

Environmental Assessment

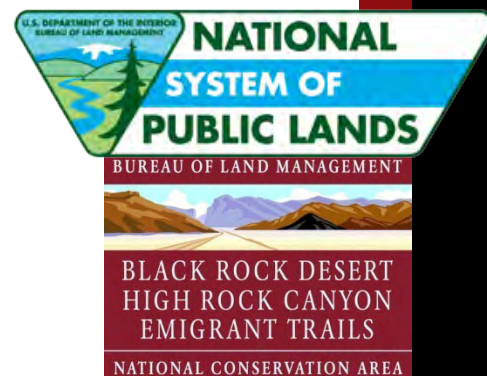
LLNV-WO3000-2009-0002-EA

Desert Dace Instream Structures

October, 2009

Prepared by:

U.S. Bureau of Land Management
Black Rock Field Office
Winnemucca District
5100 E. Winnemucca Blvd.
Winnemucca NV 89445-2921



It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NV/WN/EA-GI-09/18+1793

LLNV-WO3000-2009-0002-EA

Table of Contents

1.0	INTRODUCTION	1
1.1	PURPOSE AND NEED	1
1.2	PLAN CONFORMANCE	1
1.3	RELATIONSHIP TO LAWS, REGULATIONS, AND OTHER PLANS	1
1.4	ISSUES	1
2.0	DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES	2
2.1	PROPOSED ACTION	2
2.2	NO ACTION ALTERNATIVE	3
2.3	ALTERNATIVE NOT CONSIDERED IN DETAIL	3
3.0	THE AFFECTED ENVIRONMENT	3
3.1	SUPPLEMENTAL AUTHORITY ELEMENTS	4
3.1.1	Areas of Critical Environmental Concern	5
3.1.2	Cultural Resources	5
3.1.3	Invasive, Nonnative Species	6
3.1.4	Native American Religious Concerns	7
3.1.5	Threatened & Endangered Species	7
3.1.6	Water Quality	9
3.1.7	Wetlands and Riparian Areas	9
3.2	ADDITIONAL RESOURCES	9
3.2.1	Soils	9
3.2.2	Special Status Species	10
3.2.3	Vegetation	11
4.0	ENVIRONMENTAL CONSEQUENCES	12
4.1	ASSUMPTIONS USED IN THE DETERMINATION OF ENVIRONMENTAL CONSEQUENCES	12
4.2	PROPOSED ACTION	12
4.2.1	Areas of Environmental Concern	12
4.2.2	Cultural Resources	12
4.2.3	Invasive, Nonnative Species	12
4.2.4	Native American Religious Concerns	12
4.2.5	Threatened & Endangered Species	12
4.2.6	Water Quality	13
4.2.7	Wetlands and Riparian Areas	13
4.2.8	Soils	13
4.2.9	Special Status Species	14
4.2.10	Vegetation	14
4.3	NO ACTION ALTERNATIVE	14
4.3.1	Areas of Critical Environmental Concern	14
4.3.2	Cultural Resources	14
4.3.3	Invasive Species	14
4.3.4	Native American Religious Concerns	14
4.3.5	Threatened & Endangered Species	14
4.3.6	Water Quality	14
4.3.7	Wetlands and Riparian Areas	15

4.3.8	Soils.....	15
4.3.9	Special Status Species	15
4.3.10	Vegetation	15
5.0	CUMULATIVE IMPACT ANALYSIS.....	15
5.1	PAST AND PRESENT ACTIONS	15
5.2	REASONABLY FORESEEABLE FUTURE ACTIONS (RFFA's)	16
5.3	CUMULATIVE IMPACTS	16
6.0	MITIGATION AND MONITORING	17
7.0	PREPARERS	17
8.0	CONSULTATION AND COORDINATION	17
9.0	PUBLIC INVOLVEMENT.....	17
10.0	REFERENCES	18
11.0	APPENDICES.....	18

List of Tables:

Table 1	Supplemental Authority Elements of the Human Environment and Other Resources	4
Table 2.	Unique Springsnails Species.....	10

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
BLACK ROCK FIELD OFFICE**

**ENVIRONMENTAL ASSESSMENT OF THE
DESERT DACE INSTREAM STRUCTURES
LLNV-WO3000-2009-0002-EA**

1.0 INTRODUCTION

1.1 PURPOSE AND NEED

Purpose

The purpose of the proposed Desert Dace Instream Structures is to provide physical barriers between the federally listed desert dace (*Eremichthys acros*) and non-native predatory fish. Map 1 shows the general location of this project.

Need

The needs for this project are to protect the desert dace from predation by non-native species, implement the Desert Dace recovery plan, and be consistent with the Black Rock Desert – High Rock Canyon Emigrant Trails Resource Management Plan.

