DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FF09E21000 FXES1111090FEDR 234]

Endangered and Threatened Wildlife and Plants; One Species Not Warranted for Delisting and Seven Species Not Warranted for Listing as Endangered or Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notification of findings.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce findings that one species is not warranted for delisting and that seven species are not warranted for listing as endangered or threatened species under the Endangered Species Act of 1973, as amended (Act). After a thorough review of the best available scientific and commercial information, we find that it is not warranted at this time to delist Bone Cave harvestman (*Texella reyesi*; formerly listed as endangered as the Bee Creek Cave harvestman, *Texella reddelli*). We find that it is not warranted at this time to list Brandegee's buckwheat (*Eriogonum brandegeei* Rydberg), Chowanoke crayfish (*Faxonius virginiensis)*, Cisco milkvetch (*Astragalus sabulosus*), stage station milkvetch (*A. vehiculus*), Isely's milkvetch (*A. iselyi*), Columbia Oregonian (*Cryptomastix hendersoni*), and Rye Cove cave isopod (*Lirceus culveri*). However, we ask the public to submit to us at any time any new information relevant to the status of any of the species mentioned above or their habitats.

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

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

Species	Docket Number

Bone Cave harvestman	FWS-R2-ES-2022-0157
Brandegee's buckwheat	FWS-R6-ES-2022-0127
Chowanoke crayfish	FWS-R5-ES-2022-0128
Cisco milkvetch	FWS-R6-ES-2022-0129
Stage station milkvetch	FWS-R6-ES-2022-0130
Isely's milkvetch	FWS-R6-ES-2022-0131
Columbia Oregonian	FWS-R1-ES-2022-0132
Rye Cove cave isopod	FWS-R5-ES-2022-0133

Those descriptions are also available by contacting the appropriate person as specified under **FOR FURTHER INFORMATION CONTACT**. Please submit any new information, materials, comments, or questions concerning this finding to the appropriate person, as specified under **FOR FURTHER INFORMATION CONTACT**.

FOR FURTHER INFORMATION CONTACT:

Species	Contact Information
Bone Cave harvestman	Michael Warriner, Supervisory Fish and Wildlife Biologist, Austin Ecological Services Field Office, *michael_warriner@fws.gov*, 512–490–0057
Brandegee's buckwheat	Liisa Niva, Eastern Colorado Supervisor, Colorado Field Office, *liisa_niva@fws.gov*, 303–436–4773
Chowanoke crayfish, Rye Cove cave isopod	Cindy Shulz, Field Supervisor, Virginia Field Office, *cindy_shulz@fws.gov*, 804–693–6694
Cisco milkvetch, Stage station milkvetch, Isely's milkvetch	Yvette Converse, Field Supervisor, Utah Ecological Services Field Office, *yvette_converse@fws.gov*, 801–975–3330
Columbia Oregonian	Craig Rowland, Deputy State Supervisor, Portland, Oregon Regional Office, *craig_rowland@fws.gov*, 503–231–6179

Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Background

Under section 4(b)(3)(B) of the Act (16 U.S.C. 1531 et seq.), we are required to make a

finding on whether or not a petitioned action is warranted within 12 months after receiving any petition that we have determined contains substantial scientific or commercial information indicating that the petitioned action may be warranted (known as a "12-month finding"). We must make a finding that the petitioned action is: (1) Not warranted; (2) warranted; or (3) warranted but precluded by other listing activity. We must publish a notification of these 12-month findings in the *Federal Register*.

Summary of Information Pertaining to the Five Factors

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations at part 424 of title 50 of the Code of Federal Regulations (50 CFR part 424) set forth procedures for adding species to, removing species from, or reclassifying species on the Lists of Endangered and Threatened Wildlife and Plants (Lists). The Act defines "species" as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature (16 U.S.C. 1532(16)). The Act defines "endangered species" as any species that is in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)), and "threatened species" as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)). Under section 4(a)(1) of the Act, a species may be determined to be an endangered species or a threatened species because of any of the following five factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and

conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

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

The Act does not define the term "foreseeable future," which appears in the statutory definition of "threatened species." The regulatory language that is applicable to determinations of the foreseeable future is contained in the regulations at 50 CFR 424.11(d) promulgated in 2019 (*In re: Washington Cattlemen's Ass'n*, No. 22-70194 (9th Cir. Sept. 21, 2022) (staying the district court's vacatur of the 2019 regulations pending resolution of the motion for reconsideration) (*Washington Cattlemen's*)). However, those regulations remain the subject of

ongoing litigation, and their continued applicability is therefore uncertain. If the litigation results in vacatur of the 2019 regulations, the regulations that were in effect before those 2019 regulations (the pre-2019 regulations) would again become the governing law for listing decisions. Because of the uncertainty surrounding the legal status of the regulations, we undertook two analyses of the foreseeable future for each species identified in this notification of findings: one under the 2019 regulations and one under the pre-2019 regulations, which may be reviewed in the 2018 edition of the Code of Federal Regulations at 50 CFR 424.11(d). Those pre-2019 regulations did not include provisions clarifying the meaning of "foreseeable future," so we applied a 2009 Department of the Interior Solicitor's opinion (M–37021, "The Meaning of 'Foreseeable Future' in Section 3(2) of the Endangered Species Act," Jan. 16, 2009).

