Recovery Plan for White River spinedace (*Lepidomeda albivalis*)
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DRAFT AMENDMENT 1

We have identified best available information that indicates the need to amend recovery criteria for White River spinedace (*Lepidomeda albivalis*) since the recovery plan was completed. In this proposed modification, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and describe the rationale supporting the proposed recovery plan modification. The proposed modification is shown as an addendum that supplements the recovery plan, superseding only the executive summary (page iii) and recovery objective (pages 22-23) of the recovery plan.

For
U.S. Fish and Wildlife Service
Pacific Southwest Region
Sacramento, California

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BACKGROUND INFORMATION

Recovery plans should be consulted frequently, used to initiate recovery activities, and updated as needed. A review of the recovery plan and its implementation may show that the plan is out of date or its usefulness is limited, and therefore warrants modification. Keeping recovery plans current ensures that the species benefits through timely, partner-coordinated implementation based on the best available information. The need for, and extent of, plan modifications will vary considerably among plans. Maintaining a useful and current recovery plan depends on the scope and complexity of the initial plan, the structure of the document, and the involvement of stakeholders.

An amendment involves a substantial rewrite of a portion of a recovery plan that changes any of the statutory elements. The need for an amendment may be triggered when, among other possibilities: (1) the current recovery plan is out of compliance with regard to statutory requirements; (2) new information has been identified, such as population-level threats to the species or previously unknown life history traits, that necessitates new or refined recovery actions and/or criteria; or (3) the current recovery plan is not achieving its objectives. The amendment replaces only that specific portion of the recovery plan, supplementing the existing recovery plan, but not completely replacing it. An amendment may be most appropriate if

significant plan improvements are needed, but resources are too scarce to accomplish a full recovery plan revision in a short time.

Although it would be inappropriate for an amendment to include changes in the recovery program that contradict the approved recovery plan, it could incorporate study findings that enhance the scientific basis of the plan, or that reduce uncertainties as to the life history, threats, or species' response to management. An amendment could serve a critical function while awaiting a revised recovery plan by: (1) refining and/or prioritizing recovery actions that need to be emphasized, (2) refining recovery criteria, or (3) adding a species to a multispecies or ecosystem plan. An amendment can, therefore, efficiently balance resources spent on modifying a plan against those spent on managing implementation of ongoing recovery actions.

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

The Southern Nevada Fish and Wildlife Office used information from the 1994 White River Spinedace Recovery Plan and 2010 5-year review for the White River spinedace to revise the existing downlisting criteria and to develop new delisting criteria. We solicited input from experts who have worked with the species and from the White River Recovery Implementation Team, which includes representatives from the Nevada Department of Wildlife (NDOW), Nevada Natural Heritage Program, Forest Service, Bureau of Land Management, Natural Resources Conservation Service, Southern Nevada Water Authority, and Lincoln County. The amended recovery criteria will be peer reviewed in accordance with the OMB Peer Review Bulletin following the publication of the Notice of Availability.

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination…that the species be removed from the list." Legal challenges to recovery plans (see Fund for Animals v. Babbitt, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) have also affirmed the need to frame recovery criteria in terms of threats assessed under the five threat factors (Act 4(a)(1)).

Recovery Criteria

The current recovery criteria can be found within the executive summary (page iii) and recovery objective (pages 22-23) in the recovery plan.

Synthesis

When the recovery plan for White River spinedace was published in 1994, only a single population remained at the Flag Springs complex. The Flag Springs complex occurs on the NDOW-managed Kirch Wildlife Management Area and is one of three springs that compose designated critical habitat for White River spinedace, along with Preston Big Spring and Lund Spring. At the time the recovery plan was completed, the Flag Springs complex population was heavily impacted by largemouth bass (*Micropterus salmoides*) and spinedace were restricted to the northern spring of the complex (Scoppettone 2004a, Service 1994).

The Flag Springs complex population, which was once estimated at less than 50 individuals, is now consistently between 500 and 1,500 individuals, which demonstrates progress towards recovery (NDOW 2016, Scoppettone 2004b, Service 2010). Recent surveys of White River spinedace likely underrepresent the actual population as surveys are impacted by encroaching vegetation due to a lack of prescribed burning (NDOW 2016). The increase in population size is largely attributed to the removal of largemouth bass from the system. More recent habitat restoration projects have likely contributed to the ongoing success.

Despite the improvements at the Flag Springs complex, overall, the threats across the species' historical range remain unchanged as described in the recovery plan and 5-year review. Additionally, little progress has been made in reintroducing spinedace to Preston Big and Lund Springs, both of which are located on private lands. Improving the status of this species at these two springs would require partnerships between agencies, irrigation districts, local communities, and the private landowners where Preston Big and Lund springs occur. To date, efforts to establish partnerships with the irrigation districts, local communities, and private landowners where Preston Big and Lund springs occur have been unsuccessful. Therefore, the White River Recovery Implementation Team is focusing recovery efforts for improving the species' status on other historically occupied areas that are outside critical habitat, and we are modifying the recovery criteria for White River spinedace accordingly.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and the species may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term "endangered species" means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" means any species, which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made "solely on the basis of the best scientific and commercial data available." Thus, while recovery plans provide important guidance to the U.S. Fish and Wildlife Service (Service), States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species' status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data available, regardless of whether

that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*.

We provide both downlisting and delisting criteria for the White River spinedace, which will supersede those included in the White River spinedace recovery plan, as follows:

Downlisting Recovery Criteria

Current recovery criteria

White River spinedace may be proposed for reclassification to threatened status when a self-sustaining population exists in each of the three designated critical habitats for at least 5 consecutive years and each habitat is secure from all known threats.

