deliberately translocating relict leopard frogs to suitable habitat within the assumed historical range. All extant natural and introduction sites occur on lands managed by the National Park Service (NPS),

Bureau of Land Management (BLM), Bureau of Reclamation (BR), and the Service. There is low genetic variation within the relict leopard frog, which may indicate a history of bottlenecking or small effective population size.

*Summary of Status Review*

Conservation Actions Implemented

The Conservation Team was established in March 2001, and has since met at least twice each year for the past 15 years to establish and carry forward the conservation and monitoring program for the relict leopard frog. The Conservation Team has included Federal, State, and local representatives from the Service, NPS, BLM, BR, the Environmental Protection Agency, the Nevada Department of Wildlife, the Arizona Game and Fish Department, the Utah Division of Wildlife Resources, Clark County (Nevada), the Southern Nevada Water District (including the Las Vegas Springs Preserve), the University of Nevada-Las Vegas, and the University of Nevada-Reno. The primary objective of the Conservation Team was to develop and implement the 2005 Conservation Agreement. Much conservation occurred prior to finalization of the Conservation Agreement, and the Conservation Team developed the first annual work plan in 2003. Conservation actions continue to be implemented by partners through annual work plans. Revision of the Conservation Agreement is in development with an anticipated completion date of late 2016. Part of the management effort the Conservation Team undertakes to increase population sizes and expand the distribution of the species is to collect portions of relict leopard frog egg masses from natural sites, and then captive-rear and translocate them to appropriate sites as late-stage tadpoles and juvenile frogs.

The Conservation Team may augment any population, natural or introduction, as determined necessary to conserve the species.

The main relict leopard frog conservation actions, both those completed and ongoing into the foreseeable future, are:

- Remove or substantially minimize threats to extant populations and occupied habitats.
- Enhance existing habitat and/or create new habitats where feasible.
- Establish additional populations of relict leopard frogs in existing or created habitats.
- Manage relict leopard frogs and their habitats to ensure persistence in diverse aquatic ecosystems, and facilitate processes that promote self-sustaining populations.
- Monitor relict leopard frog populations.
- Investigate the conservation biology of the relict leopard frog, and use the results of such investigations to better meet the overall conservation goal and objectives.

Current Analysis of Stressors Impacting the Relict Leopard Frog

In completing our status review for the relict leopard frog, we reviewed the best available scientific and commercial information, and compiled this information in the SSA Report for the relict leopard frog. We evaluated the potential threats (identified in the SSA Report as "stressors" or "potential stressors," and consistent with the Act's five threat factors identified in the SSA Report) that may be operative upon the relict leopard frog currently or in the future.

As required by the Act, we considered the five threat factors in assessing whether the relict leopard frog is endangered or threatened throughout all or a significant portion

of its range. We examined the best scientific and commercial information available regarding the past, present, and future stressors faced by the relict leopard frog. We reviewed the information available in our files and other available published and unpublished information, and we consulted with recognized relict leopard frog species and habitat experts and other Federal, State, and tribal agencies. Listing under the Act is warranted if, based on our review of the best available scientific and commercial information, we find that the stressors to the relict leopard frog are so severe or broad in scope as to indicate that the species is in danger of extinction (endangered), or likely to become endangered within the foreseeable future (threatened), throughout all or a significant portion of its range.

In the SSA Report we evaluated each of the potential stressors for the relict leopard frog, and we determined that the following factors have impacted, or may impact individuals, specific sites, or portions of suitable habitat in the future: (1) Alteration of natural spring and groundwater systems and reduced habitat connectivity; (2) overgrowth of emergent vegetation and nonnative or invasive plants; (3) excessive disturbance due to feral horses, burro, and livestock use; (4) disease; (5) nonnative fish predation; (6) small population size; and (7) climate change, flash flood events, and wildfire. Although these stressors may continue to affect the relict leopard frog, they are not causing a population-level risk to the species now nor are they expected to do so into the foreseeable future. Overutilization and crayfish and bullfrog predation were evaluated in the SSA Report for the relict leopard frog but were found to result in no or low impacts, respectively, across the species' range. Thus, we do not discuss overutilization or predation further in this document. We have summarized the threats analysis from the SSA Report below. A

complete description of those stressors and threats, and how they affect the viability of the species, is included in the SSA Report.

The effects of historical alteration of natural riverine and groundwater systems and reduced habitat connectivity to the relict leopard frog at the individual or site-specific level are ongoing and may continue into the future. However, there have not been any recent alterations of natural riverine and groundwater systems and reduced habitat connectivity on relict leopard frog populations and their habitat. Historical modification to the Colorado and Virgin rivers effectively isolated the two metapopulations of relict leopard frog, and they will most likely never be reconnected. Although the two relict leopard frog metapopulations and most relict leopard frog introduction sites are not connected, ongoing management actions by the Conservation Team minimizes population isolation through captive rearing and translocation of frogs to targeted sites. We conclude that there are effects to relict leopard frog populations and perhaps the species from historical alteration of natural riverine and ground water systems and reduced habitat connectivity, but these the effects are low in severity and do not threaten the persistence of the species.