The analyses under both the 2019 regulations and the pre-2019 regulations are included in the decision file for these findings and are posted on *https://www.regulations.gov* under the appropriate docket numbers for each species under **ADDRESSES**, above. Based on those analyses, we concluded that our determination of the foreseeable future would be the same under the pre-2019 regulations as under the 2019 regulations for each species included in this notification of findings and that our determination that delisting one species is not warranted would be the same under the pre-2019 regulations as under the 2019 regulations.

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

In conducting our evaluation of the five factors provided in section 4(a)(1) of the Act to determine whether the Bone Cave harvestman (*Texella reyesi*; formerly listed as endangered as the Bee Creek Cave harvestman, *Texella reddelli*), Brandegee's buckwheat (*Eriogonum*

brandegeei Rydberg), Chowanoke crayfish (*Faxonius virginiensis)*, Cisco milkvetch (*Astragalus sabulosus*), stage station milkvetch (*A. vehiculus*), Isely's milkvetch (*A. iselyi*), Columbia Oregonian (*Cryptomastix hendersoni*), and Rye Cove cave isopod (*Lirceus culveri*) meet the Act's definition of "endangered species" or "threatened species," we considered and thoroughly evaluated the best scientific and commercial information available regarding the past, present, and future stressors and threats. We reviewed the petitions, information available in our files, and other available published and unpublished information for all these species. Our evaluation may include information from recognized experts; Federal, State, and Tribal governments; academic institutions; foreign governments; private entities; and other members of the public.

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

The species assessment form for the Bone Cave harvestman contains more detailed biological information, a thorough analysis of the listing factors, a list of literature cited, and an explanation of why we determined that the species meets the Act's definition of an "endangered species." The species assessment forms for Brandegee's buckwheat, Chowanoke crayfish, Cisco milkvetch, stage station milkvetch, Isely's milkvetch, Columbia Oregonian, and Rye Cove cave isopod contain more detailed biological information, a thorough analysis of the listing factors, a list of literature cited, and an explanation of why we determined that each species does not meet the Act's definition of an "endangered species" or a "threatened species." To inform our status reviews, we completed species status assessment (SSA) reports for the Bone Cave harvestman (Service 2021, entire), Brandegee's buckwheat (Service 2022a, entire), Chowanoke crayfish

(Service 2022b, entire), Cisco milkvetch, stage station milkvetch, and Isely's milkvetch (Service 2022c, entire), Columbia Oregonian (Service 2022d, entire), and Rye Cove cave isopod (Service 2022e, entire). Each SSA contains a thorough review of the taxonomy, life history, ecology, current status, and projected future status for each species. This supporting information can be found on the internet at *https://www.regulations.gov* under the appropriate docket number (see **ADDRESSES**, above).

Bone Cave Harvestman

Previous Federal Actions

The Bone Cave harvestman was originally listed as endangered as the Bee Creek Cave harvestman (*Texella reddelli*) on September 16, 1988 (53 FR 36029). The species was subsequently reclassified into two species, and on August 18, 1993, we listed the Bone Cave harvestman (*Texella reyesi*) as a separate species under the Act (58 FR 43818). This 1993 technical correction ensured that the Bone Cave harvestman continued to be listed under the Act. On December 4, 2009, we completed a 5-year review of the Bone Cave harvestman, which recommended that the species remain listed as endangered (Service 2009).

On June 2, 2014, we received a petition dated June 2, 2014, from John Yearwood, Kathryn Heidemann, Charles and Cheryl Shell, the Walter Sidney Shell Management Trust, the American Stewards of Liberty, and Steven W. Carothers requesting that the endangered Bone Cave harvestman be delisted due to recovery and error in information. The petition clearly identified itself as a petition and included the requisite identification information for the petitioners, as required at that time by 50 CFR 424.14(a). We evaluated this petition under the 50 CFR 424.14 requirements that were in effect at the time we received the petition, and on June 1, 2015 (80 FR 30990), we published an initial 90-day finding that the petition did not present substantial scientific or commercial information indicating that the petitioned action may be warranted.

Following litigation in 2016 and 2017, we published a 90-day finding in the *Federal*

Register on October 10, 2019 (84 FR 54542), that the petition presented substantial scientific or commercial information indicating that delisting the Bone Cave harvestman may be warranted. Previous Federal actions and the history of relevant lawsuits and court decisions can be found in the 2019 90-day finding (84 FR 54542; October 10, 2019). The regulations at 50 CFR 424.14(h)(2)(i) require that we publish not-warranted 12-month findings in the *Federal Register*, and this document constitutes our 12-month finding for Bone Cave harvestman in response to the 2014 petition and 2019 90-day finding.

Summary of Finding

The Bone Cave harvestman is an arachnid that occurs only in subterranean habitats of the Balcones Canyonlands in portions of Travis and Williamson Counties, Texas. The Balcones Canyonlands ecoregion forms the eastern to southeastern boundary of the Edwards Plateau, where the activity of rivers, springs, and streams has produced an extensive karst landscape of canyons, caves, and sinkholes. Bone Cave harvestmen spend their entire lives underground within voids of varying sizes—from caves to smaller diameter mesocaverns that are inaccessible by humans. Preliminary genetic results on the variation among Bone Cave harvestman specimens from across the range of the species indicate at least three genetic clades exist, generally corresponding to the northern, central, and southern part of the species' range, with a potential for at least two more clades. These results indicate the species' ability to adapt to environmental changes (i.e., representation) but are not indicative of a separate species. More research would be necessary to understand whether these potential divergences coincide with morphological diversity and to understand whether the genetic variation is suggestive of further speciation (Hedin and Derkarabetian 2020, pp. 12, 16–17).

