

**Independence Valley Speckled Dace**  
*(Rhinichthys osculus lethoporus)*

**5-Year Review:  
Summary and Evaluation**



**Independence Valley Speckled Dace**  
**Photograph by Steve Ambruzs, U.S. Geological Survey**

**U.S. Fish and Wildlife Service**  
**Nevada Fish and Wildlife Office**  
**Reno, Nevada**  
**July 2013**

**5-YEAR REVIEW**  
**Independence Valley speckled dace**  
**(*Rhinichthys osculus lethoporus*)**

**I. GENERAL INFORMATION**

**Purpose of 5-Year Reviews:**

The U.S. Fish and Wildlife Service (Service) is required by section 4(c)(2) of the Endangered Species Act (Act) to conduct a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether or not the species' status has changed since it was listed (or since the most recent 5-year review). Based on the 5-year review, we recommend whether the species should be removed from the list of endangered and threatened species, be changed in status from endangered to threatened, or be changed in status from threatened to endangered. Our original listing of a species as endangered or threatened is based on the existence of threats attributable to one or more of the five threat factors described in section 4(a)(1) of the Act, and we must consider these same five factors in any subsequent consideration of reclassification or delisting of a species. In the 5-year review, we consider the best available scientific and commercial data on the species, and focus on new information available since the species was listed or last reviewed. If we recommend a change in listing status based on the results of the 5-year review, we must propose to do so through a separate rule-making process defined in the Act that includes public review and comment.

**Species Overview:**

Independence Valley speckled dace (IVSD; *Rhinichthys osculus lethoporus*) are members of the minnow family of fishes (Cyprinidae) that occupy many waters of western North America. Isolation of speckled dace populations has permitted genetic divergence and resulted in a number of morphologically distinct forms recognized as subspecies. The species' adaptability to a broad range of environments enables it to persist in habitats too harsh for the survival of many other fish. In general, speckled dace tend to be small (90 millimeters (mm) (3.5 inches (in)) or less in total length) and are distinguished by subterminal mouths, small scales, thick tails, and slender bodies. Their color is usually olive, often with dark blotches that combine to form a dark side band (Moyle 2002). Independence Valley speckled dace only inhabit the Independence Valley Warm Springs Complex in Independence Valley, Elko County, Nevada. They occur throughout the marsh habitat within the Complex, primarily in areas with aquatic and emergent vegetation.

**Methodology Used to Complete This Review:**

This review was prepared by the Nevada Fish and Wildlife Office (NFWO), following the Region 8 guidance issued in March 2008. We used information from the Final Recovery Plan for the Endangered Speckled Dace of Clover and Independence Valleys (Recovery Plan; Service 1998) and survey information from experts who have been monitoring this species. The Recovery Plan and reports from experts were our primary sources of information used to update the species' status and threats. We received no information from the public in response to our Federal Register Notice initiating this 5-year review. This 5-year review contains available

updated information on the species' biology and threats, and an assessment of that information compared to that known at the time of listing or since the last 5-year review. We focus on current threats to the species that are attributable to the Act's five listing factors. The review synthesizes all this information to evaluate the listing status of the species and provide an indication of its progress towards recovery. Finally, based on this synthesis and the threats identified in the five-factor analysis, we recommend a prioritized list of conservation actions to be completed or initiated within the next 5 years.

**Contact Information:**

**Lead Regional Office:** Larry Rabin, Deputy Division Chief for Listing, Recovery, and Environmental Contaminants, Region 8, California and Nevada; (916) 414-6464.

**Lead Field Office:** Todd Gilmore, Nevada Fish and Wildlife Office, Reno, Nevada; (775) 861-6300.

**Federal Register (FR) Notice Citation Announcing Initiation of This Review:** A notice announcing initiation of the 5-year review of this taxon and the opening of a 60-day period to receive information from the public was published in the Federal Register on April 27, 2012 (Service 2012). No information was received as a result of this announcement.

