Intermountain West Waterbird Conservation Plan

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WATERBIRD CONSERVATION ISSUES AND THREATS

In this section, habitat alterations, mortality factors, conflicts between humans and waterbirds, and other issues pertaining to waterbird conservation are discussed. Though impacts to populations associated with each issue cannot be precisely quantified, these issues are generally ordered by degree of conservation concern.

Wetland Loss, Water Supplies, and Water Quality

Historically, reclamation projects drained wetlands and reduced options for breeding waterbirds. Ratti and Kadlec (1992) estimated that 57% of this region's historic wetlands have been lost. Loss of wetlands continues. Because of a 2000 Supreme Court decision, fill of many isolated wetlands is no longer regulated by the U.S. Army Corps of Engineers (U.S. Supreme Court 2000). Such areas include playas, wet meadows, and marshes that are not navigable and do not have an interstate commerce connection. Therefore, these areas are more vulnerable to development and loss.

Human demand for both agricultural and municipal water continue to threaten wetland habitats. For example, Lower Klamath NWR, the most significant waterbird nesting site in California, is threatened with loss of water as water rights are adjudicated in the Klamath Basin. Additionally, until the adjudication occurs, water for Lower Klamath is being directed to higher priority users within the Bureau of Reclamation's (BOR) Klamath Irrigation Project (i.e., endangered species needs [salmon and suckers], tribal subsistence [lake levels and river flows], and agricultural irrigation). Within the Federal list of responsibilities for the Klamath Irrigation Project, refuge water is fourth (Mauser 2001). In Idaho, Camas NWR is spending a great deal of money to pump water since ground water levels are dropping due to increased irrigation from wells and in-steam flows in Camas Creek are no longer sufficient to fill refuge wetlands. At Grays Lake, long-standing water rights and withdrawals result in very low water conditions in most summers and, in turn, insufficient habitat for brood-rearing or molting birds. In Utah, urbanization is altering hydrology of Great Salt Lake wetlands, causing changes in volume, timing, and location of discharge. At Stillwater NWR in Nevada, public support rallied to begin purchasing water rights, primarily because of concerns about concentrations of contaminants (USFWS 1996, Neel and Henry 1997).

Existing wetlands are also impacted by a variety of human-caused perturbations. Upslope development for housing and industrial use can alter water supplies and hydrology. Sedimentation from croplands can degrade existing wetlands.

Adequate water supplies need to be secured for important wetland areas. Because of the erratic water regime in the arid Intermountain West, wetland habitats are often insufficient to support waterbirds during drought periods. Water of high quality, which can be moved by gravity, will provide habitat for waterbirds wherever it is placed. Meeting the water needs for waterbirds will require planning on a large scale. Water rights purchases are underway at Stillwater NWR to ensure a more secure water supply for this refuge, resulting in increased wetland areas and improved habitat for waterbird feeding and nesting. Waterbirds at many other wetlands in the region would also benefit from water rights acquisition. The 2002 Farm Bill included provisions for improving water supplies for terminal lakes (At-Risk Desert Terminal Lakes Program), although these funds are targeted to be used to improve water conditions at Walker and Pyramid lakes in Nevada. Even though the Farm Bill appropriated an impressive sum of money to help conserve terminal lakes, the bill prohibits the use of this money for water acquisition. The BOR is attempting to determine how they can spend the money to benefit the lake and yet comply with this limitation.

Water supply has been an important concern at Mono Lake in California. Starting in 1941, water diversion to Los Angeles diminished Mono Lake's tributary streams, and eventually threatened the lake's value for countless birds. Birds became a rallying point for the lake's protection and a legal case that resulted in a mandate to manage the lake's water level between its pre-diversion level of 1941 and its historic low in 1982 (State of California Water Resources Control Board 1994). This decision will help maintain the health of the lake's ecosystem, maintain minimum stream flows, and allow for continued managed diversions to Los Angeles. Implementation of the decision and the Water Board's 1998 restoration order will help restore lake levels and Mono Lake's damaged tributary streams. However, as the lake's water level rises, the decreased salinity may impact the lake's brine flies and brine shrimp populations, and the Eared Grebes, gulls, and other species that depend on them.