Bone Cave harvestman populations require subterranean habitats with high humidity and stable temperatures. Intact networks of subterranean voids provide living space and a buffer or refugia from the effects of humidity and temperature extremes. Functional surface and subsurface drainage basins supply water that aids in the maintenance of high relative humidity.

The Bone Cave harvestman also requires a source of food in the form of invertebrates or other organic matter. The majority of nutrients that support cave ecosystems originate from surface habitats, specifically the natural communities that overlay these systems. Nutrients may include animal or plant material washed in by water, blown by wind, or transported by animals.

The stressors that may influence the overall viability of the Bone Cave harvestman are habitat destruction, degradation, and fragmentation that results from urban, suburban, and exurban development (i.e., "human development" Factor A). The species' range in Travis and Williamson Counties has experienced substantial human population growth and development. During the period from 1980 to 2010, the Austin–Round Rock area was among the fastest growing metropolitan areas in the United States. Within that same timespan, Williamson County was the seventh fastest growing exurban/emerging suburban county nationally. In 2019, the Austin–Round Rock–Georgetown area was rated as the eighth fastest growing metropolitan area in the United States (U.S. Census Bureau 2019a).

Development in the areas surrounding currently suitable sites reduces Bone Cave harvestman population resiliency. Smaller areas of open space are more vulnerable to edge effects, may contain reduced cave cricket populations, are more susceptible to contamination events or an altered hydrological regime, and are potentially unable to sustain native plant community composition over the long term.

To assess the current conditions of Bone Cave harvestman populations across their range, we also evaluated redundancy and representation in addition to resiliency. The Bone Cave harvestman occurs in all or portions of six of the currently delineated karst fauna regions in Travis and Williamson Counties. From north to south, these regions are the North Williamson County, Georgetown, McNeil/Round Rock, East Cedar Park, Jollyville Plateau, and Central Austin Karst Fauna Regions (Service 1994, p. 33; Veni and Jones 2021, pp. 24, 40). The McNeil/Round Rock Karst Fauna Region, roughly in the center of the species' range, currently lacks any protected high- or moderate-resiliency sites that provide redundancy or representation

for that region. Widespread urbanization has resulted in the loss of all high- to moderate-resiliency sites in the Cedar Park and Central Austin Karst Fauna Regions. Protection of representative sites within each of the occupied karst fauna regions is important given the north-to-south morphological variation in Bone Cave harvestman populations, the presence of at least three genetic clades, and the variety of ecological conditions present at each cave site throughout the range.

We forecasted future resiliency, redundancy, and representation for the Bone Cave harvestman in each occupied karst fauna region under two potential scenarios. The scenarios evaluated two levels of conservation effort. Under Scenario 1, we assume that future conservation efforts to acquire, protect and manage currently known, unprotected cave clusters and individual caves continues as in the past and some additional protected areas are established. Under Scenario 2, we assume that there is no additional conservation effort to protect and manage currently known, unprotected cave clusters and individual caves and no additional protected areas are established.

These scenarios forecast viability of the species from the present to the year 2050 because this date encompasses the timeframe for which we have the longest reliable projection of human population growth in Travis and Williamson Counties. As noted earlier, human population growth and associated development is projected to be the factor most likely to impact the viability of this species.

Forecasts of future resiliency, redundancy, and representation underscore the critical role that adequate habitat protection will play in securing long-term persistence of Bone Cave harvestman populations. Economic demand for converting natural open space to development is high in the Austin–Round Rock–Georgetown metropolitan area, and that demand is only expected to increase in response to a growing human population, limiting the potential for conserving existing unprotected high- or moderate-resiliency sites.

Our review of the best available scientific and commercial information regarding the

past, present, and future threats to the species indicates that the Bone Cave harvestman is in danger of extinction throughout all or a significant portion of its range and meets the definition of an endangered species under the Act. The species currently occurs in 77 extant Bone Cave harvestman cave clusters and individual cave sites. Our analysis shows that 38 of those sites are classified as having low or impaired resiliency. These sites have reduced or insufficient open space and are generally directly adjacent to human development. The remaining 39 sites are located on larger tracts of open space that have increasing risk of impacts due to human development surrounding these sites. These latter sites are scattered and sometimes isolated, and only four have permanent protections. The center of the species' range, represented by the McNeil/Round Rock, East Cedar Park, and Central Austin Karst Fauna Regions, currently lacks any protected high- to moderate-resiliency sites.

The primary stressor and reason for past loss, human development, is continuing currently and will continue into the future. Ongoing human population growth and its associated development activities throughout the species' range have resulted in habitat loss that has been impacting the Bone Cave harvestman for decades. The rate of such development has increased in recent years and is expected to further accelerate in both the near term and the foreseeable future, which we projected out to 2050 in the SSA. The impacts to Bone Cave harvestman from this development activity are uniform throughout the range of the species and include severe, immediate, and often irreversible destruction, degradation, and fragmentation of existing limited habitat. These development activities have also facilitated the introduction of nonnative species such as the red imported fire ant, which negatively impacts the nutrient availability at Bone Cave harvestman sites.