**Listing History:**

**Federal Listing**

**FR Notice:** 54 FR 41448

**Date of Final Listing Rule:** October 10, 1989

**Entity Listed:** Independence Valley speckled dace (*Rhinichthys osculus lethoporus*), a fish subspecies

**Classification:** Endangered

**State Listing**

Independence Valley speckled dace (*Rhinichthys osculus lethoporus*) was listed as endangered by the State of Nevada in 1989.

**Review History:** A 5-year review was completed for the IVSD in June 2008 (Service 2008). This review recommended a change in recovery priority number from 6C (moderate degree of threat, low recovery potential, economic conflict) to 9C (moderate degree of threat, high recovery potential, economic conflict).

**Species' Recovery Priority Number at Start of 5-Year Review:** The recovery priority number for IVSD is 9C according to the Service's 2012 Recovery Data Call for the NFWO, based on a 1-18 ranking system where 1 is the highest-ranked recovery priority and 18 is the lowest (Service 1983). This number indicates that the taxon is a subspecies that faces a moderate degree of threat and has a high potential for recovery. The "C" indicates conflict with construction or other development projects or other forms of economic activity.

## Recovery Plan

**Name of Plan:** Final Recovery Plan for the Endangered Speckled Dace of Clover and Independence Valleys (*Rhinichthys osculus lethoporus* and *Rhinichthys osculus oligoporus*)

**Date Issued:** May 10, 1998

## II. REVIEW ANALYSIS

### Application of the 1996 Distinct Population Segment (DPS) Policy

The Endangered Species Act defines “species” as including any subspecies of fish or wildlife or plants, and any distinct population segment (DPS) of any species of vertebrate wildlife. This definition of species under the Act limits listing as distinct population segments to species of vertebrate fish or wildlife. The 1996 Policy Regarding the Recognition of Distinct Vertebrate Population Segments under the Endangered Species Act (Service 1996) clarifies the interpretation of the phrase “distinct population segment” for the purposes of listing, delisting, and reclassifying species under the Act.

The IVSD is not listed as a DPS, nor is there any relevant new information regarding the application of the 1996 policy that suggests this subspecies should be listed as a DPS.

### Information on the Species and its Status

#### Species Biology and Life History

Available information relevant to the life history and biology of the species is referenced in the 2008 5-year review (Service 2008).

#### Spatial Distribution

At the time of listing, IVSD were known to occupy one spring system within the Warm Springs Complex on private land in Independence Valley, Elko County, Nevada (Service 1989). The exact location of this spring system within the Warm Springs Complex was not identified. The most recent surveys of IVSD distribution are those conducted by the U.S. Geological Survey (USGS) from 2006 to 2008 (Johnson *et al.* 2009). Distribution data from these surveys were not available for the Service’s 2008 5-year review (Service 2008). These surveys found IVSD distributed throughout the Warm Springs marsh, but rare or nonexistent near the spring outflows where nonnative largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*) were present (Johnson *et al.* 2009) (Figure 1). The current spatial distribution of IVSD is unknown, as Federal and State biologists have not surveyed or accessed the private property on which the Warm Springs Complex is located since 2008.

## Abundance

At the time of listing, the number of IVSD that occupied Independence Valley Warm Springs was not reported (Service 1989). The USGS captured 4,148 IVSD in 2006, 9,828 in 2007, and 8,462 in 2008 using minnow traps distributed throughout the marsh area of the Warm Springs Complex (Johnson *et al.* 2009). Captured IVSD ranged between 8 and 97 mm (0.3 and 3.8 in) fork length, indicating the presence of multiple age classes each year. These abundance data were not available when the 2008 5-year review was completed. The current abundance of IVSD is unknown, as Federal and State biologists have not surveyed or accessed the private property on which the Warm Springs Complex is located since 2008.