1.2 PLAN CONFORMANCE

Black Rock Desert-High Rock Canyon Emigrant Trails Resource Management Plan (RMP)

The proposed action described in this Environmental Assessment (EA) is in conformance with the RMP. Decision SSS-2 states: “Actions and stipulations necessary to protect special status species and their habitats will be made in authorizations and actions that occur during RMP implementation.”

1.3 RELATIONSHIP TO LAWS, REGULATIONS, AND OTHER PLANS

The proposed action is consistent with the US Fish & Wildlife Service 1997 *Recovery Plan for the Rare Species of Solider Meadows*.

1.4 ISSUES

Based on discussions with the informal desert dace working group and the Bureau of Land Management (BLM) staff specialists and the Summit Lake Paiute Tribe, the following issues relative to the proposed action have been identified:

- The existing fish barriers are subject to failure in high flows and require frequent maintenance leading to increased likelihood that green

sunfish will travel upstream from Mud Reservoir into the occupied desert dace habitat

- Disturbance associated with construction could:
 - increase stream sedimentation in habitat for springsnails
 - increase opportunities for noxious weed introductions
 - impact cultural resources
- The Summit Lake Paiutes are concerned about activities within the Soldier Meadows area that would:
 - Lead to the deterioration of natural conditions
 - Involve surface disturbing activities

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Maps 2 & 3 shows the location of the proposed instream structures.

1. Install two permanent cross-vane type instream structures that would act as barriers to upstream fish migration in 2009. Construction of these structures would take less than two weeks total. The structures would be located in:

- a. T. 40 N., R. 24 N., sec 24 NESE (Site 1)
- b. T. 40 N., R. 24 N., sec 25 NESW (Site 2).

2. The channel above Site 4 would be permanently dewatered using ditch tarps and hand tools. The water in this channel would be diverted into the channel associated with Site 2.

3. If needed in the future, installation of one or two permanent additional cross-vane structures would occur. Construction of these structures would take less than two weeks total. The structures would be located in:

- a. T. 40 N., R. 25 N., sec 19 SWNE (Site 3) or
- b. T. 40 N., R. 24 N., sec 25 center (Site 4).

4. The cross-vane structures would be constructed of large cobbles and boulders, with pit run gravels and optional filter fabric. Figure 1 shows a conceptual plan for this type structure.

5. Cobble and gravel would be acquired from the existing private gravel operations Soldier Meadows Ranch T. 40 N., R. 25 N., sec 24 NESE (labeled Gravel Source on Map 2) and trucked to staging area adjacent to the structure sites by dump truck. Much of the gravel needed for the project would be taken from existing stockpiles at this location.

6. Boulders between one and two foot in diameter would be acquired from public land in T. 39 N., R. 25 N., sec 28 NESE (labeled Boulder Source on Map 2). Boulders would be collected from the surface with an excavator and transported to the site staging areas with a dump truck. Materials would be placed in the stream with a Cat 312C excavator or similar equipment.

7. All equipment would be under carriage washed prior to transport to the project area to remove noxious weed seeds. The project sites would be monitored for a minimum of two years following construction for the presence of noxious weeds, and

continuing until vegetation approximates pre-disturbance cover. If noxious weed are detected they would be promptly treated.

8. Silt trapping materials would be used near water to minimize sedimentation into watercourses.

9. The staging areas associated with each structure site would be raked and seeded with native species as need to restored original surface contour, aid vegetation restoration and reduce erosion.

2.2 NO ACTION ALTERNATIVE

The No Action Alternative would result in no new instream structures in the Soldier Meadows area. The existing fish screens would continue to be used and maintained to prevent upstream migration of non-native fish.

2.3 ALTERNATIVE NOT CONSIDERED IN DETAIL

Several comments have been received by BLM that suggest that the repair of the Mud Meadows reservoir dam and the subsequent higher levels of water storage in the reservoir should be considered in light of the need to protect the desert dace from green sunfish that reproduce in the reservoir. The Right of Way (ROW) for construction of the reservoir on public land was authorized in 1961 under provisions of an 1891 law for irrigation purposes in perpetuity. The 1992 Correction Conservation Easement and associated Correction Water Management Plan and Covenant apply to a portion of the private lands inundated by the reservoir. The Water Management Plan provides that the private landowner will retain rights to “the diversion of water on the Easement Lands for irrigation, stockwatering, and all of water uses related to such operations to the extent that such operations and water diversions are consistent with this Water Management Plan and Covenant and the Conservation Easement.” The reservoir location is not on lands covered by the Conservation Easement or the Water Management Plan and Covenant.

The repair of the reservoir and maintenance of water levels consistent with the existing ROW, and higher than pre-repair levels, would not affect the ability of green sunfish to migrate upstream into desert dace habitat and therefore would not directly or indirectly affect the desert dace. Therefore an alternative that would consider different management of water levels was not considered for detailed analysis.

3.0 THE AFFECTED ENVIRONMENT

A variety of laws, regulations, and policy directives mandate that the effects of a proposed action and alternative(s) on certain environmental elements be considered. These are referred to as Supplemental Authorities. Not all of the Supplemental Authority elements will be present, or if they are present, may not be affected by the proposed action and alternative (Table 1). Only those Supplemental Authority elements that are present and affected are described in this section.