These factors, combined with the narrowly restricted range and the loss of redundancy and genetic representation across the range, have acted together to reduce the overall viability of the species. Therefore, we find that the Bone Cave harvestman should remain listed as an endangered species under the Act, and the petitioned action is not warranted at this time. A

detailed discussion of the basis for this finding can be found in the Bone Cave harvestman species assessment form and other supporting documents (see **ADDRESSES**, above).

Brandegee's Buckwheat

Previous Federal Actions

In July 2007, the Service received a petition from Forest Guardians (now WildEarth Guardians) requesting that the Service list 206 species, including Brandegee's buckwheat (*Eriogonum brandegeei* Rydberg) (Forest Guardians 2007, p. 36). In response to this petition, the Service published a 90-day finding for Brandegee's buckwheat in 2009, concluding that the petition presented substantial scientific or commercial information indicating that the listing of Brandegee's buckwheat may be warranted (74 FR 41649; August 18, 2009). The regulations at 50 CFR 424.14(h)(2)(i) require that we publish not-warranted 12-month findings in the *Federal Register*, and this document constitutes our 12-month finding for Brandegee's buckwheat in response to the 2007 petition and 2009 90-day finding.

Summary of Finding

Brandegee's buckwheat is a narrow endemic plant species that is a long-lived, hardy perennial. It is only known to occur in Chaffee and Fremont Counties in south-central Colorado and currently occupies approximately 846 acres (342 hectares). The species occurs in two distinct areas separated by more than 60 miles (97 kilometers).

Brandegee's buckwheat is found on barren outcrops of the Dry Union and Morrison formations within open sagebrush and pinyon-juniper communities. Brandegee's buckwheat requires barren bentonite soils from the Dry Union or Morrison Formation, adequate precipitation or other water source, low plant cover, sufficient pollinators, and adequate nutrients. Resilient analysis units (AUs) also contain enough individuals across each life stage (seed, seedling, and mature reproductive adult) to bounce back after experiencing environmental stressors such as intermediate disturbance from recreational use or occasional drought. Brandegee's buckwheat redundancy is influenced by the number of AUs across the landscape.

More AUs across its range increase the species' ability to withstand catastrophic events. Individuals and AUs inhabiting diverse ecological settings and exhibiting genetic or phenological variation add to the level of representation across the species' range. The greater the diversity observed in Brandegee's buckwheat genetics, habitats, and morphology, the more likely it is to be able to adapt to change over time.

We carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to Brandegee's buckwheat, and we evaluated all relevant stressors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The primary stressors with the potential to affect Brandegee's buckwheat's biological status are recreation (Factor A), development (Factor A), and climate change (Factor E). We conducted an evaluation of the environmental conditions that negatively affect individuals or populations of Brandegee's buckwheat, as well as conservation efforts that ameliorate those stressors. Currently, all AUs of Brandegee's buckwheat have high levels of resiliency. The species occurs in two genetically distinct AUs in unique climatic zones separated by more than 60 miles, contributing to its current redundancy and representation. In all future scenarios we considered, the AUs maintain high or moderate resiliency (with the exception of one subunit under one out of three scenarios) into the foreseeable future (i.e., 30 years into the future). While redundancy could decrease slightly in the future, commensurate with decreases in resiliency, we expect all AUs to remain extant, maintaining the species' ability to withstand catastrophic events, given the separation between AUs and the low likelihood of a catastrophe affecting both areas simultaneously. Further, the species' high genetic variation and ecological differences between the AUs will be maintained in the future, sustaining the species' ability to adapt to future change.

We also evaluated whether there are any significant portions of the range that could be in danger of extinction now or in the foreseeable future (see Service 2022a, entire). While the Southern Salida subunit is projected to have lower resiliency than the other two subunits in

future Scenario 3, we do not find that the species is likely to become in danger of extinction in the foreseeable future in this portion of the range. Despite the increased stressors in this future scenario, 87 percent of this subunit is Federal land, where BLM manages Brandegee's buckwheat as a sensitive species, aiming to reduce or mitigate the effects of stressors on the species. Moreover, we have observed thus far that Brandegee's plants can survive extremely close to recreational areas; they have a natural resiliency to the effects of this stressor, as long as off-highway vehicle users are not directly riding over the plants. In addition, we found that the conditions in Scenario 3, while plausible, are less likely than other future scenarios. Moreover, in the other two future scenarios, the resiliency of this subunit remains high or moderate, with moderate soil condition and relatively stable growth rates. Given the low likelihood of this scenario, and the fact that resiliency is moderate to high under the two more likely scenarios, we do not find that Brandegee's buckwheat is likely to become endangered in this portion of the species' range in the foreseeable future.

Therefore, we find that listing Brandegee's buckwheat as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Brandegee's buckwheat species assessment form and other supporting documents (see **ADDRESSES**, above).