## Habitat or Ecosystem

At the time of listing, habitat and ecosystem conditions within the Warm Springs Complex were not reported (Service 1989). The most recent reports of habitat and ecosystem conditions at Independence Valley Warm Springs are from 2006 to 2008 USGS monitoring surveys (Johnson *et al.* 2009). In these surveys, USGS tested for habitat variables that best predicted IVSD distribution. Their analysis found that water temperature combined with water depth and density of *Juncus* sp., bulrush (*Scirpus* sp.), and cattails (*Typha* sp.) provided the best predictive model of IVSD abundance (Johnson *et al.* 2009). The highest concentration of IVSD were found in water temperature between 11 and 20 degree Celsius (51.8 and 68 degree Fahrenheit) and water depth between 200 and 400 mm (7.8 and 15.7 in). The current habitat conditions within the Warm Springs Complex are unknown, as Federal and State biologists have not surveyed or accessed the private property on which the Warm Springs Complex is located since 2008.

## Changes in Taxonomic Classification or Nomenclature

No changes in taxonomic classification or nomenclature have occurred for IVSD.

## Genetics

No genetic analysis has been completed for IVSD.

## Species-specific Research and/or Grant-supported Activities

*Abundance and Distribution of Independence Valley Speckled Dace and Independence Valley Tui Chub in Ralph's Warm Springs Marsh, Independence Valley, Elko County, Nevada.*

In 2006, funding in the amount of \$95,103 was provided through the USGS's Quick Response Program/Science Support Program to complete a 3-year comprehensive survey of IVSD distribution and abundance. These USGS programs annually fund scientific research and technical assistance on priority topics identified by the Service. Results from the 2006–2008 USGS survey (Johnson *et al.* 2009) are summarized above in the Spatial Distribution and Abundance sections.

## **Five-Factor Analysis**

The following five-factor analysis describes and evaluates the threats attributable to one or more of the five listing factors outlined in section 4(a)(1) of the Act.

### **FACTOR A: Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range**

The primary threats identified in the 2008 5-year review for the present or threatened destruction, modification, or curtailment of habitat or range were limited distribution and habitat manipulation (Service 2008). For this review, limited distribution has been moved to Factor E: Other natural or manmade factors affecting its continued existence.

Habitat manipulation continues to be a threat to IVSD. As noted in the 2008 5-year review, the Warm Springs Complex is under private ownership with no long-term management plan or conservation easement and could be subject to intensive cattle grazing and modifications to the spring systems and marsh (Service 2008). The current habitat conditions are unknown, as Federal and State biologists have not surveyed or accessed the private property on which the Warm Springs Complex is located since 2008.

In summary, potential habitat manipulation continues to be a threat to IVSD. Existing land management practices, especially grazing management and modifications to the spring systems and marsh have the potential to cause habitat destruction.

### **FACTOR B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes**

Overutilization for any purpose was not considered a threat when the 2008 5-year review was completed (Service 2008). We are unaware of any new applications for scientific collection permits (Federal or State) since the 2008 5-year review was published (T. Gilmore, Service, pers. comm. 2013).

### **FACTOR C: Disease or Predation**

Disease and predation were considered threats to the IVSD population in the 2008 5-year review (Service 2008). Disease has not been assessed nor documented in IVSD; however, the establishment of nonnative fish in the Warm Springs Complex spring systems and marsh may provide an avenue for diseases to be introduced (Minckley and Deacon 1968).

Surveys conducted by USGS (Johnson *et al.* 2009) documented the presence of piscivorous nonnative fish (largemouth bass and bluegill) in specific portions of the Warm Springs Complex. As noted in the 2008 5-year review, nonnative fish have been known to cause several problems when introduced into native fish habitat (Taylor *et al.* 1984, Moyle 2002). Given that no Federal or State wildlife agency control or eradication measures have been implemented for nonnative fish at the Warm Springs Complex prior to or since 2008 (J. Petersen, NDOW, pers. comm. 2013), predation continues to be a threat to IVSD. However, the current magnitude of this

ongoing threat is unknown due to a lack of survey data to determine whether or not the nonnative species have increased in abundance and/or expanded their distributions.

