Inyo California Towhee
(Melozone (Pipilo) crissalis eremophilus)

Legal Status

State: Endangered
Federal: Threatened

Critical Habitat: Initially proposed in 1984 (49 FR 46174–46177); additional habitat proposed in 1987 (52 FR 28787–28788); final critical habitat established in 1987 (52 FR 28780–28786).

Recovery Planning: A federal recovery plan was completed in 1998 (USFWS 1998).

Notes: In 2008, a U.S. Fish and Wildlife Service (USFWS) review recommended delisting the Inyo California towhee (USFWS 2008a, 2008b), but this recommendation has never been acted upon.

Taxonomy

The Inyo California towhee (Melozone (Pipilo) crissalis eremophilus) is a relict subspecies of the widely distributed California towhee (Small 1994). The more widely distributed California towhee (formerly known as the brown towhee) was first described by Vigors (1839). The Inyo California towhee subspecies was first described by Van Rossem (1935) who in 1935 collected six specimens from the southern Argus Range (Mountain Springs Canyon) that he could not place morphologically with any of the other subspecies of towhee. Based upon these morphological differences, and the extreme isolation of the population, Van Rossem designated it as the Inyo brown towhee. It is hypothesized that the subspecies became isolated from the larger panmictic population in the early Pliocene (Davis 1951).

Based on a recent analysis of sequence variation of two mitochondrial genes, it was determined that members of the “brown towhee complex,” including California towhee, are more closely related to the Melozone ground-sparrows than they are to the predominantly black or green towhees (Benedict et al. 2011). Consequently, the American Ornithologists’ Union reassigned the
California towhee to the genus *Melozone* (Benedict et al. 2011). Otherwise, there is no information suggesting revisions to subspecific designation of the Inyo California towhee.

A description of the species' physical characteristics can be found in the *Recovery Plan for the Inyo California Towhee* (USFWS 1998).

**Distribution**

**General**

The Inyo California towhee has one of the most restricted ranges of any bird in North America, and it was originally found only along about a half dozen small drainages in the southern Argus Range near Ridgecrest, California (Cord and Jehl 1979). Observations in 2004 in Surprise Canyon in the Panamint Range approximately 20 kilometers (12 miles) east of the Argus Range indicate expansion into the Panamint Range (LeBerteaux 2004).

**Distribution and Occurrences within the Plan Area**

**Historical**

The earliest account of the Inyo California towhee is from 1935 (Van Rossem 1935). That account mentions receiving a specimen of the brown towhee taken by Frank Stephens in 1891, presumably at Searles Borax Works, at the southern extremity of the Argus Range. The account seems to suggest that the Stephens specimen was a member of the Inyo California towhee. As such, it represents the oldest historical record of the subspecies to be found. There are no historical records (i.e., pre-1990) in the Desert Renewal Energy Conservation Plan (DRECP) Area for the species in the California Natural Diversity Database (CNDDB) (CDFG 2012).

**Recent**

The CNDDB contains 87 recent (i.e., post-1990) occurrences for the Inyo California towhee (CDFG 2012), but only five of these occurrences are within the DRECP Plan Area, the boundary of which is at the southern edge of the subspecies’ range (Figure SP-B13). Most of
the 87 observations occurred in 2004 and 2007, and the five occurrences in the Plan Area were recorded in 2007.

Critical habitat was designated in 1987 (52 FR 28780–28786) to protect the remaining few areas of occupied habitat (Figure 1). In all, 68% of this critical habitat is on the U.S. Navy’s China Lake Naval Weapons Station, 26% on lands administered by the U.S. Bureau of Land Management (BLM), 5% administered by the California Department of Fish and Game (CDFG), and 1% on privately owned lands (LeBerteaux 1994).

**Figure 1.** Critical Habitat for the Inyo California Towhee

---

**Natural History**

**Habitat Requirements**

The Inyo California towhee has one of the most restricted ranges of any bird in the United States. The principal habitat consists of dense riparian willow thickets along a few isolated streams, springs, and
Inyo California Towhee (*Melozone (Pipilo) crissalis eremophilus*)

rocky canyons (LeBerteaux 2004; USFWS 1998) of the southern Argus Range (Figure 1) and the upland areas immediately surrounding them. These areas are dominated by willows (*Salix* spp.), cottonwood (*Populus fremontii*), and desert olive (*Forestiera neomexicana*), with understory plants including rubber rabbitbrush (*Chrysothamnus nauseosus*) and desert baccharis (*Baccharis sergiloides*) (USFWS 1998). These areas are used for nesting and foraging.