Some sites can have overgrowth of vegetation that can have adverse effects on relict leopard frogs that reduce the extent of surface water and habitat for breeding and feeding. These effects from overgrowth of vegetation are low in severity because they are reduced by storms that remove vegetation through scouring, by manual removal, and by grazing.

Burro and cattle grazing have both degraded and improved aquatic habitat at some sites. Controlled, low-level grazing typically provides disturbance that benefits frog

habitat by removing excess vegetation. If grazing increases to heavy use, habitat conditions may become degraded. Similarly, burro and cattle grazing are not having a population-level effect to the relict leopard frog now or into the future.

Disease and nonnative fish predation have been evaluated and monitored by the Conservation Team. The presence of the chytrid fungus, *Batrachochytrium dendrobatidis* (Bd) in relict leopard frogs at Lower Blue Point Spring warrants further evaluation of its impact to the species. Although there is evidence that Bd is present in one population, there is no indication any frogs have been adversely affected by disease. The Conservation Team will continue to monitor populations for effects of disease. Any potential effects at the individual or site- specific level resulting from nonnative fish in the Northshore Springs Complex and Corn Creek are low in severity. Disease and predation are not having a population-level effect on the relict leopard frog now, and such effects are not expected to occur in the future. The Conservation Team is taking action to improve the conditions for disease and predation through conservation measures (see "Conservation Actions Implemented," above).

The small population size is the focus of conservation efforts, including population augmentation and establishing introduction sites. Low numbers of individual frogs at a given site may increase risk and vulnerability of the species to other stressors. Although small population size can affect the species as a whole by reducing genetic diversity and possibly reducing the species' ability to adapt to changing environmental conditions, the best available scientific and commercial information shows that this species is capable of persisting into the foreseeable future with current population sizes and under existing levels of management by the Conservation Team. The potential for

effects of small population size has been, and will continue to be, minimized by actions taken by the Conservation Team, including habitat management and a captive-rearing program that produces frogs from eggs collected in the wild. These frogs are used to establish new sites and augment both natural and introduction sites, as appropriate. Conservation Team actions continue to minimize the potential for effects of small population size, and small population effects are not expected to affect the persistence of frogs at any site or population.

Climate change effects may result in reduced spring flow, habitat loss, increased severity of storms, flooding, and increased prevalence of wildfire that could adversely affect relict leopard frog populations. Although negative effects from climate change could occur to individuals or specific sites, species-level effects would not reach a level now or into the foreseeable future to the extent that rangewide numbers and distribution would be substantially reduced. The relict leopard frog Conservation Team has been addressing these stressors in the past, and ongoing efforts are planned to continue into the future.

We considered relevant Federal, State, and tribal laws and regulations when evaluating the status of the species. Regulatory mechanisms, if they exist, may preclude the need for listing if we determine that such mechanisms adequately reduce the stressors to the species such that listing is not warranted. The effects of applicable existing regulatory mechanisms are considered in our evaluation of the stressors acting on the species. Below, we briefly review those regulatory mechanisms aimed to help reduce stressors to the relict leopard frog and its habitat.

The relict leopard frog is protected by the State laws of Nevada, Arizona, and Utah. Nevada Revised Statutes (NRS) 533.367 states that before a person may obtain a right to the use of water from a spring or water that has seeped to the surface of the ground, that person must ensure that wildlife which customarily uses the water will have access to it. However, the State Engineer, who oversees all water rights, may waive this requirement for a domestic use of water (NRS 533.367). Authority provided by NRS 503.587 allows the Wildlife Commission to use its authority to manage land to carry out a program for conserving, protecting, restoring and propagating selected species of native fish, wildlife, and other vertebrates and their habitat, which are threatened with extinction and destruction. Also, habitat protection for the relict leopard frog is provided by Nevada Administrative Code 504.520, which prohibits alteration of a wetland or stream to the detriment of wildlife without a permit.

The Arizona Game and Fish Department (AGFD) classified the relict leopard frog as a Tier 1A Species of Greatest Conservation. Commission Order 41 of the AGFD regulations prohibits collection or hunting of relict leopard frogs, except under the authority of a special permit. Protection under Commission Order 41 provides protection to individual frogs, but not to habitat.

The Utah Division of Wildlife Resources classified the relict leopard frog as a Sensitive Species in Utah. State of Utah Rule 657-3 prohibits the collection, importation, and possession of relict leopard frogs without a certificate of registration but provides no protection of habitat.

All populations of the relict leopard frog occur on Federal land (Service, BLM, NPS, BR). Existing Federal laws, such as the NPS Organic Act of 1916, as amended (16

U.S.C. 1 et seq.), National Environmental Policy Act of 1976 (NEPA; 42 U.S.C. 4321 et seq.), and the National Wildlife Refuge System Improvement Act of 1997 (Pub. L. 105–57), have facilitated conservation efforts that have reduced the threats to the relict leopard frog. NPS and BLM manage all extant relict leopard frog sites except Pupfish Refuge and Corn Creek. The Pupfish Refuge occurs in a protected area of Hoover Dam and Corn Creek, and is an experimental population on a Service National Wildlife Refuge. NPS provides the captive-rearing facility, which is important for establishing and augmenting relict leopard frog populations.