#### **FACTOR D: Inadequacy of Existing Regulatory Mechanisms**

Inadequacy of existing regulatory mechanisms has not changed since the 2008 5-year review was completed (Service 2008). In the 2008 5-year review, Federal protections including the Clean Water Act; sections 7, 9, and 10 of the Act; and State protections including State listing as an endangered species (NAC 503.065) and requirement of a State scientific collection permit (NAC 503.065 and 503.094, NRS 503.597 and 503.650) were identified as regulations that provide protection for IVSD.

#### **FACTOR E: Other Natural or Manmade Factors Affecting Its Continued Existence**

Other factors identified in the 2008 5-year review that remain as threats today include vandalism, catastrophic events (drought and wildfire), and climate change (Service 2008). Groundwater withdrawal was considered a threat in the 2008 5-year review; however, we no longer believe groundwater withdrawal to be a threat to IVSD due to lack of information suggesting that groundwater withdrawal is occurring or will occur in the near future. Updated information regarding limited distribution (moved from Factor A in the 2008 5-year review) and new information on climate change that was not presented in the 2008 5-year review are discussed below.

##### Limited Distribution

Preliminary USGS data presented in the 2008 5-year review suggested that IVSD were more widespread within the Warm Springs Complex than previously reported (Rissler *et al.* 2001). Data published after the 2008 5-year review was completed confirmed that limited distribution within IVSD historical habitat is no longer a threat to this species. As noted in the Spatial Distribution section, USGS found IVSD distributed throughout the Warm Springs marsh except where nonnative fish were present (Johnson *et al.* 2009).

##### Climate Change

Our analyses under the Act include consideration of ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (*e.g.*, temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (*e.g.*, habitat fragmentation) (IPCC 2007). In our analyses, we use our expert judgment to weigh

relevant information, including uncertainty, in our consideration of various aspects of climate change.

The IPCC states that of all ecosystems, freshwater ecosystems will have the highest proportion of species threatened with extinction due to climate change (Kundzewicz *et al.* 2007). However, quantifying the potential site-specific effects to the IVSD, and the time scale at which they would occur, is problematic. The species is geographically isolated and dependent on groundwater discharge to maintain its marsh habitat. Difficulties remain in reliably simulating and attributing climate change effects at such small, localized scales. Natural climate variability is relatively larger-scaled, thus making it harder to distinguish changes expected due to external, human-related sources (IPCC 2007). Our concern with this threat is linked to the extent that climate change may affect IVSD through lowering groundwater levels and reducing spring discharge in the Warm Springs Complex.

While specific impacts to IVSD under predicted future climate change are unclear, it appears reasonable to assume that the species may be affected. However, we lack sufficient certainty on knowing how and how soon climate change would affect the species, the extent of average temperature increases in Nevada, or potential changes to the level of threat posed by drought. We have no knowledge of more detailed climate change information specifically for this species' range.

### **III. RECOVERY CRITERIA**

A final Recovery Plan has been issued for the IVSD (Service 1998). Recovery plans provide guidance to the Service, States, and other partners and interested parties on ways to minimize threats to listed species, and on criteria that may be used to determine when recovery goals are achieved. There are many paths to accomplishing the recovery of a species and recovery may be achieved without fully meeting all recovery plan criteria. For example, one or more criteria may have been exceeded while other criteria may not have been accomplished. In that instance, we may determine that, over all, the threats have been minimized sufficiently, and the species is robust enough, to downlist or delist the species. In other cases, new recovery approaches and/or opportunities unknown at the time the recovery plan was finalized may be more appropriate ways to achieve recovery. Likewise, new information may change the extent that criteria need to be met for recognizing recovery of the species. Overall, recovery is a dynamic process requiring adaptive management, and assessing a species' degree of recovery is likewise an adaptive process that may, or may not, fully follow the guidance provided in a recovery plan. We focus our evaluation of species status in this 5-year review on progress that has been made toward recovery since the most recent 5-year review (2008) by eliminating or reducing the threats discussed in the five-factor analysis. In that context, progress towards fulfilling recovery criteria serves to indicate the extent to which threat factors have been reduced or eliminated.