Competing demands for water supplies affect water quality. Reduced flows can exacerbate contaminant problems (e.g., mercury concentration in Lahontan Valley wetlands) and threaten wildlife values of important areas. Salinity level in large Great Basin hypersaline lakes is also a major issue. The natural hydrology of these lakes supports large populations of brine shrimp and brine flies, an important food source for staging and breeding waterbirds. Great Salt Lake, Lake Abert, and Mono Lake are crucial to Eared Grebes and California and Ring-billed gulls. Each of these large hypersaline lakes are subject to water level manipulations that can result in reduced or increased salinity, beyond the tolerance of brine flies and brine shrimp.

Conversions in agricultural irrigation practices from flood irrigation to mechanized pivot irrigation systems conserve water, but reduce breeding habitat and limit feeding options for many waterbird species. Private flood-irrigated meadows and hayfields provide breeding and foraging habitat for several waterbird species (e.g., rails, cranes, Black Terns, ibises). Flood-irrigated croplands are also important foraging areas for some species (particularly ibises). Loss of these habitats due to water conservation measures is a significant threat to associated waterbird species and should be mitigated by providing additional seasonal wetland habitats.

Wetland Habitat Management

The dynamic wetland conditions of this region dictate holistic, integrated wetland management approaches. Enhancing habitat diversity should be a component of on-the-ground wetland projects, providing variable water depths in wetlands with waterbird nesting, roosting, and foraging needs in mind. Project planners should consider wetlands at a landscape level to determine the most critical waterbird requisites at a particular location. Many waterbird needs overlap with those of waterfowl and shorebirds. Therefore, wetland management for these species lends itself to a guild approach. Both spatial and temporal diversity is important, and wetland managers need to understand waterbird needs as well as natural hydrologic cycles. For example, managers could maintain stable water levels within wetlands during the nesting period and provide lower water depths in late summer that provide enhanced foraging conditions for waterbirds. Another consideration is maintenance of ideal habitat conditions at select key sites to provide alternatives for waterbirds during extreme drought and flood years.

The challenge to effective comprehensive wetland management for all birds is to think in terms of landscape-level habitat conditions and focus on maintaining productive wetlands through time. Most waterbird species are relatively long-lived and can maintain their populations through a few bad years. For example, some species (e.g., cranes) thrive reproductively during years when conditions are very good, and can maintain their populations despite several years of very low recruitment. Droughts and floods are very important ecological processes that enhance wetland productivity and habitat value to birds. Fish populations may crash during droughts, yet they rapidly recover when water conditions improve, and for a few years after a drought size-classes of fishes are ideal for various fish-eating birds. Grebe numbers generally increase when fish are very small, but decline as their prey becomes larger, benefiting increasing numbers of cormorants and pelicans. Eventually some species of fish become so large that even pelican and cormorant use decreases (Ivey et al. *in prep* a). Aquatic invertebrates and aquatic plants also go through cycles as wetlands change and various waterbird populations respond positively to them when foraging conditions are optimal.

An issue at several reservoir sites in the region is the problem of water-level manipulations during the nesting period for irrigation or power needs. This management practice can cause productivity problems for waterbirds as a result of the loss or abandonment of eggs or young due to flooding or stranding. Where water level manipulations negatively impact waterbirds, measures to minimize impacts should be developed on a site-by-site basis. Likewise, on both public and private managed

Table H-1. Continued.