In addition to the supplemental authority elements, there are additional resources that require impact analysis relative to the proposed action and alternative. These are presented in section 3.2 Additional Resources.

3.1 SUPPLEMENTAL AUTHORITY ELEMENTS

To comply with the National Environmental Policy Act, the following elements of the human environment are subject to requirements specified in statute, regulations or executive order and must be considered (Table 1). Some resources could be affected by the proposed action and alternative.

Table 1 Supplemental Authority Elements of the Human Environment and Other Resources

Supplemental Authority Element	Not Present	Present Not Affected	Present Affected	Reference Sections
Air Quality		✓		Although very small quantities of fugitive dust would be produced during construction, dust levels would be similar to those found normally in the area.
Areas of Critical Environmental Concern (ACECs)			✓	3.1.1, 4.2.1, 4.3.1
Cultural Resources			✓	3.1.2, 4.2.2, 4.3.2
Environmental Justice	✓			Not applicable
Floodplains	✓			Not applicable
Hazardous or Solid Wastes	✓			Not applicable
Invasive Non-native Species			✓	3.1.3, 4.2.3, 4.3.3
Migratory Birds		✓		Potential impacts too small to measure
Native American Religious Concerns			✓	3.1.4, 4.2.4, 4.3.4
Prime or Unique Farmlands	✓			Not applicable
Threatened and Endangered Species			✓	3.1.5, 4.2.5, 4.3.5
Water Quality (Surface and Ground)			✓	3.1.6, 4.2.6, 4.3.6 Ground water would not be affected.

Supplemental Authority Element	Not Present	Present Not Affected	Present Affected	Reference Sections
Wetlands and Riparian Zones			✓	3.1.7, 4.2.7, 4.3.7
Wild and Scenic Rivers	✓			Not applicable
Wilderness	✓			Not applicable
Other Resources				
Range Resources	✓			Not applicable
Recreation		✓		Project would have no measureable impact on recreational users.
Soils			✓	3.2.1, 4.2.8, 4.3.8
Special Status Species			✓	3.2.2, 4.2.9, 4.3.9
Vegetation			✓	3.2.2, 4.2.10, 4.3.10
Visual Resources		✓		Potential impacts temporary
Wildlife		✓		Issues covered under Threatened & Endangered & Special Status species
Wild Horses and Burros	✓			Not applicable

The following supplemental authority elements have been identified in Table 1 as being present and affected by the Proposed Action or other alternatives:

3.1.1 Areas of Critical Environmental Concern

Much of the project area is located within the 2,077 acres Soldier Meadow ACEC. The ACEC was originally designated in 1982 to protect desert dace habitat on public lands. The 2004 RMP for the National Conservation Area increased the ACEC to its present size. The ACEC currently encompasses a complex of hot springs at Soldier Meadows that contains rare taxa of a number of species including the desert dace. The ACEC also contains archaeological sites eligible for listing on the National Register of Historic Places and is a popular recreational site for visitor wanting to soak in hot pools. Designation of the ACEC in the RMP resulted in road closures, restrictions on recreational use and elimination of livestock and wild horse grazing with the ACEC.

3.1.2 Cultural Resources

The Soldier Meadows area contains a complex array of cultural resources representing human occupation dating from perhaps 10,000 to 12,000 years ago to comparatively

recent historic times. In addition to the considerable temporal span indicated by these resources, surveys conducted to date indicate a wide breadth of behaviors of both a transitory and semi-permanent nature took place in the area. The behaviors include the exploitation of floral and faunal resources associated with marshes and hot springs, lithic procurement and tool manufacture, trade and exchange, ranching, transportation, and emigration. While archaeologists have studied some aspects of these activities, others are not well understood.

The evaluation of known archaeological sites in the area indicates that many contain information that can aid in our understanding of these lesser-known aspects of past human behavior. The proposed barriers lie within the boundary of an extensive lithic and groundstone scatter, CrNV-02-208, that contains a wide variety of cultural material that can be used to address research questions relating to plant processing technology, seasonality, and the spiritual importance of hot springs. In addition, the presence of cultural fill indicates that the site may contain additional data useful for addressing these and other topics of local and regional interest. Based on these attributes, the site is considered to be eligible for the National Register of Historic Places. The proposed barriers would be placed in previously disturbed areas within the site and would not disturb intact portions of the site.

The location of the boulder source (labeled Boulders on Map 2) has been previously surveyed for cultural resources and none were found. The location of the existing gravel pit on private lands (labeled Gravel on Map 2) has been subject to previous disturbance associated with gravel removal and wave action of an existing reservoir. No cultural resources were found at this location.