#### Downlisting Criteria

Independence Valley speckled dace may be considered for reclassification from endangered to threatened when:



1. The population at Independence Valley Warm Springs comprises at least two age classes, the population size is stable or increasing, and reproduction is documented for at least 3 consecutive years.

This criterion was partially met based on data that became available after the 2008 5-year review was completed. Consecutive annual surveys by the USGS from spring 2006 to spring 2008 indicated a stable population size and the presence of two or more age classes of IVSD (Johnson *et al.* 2009). However, age class determinations were based on age-length frequency histograms, and there have been no studies of the size-age relationship in IVSD. Therefore, we cannot be certain that there were at least two age classes present during 2006–2008. Also, there are no population survey data available for the last 5 years to evaluate if this portion of Downlisting Criterion 1 is still potentially being met.

This criterion addresses listing Factor A: *The present or threatened destruction, modification, or curtailment of its habitat or range.*

2. Nonnative fishes no longer adversely affect the long-term survival of the Independence Valley speckled dace.

This criterion cannot be demonstrated as nonnative fish continue to inhabit a portion of potential habitat for IVSD. Surveys conducted by Johnson *et al.* (2009) from 2006 to 2008 found the abundance of IVSD lower in areas where nonnative fish (largemouth bass and bluegill) were present compared to the rest of the Independence Valley Warm Springs Complex. This suggests that nonnative fish are limiting the available habitat and may be predated upon IVSD (Johnson *et al.* 2009). However, the effects of nonnative fish on the long-term survival of IVSD remain uncertain.

This criterion addresses listing Factors A and C: *The present or threatened destruction, modification, or curtailment of its habitat or range* (Factor A) and *Disease or Predation* (Factor C).

### Delisting Criteria

The Independence Valley speckled dace may be considered for delisting provided that all reclassification criteria have been met and when:

1. Independence Valley speckled dace occupy at least 75 percent of the total available habitat after enhancement, if needed, within the Independence Valley Warm Springs system.

This criterion cannot be demonstrated and may not be achievable as written. As noted in the 2008 5-year review (Service 2008), this criterion cannot be demonstrated due to confusion over terminology, language, and lack of data. Further, it is unclear what constitutes available habitat. We address this ambiguity in our recommendations for future actions, below.

This criterion addresses listing Factors A and C: *The present or threatened destruction, modification, or curtailment of its habitat or range* (Factor A) and *Disease or Predation* (Factor C).

2. The population exists at the aforementioned level (downlisting criteria) for a minimum of one generation (approximately 7 years).

This criterion cannot be demonstrated due to a lack of data. There has been no comprehensive effort to survey IVSD over 7 consecutive years; therefore it is uncertain if IVSD populations meet this criterion. The best and most recent information available on the IVSD population is from the USGS annual surveys conducted between spring 2006 and spring 2008 (Johnson *et al.* 2009).

This criterion addresses all five listing factors.

3. Long-term protection of speckled dace populations from nonnative fish and other factors, and speckled dace habitat at Independence Valley Warm Springs is guaranteed.

This criterion has not been met. As noted in the 2008 5-year review, there are no long-term management plans being developed or implemented securing long-term protection for IVSD (Service 2008). Additionally, Federal or State agencies have not attempted to enter into a conservation agreement with the private landowner.

This criterion addresses all five listing factors.