BLM uses their regulatory mechanisms and authority to provide sites to establish new populations of relict leopard frog, a BLM sensitive species, and complete habitat improvements to benefit the species.

BLM's manual (6840—Special Status Species Management) establishes policy for management of BLM sensitive species under the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.). BLM sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the Act. BLM is a member of the Conservation Team and implements or authorizes conservation actions for the conservation of the relict leopard frog.

The National Wildlife Refuge System Improvement Act of 1997 provides the mission for the Service's wildlife refuges to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats for the benefit of present and future

generations of Americans. Each refuge is required to fulfill this mission and provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System. Within the range of the relict leopard frog, the Desert National Wildlife Refuge would complement efforts of States and other Federal agencies to conserve fish and wildlife and their habitats, and to assist in the maintenance of adequate water quantity and water quality to fulfill the mission. Prior to release of relict leopard frogs at Corn Creek, the Refuge eradicated bullfrogs and substantially improved conditions that created habitat for the relict leopard frog. The Refuge manager provides access to biologists to perform releases of frogs and monitor the population. The Refuge continues to control crayfish, maintain habitat conditions by removing excess vegetation, and inform the public about the species.

NPS and BLM authorities and regulatory mechanisms have successfully provided or facilitated conservation of the species (see "Conservation Actions Implemented," above). NPS, BLM, BR, and the Service are signatories on the Conservation Agreement and actively involved in all actions of the Conservation Team. Each agency coordinates development of annual work plans and utilizes their authority to implement conservation actions that benefit the species. Federal authorities and regulatory mechanisms have successfully provided or facilitated conservation of the species.

We did not find any stressors examined under the Act's threat factors A, B, C, and E to rise to the level of a threat that would cause us to determine listing of the relict leopard frog is warranted. Based on our review of the stressors combined with the beneficial effects that the various conservation efforts and regulatory mechanisms provided to the species , we find that the existing regulatory mechanisms (Factor D) are

adequate to address the stressors currently impacting the relict leopard frog and its habitat.

Regarding cumulative effects, there are potential stressors that may act together to affect relict leopard frogs at certain sites. Overgrowth of vegetation, nonnative plants and predators, and disease acting on small populations may adversely affect certain populations concurrently. Flash floods or wildfire may adversely affect a site at the same time as nonnative plants and predators. Reduced habitat connectivity adversely affects sites with small populations at the same time as overgrowth of vegetation, and nonnative plants and predators. Climate change may affect a site at the same time as grazing, wildfire, and flash floods. However, after evaluating the cumulative effects, we conclude that the magnitude of cumulative effects to the relict leopard frog is low to moderate. Most stressors adversely affect the relict leopard frog in a single geographic area due to the isolated distribution of most sites. Although individuals may be affected by cumulative effects in a single geographic area, there would not be population level effects to the species.

Multiple stressors on relict leopard frogs may act synergistically, exacerbating effects greater than what may be observed by individual stressors. The effects of climate change may increase the number and frequency of wildfires and flash flood events. The presence of nonnative plants can make the effects of excess vegetation worse. Overgrowth of vegetation may reduce habitat for breeding, potentially making small populations smaller. Disease and nonnative predators such as bullfrogs, crayfish, and fishes may also exacerbate the effects of small populations by removing frogs. We determined that synergistic effects may occur, although they are expected to be low in

magnitude. Most individual stressors adversely affect the relict leopard frog in a single geographic area, due to the isolated distribution of most sites. Although individuals may be affected by synergistic effects in a single geographic area, there would not likely be population-level effects to the species.

To minimize or mitigate effects from stressors affecting the relict leopard frog, the Conservation Team will continue monitoring populations and reintroducing frogs to sites should they become greatly reduced in numbers or extirpated due to the effects of one or more stressors.

*Finding*

Based on our review of the best available scientific and commercial information pertaining to the Act's five threat factors, we find that the stressors acting on the species and its habitat, either singly or in combination, are not of sufficient imminence, intensity, or magnitude to indicate that the relict leopard frog is in danger of extinction (an endangered species) throughout all of its range, or likely to become endangered within the foreseeable future (a threatened species) throughout all of its range.

Populations of relict leopard frogs are improving due to past conservation actions and current efforts to re-establish and increase naturally-occurring and reintroduced populations. Current and ongoing habitat management, establishment of new sites, and restoration activities have made substantial progress since their inception and are continuing into the future. We have determined that the number of frogs and habitat conditions at individual sites change from year to year and may vary widely, but the rangewide status of the species is stable or increasing.

