

# Interim Core Map Documentation for Ash Meadows Speckled Dace

**Posted to EPA's GeoPlatform:** July 2025

**Core Map Developer:** Center for Biological Diversity (CBD)<sup>1</sup>

Documentation and analysis supplemented by EPA's Office of Pesticide Programs

## Species Summary

The Ash Meadows speckled dace (*Rhinichthys osculus nevadensis*) is a small-bodied fish (Cypriniformes: Leuciscidae) endemic to the Ash Meadows National Wildlife Refuge (hereafter, "Refuge") in the Amargosa Valley, Nye County, Nevada. At the time of listing, little was known about specific life-history characteristics of the Ash Meadows subspecies. However, all members of the *Rhinichthys osculus* species complex are omnivorous stream minnows distributed widely throughout the western United States, albeit characterized by significant variation in morphology.

## Description of Core Map

This species is a very narrow endemic whose known range is only within the Ash Meadows National Wildlife Refuge. The U.S. Fish and Wildlife Service (FWS) ECOS range map reflects this and is within an area of public land with no agriculture. Therefore, the core map selection is based on the species range. The core map developed for the Ash Meadows speckled dace is considered interim. This core map will be used to develop pesticide use limitation areas (PULAs) that include the Ash Meadows speckled dace.

This core map incorporates information developed by FWS and made available to the public; however, the core map has not been formally reviewed by FWS. This interim core map may be revised in the future to incorporate expert feedback from FWS. This interim core map has a "none" best professional classification because it consists of the species' range without additions or subtractions. There is confidence in the core map because the species' range is highly refined, represents areas important for this species' conservation, and contains all known populations of this species. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

---

<sup>1</sup> CBD sent EPA the core map for this species before EPA released its mapping process document and example documentation. EPA supplemented the documentation and supporting analysis for consistency with EPA's most recent documentation examples made available after CBD developed this core map.



Figure 1: Interim core map for the Ash Meadows speckled dace. Total acreage is approximately 10,318 acres.

**Table 1. Percentage of Interim Core Map Represented by NLCD<sup>22</sup> Land Covers and Associated Example Pesticide Use Sites/Types.**

Example pesticide use sites/types	NLCD Landcover (Value)	% of core map represented by landcover	% of core map represented by example pesticide use
Forestry	Deciduous Forest (41)	0	0
Forestry	Evergreen Forest (42)	0	0
Agriculture	Pasture/Hay (81)	0	0
Agriculture	Cultivated Crops (82)	0	0
Mosquito adulticide, residential	Open space, developed (21)	0	0
Mosquito adulticide, residential	Developed, Low intensity (22)	0	0
Mosquito adulticide, residential	Developed, Medium intensity (23)	0	0
Invasive species control	Woody Wetlands (90)	6	100
Invasive species control	Emergent Herbaceous Wetlands (95)	4	100
Invasive species control	Open water (11)	0	100
Invasive species control	Grassland/herbaceous (71)	5	100
Invasive species control	Scrub/shrub (52)	54	100
Invasive species control	Barren land (rock/sand/clay; 31)	31	100
<b>Total Acres</b>	<b>Interim Core Map Acres</b>	<b>~10318</b>	

<sup>2</sup> Dewitz, J., 2023, National Land Cover Database (NLCD) 2021 Products: U.S. Geological Survey data release, <https://doi.org/10.5066/P9JZ7AO3>

## Evaluation of Known Location Information

There are four datasets with known location information for this species:

- Descriptions of locations provided by FWS;
- Occurrence locations included in iNaturalist;
- Occurrence locations included in the Global Biodiversity Information Facility (GBIF); and
- Occurrence locations included in NatureServe.

EPA evaluated these four sets of data to inform or support the core map. However, there were no specific observations for the Ash Meadow sub-species of *Rhinichthys osculus*. At present only the Ash Meadows speckled dace is a formally described subspecies (*R. o. nevadensis*) and is afforded protection under the Endangered Species Act.

Studies over years have variously considered the Amargosa Canyon and Owens Valley forms to be separate undescribed subspecies (Deacon and Williams 1984), or a single variable subspecies, excepting Long Valley (Sada et al. 1995). The most recent phylogenomic analysis supported the monophyletic structure of these five forms, and the clear distinctiveness among most populations (Mussmann et al. 2020). Additionally, this work also revealed that hybridization may be responsible for the patterns of genetic variation in the Amargosa Canyon population between the Ash Meadows and Oasis Valley forms. iNaturalist listed observations for the Amargosa speckled dace, Lahotan speckled dace, in addition to observations for the desert speckled dace (*R. o. nevadensis*). Due to this taxonomic uncertainty, these observations were not considered as a refinement to the species range. Though they were broadly located in the same area of southwest NV as the Ash Meadow NWR. Occurrences derived from the NatureServe Pro data explorer were too coarse to offer a refinement and were larger than the overall FWS species range. Similarly, GBIF did not have a robust set of observation data, only three georeferenced points were available for the Ash Meadow speckled dace.