Historic period resources near the project area, include the Applegate-Lassen Trail and the Civil War-era Fort McGarry, both National Register properties, and the 1843-44 John C. Fremont Exploration Route . Further inventory will undoubtedly reveal the existence of many more properties of important research value. In most cases, these sites are the only sources of information available to archaeologists in their efforts to understand the past and are, thus, valuable non-renewable resources.

3.1.3 Invasive, Nonnative Species

Several laws authorize control of noxious weeds on public land under the BLM's administrative jurisdiction (e.g., The Federal Insecticide, Fungicide and Rodenticide Act of 1972, Federal Noxious Weed Act of 1974, FLPMA (1976), and the Public Rangelands Improvement Act of 1978).

Nevada Revised Statutes, Chapter 555.05 defines "noxious weeds" and mandates land owners and land management agencies to control noxious weeds on lands under their jurisdiction. Nevada has listed 47 non-native invasive plant species mandated for control within the State of Nevada.

Weeds are spread from infested areas by people, equipment, animals and wind. When introduced to an area, these non-native invasive plant species can quickly dominate the

landscape if management action is not initiated to control the infestation. Noxious weeds may proliferate, forming monocultures, which can crowd out other plants that provide biodiversity.

Noxious weeds known within the project area include perennial pepperweed (*Lepidium latifolium*) and hoary cress (*Cardaria draba*). Perennial pepperweed was observed in 2001, 2005, 2008, and 2009 while hoary cress was observed in 2005, 2007, and 2009. Hoary cress and perennial pepperweed were treated in 2005 and 2009.

3.1.4 Native American Religious Concerns

Ethnographic research indicates that the Soldier Meadows area was homeland to the *Aga'ipañinadoakodö* or *Moadökadö* (Fish Lake Eaters or Wild Onion Eaters). The rich biotic environment attracted habitation and provided hunting and gathering opportunities. Plants in the project area are likely to have been used for medicinal purposes, as well as for food, shelter, basketry, tools, and clothing. In addition, Native American groups often consider water sources, especially hot springs to be sacred or have magical properties. The Summit Lake Paiute Tribe was consulted about the proposed project and stated their interest in the environmental health of the project and the importance of the area to the cultural, spiritual, and religious traditions of the Tribe. The tribe supports efforts to preserve the desert dace but is concerned about whether the proposed barriers were high enough to block the entrance of the predatory fish into the desert dace habitat.

3.1.5 Threatened & Endangered Species

Desert Dace (*Eremichthys acros*)

The only known habitats for the desert dace occur within the project area. The desert dace has been federally listed as Threatened since 1985 (Federal Register Volume 50, p. 50304,) and is the only member of the genus, *Eremichthys*. At the time of listing, critical habitat was also listed, that encompasses 50 feet on each side of designated thermal springs and their outflow streams (USFWS 1997). At least ten thermal outlets and the associated downstream channels support this unique, spring dwelling species.

Photograph 1. Desert dace (*Eremichthys acros*)



To date, there is little information regarding the species or its habitat requirements. The basic habitat requirements for the desert dace were identified in the “Recovery Plan for the Rare Species of Soldier Meadows” (USFWS 1997). These data were derived from the characteristics of spring systems that were occupied by desert dace, although these

data may not represent optimal conditions for the species. The current distribution of the desert dace in the project area is shown on Map 4. Currently the dace populations in the irrigation ditches are very low due to lack of open water because of the high density of emergent vegetation. In addition to desert dace, three other native fish species occupy the lower portions of the thermal outlets. These species include: speckled dace (*Rhinichthys osculus*), tui chub (*Gila bicolor*), and Tahoe suckers (*Catostomus tahoensis*) (see photographs shown below, courtesy Dr. Peter Rissler, USGS).

Photograph 2. speckled dace (*Rhinichthys osculus*)



Photograph 3. Tahoe sucker (*Catostomus tahoensis*)



Photograph 4. tui chub (*Gila bicolor*)



Research is currently being conducted by the United States Geological Survey (USGS) to determine the seasonal distribution and population levels of desert dace within each spring system. The research project is also determining the presence and distribution of non-native fish species within the spring complexes of the SMA, which were identified as a threat to the long term viability of the desert dace (USFWS 1997). These species include goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), largemouth bass (*Micropterus salmoides*), and channel catfish (*Ictalurus punctatus*). According to Dr. Gary Scopetone the species that presents the greatest threat to desert dace is the green sunfish, due primarily to its ability to adapt to habitat extremes and its aggressive predatory nature (see photographs shown below, courtesy Dr. Peter Rissler, USGS). The distribution of green sunfish in the project area prior to a chemical treatment in 2007 is shown on Map 4. Post treatment surveys indicate that green sunfish have been temporarily eliminated above Mud Meadows Reservoir (Jim French, NDOW personal communications 2009) but are expected to return to the area identified on Map 4 in the future.