Chowanoke Crayfish

Previous Federal Actions

On November 21, 1991, Chowanoke crayfish (*Faxonius virginiensis*) was identified as a category 2 candidate species by the Service under the Act (56 FR 58804). A subsequent candidate notice of review (CNOR) in 1994 (59 FR 58982; November 15, 1994) maintained the Chowanoke crayfish as a category 2 species. However, after the publication of the Service's February 28, 1996, CNOR (61 FR 7596), which revised the Service's candidate list to include only Category 1 species, the Chowanoke crayfish was no longer considered a candidate species. On April 20, 2010, the Service received a petition from the Center for Biological Diversity,

Alabama Rivers Alliance, Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council, and West Virginia Highlands Conservancy to list 404 aquatic, riparian, and wetland species, including Chowanoke crayfish, as endangered or threatened species under the Act. On September 27, 2011, the Service published a 90-day finding (76 FR 59836) announcing that the petition presented substantial scientific or commercial information indicating that listing may be warranted. The regulations at 50 CFR 424.14(h)(2)(i) require that we publish not-warranted 12-month findings in the *Federal Register*, and this document constitutes our 12-month finding for Chowanoke crayfish in response to the 2010 petition and 2011 90-day finding.

Summary of Finding

The Chowanoke crayfish's historical range is the Chowan River basin in southeastern Virginia and northeastern North Carolina, and the Roanoke River basin in northcentral and northeastern North Carolina. The historical range of the Chowanoke crayfish included documented distribution in six analysis units (AUs) within the two populations (i.e., basins). The Chowanoke crayfish is currently extant in all 6 AUs and occupies 86 percent (24 of 28) of the historically occupied Hydrologic Unit Code 10 (HUC10) watersheds, which are evenly distributed within AUs and both populations.

The Chowanoke crayfish is a small, freshwater, tertiary burrowing crustacean native to the Chowan and Roanoke River basins in Virginia and North Carolina. The species occurs in perennial streams and rivers with moderate to high gradient and flow, with rocky substrate, woody debris, and/or vegetation for shelter, that likely burrows only during the breeding season and/or during drought conditions. The species' needs are unembedded coarse hard structure (boulder, cobble, and gravel), woody debris, leaf litter, undercut banks, and/or abandoned crayfish burrows for breeding, sheltering, and feeding; perennial streams that are third order or greater; sufficient water quantity (not stagnant) with noticeable current to maintain habitat and water quality; sufficient water quality consisting of freshwater, low levels of silt, sand, and

turbidity to promote food sources and resistance to nonnative, invasive species and disease; and habitat connectivity for individuals to access adequate shelter, food, and space and to move to suitable habitat and climate over time. The species is assumed to be an opportunistic omnivore feeding on a wide variety of items including aquatic and terrestrial vegetation, plant detritus, insects, snails, and small aquatic vertebrates. Most of the occupied streams and rivers are non-tidal and freshwater, except for near the mouth of the Roanoke River and Chowan River in North Carolina. The occurrence of Chowanoke crayfish near the river mouth suggest that they have some tolerance to infrequent low-salinity conditions.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Chowanoke crayfish, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The primary threats with the potential to affect the Chowanoke crayfish's biological status include land use modification (Factor A), climate change (Factor E), and nonnative crayfish (Factors C and E). The species currently has high resiliency, representation, and redundancy. The effects of land use change and climate change have likely begun to occur in minor portions of the current Chowanoke range and may have contributed to some habitat degradation. However, these threats appear to have low imminence and magnitude, and the current risk of extinction is low. Therefore, after assessing the best available information, we conclude that the Chowanoke crayfish is not in danger of extinction throughout all of its range and does not meet the definition of an endangered species.

As for determining whether the species may be threatened, we have little scientific information that informs the species' likely response to changes related to sea level rise and the spread of nonnative crayfish; however, based on the best available information, we do not expect changes from climate change or nonnative crayfish to be primary stressors affecting the species' viability. Even with the impacts of increased salinity, the species has sufficient healthy populations distributed across the range such that the species is not in danger of extinction in the

foreseeable future, which we determined to be 50 years. Because negative impacts of nonnative crayfish on Chowanoke crayfish have not been documented, it was not considered as an active threat in the analysis. Based on current and projected habitat conditions and population factors for two future scenarios (1 and 3), estimates of current and future resiliency for Chowanoke crayfish are high to moderate in all the AUs and Chowan and Roanoke populations, as are estimates for redundancy and representation at the end of 50 years (Service 2022b, entire). For scenario 2, the Middle Roanoke AU in the Roanoke population is predicted to be likely extirpated, but the other five AUs in the Chowan and Roanoke populations will be in moderate or high condition, thus maintaining resiliency for five (83 percent) subpopulations. Redundancy is predicted to be reduced, but still at a moderate level across the range, with 68 percent of the HUC10 watersheds occupied (Service 2022b, entire). After assessing the best available information, we conclude that Chowanoke crayfish is not likely to become endangered within the foreseeable future throughout all of its range.

We found no biologically meaningful portion of the Chowanoke crayfish range where threats are impacting individuals differently from how they are affecting the species elsewhere in its range, or where the condition of the species differs from its condition elsewhere in its range such that the status of the species in that portion differs from any other portion of the species' range. Thus, after assessing the best available information, we determine that Chowanoke crayfish is not in danger of extinction now or likely to become so within the foreseeable future throughout all or a significant portion of its range. Therefore, we find that listing the Chowanoke crayfish as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Chowanoke crayfish species assessment form and other supporting documents (see **ADDRESSES**, above).