After determining the species is not endangered or threatened throughout all of its range, we then conducted an analysis to determine if it was endangered or threatened throughout a significant portion of the species' range. To do this, we evaluated whether there was any portion of the species' range where threats were concentrated such that the species in that portion would be endangered or threatened, and that losing that portion of the range would cause the remainder of the species to be endangered or threatened. Once we determined that there was no geographic concentration of threats that would cause any portion of the species' range to be at greater risk of extinction, then we could conclude that no portion warranted further consideration. Therefore, we find that listing the relict leopard frog as an endangered or a threatened species throughout all of or a significant portion of its range under the Act is not warranted at this time, and, consequently, we are removing it from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the relict leopard frog, and constitutes the Service's 12-month finding on the May 8, 2002, petition to list the relict leopard frog as an endangered or threatened species. A detailed discussion of the basis for this finding, including the many effective conservation measures completed by the Conservation Team, can be found in the relict leopard frog's species-specific

assessment form, SSA Report, and other supporting documents (see **ADDRESSES**, above).

**Sicklefin Redhorse Sucker (*Moxostoma* sp.)**

*Previous Federal Actions*

The sicklefin redhorse sucker was originally made a candidate species in the May 11, 2005, CNOR (70 FR 24870), and it was included in the subsequent CNORs through 2015 (see September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), and December 5, 2014 (79 FR 72450)).

On April 20, 2010, we received a petition from the Center for Biological Diversity, requesting that the Service list 404 aquatic species as endangered or threatened species under the Act, including the sicklefin redhorse sucker. The petition included supporting information regarding the species' taxonomy and ecology, historical and current distribution, present status, and actual and potential causes of decline. In a partial 90-day finding on the petition to list 404 species, published on September 27, 2011 (76 FR 59836), the Service reaffirmed the existing candidate status of the sicklefin redhorse sucker.

*Background*

The sicklefin redhorse sucker (*Moxostoma sp*.), a freshwater fish species, can grow to a length of approximately 650 mm (roughly 25.6 in). It has an elongate, somewhat compressed body and a highly falcate (sickle shaped) dorsal fin (back fin). Its body is olive-colored, with a coppery or brassy sheen; its lower fins (pectoral, pelvic, and

anal fins) are primarily dusky to dark, often tinted yellow or orange and pale edged; the caudal fin (tail fin) is mostly red; and its dorsal fin is olive in color, sometimes partly red. Although the sicklefin redhorse sucker is now known to have been collected in 1937 (based upon preserved specimens collected at the then-unimpounded mouth of Forney Creek near its confluence with the Tuckasegee River), it was not recognized as a potentially distinct species until 1992, when Dr. Robert Jenkins obtained and examined two specimens that had been collected in 1981 and 1982 from the Little Tennessee River by Dr. Edward Menhinick (University of North Carolina at Charlotte, Charlotte, North Carolina). Based on the characteristics of the specimens' lower lips, dorsal fins, and pharyngeal teeth, Jenkins recognized the species as possibly a previously unidentified species or a hybrid of the smallmouth redhorse (*M. breviceps*) and the river redhorse (*M. carinatum*). Subsequent detailed morphological and behavioral studies and genetic studies have concluded that the sicklefin redhorse sucker is, in fact, a distinct species. The Service has reviewed the available taxonomic literature, and is not aware of any challenges to the validity of this conclusion.

The species is currently known to occupy cool to warm, moderate-gradient creeks and rivers and, during at least parts of its early life, large reservoirs. In streams, adults of the species are generally associated with moderate to fast currents, in riffles, runs, and well-flowing pools, while juveniles show a preference for moderate to deep pools with slow currents and large boulder crevice cover. Adults feed and spawn over gravel, cobble, boulder, and bedrock substrates with no, or very little, silt overlay.

Past and recent collection records of the sicklefin redhorse sucker, together with what is known about the habitat utilization of the species, indicate that the sicklefin

redhorse sucker once inhabited the majority, if not all, of the rivers and large creeks in the Blue Ridge portion of the Hiwassee and Little Tennessee River systems in North Carolina, Tennessee, and Georgia. Currently, there are only two metapopulations of the sicklefin redhorse sucker known to remain: one in the Hiwassee River system and one in the Little Tennessee River system. Estimated occupied stream habitat in the Hiwassee river systems totals about 53.0 river miles (rm). However, use of various streams/stream reaches within this total appears to be seasonal. Available information indicates that the sicklefin redhorse sucker uses Brasstown Creek, Hanging Dog Creek, Beaverdam Creek, Nottely River, and the mid and upper reaches of the Valley River, primarily for spawning. No spawning or courting behavior was observed within the mainstem of the Hiwassee River; the mid and lower Hiwassee River or lower reaches of the spawning tributaries primarily from the post-spawning period through the fall and early winter; or the lower un-impounded reaches of the Hiwassee River, and to a lesser extent, the lower Valley River, during the winter months.