Photograph 5. Goldfish (*Carassius auratus*)



Photograph 6. Green sunfish (*Lepomis cyanellus*)



3.1.6 Water Quality

Water resources within the project area are described in the Soldier Meadows Multiple Use Management Environmental Assessment (EA No. NV-020-03-09), which is hereby incorporated by reference. Water Resources are described in Section 3.1, pages 20-25. This document can be obtained at the Winnemucca District Office, BLM.

3.1.7 Wetlands and Riparian Areas

The riparian areas associated with the spring systems found in the project area are generally dominated by herbaceous species, including sedges (*Carex* spp.) and rushes (*Juncus* spp.). The outflow streams of the cold, thermal, and the lower downstream reaches of the hot springs are dominated by watercress (*Rorippa nasturtium-aquaticum*) with the sporadic occurrence of duckweed (*Spirodela* spp.), aquatic butter-cup (*Ranunculus* spp.), and cattail (*Typha* spp.). These outflow reaches also host a variety of macroinvertebrates, including ephemeropterans (mayflies), plecopterans (stoneflies), and trichopterans (caddisflies). The upper reaches of the hot springs are dominated by blue green algae (*Cyanobacteria*) and bacteria, along with the aquatic mites (*Partnuniella thermalis*) and other thermophilic species. The two irrigation ditches maintain perennial flows as water percolates through the dense rushes and cattails.

3.2 ADDITIONAL RESOURCES

In addition to the critical environmental elements, the following resources or uses are present and affected by the proposed action: soils, vegetation, special status species.

3.2.1 Soils

Soils within the project area are associated with Clementine silt loam (0-2%) or an unnamed wetland soil associated with spring brooks. The Clementine soil is deep,

saline/alkaline and associated with a shallow water table. The alkali meadow plant community described below is associated with this soil. The wetland soil is also saline/alkaline and is saturated for much of each year. The alkali seep plant community described below is associated with this soil.

3.2.2 Special Status Species

Special status species include those terrestrial species designated by the USFWS as candidates for listing and species contained in the BLM’s Nevada Species of Concern list.

BLM policy is to provide these species with the same level of protection as provided for candidate species in BLM Manual 6840.06C, that is to “ensure that actions authorized, funded, or carried out do not contribute to the need for the species to become listed.”

Springsnails (*Hydrobiidae*)

Numerous spring systems exist within the Hot Springs Area of the SMA, which range from cold (near or below mean air temperature), thermal (5-10o C above mean air temperature), or hot (more than 10o C above mean air temperature) (see Sada et al. 2001). Within the SMA several springsnails, which are small (1-8 mm high) mollusks that require high quality water (Sada et al. 2001), have been identified as being unique to the area. The majority of these species are members of the genus *Prygulopsis*, with one species belonging to the genus *Fluminicola*. These genera prefer cool, flowing water and gravel substrate (Sada et al. 2001).

The “Recovery Plan for the Rare Species of Soldier Meadows” identified several spring systems, which were known to be occupied by springsnails (USFWS 1997). Additional information has increased the known number of springsnail species to nine and also the number of springs that are inhabited by springsnails within the SMA. Six of the nine unique species found within the SMA have been identified to genus/species (Table 2).

Table 2. Unique Springsnails Species

Common Name	Scientific Name	Status
Northern Soldier Meadows pryg	<i>Prygulopsis militaris</i>	Proposed BLM Sensitive, USFWS Species of Concern
Southern Soldier Meadows pryg	<i>Prygulopsis umbilicata</i>	Proposed BLM Sensitive, USFWS Species of Concern
Elongate Mud Meadows pryg	<i>Prygulopsis notidicola</i>	Federal Candidate Species
Squat Mud Meadows pryg	<i>Prygulopsis limaria</i>	Proposed BLM Sensitive, USFWS Species of Concern
Surprise Valley pryg	<i>Prygulopsis gibba</i>	USFWS Species of Concern
Western Lahontan	<i>Prygulopsis</i>	No Status

pyrg	<i>longiglans</i>	
2 species found unique ¹	<i>Prygulopsis spp.</i>	No Status
1 species found unique ¹	<i>Fluminicola spp.</i>	No Status

Primary threats to springsnails, according to Sada et al. (2001), are habitat alteration via water diversions, excessive livestock grazing, nonnative macroinvertebrate establishment, and water depletion. No populations of springsnails would be affected by this proposal.

Basalt cinquefoil

Basalt cinquefoil (*Potentilla basaltica*) is an herbaceous perennial plant that grows primarily in the Soldier Meadows area. It is currently listed by the USFWS as a candidate for listing as threatened under the Endangered Species Act (Federal Register Vol. 67, p. 40662). The plant grows from prostrate stems extending from a low basal rosette. Bright yellow flowers occur in loose clusters at the end of the stems. The species blooms from late spring and summer. The species is associated with moist saline/alkaline soils associated with alkali seeps and meadows. The species appears to favor sites with micro-relief in saturated soils to obtain root aeration. Surveys completed by Nachlinger in 1990 and repeated by FWS in 2002 indicate stable to increasing populations. Most potential habitat is occupied, except where vehicle trails cross through small areas of otherwise suitable habitat. The current threats are associated with recreation use of occupied habitat. Basalt cinquefoil also exhibits the ability to colonize previously disturbed areas, including old livestock corrals and the raised rim of hoof prints in wet soils. No populations of basalt cinquefoil would be affected by this proposal.