#### **IV. SYNTHESIS**

Independence Valley speckled dace is a subspecies of speckled dace endemic to Independence Valley Warm Springs in Independence Valley, Elko County, Nevada. The historical distribution of IVSD is unknown, although the species is thought to have occupied all streams and wetlands maintained by local spring discharge for the Independence Valley Warm Springs Complex (Service 1998). The most current distribution information (2006–2008) suggests that IVSD populations are limited to the marsh habitat of the Independence Valley Warm Springs, which is located entirely on private property (Johnson *et al.* 2009). The most current abundance data for IVSD (2006–2008) show IVSD populations are stable and comprise two or more age classes (Johnson *et al.* 2009). Threats identified in the 2008 5-year review that remain today include habitat manipulation, competition and predation by nonnative fishes, catastrophic events such as drought or wildfire, and climate change (Service 2008). These threats continue to preclude the recovery of IVSD and pose a significant risk to the long-term viability of the species. Therefore, we believe that IVSD continues to meet the definition of endangered and no change in status is recommended at this time.

## V. RESULTS

### Recommended Listing Action:

- Downlist to Threatened
- Uplist to Endangered
- Delist (indicate reason for delisting according to 50 CFR 424.11):
  - Extinction*
  - Recovery*
  - Original data for classification in error*
- No Change

**New Recovery Priority Number and Brief Rationale:** No change is recommended at this time.

## VI. RECOMMENDATIONS FOR ACTIONS OVER THE NEXT 5 YEARS

The Service recommends that the following actions should be initiated and/or completed over the next 5 years:

1. Implement standardized surveys of IVSD and nonnative fish populations in the Independence Valley Warm Springs Complex.

NDOW should begin submitting annual section 6 proposals to the Service to obtain Federal grant funding to assess the status of IVSD and nonnative fish populations. Current survey data are needed for the next IVSD 5-year review, as the Service is unable to fully assess the status of this listed species, perform a five-factor analysis of current threats, or make sound recommendations for future listing actions with available data. Recovery criteria for downlisting and delisting also cannot be achieved without regular surveys to assess population trends and threats. Although NDOW would lead the annual surveys and prepare annual section 6 reports, the Service anticipates that biologists from each agency participating on the Clover Valley and Independence Valley Recovery Implementation Team (RIT) would assist in implementing the surveys.

2. The RIT should develop and implement projects to remove nonnative fish from the springs, ponds, and canals within the Independence Valley Warm Springs Complex.

During the 2006–2008 USGS surveys (Johnson *et al.* 2009), nonnative species were concentrated in certain areas of the Warm Springs Complex. These localized areas likely still provide opportunities for control and eventual eradication of these competing and predatory species. The RIT should utilize new survey data (Recommendation 1 above) to strategically target areas for nonnative fish removal efforts.

3. The Service and NDOW should immediately implement a coordinated outreach effort to contact the private landowner for the Independence Valley Warm Springs property.

Landowner permission is essential for agency biologists to access the Warm Springs Complex for surveys. In addition, landowner support and participation are also critical if conservation and recovery actions are to be successfully implemented for IVSD in the future.

4. Begin efforts to enter into a conservation agreement with the private landowner of the Independence Valley Warm Springs property.

The Service and/or NDOW should work with the private landowner to enter into a conservation agreement to protect IVSD habitat from practices such as grazing and spring modification. The RIT should provide technical assistance in this effort.

5. Work with the RIT to develop objective standards for determining whether the recovery criterion relating to recolonization of historically occupied and suitable/available habitat has been met.