The Little Tennessee River system metapopulation of the sicklefin redhorse sucker includes a total of approximately 59.15 rm of creek and river reaches plus near-shore areas of Fontana Reservoir, including: (1) The main stem of the Little Tennessee River in Macon and Swain Counties, North Carolina, between the Franklin Dam and Fontana Reservoir (approximately 23.2 rm), and its tributaries, Burningtown Creek (approximately 5.5 rm) and Iotla Creek (approximately 0.1 rm) in Macon County, North Carolina; (2) the main stem of the Tuckasegee River in Swain and Jackson Counties, North Carolina, from approximately rm 27.5, downstream to Fontana Reservoir (approximately 27.5 rm), and its tributaries, Forney Creek (mouth of the creek), Deep

Creek (approximately 2.35 rm), and the Oconaluftee River below the Bryson Dam (also sometimes referred to as the Ela Dam) (approximately 0.5 rm), in Swain County, North Carolina; and (3) sub-adults in the near shore portions of Fontana Reservoir, Swain County, North Carolina.

*Summary of Status Review*

In completing our status review, we reviewed the best available scientific and commercial information and compiled this information in the SSA Report for the sicklefin redhorse sucker. For our finding, we evaluated potential stressors related to the sicklefin redhorse sucker and its habitat. The stressors we analyzed were: (1) Hydroelectric operations, inadequate erosion/sedimentation control during agricultural, timbering, and construction activities; (2) runoff and discharge of organic and inorganic pollutants from industrial, municipal, agricultural, and other point and nonpoint sources; (3) habitat alterations associated with channelization and instream dredging/mining activities; (4) predation and habitat suitability impacts by nonnative species; (5) fragmentation and isolation of surviving populations; and (6) other natural and human-related factors that adversely modify the aquatic environment. Associated with the status review for this 12-month finding, we conducted an analysis of the Candidate Conservation Agreement (CCA) for the Sicklefin Redhorse Sucker under the Service's Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE policy), published in the **Federal Register** on March 28, 2003 (68 FR 15100), and found that the CCA does meet the PECE policy criteria for certainty of implementation and certainty of effectiveness.

A number of factors likely contributed to a reduction in the species' historical range and may have affected population dynamics within the existing occupied stream reaches. The construction of hydroelectric dams fragmented populations, confining spawning activity only to river reaches accessible from the two reservoirs where this species is thought to reside during the juvenile stage of its life cycle. The sicklefin redhorse sucker also appears to be absent from several reaches of unimpounded river habitat where it was likely extirpated by degradation of the habitat or by cold water from hypolimnetic (deepwater that remains perpetually cold) discharges or hydropeaking (releasing frequent, large discharge pulses of water) for hydropower production. The introduction of blueback herring (*Alosa aestivalis*) into the habitat occupied by the sicklefin redhorse sucker was also considered a potential threat to future population stability in past candidate assessments.

Upon further review of the information related to the factors believed to be affecting the species at present, it appears many of them were largely historical, were less significant than previously thought, have been mitigated, or could be managed to alleviate many of the effects on the species. The sicklefin redhorse sucker likely experienced substantial range contraction associated with dam construction, power generation, and historical habitat degradation early in the 20th century, but the remaining populations appear to have stabilized within the present conditions and are successfully spawning and recruiting in four primary river drainages accessible from Hiwassee and Fontana Reservoirs.

In the future, we expect human population growth and land development to be primary factors affecting habitat quality in the range of the sicklefin redhorse sucker.

However, compared to historical land use effects, we expect the effect of these future activities to be minimized by more stringent State and local land quality regulations, such as are required by current regulations for land development and water quality, and a trend of diminishing agriculture in the area. Improvements in land use practices are likely attributable to the modern regulatory environment that provides protection to the stream environment. The Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661 et seq.), North Carolina Environmental Policy Act of 1971, Clean Water Act of 1972 (33 U.S.C. 1251 et seq.), North Carolina Sediment and Pollution Control Act of 1973, Georgia Erosion and Sedimentation Act of 1975, as well as other regulatory actions, were enacted to control the effects of land development and pollution on the aquatic environment. Historical records indicate that the existing populations of the sicklefin redhorse sucker have persisted through significant agricultural land disturbance that resulted in considerable sedimentation of its habitat, indicating that the sicklefin redhorse sucker is likely able to tolerate moderate land disturbance. Rural development and the growth of several small towns within the range of the sicklefin redhorse sucker appear to be the dominant forms of land use disturbance. Rural development is limited in certain areas due to large portions of the watershed that are permanently protected by inclusion in the Nantahala and Chattahoochee National Forests. The region is currently experiencing a trend of diminishing agricultural land use, indicating that widespread conversion to farmland is not likely. Commercial development is likely to be limited by a lack of large metropolitan areas or interstate highways that would facilitate rapid growth. The trend of high suspended sediment yield in the range of the sicklefin redhorse sucker appears to have improved over the last few decades. Increasing environmental regulation, greater

public awareness, and the actions of governmental and nongovernmental organizations to improve water quality conditions have resulted in considerable improvements in suspended sediment rates. Therefore, we expect existing regulations for land development and water quality to adequately maintain habitat quality, and we anticipate that the species is likely to persist into the future even with the expected increase in development.