3.2.3 Vegetation

Vegetation communities in the Soldier Meadows Hot Springs area were surveyed by Nachlinger (1991) during the 1990 growing season. She mapped three upland and four wetland plant communities in the area. Two of the wetland communities are found at the project sites: the alkali meadow and the alkali seep.

The alkali seep community is slightly higher in landscape position than the marsh community where the water table is at or just above the soil surface. In many cases this community borders the alkali marsh community. Wetland grasses, sedges, and rushes dominate the community. The alkali meadows occur where the water table is just below the soil surface. Water is less available and prevalent than in the alkali marsh and seep communities, but more available than in the adjacent greasewood scrub community. Grasses, rushes and sedges dominate the meadows. Introduced species were most common in this community and were indicators of past disturbances.

The two segments of irrigation ditches are filled with tules and cat-tails.

¹ *pers. comm.* Dr. Robert Hershler, Smithsonian Institute

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 ASSUMPTIONS USED IN THE DETERMINATION OF ENVIRONMENTAL CONSEQUENCES

1. No additional access would be required to construct the two proposed structures.
2. Surface disturbance at structure site would be confined to about 50 linear feet of spring brook and a maximum of 20 feet wide. A staging area within 50 feet of the structure location would be used to unload rock and gravel and would cover about 50 by 20 feet in area.
3. Surface disturbance outside the brook channels and ponds will be limited to areas already disturbed by previous activities and cleared by a BLM archaeologist.

4.2 PROPOSED ACTION

4.2.1 Areas of Environmental Concern

There would be no direct impacts on the Soldier Meadows ACEC as a result of installation of up to four instream structures or dewatering one spring brook channel now clogged with vegetation. However, implementation of the proposed action would result decreased predation risks to the desert dace which would support one of the important values for which the ACEC was designated.

4.2.2 Cultural Resources

There would be no impacts to cultural resources as a result of construction of barriers #1 through #4 as long as disturbance is confined to previously disturbed areas cleared by a BLM archaeologist. In order to ensure that work is confined to the cleared areas, prior to construction these areas would be marked on the ground and BLM would monitor the construction.

4.2.3 Invasive, Nonnative Species

The potential for establishment of weeds or invasive species would increase on less than 0.5 acres associated with disturbance associated with construction and transport of equipment from out of the project area that could carry weed seeds. Two species of particular concern are hoary cress and perennial pepperweed. This would be partially offset by the pre-washing of construction equipment prior to being transported to the project area, monitoring for noxious weeds after construction and prompt treatment if any are found.

4.2.4 Native American Religious Concerns

It is unlikely that plants or animals utilized by Native Americans will be affected by the installation of the fish barriers. The Proposed Action is also unlikely to affect water quality or water temperature.

4.2.5 Threatened & Endangered Species

Installation of a structure at Site 2 could directly impact desert dace during the short-term

(during construction and the following growing season) as this structure would be installed in section of spring brook currently occupied by desert dace. Installation of any of the other three structures would have no direct impact on desert dace because the spring brooks or channels where the structures would be installed are not occupied by desert dace. The Structure at Site 1 would be installed within the critical habitat for the dace. A few hundred square feet would be disturbed during construction. However dace currently do not occupy habitat at this site. Indirectly, installation of instream structures would be expected to protect desert dace from predation associated with green sunfish in about 4,700 meters of spring brooks above the structures during the life of the structures (estimated at 20 years). Another 250 meters of occupied desert dace habitat would be potentially affected future predation by green sunfish in the long-term. However, this habitat is considered low value habitat (Jim French, NDOW. 2009, personal communication). A portion of this occupied habitat is designated critical habitat and another 500 meters of critical habitat would also be below Site 1 and subject to future occupation by green sunfish over the long-term. While there are existing fish barriers near the proposed structures none of the existing barriers were designed to be effective at preventing green sunfish migration for long periods of time without frequent inspection and maintenance. The proposed structures are designed to be maintenance free even in the event of large flows associated with spring or storm runoff. Therefore the new structures have a much higher probability of protecting the desert dace for the foreseeable future and ultimately to the goal of recovering desert dace populations to levels necessary to delist the species. Implementation of the project is likely to affect desert dace and portion of the designated critical habitat and in some localized areas these effects are likely to be adverse to the species and the designated critical habitat.

4.2.6 Water Quality

Surface water quality would be temporarily degraded during the installation of the two structures in existing spring brooks. Construction would increase turbidity and sediment movement in the stream during construction and for up to several weeks after construction.