## Approach Used to Create Core Map

The core map was developed using the “Process EPA Uses to Develop Core Maps for Draft Pesticide Use Limitation Areas for Species Listed by the U.S. Fish & Wildlife Service (FWS) and their Designated Critical Habitats<sup>3</sup>” (referred to as “the process”). This core map was developed by EPA using the 4 steps described in the process document:

1. Compile available information for a species;
2. Identify core map type;
3. Develop the core map for the species; and
4. Document the core map.

For step 1, EPA compiled available information for the Ash Meadows speckled dace from FWS, as well as observation information available from various publicly available sources (including iNaturalist, GBIF and NatureServe). The information compiled for the Ash Meadows speckled dace is included in **Appendix 1**.

Influential information that impacted the development of the core map included:

- The species range is highly refined, following the watersheds that are coincident with the Ash Meadows National Wildlife Refuge in Nye County, Nevada. Specifically, within Ash Meadows Big, Bradford, Jackrabbit, and Tubbs springs are considered occupied.
- There are four known populations in FWS documentation, all of which are within the species' range;
- Occurrence data from other sources are generally consistent with the species range location; and

For step 2, EPA used the compiled information to identify the core map type. EPA compared known location data to the range and found that these known locations are consistent with the species range. Based on the narrow range that includes all occurrence data identified by FWS, EPA selected the range to use as the species core map. For step 3, EPA used the ECOS species range for the Ash Meadows speckled dace.

## Discussion of Approaches and Data that were Considered but not Included in Core Map

Alternative approaches and data other those described in this document were not considered in the development of this interim core map.

## Appendix 1. Information Compiled for Species During Step 1

### 1. Recent FWS Documents:

- FWS, “Recovery Plan for the Endangered and Threatened Species of Ash Meadows Nevada,” 1990.
- FWS, 5-YEAR REVIEW Ash Meadows Speckled Dace (*Rhinichthys Osculus Nevadensis*), 2 (2021), [https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public\\_docs/species\\_nonpublish/3302.pdf](https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3302.pdf)

### 2. Background information on Species:

- **Status:** Endangered on May 10, 1982.
- **Taxonomy:** FWS 1990 p. 21 “This speckled dace was initially described as *Rhinichthys nevadensis* by Gilbert (1893), then reduced to subspecific status (*Rhinichthys osculus nevadensis*) by Hubbs and Miller (1948) and others (La Rivers 1962, Hubbs et al. 1974). Speckled dace are members of the minnow family of fishes (Cyprinidae)”
- Resiliency - low: “*Rationale for listing the Ash Meadows speckled dace includes the following factors: . . . Factor E—Other natural or manmade factors, including the extremely small range and specialized habitat.*” FWS 5-year review
- Redundancy - low: “*The total estimated population size of Ash Meadows speckled dace is estimated at 500.*” FWS Recovery Plan
- Representation - low: “*Despite attempted mitigation of aquatic invasive species and improvements to habitats, the subspecies regularly occurs (over the last decade) at only three springs on the Refuge (Bradford, Big, and Jackrabbit springs), and only sporadically and in small numbers at several other springs (e.g., Rodgers, Tubbs, Longstreet, etc.). The species-wide distribution of Ash Meadows speckled dace remains extremely limited today.*” FWS 5-year review

### 3. Habitat:

- Speckled dace generally prefer flowing streams where they fed on drifting insects.
- FWS 1990 p. 21 The species occupies small spring-fed streams and ponds. Minimal information exists about the life history of the dace.

### 4. Critical Habitat:

- a. The habitats occupied by the dace and 50 meters on both sides of the aquatic habitat are designated critical habitat for the speckled dace.



**Figure 2. Designated critical habitat for the Ash Meadows Speckled Dace**

5. Known Locations:

- Found only in the Ash Meadows National Wildlife Refuge in Nye County, Nevada. Within Ash Meadows Big, Bradford, Jackrabbit, and Tubbs springs are considered occupied
- Occurrences Described in GBIF: <https://www.gbif.org/>
  - limited observations
- Occurrences Described in NatureServe: <https://explorer.natureserve.org/pro/Welcome>
  - NatureServe has several documented locations consistent with the indigenous range, the area is too broad to use as a refinement.
- Occurrences Described in [iNaturalist](#): unclear taxonomic representation. Does not mention the specific sub species that is listed as Endangered.