The sicklefin redhorse sucker is provided additional protection by State endangered species regulations and association with other federally listed species. It is listed as threatened by the State of North Carolina and endangered by the State of Georgia. Both States prohibit direct take of the species and the collection of the fish for scientific purposes without a valid State collecting permit. In the unimpounded portions of the mainstems of the Little Tennessee River and Tuckasegee River where the sicklefin redhorse sucker occurs, the species' habitat is indirectly provided Federal protection through the Act, where the mainstem portions of both of these rivers are designated as critical habitat for the endangered Appalachian elktoe (*Alasmidonta raveneliana*) (a mussel). In addition to the Appalachian elktoe, the portion of the Little Tennessee River where the sicklefin redhorse sucker occurs also supports populations of the endangered little-wing pearlymussel (*Pegias fabula*) and the threatened spotfin chub (*Erimonax monachus*) and is also designated as critical habitat for the spotfin chub.

Substantial public land ownership in the watersheds occupied by the sicklefin redhorse sucker provides partial protection to the watershed. Approximately 43 percent of the land adjacent to waterways occupied this species is owned by State and Federal agencies or by nongovernmental conservation organizations. On these conserved

properties, land development is prohibited, providing protection to buffers and potentially improving water quality throughout the watershed. Most of the land surrounding Hiwassee and Fontana Lakes is publicly owned, limiting shoreline development and protecting the near shore habitat used by juvenile sicklefin redhorse suckers. The Eastern Band of Cherokee Indians has management jurisdiction over a portion of the lands within both the Hiwassee River and Tuckasegee River watersheds, and tribal water quality ordinances protect habitat and water quality. Approximately 65 percent of the occupied area of the Little Tennessee River is protected from development by inclusion in the Needmore Game Lands. Along the other three major spawning tributaries, most of the land is privately held and does not have any restriction on land development.

When the sicklefin redhorse sucker was elevated to candidate status in 2005, the blueback herring, an invasive predator species, had been inadvertently introduced into the Hiwassee Reservoir, a major waterbody supporting the sicklefin redhorse sucker. At the time, predation of young sicklefin redhorse sucker by blueback herring was an unassessed threat. However, a recent study examining the gut contents of blueback herring in the Valley River and Hiwassee Reservoir failed to find any sicklefin redhorse suckers among the samples. It appears that the sicklefin redhorse sucker may naturally avoid predation by blueback herring by spawning farther upstream than typical foraging habitat for blueback herring. In the spring of 2016, blueback herring were collected from Fontana Reservoir, the other reservoir important for sicklefin redhorse sucker recruitment. Further investigation is required to determine the degree of impact the presence of blueback herring in Fontana Reservoir poses to the sicklefin redhorse sucker, but the distance to spawning sites upstream of Fontana Reservoir is similar to the distance

in the Hiwassee Reservoir, suggesting that blueback herring will be similarly separated from the hatching sicklefin redhorse sucker fry during the time when they are most likely to be present in the reservoir. Collections in the Hiwassee River system in 2014–2015 produced many young adult/late juvenile sicklefin redhorse suckers that have clearly recruited since the herring invasion, even while juvenile walleye and white bass steeply declined immediately after the invasion, suggesting the blueback herring is not preventing successful recruitment of sicklefin redhorse suckers. Therefore, recent observations indicate that blueback herring have not proven to be a threat to the sicklefin redhorse sucker as once feared.

Many of the stressors that may affect the sicklefin redhorse sucker in the future can be further minimized by conservation actions carried out under the recently signed CCA among the Service, North Carolina Wildlife Resources Commission, Duke Energy Carolinas, Eastern Band of Cherokee Indians, Tennessee Valley Authority, and Georgia Department of Natural Resources. A primary goal of the CCA is to expand the range of this species upstream of barrier dams to repopulate stream reaches that were formerly degraded, but currently appear suitable. Expanding the range of the sicklefin redhorse sucker into the upper sections of these watersheds will provide a greater variety of available habitat, allowing the species to more easily adjust to temporary effects of construction and landscape alteration, and providing more opportunities to use areas of refuge during periods of adverse conditions, such as periods of high temperature or increased flow. Accessibility to more suitable habitat will increase the number of available spawning sites, increasing the opportunities for successful recruitment, and will provide alternative spawning areas should some spawning sites become unsuitable.

Successful reintroduction will increase the carrying capacity of the sicklefin redhorse sucker by providing the species with additional riverine habitat as well as access to additional reservoirs to serve as juvenile rearing habitat. The SSA Report for the sicklefin redhorse sucker noted that threats (i.e., factors affecting the species) could be exacerbated by climate change or interaction among the threats. However, the SSA Report's evaluation of all of the threats facing this species indicates that the existing populations are stable and are likely to remain stable in most of the plausible future scenarios. In addition, while populations are currently stable and likely to remain so, under the CCA's management framework, the parties will work collaboratively to address threats in a way that reduces the likelihood that they will negatively affect the future viability of the species.