4.2.7 Wetlands and Riparian Areas

Installation of up to four structures would result in temporary disturbance of less than 0.1 acre of riparian habitat. This disturbance would be expected to rapidly heal and be substantially unnoticeable within two growing seasons. Dewatering old irrigation ditches would result in the loss of riparian vegetation (primarily cattails and rushes) on about two acres for the foreseeable future.

4.2.8 Soils

The structures would involve about 0.4 acres of disturbance or about 0.1 acre per site. The majority of this disturbance would be associated with the staging/turn-around areas where soils would be driven over but not excavated. The primary impact would be short-term compaction. However within one or two years the fluctuation of the water table and fine particle size would eliminate the compaction layer. The actual project installation site would be subject to soil excavation. However after installation of the rock and gravel, removed soil would be replaced and recontoured.

4.2.9 Special Status Species

There would be no impact to springsnails or basalt cinquefoil from installation of instream structures because none of the four proposed sites contain habitat or known populations of these species.

4.2.10 Vegetation

The proposed action would have direct impacts to vegetation on about 0.5 acres associated with construction of the instream structures and use of staging/turn around areas associated with each structure. Vegetation disturbed during installation of the structures would be expected recover within two years due to the soil moisture associated with the spring brook. Vegetation more than 3 meters from the brooks would be expected to take up to five years to recover to pre-construction cover.

4.3 NO ACTION ALTERNATIVE

4.3.1 Areas of Critical Environmental Concern

The ACEC was designated in part to provide special management emphasis to desert dace. Any activity which decreases the likelihood of dace recovery would also adversely impact the ACEC. Selection of the No Action alternative would decrease the potential for recovery of dace populations and therefore would decrease the one of the values of the ACEC.

4.3.2 Cultural Resources

There would be no impacts to cultural resources.

4.3.3 Invasive Species

There would be no impacts to invasive species.

4.3.4 Native American Religious Concerns

The Summit Lake Paiute Tribe is concerned about preserving the natural environment of the Soldier Meadows area and in restoring it to its natural state. This alternative could lead to loss of native species which would degrade rather than enhance the natural environment.

4.3.5 Threatened & Endangered Species

The existing temporary fish barriers would serve to prevent upstream migration of green sunfish into the most important desert dace habitat. These barriers would be expected to be less than 100% effective due to the potential to fail during high runoff events and the likelihood that spring brooks would bypass the barriers when screens become clogged with algae and other vegetation. The result would be that desert dace would remain vulnerable to predation associated with future green sunfish migration into desert dace habitats. This would decrease the probability that desert dace populations would be safe from future threats and decrease the likelihood that the species is delisted in the future.

4.3.6 Water Quality

There would be no impacts to water quality.

4.3.7 Wetlands and Riparian Areas

The high probability that existing fish barriers would clog with algae and other vegetation would increase the risk that riparian areas would be subject to erosive channelization when spring brooks leave their natural channels. This would result in temporary loss of riparian vegetation, loss of soil and decreased soil stability in the immediate area of the barriers.

4.3.8 Soils

There would be temporary displacement of soils when high flows occur around clogged temporary barriers resulting in limited soil displacement and decreased soil stability.

4.3.9 Special Status Species

There would be no impact to springsnails or basalt cinquefoil.

4.3.10 Vegetation

There would be temporary loss of riparian vegetation when high flows occur around clogged temporary barriers resulting in limited soil displacement and channel scouring.

5.0 CUMULATIVE IMPACT ANALYSIS

The Council of Environmental Quality (CEQ) regulations implementing NEPA defines cumulative impacts as "...[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

The cumulative impact assessment area for this analysis lies within the Soldier Meadows area (Map 5). This area was selected to encompass the entire range of the desert dace. About half of the assessment area is public land managed by the Bureau of Land Management. The remaining acreage is private. The assessment area is located in Humboldt County.

5.1 PAST AND PRESENT ACTIONS

On the basis of aerial photographic data, agency records and GIS analysis, the following past and present actions and events, which have impacted the assessment area to varying degrees, have been identified for the desert dace.

Aquatic and riparian areas used by the desert dace have been subject to a number of activities in the past that adversely affected the species and led to listing the species being listed a threatened in 1985. Additionally these resources are in demand by other users and resources include recreational uses, populations of basalt cinquefoil and springsnails, Native Americans and cultural resources. These activities are described in the Recovery Plan (USFWS 1997) and include:

- Modification of spring systems for irrigation and stock watering

- Heavy grazing by livestock and wild horses in riparian areas adjacent to spring brooks
- Construction of rock dams in spring brooks by recreational users
- Introduction of soaps, detergents and biocides into water by bathers
- Road construction and use adjacent to and across spring brooks
- Introduction of non-native aquatic species (e.g. green sunfish)

- On the positive side past and ongoing efforts to improve habitat and recover the species have been undertaken. These efforts include:
 - Acquisition of private lands containing dace habitat
 - Acquisition of a conservation easement on private land
 - Fencing the Soldier Meadows ACEC to eliminate grazing
 - Installation of bridges across spring brooks
 - Road closures and restoration adjacent to spring brooks
 - Elimination of camping immediately adjacent to spring brooks
 - Chemical treatment to remove non-native fish species near occupied desert dace habitat
 - Installation and maintenance of fish barriers
 - Public outreach to inform the users of the area the values and sensitivity of resources including the desert dace

5.2 REASONABLY FORESEEABLE FUTURE ACTIONS (RFFA's)

Past and present actions discussed above are expected to continue into the foreseeable future, though the relative intensity of these actions could vary depending on a variety of economic and other factors.