Amended recovery criteria

1. A self-sustaining[1] White River spinedace population occurs from the headwaters of the Flag Springs complex downstream to the Sunnyside Creek fish barrier (approximately 4 miles). Habitat is free from manmade barriers and large predatory fish, such as largemouth bass.

   Justification: In this proposed criterion, we focused on ways to ensure at least one population occurs in designated critical habitat is self-sustaining, is able to withstand population-level events, and occurs in habitat where most threats to the species are largely absent or managed. Specifically, we are requiring 4 miles of habitat to be free of manmade barriers. This will allow for a larger and more connected population of spinedace.

   We chose a period of 5 years to describe self-sustaining because this timeframe would provide approximately one generation's worth of spinedace data to document reproduction, recruitment, and population stability. Museum specimens aged by Scoppettone (2004a) found that most White River spinedace were 1 to 5 years of age, but some individuals may live greater than 10 years. It is suspected that related Plagopterini fish live closer to 1 to 3 years (Minckley 1973).

   Additionally, we added language about the absence of large, predatory fish because in the past, an introduction of largemouth bass decimated this population. Although nonnative mosquitofish occur in the system, available information indicates that White River spinedace have co-occurred with mosquitofish for multiple decades with little apparent

[1] Self-sustaining is defined as having 3 or more age-classes present, as well as a stable population with no downward trend and documented reproduction and recruitment for at least 5 years.

adverse effect, and thus their removal is not required for recovery of White River spinedace.

2. One additional self-sustaining White River spinedace population has been established following an introduction plan.

   Justification: This criterion modifies the current downlisting criteria in the recovery plan by removing the requirement of self-sustaining populations at all critical habitat sites, which include Preston Big and Lund springs, while retaining the requirement of redundancy of more than one population of spinedace. Based on Recovery Implementation Team recommendations, securing the Flag Springs Complex is considered more important to the species recovery than having populations at all designated critical habitat locations. The change also allows for populations that are established outside of critical habitat to count towards recovery. This criterion will better fit current recovery opportunities and efforts being undertaken by state and federal agencies. In proposing a change in the number of populations for downlisting from three populations to two populations, we are requiring additional benchmarks be met at the Flag Springs complex. A third population will be required in the delisting criteria.

3. Impacts to the species and its habitat have been reduced to a point where they no longer represent a threat of extinction or irreversible population decline.

   Justification: This change retains the requirement to ensure that threats have been reduced for downlisting to occur, but uses a more general criterion that more closely aligns with the statutory definition of threatened in the Act.

Delisting Recovery Criteria

Current recovery criteria

None

Amended recovery criteria

1. Self-sustaining populations of White River spinedace exist in at least one critical habitat unit and two additional locations.

   Justification: This adds an additional redundant population to what is presented in the amended downlisting criteria, which should provide a sufficient buffer should one or more populations be affected by a catastrophic event.

2. White River spinedace show representation, resiliency, and redundancy.
   a. Resiliency - Ensure that each White River spinedace population contains an adequate number of individuals that are distributed throughout sufficient habitat to withstand

stochastic, population-level events. Minimum viable population size will be determined once we have more information on the species.

b. Redundancy - Guarantee that an adequate number and distribution of White River spinedace populations occur to withstand catastrophic events. Catastrophic events for the species include rapid expansion of nonnatives such as predatory fish species, or reduction in spring flow from drought or groundwater pumping. At least 3 self-sustaining populations exist (self-sustaining defined as having 3 or more age-classes present, as well as a stable population with no downward trend and documented reproduction and recruitment for at least 5 years).
c. Representation - Conserve White River spinedace by ensuring it is present within a variety of ecological (e.g., pool and stream habitat) and geographic settings in order to maintain genetic diversity and adaptive capacity over time. At least three self-sustaining populations exist across distinct geographic and ecological settings (e.g., stream, pond).

Justification: Currently, Service policy is to utilize a Species Status Assessment to evaluate species status for the purposes of listing under the Act. The SSA process evaluates species status based on representation, resiliency, and redundancy. This criterion incorporates the SSA process into the recovery plan (Service 2016).

3. All impacts to the species and its habitat have been reduced to the point that the species is unlikely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Justification: This added criterion further builds on the requirement to alleviate threats for downlisting based on the statutory definitions of threatened and endangered in the Act.

Rationale for Amended Recovery Criteria

For creating delisting criteria, we reviewed existing recovery plan goals and objectives and considered these during the development of criteria. We ensured that reclassifications addressed all threats associated with the Service's five factors. Additionally, these revised criteria incorporate the Service's SSA process by evaluating the species' resiliency, redundancy, and representation.

Resiliency

All populations of spinedace will have a requirement to be self-sustaining which we have defined as having 3 or more age-classes present, as well as a stable population with no downward trend and documented reproduction and recruitment for at least 5 years. For the population at Flag Spring we have identified a measurable amount of habitat (i.e., 4 miles) that represents the maximum amount of habitat available under current conditions. Additionally, the Flag Springs habitat must remain free of manmade barriers to help ensure connectivity of habitat.

Redundancy

White River spinedace are a narrow endemic species that historically occupied a few springs in a small geographic area. Under current conditions, there is a single viable population and efforts to

establish additional populations have been slow to develop. The new criteria require three populations spread out across distinct geographic and ecological settings (e.g., stream, pond). We have modified the current downlisting criteria to allow for establishment of populations outside of critical habitat as we have determined with our partners that this is a more realistic recovery goal given the presence of critical habitat on private land. Other opportunities exist where viable, persistent populations could be established within historic range that may be more feasible than unoccupied sites with designated critical habitat.

Representation

Representation for spinedace will require three populations spread out across distinct geographic and ecological settings (e.g., stream, pond). Such distribution will help ensure that adaptive capacity is maintained, thereby increasing the likelihood of the species being capable of adaptive to future environmental change.

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