*Finding*

Based on our review of the best available scientific and commercial information pertaining to the Act's five threat factors, we find that the stressors acting on the species and its habitat, either singly or in combination, are not of sufficient imminence, intensity, or magnitude to indicate that the sicklefin redhorse sucker is in danger of extinction (an endangered species), or likely to become endangered within the foreseeable future (a threatened species), throughout all of its range. This finding is based on stability of existing populations, re-evaluation of threats that are likely to affect the populations in the future, and development of a CCA that ensures the continued participation by all stakeholders in a focused effort to address and mitigate potential threats while expanding the range and population health of the species. Additionally, we evaluated the current range of the sicklefin redhorse sucker to determine if there is any apparent geographic

concentration of potential threats for the species. The current range of the species is relatively small and limited to two river systems in western North Carolina and northwestern Georgia. We examined potential threats from: (1) Hydroelectric operations, inadequate erosion/sedimentation control during agricultural, timbering, and construction activities; (2) runoff and discharge of organic and inorganic pollutants from industrial, municipal, agricultural, and other point and nonpoint sources; (3) habitat alterations associated with channelization and instream dredging/mining activities; (4) predation and habitat suitability impacts by nonnative species; (5) fragmentation and isolation of surviving populations; and (6) other natural and human-related factors that adversely modify the aquatic environment. We found no portions of the species' range where potential threats are significantly concentrated or substantially greater than in other portion of its range so as to suggest that the species may be in danger of extinction in a portion of its range. Therefore, we find that factors affecting the sicklefin redhorse sucker are essentially uniform throughout its range, indicating no portion of the range warrants further consideration of possible endangered or threatened status under the Act. Therefore, we find that listing the sicklefin redhorse sucker as an endangered or a threatened species under the Act is not warranted throughout all or a significant portion of its range at this time, and consequently we are removing it from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that

were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the sicklefin redhorse sucker, and constitutes the Service's 12-month finding on the April 20, 2010, petition to list the sicklefin redhorse sucker as an endangered or threatened species. A detailed discussion of the basis for this finding, including the PECE policy analysis of the CCA, can be found in the sicklefin redhorse sucker's species-specific assessment form, SSA Report, and other supporting documents (see **ADDRESSES**, above).

**Stephan's Riffle Beetle (*Heterelmis stephani*)**

*Previous Federal Actions*

Stephan's riffle beetle (*Heterelmis stephani*) was designated as a Category 2 candidate in the notice published in the **Federal Register** on May 22, 1984, at 49 FR 21664. Category 2 candidate species were identified as those taxa for which the Service possessed information indicating proposing to list the taxa was possibly appropriate, but for which conclusive data on biological vulnerability and threats sufficient to support a proposed listing rule was lacking. The February 28, 1996, CNOR (61 FR 7596) discontinued recognition of categories, so this species was no longer considered a candidate species. In the June 13, 2002, CNOR (67 FR 40657), Stephan's riffle beetle was designated as a candidate species as currently defined, with an LPN of 5. On May 11, 2004, we received a petition dated May 4, 2004, from the Center for Biological Diversity**,** requesting that 225 plants and animals, including Stephan's riffle beetle, be listed as endangered species under the Act and critical habitat be designated. In response to the May 4, 2004, petition to list Stephan's riffle beetle as an endangered species, we published a warranted-but-precluded 12-month finding in the **Federal Register** on May

11, 2005 (70 FR 24870). Subsequent warranted-but-precluded 12-month findings were published on September 12, 2006 (71 FR 53756), December 6, 2007 (72 FR 69034), December 10, 2008 (73 FR 75176), November 9, 2009 (74 FR 57804), November 10, 2010 (75 FR 69222), October 26, 2011 (76 FR 66370), November 21, 2012 (77 FR 69994), November 22, 2013 (78 FR 70104), December 5, 2014 (79 FR 72450), and December 24, 2015 (80 FR 80584).

*Background*

Stephan's riffle beetle is one of five known species in the genus *Heterelmis* found in the United States. Historically, Stephan's riffle beetle occurred in Santa Cruz and Pima Counties, Arizona, at two known locations: Bog Springs Campground and Sylvester Spring in Madera Canyon. Stephan's riffle beetle is no longer found at the Bog Springs Campground location, as the habitat there no longer exists. Stephan's riffle beetle has not been collected or documented since 1993, despite the Service's surveying for the species at the one remaining known location, Sylvester Spring, and at numerous other nearby locations with potential habitat. Based on our review of the best available scientific and commercial information, we believe that the Stephan's riffle beetle is extinct.