Cisco Milkvetch, Stage Station Milkvetch, and Isely's Milkvetch

Previous Federal Actions

On July 30, 2007, we received a petition dated July 24, 2007, from Forest Guardians

(now WildEarth Guardians) to list 206 species in the mountain-prairie region of the United States, including Cisco milkvetch (*Astragalus sabulosus*) and Isely's milkvetch (*A. iselyi*), as endangered or threatened species under the Act. We completed a 90-day finding on August 18, 2009 (74 FR 41649; correction on September 14, 2009, 74 FR 46965), in which we announced our finding that the petition contained substantial information that listing may be warranted for numerous species, including Cisco milkvetch and Isely's milkvetch. There are no previous Federal actions for stage station milkvetch because stage station milkvetch was only recently (in 2015) identified as being a separate species from Cisco milkvetch. The regulations at 50 CFR 424.14(h)(2)(i) require that we publish not-warranted 12-month findings in the *Federal Register*, and this document constitutes our 12-month finding for the Cisco milkvetch and Isely's milkvetch in response to the 2007 petition and our 2009 90-day finding. This document also constitutes the notification of review for the stage station milkvetch, indicating under § 424.15(b) that there is not sufficient scientific or commercial information available to warrant proposing to list.

Summary of Findings

Cisco milkvetch, stage station milkvetch, and Isely's milkvetch are perennial flowering plants found in southeast Utah in Grand and San Juan Counties. As narrow endemics, there have likely always been relatively few populations of these species within a narrow range. Based on the best available information, the current distribution of the species is similar to its historical distribution.

Cisco milkvetch, stage station milkvetch, and Isely's milkvetch appear to be narrowly restricted to specific environmental conditions, including open, sparsely vegetated areas with little competition from other plants, and they have only been observed growing in selenium-rich soils. Although these species require sufficient seasonal precipitation for seed germination, seedling emergence, vegetative plant growth, flowering, and fruit set, specific suitable microsite characteristics are also unknown.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Cisco, stage station, and Isely's milkvetches, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these threats. The primary threats with the potential to affect the Cisco, stage station, and Isely's milkvetches' biological status include recreation (Factor B); oil and gas development (Factor A); land development and conversion (Factor A); major energy and transportation corridor (Factor A); nonnative, invasive species (Factors C and E); and the effects of drought and climate change (Factor E), as well as mining of mineral resources for stage station and Isely's milkvetches (Factor A).

Our assessment of current viability included all primary threats to Cisco, stage station, and Isely's milkvetch. Despite past and ongoing stressors, Cisco and Isely's milkvetch have multiple, healthy populations (high and medium condition), and stage station milkvetch has maintained the only historically known population in a moderate condition. To assess future viability of these species, we considered the foreseeable future out to 2050 and projected the influence of three future scenarios that included climate change and the other primary threats included in the assessment of current viability. Within the SSA for the three species (Service 2022c, entire), we evaluated the viability of each of the three milkvetches, including a review of ongoing and future threats. Concurrent with the development of the SSA, with partners, we developed a Conservation Agreement and Strategy (Agreement) for the Cisco, stage station, and Isely's milkvetches (BLM et al. 2022, entire) to address the ongoing and future threats identified in the SSA. We conducted an analysis of the Agreement under the Policy for Evaluation of Conservation Efforts (68 FR 15100; March 28, 2003); based on our findings that the Agreement has a high level of certainty of future implementation and certainty of the effectiveness, we were able to consider the Agreement as part of the basis for our 12-month finding for Cisco and Isely's milkvetches and our discretionary status assessment for the stage station milkvetch.

As part of our future viability assessment, we also considered the implementation of the

Agreement and projected that it will mitigate or reduce non-climate-related threats in the foreseeable future. The best available information indicates that these species have life-history traits conducive to surviving periodic drought and hot summers similar to projected conditions resulting from climate change. Additionally, the implementation of the Agreement will mitigate or reduce non-climate-related stressors and reduce the potential cumulative interaction of climate change with non-climate-related stressors. Therefore, the three species are expected to maintain levels of resiliency, redundancy, and representation that are similar to current conditions, and most populations of Cisco and Isely's milkvetches and the only known population of stage station milkvetch appear sufficiently robust and are not likely to change significantly in the foreseeable future. No significant portions of the range of any of these three species are in danger of extinction or likely to become so in the foreseeable future.

After assessing the best available information, we conclude that the Cisco milkvetch, stage station milkvetch, and Isely's milkvetch are not in danger of extinction or likely to become in danger of extinction throughout all of their range or in any significant portion of their range. Therefore, we find that listing the Cisco milkvetch, stage station milkvetch, and Isely's milkvetch as endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Cisco milkvetch, stage station milkvetch, and Isely's milkvetch species assessment forms and supporting documents (see **ADDRESSES**, above).

Columbia Oregonian

Previous Federal Actions

On March 17, 2008, the Service received a petition from the Center for Biological Diversity, Conservation Northwest, the Environmental Protection Information Center, the Klamath-Siskiyou Wildlands Center, and Oregon Wild, requesting that the Service list 32 species and subspecies of mollusks in the Pacific Northwest, including the Columbia Oregonian (*Cryptomastix hendersoni*), as endangered or threatened under the Act. The petition also

requested that the Service designate critical habitat concurrent with listing. On October 5, 2011, the Service found in our 90-day finding that the petition presented substantial scientific or commercial information indicating that listing the Columbia Oregonian may be warranted (76 FR 61826). The regulations at 50 CFR 424.14(h)(2)(i) require that we publish not-warranted 12-month findings in the *Federal Register*, and this document constitutes our 12-month finding for Columbia Oregonian in response to the 2008 petition and 2011 90-day finding.