In addition to the proposed action, additional activities that are likely to occur within the cumulative assessment area:

- Reconstruction of segments of the Fly Canyon road that include measures to reduce sediment production and high flow failure points.
- Closure of additional segments of road in wetland habitats
- Construction of a fish barrier on private land immediately above Mud Meadows Reservoir
- Development and implementation of a native fish restoration plan for the Soldier Meadows area

5.3 CUMULATIVE IMPACTS

Impacts associated with past, present, and reasonably foreseeable future actions are generally created by ground or vegetation-disturbing activities that affect natural resources in various ways. Of particular concern is the accumulation of these impacts over time. This section of the EA considers the nature of the cumulative effect and analyzes the degree to which the proposed action and non action alternative contribute to the collective impact.

A thorough evaluation of the past, present and reasonable foreseeable actions within the assessment area, in relation to the proposed action and no action, has been conducted and the result is that for the proposed action, there would be an increased likelihood that desert dace populations would be more secure from predation and therefore increase the probability that the species would be delisted in the foreseeable future. Implementation of the no action would result in a substantially lower probability that desert dace populations would be considered eligible for delisting any time soon.

Activities associated with road improvement within the cumulative assessment area would be likely to increase risks of establishment of additional populations of noxious weeds, temporarily reduce vegetative cover, and displace soils due to temporary increases in disturbed, bare soils.

No cumulative impacts to other resources evaluated within this assessment were identified.

6.0 MITIGATION AND MONITORING

Appropriate mitigation measures have been proposed in the Proposed Action and no additional mitigation is proposed based on the results of the respective impact analyses.

The BLM would be responsible for monitoring, construction and maintenance of the facilities under the Proposed Action.

7.0 PREPARERS

The following staff participated in the development and review of this EA.

Roger Farschon, Ecologist/Project Lead
Lynn Ricci, Environmental Coordinator
Kathy Ataman, Cultural and Native American Religious Concerns
Greg Lynch, Fisheries Biologist
Derek Messmer, Invasive, Non-native Species

8.0 CONSULTATION AND COORDINATION

Jim Kudrna, Soldier Meadows Ranch
Nevada Department of Wildlife, Winnemucca and Reno
U.S. Fish and Wildlife Service, Reno
U.S. Geological Service, Biological Resources Division, Reno
Summit Lake Paiute Tribe

9.0 PUBLIC INVOLVEMENT

Interested agencies and the adjacent private landowner were involved in the design of the project. The Summit Lake Paiute tribe was contacted directly regarding the project. The

EA and Decision Record will be sent to other parties with known interest in recovery of the desert dace.

10.0 REFERENCES

Bureau of Land Management, 2001. BLM Manual 6840. Special Status Species Bureau of Land Management.

Bureau of Land Management, 2003. Soldier Meadows Multiple Use Management Environmental Assessment (EA No. NV-020-03-09). Winnemucca Field Office.

Bureau of Land Management, 2004. Black Rock Desert-High Rock Canyon Emigrant Trails NCA and Associated Wilderness and Other Public Lands in Nevada. Record of Decision and Resource Management Plan. Winnemucca Field Office.

Nachlinger, J. 1991. Ecological Survey of Soldier Meadow, Humboldt County, Nevada. Prepared for the Bureau of Land Management, Winnemucca, Nevada. 26 pp.

Sada, D., J.E. Williams, J.C. Silvey, A. Halford, J. Ramakka, P. Summers, and L. Lewis. 2001. Riparian area management: A guide to managing, restoring, and conserving springs in the Western United States. Tech. Ref. 1737-17. BLM, Denver, Colorado. 70 pp.

U.S Dept. of Agricultural. 2007. Rosgen Geomorphic Channel Design. Chapter. 11. National Engineering Handbook. Natural Resource Conservation Service.

U.S. Fish and Wildlife Service. 1997. Recovery Plan for the Rare Species of Soldier Meadows. Region 1, Portland, Oregon. 50 pp.

11.0 APPENDICIES

- Map 1. General Location Map
- Map 2. Proposed Action Project Location
- Map 3. Proposed Action Instream Structure Locations
- Map 4. Distribution of Desert Dace and Green Sunfish
- Map 5. Cumulative Assessment Area
- Figure 1. Conceptual cross-vane diagram