Adjacent upland areas, also used by the Inyo California towhee, primarily support creosote bush scrub dominated by creosote bush (*Larrea tridentata*), burrowbush (*Ambrosia dumosa*), and indigo bush (*Psorothamnus arborescens* var. *minutiflora*). The Inyo California towhee also uses the mixed woody scrub community adjacent to the riparian areas. Such areas are dominated by various shrubs including Mormon teas (*Ephedra* spp.), bitterbrush (*Purshia tridentata*), blackbush (*Coleogyne ramosissima*), bladdersage (*Salazaria mexicana*), and brittlebush (*Encelia actoni*) (LeBerteaux 2004; USFWS 1998). These upland areas are also used to some degree for foraging and nesting.

**Foraging Requirements**

The Inyo California towhee is an omnivore, feeding on both plant and animal material. It forages primarily on the ground up to a distance of 600 meters (1,969 feet) from riparian habitat (Laabs et al. 1992), although most foraging occurs much closer to riparian areas. The towhee may use a variety of techniques to forage, including gleaning, scratching, chasing, and even fly catching (LeBerteaux 1989; Ehrlich et al. 1992).

**Reproduction**

The Inyo California towhee forms life-long pair bonds, as is characteristic of the California towhee (Benedict et al. 2011; LeBerteaux 1989). Breeding activity occurs in the spring, the exact timing of which is dependent upon seasonal rainfall and vegetative abundance (LeBerteaux 1989). Courtship generally begins in March, with two to four eggs usually laid in April. A second clutch will be produced if the first clutch fails and can be laid as late as early June. Eggs hatch after about 14 days of incubation, and the young are fledged.
after about 8 days. Fledglings will often stay with the parental pair through the following fall and winter (LeBerteaux 1989).

The Inyo California towhee nests in both the denser willow vegetation within riparian areas as well as in shrubs of adjacent uplands. Nests are known from a variety of upland shrubs including bitterbrush, bladder sage, and Mormon teas (Cord and Jehl 1979; LeBerteaux 1989).

Spatial Behavior

Although the Inyo California towhee is a non-migratory species and stays in the area of its birth for life (USFWS 1998), it may temporarily move down slope during the winter if snow prevents ground foraging.

Territories are established for breeding and foraging, and are defended by both males and females. Territories range in size from 25 to 62 acres and may decrease in size during the breeding season (LeBerteaux 1994).

Ecological Relationships

Little is known of the ecological relationships related to the Inyo California towhee. It is expected that some competition may exist between the Inyo California towhee and other seed-eating birds such as mountain quail (Oreortyx pictus), California quail (Callipepla californica), and chukar (Alectoris chukar) (USFWS 1998).

Similarly, there is little knowledge of any predatory relationships. LeBerteaux (1984) documented a case of nestlings being preyed upon by a gopher snake (Pituophis melanoleucus). Nevertheless, it is expected that some individuals are preyed upon by certain raptor species, various snake species, and mammalian predators such as gray fox (Urocyon cinereoargenteus) and bobcat (Lynx rufus). Brown-headed cowbird (Molothrus ater) nest parasitism appears to be light (LeBerteaux 1989).
Population Status and Trends

**Global:** Apparently secure (NatureServe 2010)

**State:** Imperiled

**Within Plan Area:** Same as above

The Inyo California towhee was at one time on the brink of extinction, but now the population appears to be slowly rebounding. Table 1 describes population numbers as they have continued to increase from 1978 to 2007.

**Table 1. Population Estimates for the Inyo California Towhee**

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Population</th>
<th>Supporting Information</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>58</td>
<td>Cord and Jehl 1978</td>
<td>Survey of BLM lands and the springs of China Lake Naval Weapons Station</td>
</tr>
<tr>
<td>1984</td>
<td>&lt; 175</td>
<td>49 FR 46174–46177</td>
<td>Initial listing proposal</td>
</tr>
<tr>
<td>1992</td>
<td>76</td>
<td>Laabs et al. 1992</td>
<td>BLM lands only</td>
</tr>
<tr>
<td>1994</td>
<td>111</td>
<td>LeBerteaux 1994</td>
<td>China Lake Naval Weapons Station only</td>
</tr>
<tr>
<td>1998</td>
<td>640</td>
<td>LeBerteaux and Garlinger 1998</td>
<td>BLM and China Lake Naval Weapons Station lands</td>
</tr>
<tr>
<td>2004</td>
<td>200 observed (extrapolated overall population of 640 to 725)</td>
<td>LeBerteaux 2004</td>
<td>BLM and CDFG lands only (31% of range)</td>
</tr>
<tr>
<td>2007</td>
<td>Extrapolated overall population of 706 to 741</td>
<td>LeBerteaux 2008, cited in USFWS 2008</td>
<td>China Lake Naval Weapons Station lands (68% of range)</td>
</tr>
</tbody>
</table>

Over the 9-year period of 1998 to 2007, the population appears to have ranged between approximately 640 and 741 individuals (USFWS 2008b).