Summary of Finding

The Columbia Oregonian is a small terrestrial gastropod (snail) associated with riparian habitat found along the moist edges of seeps, springs, and streams. It is known historically from locations near The Dalles, Oregon, with a few occurrences near Walla Walla and Yakima in the State of Washington, as well as in west-central Idaho. Its current range includes additional areas along the Columbia River corridor, into the Blue Mountains of northeast Oregon, along Hells Canyon in western Idaho and in northern Idaho, and locations west of Yakima, Washington, in the Snoqualmie National Forest.

The Columbia Oregonian occurs on talus slopes (especially near the base where moisture levels tend to be higher) along the margins of seeps and spring-fed streams in low- to middle-elevation areas (average 78 meters) of major river drainages (Jordan and Black 2015, p. 13). In Idaho, specimens have also been reported in habitats outside riparian areas at higher elevations in conifer-dominated forests (Idaho Department of Fish and Game 2021, p. 3). The Columbia Oregonian is an air-breathing (or pulmonate) gastropod that reproduces both sexually and asexually, and lays eggs that hatch after approximately 1 month (Frest and Johannes 1995, p. 25). While the specific life-history needs of the Columbia Oregonian have not been documented, sources describe *Cryptomastix* spp. as requiring habitat containing adequate soil moisture and appropriate soil chemistry, sources of refugia, and moderate air temperatures, and a diet consisting of various plant material, microorganisms, algae, and other organic matter found at the edge of streams and seeps for nutrition (Jordan and Black 2015, p. 10).

We carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Columbia Oregonian, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The primary stressors with the potential to affect the Columbia Oregonian's biological status include habitat loss and fragmentation due to livestock grazing and riparian habitat conversion (Factor A), and the climate-mediated risk of drought and wildfire (Factor E).

Currently, the species occurs in 19 resiliency units (delineated from 32 occurrence records), the majority of which are currently in moderate to high condition, with only one unit currently in low condition. These resiliency units are distributed across the historical range of the species and occupy a diversity of ecological settings. Thus, we determined that the species is not in danger of extinction throughout all of its range.

To assess whether the species is in danger of extinction in the foreseeable future, we considered three plausible future scenarios that projected changes in livestock grazing, riparian habitat conversion, the risk of drought and wildfire as influenced by climate change, and how these threats would impact Columbia Oregonian habitat and population connectivity. For the purposes of this analysis, we considered the foreseeable future to be the timeframe from the present to about mid-century (or to 2069, given available data sets), as that is the timeframe for which we can reasonably determine likely future changes in climate that influence two of the four major threats we analyzed for the Columbia Oregonian (wildfire and drought), and the species' responses to these changes.

We determined that these threats are likely to reduce resiliency to a modest degree in two of the three future scenarios we considered, thereby having the potential to also modestly reduce redundancy and representation (through reduced abundance or the loss of populations and/or occupied representation units). However, even in the highest threat impact future scenario, more than half of the resiliency units would continue to occur in moderate to high condition, and only

3 of the 19 resiliency units would decline to low or very low condition. Extirpation of low-condition populations is possible in this highest threat impact future scenario, but even in this scenario, multiple moderate- to high-condition populations would remain across most or all of the historical and current range of the species. Therefore, our analysis indicates that even with the projected decline in habitat quality, and by proxy the decline in the species' condition, the Columbia Oregonian will maintain adequate levels of resiliency across most populations, and adequate redundancy and representation rangewide, to maintain species viability into the foreseeable future.

In considering the significant portion of its range, we found no biologically meaningful portion of the Columbia Oregonian range where threats are impacting individuals differently from how they are affecting the species elsewhere in its range, or where the condition of the species differs from its condition elsewhere in its range such that the status of the species in that portion differs from any other portion of the species' range. The Weiser resiliency unit is currently in low condition and is projected to remain low in future scenarios. Given this, we consider the Weiser resiliency unit to have different status than the remainder of the range. However, we found that the unit does not represent a significant portion of the species' range. The only known occurrence in the larger Weiser watershed unit is based on a single historical record of a dead individual Columbia Oregonian that was collected in 1991. Therefore, the best available information does not indicate that the Weiser resiliency unit represents a part of the species' range that hosts a particularly high concentration of individuals, nor does it represent a particularly large area proportional to the rest of the species' range (the Weiser resiliency unit comprises 5 percent of the total area made up by the 19 resiliency units). For these reasons, we conclude that Weiser is not a significant portion of the range. Therefore, we find that listing the Columbia Oregonian as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Columbia Oregonian species assessment form and other supporting documents (see **ADDRESSES**, above).