## VII. REFERENCES CITED

- Johnson, D.M., M.E. Hereford, P.H. Rissler, and G.G. Scoppettone. 2009. Abundance and distribution of Independence Valley speckled dace *Rhinichthys osculus lethoporus* and Independence Valley tui chub *Gila bicolor isolata* in Ralph's Warm Springs Marsh, Independence Valley, Elko County, Nevada. U.S. Geological Survey, Reno, Nevada. 25 pp.
- [IPCC] Intergovernmental Panel on Climate Change. 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K., and A. Reisinger (editors.)]. Geneva, Switzerland. 104 pp.
- Kundzewicz, Z.W., L.J. Mata, N.W. Arnell, P. Döll, P. Kabat, B. Jiménez, K.A. Miller, T. Oki, Z. Sen, and I.A. Shiklomanov. 2007. Freshwater resources and their management. Pages 174210 in M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson (editors), Climate Change 2007: Impacts, adaptation, and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom.
- Minckley, W.L., and J.E. Deacon. 1968. Southwestern fishes and the enigma of "endangered species." Science 159:1,424-1,432.
- Moyle, P.B. 2002. Inland Fishes of California. University of California Press, Berkeley and Los Angeles. 489 pp.
- Rissler, P.H., G.G. Scoppettone, S. Shea, and S. Byers. 2001. Seasonal distribution of Independence Valley speckled dace, *Rhinichthys osculus lethoporus*, and Independence Valley tui chub, *Gila bicolor isolate*. U.S. Geological Survey, Reno, Nevada. 20 pp.
- [Service] U.S. Fish and Wildlife Service. 1983. Endangered and threatened species recovery priority guidelines. Federal Register 48:43,098-43,105.
- [Service] U.S. Fish and Wildlife Service. 1989. Endangered status for Independence Valley speckled dace and Clover Valley speckled dace. Federal Register 54:41,448-41,452.
- [Service] U.S. Fish and Wildlife Service. 1996. Policy regarding the recognition of distinct vertebrate population segments under the Endangered Species Act. Federal Register 61:4,7224,725.
- [Service] U.S. Fish and Wildlife Service. 1998. Recovery Plan for the Endangered Speckled Dace of Clover and Independence Valleys (*Rhinichthys osculus lethoporus* and *Rhinichthys osculus oligoporous*). Portland, Oregon. 50 pp.

[Service] U.S. Fish and Wildlife Service. 2008. Independence Valley Speckled Dace (*Rhinichthys osculus lethoporus*) 5-year Review: Summary and Evaluation. June 2008. Nevada Fish and Wildlife Office, Reno, Nevada. 26 pp.

[Service] U.S. Fish and Wildlife Service. 2012. Initiation of 5-year reviews for 25 species in California and Nevada. Federal Register 77:25,112–25,116.

Taylor, J.N., W.R. Courtenay, Jr., and J.A. McCann. 1984. Known impacts of exotic fishes in the continental United States. Pages 322353: W.C. Courtenay, Jr., and J.R. Stauffer (editors)., Distribution, biology and management of exotic fishes. Johns Hopkins University Press, Baltimore, Maryland.

### **Personal Communications**

Gilmore, T. 2013. Fish Biologist. U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, Reno, Nevada.

Petersen, J. 2013. Fisheries Biologist. Nevada Department of Wildlife, Elko, Nevada.

U.S. FISH AND WILDLIFE SERVICE  
5-YEAR REVIEW

Independence Valley speckled dace (*Rhinichthys osculus lethoporus*)

**Current Classification:** Endangered

**Recommendation Resulting from the 5-Year Review:**

- Downlist to Threatened
- Uplist to Endangered
- Delist
- No change needed

**Review Conducted By:** Todd Gilmore

**Date Submitted to Region 8:** July 19, 2013

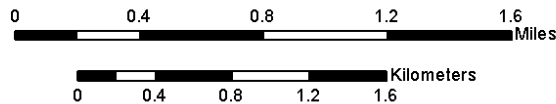
**FIELD OFFICE APPROVAL:**

**Lead Field Supervisor, U.S. Fish and Wildlife Service**

Approve  Date 7/19/13



# Independence Valley Speckled Dace Distribution



Created By: Todd Gilmore  
Map Date: 2/6/13

Figure 1. Map showing approximate distribution of Independence Valley speckled dace (*Rhinichthys osculus lethoporus*) in the marsh habitat of the Warm Springs Complex, Independence Valley, Elko County, Nevada. Prepared for 5-year review, 2013.