Threats and Environmental Stressors

The major threats to the Inyo California towhee stem from its extremely limited range and habitat. The critical habitat designation
lists destruction of suitable habitat as the primary threat to the subspecies (52 FR 28780–28786; see also USFWS 1998). Small, isolated populations are particularly vulnerable to local habitat loss. Feral burros, horses, and cattle are primarily responsible for this habitat destruction (Laabs et al. 1992; LeBerteaux and Garlinger 1998; USFWS 1998). The main threat from feral burros and horses is degradation of occupied and suitable towhee habitat because they are drawn to the water sources along the creeks that support essential Inyo California towhee habitat. Burros and horses trample and eat the vegetation that provides nesting and foraging habitat for the towhee, as well as escape cover from predators. Additionally, horses create wallows where entire vegetation is eliminated (Cord and Jehl 1979).

Easy off-highway vehicle (OHV) access to many of the spring areas (e.g., Austin, Christmas, Mumford, North Rim, and People Springs) occupied by the Inyo California towhee has likewise resulted in the general degradation of habitat. Further, human activity in these areas can adversely affect nesting success due to noise, light, and general activity. Visitors or their pets may also inadvertently introduce exotic invasive species (e.g., tamarisk) into these riparian areas, supplanting native species. It is also possible that some individuals have been lost through shooting (Parker 2004).

Another source of environmental stress to the Inyo California towhee is water diversion. By diverting and damming creeks, water is reduced to downstream areas of occupied habitat. Such diversion may be related to grazing, mining, recreation, or general development (52 FR 28780–28786; USFWS 1998; see also Laabs et al. 1992).

**Conservation and Management Activities**

The Inyo California towhee has been state-listed as endangered since 1980 and federally listed as threatened since 1987. Conservation efforts, apparently quite successful, have been focused on the control of feral burros and horses and the control of human access and associated activities into towhee-occupied regions.

Since 1982, the China Lake Naval Weapons Station has instituted management activities designed to protect and restore Inyo California towhee habitat on the base (USFWS 1998). These management
activities have focused on the elimination and control of feral burros and horses, the elimination of mining activities, and the control of human access into sensitive areas.

The BLM has created the Great Falls Area of Environmental Concern on the eastern side of the Argus Range. This area protects seven areas of designated critical habitat for the Inyo California towhee (USFWS 1998). These protective measures were formalized in a management plan for the Area of Critical Environmental Concern by the BLM in 1987 (USFWS 1998). This plan included the protection of water sources, removal of feral burros, control of OHV traffic, and the removal of exotic vegetation. Similar controls are in place on state lands.

Data Characterization

Populations of the Inyo California towhee have been periodically monitored from 1978 through 2007. Although Inyo California towhee populations have apparently rebounded since 1978, Parker (2004) points out when discussing the effects of human activities on the Inyo California towhee that, “There is a lack of long-term data on the loss of birds from these activities, but the loss of any adults for a population this small could be significant.” This seems to indicate that there still exists a general lack of understanding of the specific effects of human presence on nesting success and potential habitat degradation.

Management and Monitoring Considerations

According to the USFWS (1998), management of lands for the Inyo California towhee should include the following tasks:

1. Protect and manage habitat:
   - Identify suitable habitat patches in the Inyo California towhee’s range
   - Assess existing damage to these resources, and eliminate threats and stressors (e.g., burros, horses)
   - Protect all springs and water courses; control exotic vegetation
   - Restrict military, mining, development, and recreational uses that can cause impacts to Inyo California towhee habitat
• Manage and control OHVs
• Restrict recreational camping, picnicking, hunting, and biking in riparian areas.

2. Monitor the habitat and status of the Inyo California towhee:
• Monitor breeding habits and success
• Develop a cooperative monitoring protocol for habitat and monitor habitat at least every 5 years
• Monitor populations and breeding success of the Inyo California towhee.

3. Enhance Inyo California towhee habitat:
• Increase the abundance of suitable riparian habitat
• Restore degraded habitat.

4. Develop a public outreach program:
• Provide information on Inyo California towhee biology and sensitivity to the general public
• Provide additional information and status reports to cooperating agencies
• Develop and post interpretive signs for the public.

**Predicted Species Distribution in Plan Area**

There are 10,765 acres of modeled suitable habitat for Inyo California towhee in the Plan Area. No expert model was developed for Inyo California towhee. Rather, suitable habitat within the Plan Area was approximated using the distribution provided in the 5-year review for the species (USFWS 2008b). This species is known from the very northern portion of the Plan Area northeast of Ridgecrest. Appendix C includes a figure showing the approximated suitable habitat in the Plan Area according to the 5-year review (USFWS 2008b).
Literature Cited


Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1992. Birds in Jeopardy: The Imperiled and Extinct Birds of the United States and Canada,
Inyo California Towhee (*Melozone (Pipilo) crissalis eremophilus*)


Inyo California Towhee Occurrences in the Plan Area (N=7)

FIGURE SP-B13

Desert Renewable Energy Conservation Plan (DRECP) Baseline Biology Report

Species Range in California

Note: Occurrence point size graphically represents the precision level code for the data point but is not scaled geographically.