Rye Cove Cave Isopod

Previous Federal Actions

On April 20, 2010, the Service received a petition from the Center for Biological Diversity, Alabama Rivers Alliance, Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council, and West Virginia Highlands Conservancy to list 404 aquatic, riparian, and wetland species, including Rye Cove cave isopod (*Lirceus culveril*), as endangered or threatened species under the Act (see Center for Biological Diversity 2010, pp. 1–66, 192–193). On September 27, 2011, the Service published a 90-day finding in the *Federal Register* (76 FR 59836) announcing that the petition presented substantial scientific or commercial information indicating that listing may be warranted. The regulations at 50 CFR 424.14(h)(2)(i) require that we publish not-warranted 12-month findings in the *Federal Register*, and this document constitutes our 12-month finding for Rye Cove cave isopod in response to the 2010 petition and 2011 90-day finding.

Summary of Finding

The Rye Cove cave isopod occupies a small range of approximately 14 kilometers (8.7 miles) of cave streams fed by a drainage area of approximately 19 square kilometers (7.3 square miles) within the Rye Cove area of Scott County in southwestern Virginia. The Rye Cove area is a trough within the Appalachian Valley, bound by Big Ridge to the south and Cove Ridge to the north; the floor of the cove is about 500 feet (152 meters) lower than the surrounding ridges, which exceed 2,000 feet (610 meters). The Rye Cove cave isopod is now known to inhabit two distinct, adjacent karst drainages within a single moderately sized spring basin. One drainage contains six caves, while the second contains two caves. All the streams and caves appear to eventually emerge aboveground over 1 mile east and 200 feet (61 meters) lower than the Rye Cove valley floor at a spring.

The Rye Cove cave isopod is an eyeless, unpigmented troglobitic species of isopod and is a crustacean with a rigid, segmented exoskeleton. Isopods also have two pairs of antennae, seven

pairs of jointed limbs on the thorax, and five pairs of branching appendages (pleopods) on the abdomen that are used in swimming and for respiration. Rye Cove cave isopods require suitable substrate within the cave streams where clean water with adequate depth flows through riffles that help oxygenate the water. Streams must carry organic detritus on which the isopod can feed. However, excess nutrients allow surface organisms without troglomorphic (cave-adapted) characteristics to regularly survive in the cave environment. Thus, nutrient inputs should not be so high that surface-adapted organisms regularly occur and potentially outcompete the Rye Cove cave isopod, or that degrade water quality and the overall habitat conditions. The range of temperatures in which the isopod will thrive/survive is likely dependent on the average stream temperature in the cave and seasonal fluctuations.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the Rye Cove cave isopod, and we evaluated all relevant factors under the five listing factors, including any regulatory mechanisms and conservation measures addressing these stressors. The Rye Cove cave isopod inherently has low redundancy and representation due to its being a narrow-ranging endemic. Survey data indicate that the species resiliency has remained unchanged over the years. The primary threats with the potential to affect the Rye Cove cave isopod's biological status include the effects of climate change (Factor E), land use and management (Factor A), and the risk of catastrophic events (Factor E). Based on the best available information, we conclude that major impacts from climate change in the foreseeable future (2040 to 2070) are unlikely. While little is known about the ecology of the genus *Lirceus*, the Rye Cove cave isopod has existed through climate variations, including both temperature and water quantity (drought conditions, flood conditions), given molecular evidence that points to a timeframe of millions of years since the Rye Cove cave isopod diverged from its closest relative.

The effects of land use and management have likely begun to occur in the current range of the Rye Cove cave isopod and may have contributed to some habitat degradation. However,

these threats appear to have low imminence and magnitude such that they are not affecting the species' ability to maintain populations within its range. The Rye Cove cave isopod has the best viability into the future with zero to low land use changes. Intense future land uses (animal feeding operations, dairy farms, suburban neighborhoods) in Rye Cove are unlikely; trends and models do not predict major land use changes, and the terrain and access in Rye Cove may hinder this sort of development.

While the risk of a catastrophic event occurring increases with an increase in the risk factors, all of these risk factors are projected to remain low or decrease based on the geographic location, census, and modeling of human population growth and development in Rye Cove. And, while the Rye Cove cave isopod is at particular risk of catastrophic impacts due to its linear habitat, limited dispersal capabilities, and assumed sensitivity to contaminants, the cave streams likely also contain unmapped blind tributaries and refugia, as well as stream habitat connectivity to provide protection and re-population opportunities if a catastrophic event occurred. Finally, in considering the significant portion of its range, we found no biologically meaningful portion of the Rye Cove cave isopod range where threats are impacting individuals differently from how they are affecting the species elsewhere in its range, or where the condition of the species differs from its condition elsewhere in its range such that the status of the species in that portion differs from any other portion of the species' range.

After assessing the best available information, we concluded that the Rye Cove cave isopod is not in danger of extinction or likely to become in danger of extinction throughout all of its range or in any significant portion of its range. Therefore, we find that listing the Rye Cove cave isopod as an endangered species or threatened species under the Act is not warranted. A detailed discussion of the basis for this finding can be found in the Rye Cove cave isopod species assessment form and other supporting documents (see **ADDRESSES**, above).

References Cited

A list of the references cited in this petition finding is available in the relevant species

assessment form, which is available on the internet at *https://www.regulations.gov* in the appropriate docket (see **ADDRESSES**, above) and upon request from the appropriate person (see **FOR FURTHER INFORMATION CONTACT**, above).

Authors

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

Authority

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

Martha Williams,
Director,
U.S. Fish and Wildlife Service.

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