The preponderance of Stephan's riffle beetle specimens have been documented in artificial habitat created by a water tank's leaking pipeline and overflow at the Bog Springs Campground. Only two specimens have ever been documented from Sylvester Spring, the only relatively intact spring habitat remaining where the species was known to exist. Historically, Stephan's riffle beetle may have only occupied Sylvester and Bog Springs, and populations may have started declining when water from springs in Madera Canyon was first captured in concrete boxes and piped to divert water for domestic and

recreational water supplies. Up until 1993, when Stephan's riffle beetle was last detected, the species appears to have existed only in extremely low numbers within Sylvester Spring, making it very difficult to detect, in contrast to the relatively large numbers collected in 1979 at the Bog Springs Campground site. The species has not been documented as extant since 1993, 23 years ago, when one individual was found at Sylvester Spring as part of a specific effort to survey for Stephan's riffle beetle in Madera Canyon.

Beginning in 2012, the Service surveyed Sylvester Spring, the one remaining known population location for Stephan's riffle beetle, and seven other locations with potential habitat on multiple occasions. The most intensive survey efforts occurred at Sylvester Spring and Bog Springs, the water source for the extirpated Bog Springs Campground population. Three different survey methods were used in an effort to find the species, and no Stephan's riffle beetles were found. While Stephan's riffle beetle is small in size (and therefore difficult to find), adult beetles, if present, should be detected regardless of the time of year surveyed based on their life history (multi-year metamorphosis and relatively long life span). Therefore, based on the best available scientific and commercial information, the Service believes Stephan's riffle beetle to be extinct.

*Summary of Status Review*

The SSA Report for Stephan's riffle beetle is a summary of the information assembled and reviewed by the Service and incorporates the best available scientific and commercial information for this species. Our analysis leads us to believe Stephan's riffle beetle is extinct. Species extinction is difficult, if not impossible, to prove, and the

Service has no policy specifically defining the level of information necessary to conclude that a species should be considered extinct. For any species there is uncertainty in drawing a conclusion of extinction. For the Stephan's riffle beetle, we have carefully assessed the best scientific and commercial information available regarding the current status of the species. The biological information we reviewed and analyzed as the basis for our findings is documented in the SSA Report. Our analysis of this information found that there has been no confirmation of the existence of the Stephan's riffle beetle in more than 23 years, despite multiple survey efforts since 2012 in known and potential habitat where other riffle beetles were documented, across multiple seasons, and using a variety of survey methods. The type locality consisting of a leaking pipeline to a water storage tank, where the largest number of Stephan's riffle beetle was collected, no longer exists. The Service surveyed the only remaining site at which Stephan's riffle beetle had been documented, Sylvester Spring, on numerous occasions with different survey methods. Despite these efforts, we have been unable to confirm the existence of the species.

*Finding*

Our review of the best available scientific and commercial information leads us to believe that the Stephan's riffle beetle is extinct, and, as such, it is not eligible for listing as an endangered or threatened species under the Act. Although the Act does not directly address the situation of considering a species for listing where the best available information indicates that the species is likely already extinct, the purpose of the Act is to prevent species from becoming extinct. If we believe the species is already extinct, by definition, the species cannot be in danger of, or likely to become in danger of, extinction. Therefore, we did not further evaluate whether Stephan's riffle beetle is in

danger of extinction throughout its range (an endangered species), is likely to become in danger of extinction throughout its range in the foreseeable future (a threatened species), or is an endangered or threatened species in a significant portion of its range. We find that listing Stephan's riffle beetle as an endangered or a threatened species under the Act is not warranted throughout all or a significant portion of its range, and consequently we are removing it from candidate status.

As a result of the Service's 2011 multidistrict litigation settlement with the Center for Biological Diversity and WildEarth Guardians, the Service is required to submit a proposed listing rule or a not-warranted 12-month finding to the **Federal Register** by September 30, 2016 (In re: Endangered Species Act Section 4 Deadline Litigation, No. 10–377 (EGS), MDL Docket No. 2165 (D.D.C. May 10, 2011)), for all 251 species that were included as candidate species in the Service's November 10, 2010, CNOR. This document satisfies the requirements of that settlement agreement for the Stephan's riffle beetle and constitutes the Service's 12-month finding on the May 4, 2004, petition to list the Stephan's riffle beetle as an endangered or threatened species. A detailed discussion of the basis for this finding can be found in the Stephan's riffle beetle's species-specific assessment form, SSA Report, and other supporting documents (see **ADDRESSES**, above).

**New Information**

We request that you submit any new information concerning the taxonomy, biology, ecology, status of, or stressors to the Huachuca-Canelo population of the Arizona treefrog, the Arkansas darter, black mudalia, Highlands tiger beetle, *Dichanthelium (=panicum) hirstii* (Hirst Brothers' panic grass), two Kentucky cave

beetles (Louisville cave beetle and Tatum Cave beetle), relict leopard frog, sicklefin redhorse sucker, and Stephan's riffle beetle to the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**, whenever it becomes available. New information will help us monitor these species and encourage their conservation. We encourage local agencies and stakeholders to continue cooperative monitoring and conservation efforts for these species. If an emergency situation develops for any of these species, we will act to provide immediate protection.

## References Cited

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

## Authors

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

**Authority**

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

Dated: September 26, 2016

Signed: Stephen Guertin

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

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