Priority Species	BCR	Conservation Strategies
American White Pelican	9	· Maintain habitat to support at least 1,385 pairs and minimize disturbance during the nesting season at Blackfoot Reservoir.
Common Loon	9, 10	· Maintain suitable nesting habitat at major breeding sites in the region to support at least 10 pairs. Minimize human disturbance. · Protect one known territory in the Greater Yellowstone Ecosystem.
Greater Sandhill Crane RMP (b)	10	· Maintain, restore and conserve suitable wet meadow/seasonal wetland breeding habitat at breeding sites throughout the region.
Virginia Rail, Sora (b)	10	· No net loss of existing seasonal wetlands or wet meadow habitats.
California Gull (b)	10	· Implement conservation measure to maintain existing breeding sites to support at least 460 pairs.
Franklin's Gull (b)	10	· Maintain emergent nesting habitat to support at least 3,000 pairs..
Forster's Tern (b)	10	· No net loss of existing nesting habitat at known breeding sites to maintain at least 65 pairs. · See Casey (2000) for management considerations.
Black Tern (b)	10	· Maintain emergent wetland habitat at known breeding sites to support at least 100 pairs (Casey 2000).
Pied-billed Grebe	10	· No net loss of existing seasonal or semi-permanent wetlands.
Western /Clark's Grebe (b)	10	· Maintain suitable emergent nesting habitat at major breeding sites in the region to support at least 125 pairs of Western Grebes and 15 pairs of Clark's Grebes. Minimize human disturbance and boat wakes near nesting colonies. Maintain stable water levels through the nesting period (Ivey 2004).
Great Blue Heron (b)	10	· Maintain suitable riparian nesting areas to maintain at least 450 pairs.
Black-crowned Night-Heron (b)	10	· Maintain suitable emergent wetland breeding habitats to support at least 25 nests.
American Bittern (b)	16	· No net loss of existing seasonal or semi-permanent wetland habitats. · Maintain freshwater wetlands >10 ha (2.5 ac) (Brown and Dinsmore 1986).
White-faced Ibis (b)	10	· Maintain suitable emergent wetland breeding habitats at nesting sites to support at least 10 nests.
American White Pelican	10	· Manage known and newly formed colonies at 2 sites: Canyon Ferry Reservoir and Arod Lakes to support at least 4,000 pairs.
Common Loon	10	· Maintain suitable nesting habitat at major breeding sites in the region to support at least 100 pairs. Minimize human disturbance on nesting lakes. · Maintain productivity of at least 1.4 young/nesting pair. · Protect/enhance productivity at known territories with buoys, floating nests and outreach as needed. Preparation of site-specific territory management plans is a primary strategy (Casey 2000).
NEVADA:		
Greater Sandhill Crane CVP (b)	9	· Maintain, restore and conserve at least 45,000 acres of suitable wet meadow/seasonal wetland breeding habitat at breeding sites in northwestern Nevada (Ivey and Herziger 2001) to support at least 15 pairs.
Greater Sandhill Crane LCRVP (b)	9	· Maintain, restore and conserve at least 7 suitable wet meadow/ seasonal wetland breeding habitat at breeding sites in the northeastern Nevada (Nevada Partners In Flight 1999).

Table H-1. Continued.

Priority Species	BCR	Conservation Strategies
Greater Sandhill Crane LCRVP(m)	9	· Maintain grain fields and roost sites at traditional staging areas (e.g., Lund area and Pharanaget NWR).
Virginia Rail, Sora (b)	9	· No net loss of existing seasonal wetlands or wet meadow habitats.
California Gull (b)	9	· Implement conservation measure to maintain existing breeding sites to support at least 2,100 pairs.
Franklin's Gull (b)	9	· Maintain emergent nesting habitat at Ruby Lake NWR to support at least 5 pairs.
Forster's Tern (b)	9	· No net loss of existing nesting habitat at known breeding sites to support at least 95 pairs.
Black Tern (b)	9	· Maintain emergent wetland habitat at known breeding sites to support at least 225 pairs
Pied-billed Grebe	9	· No net loss of existing seasonal or semi-permanent wetlands.
Western/Clark's Grebe (b)	9	· Maintain suitable emergent nesting habitat at major breeding sites in the region to support at least 40 pairs of Western Grebes and 225 pairs of Clark's Grebes. Restore emergent nesting habitat at Topaz Lake. Minimize human disturbance and boat wakes near nesting colonies. Maintain stable water levels through the nesting period (late September, Nevada Partners In Flight 1999, Ivey 2004).
Snowy Egret (b)	9	· Maintain suitable emergent wetland breeding habitats to support at least 300 nests.
Great Blue Heron	9	· Maintain suitable breeding habitats to support at least 330 nests.
Black-crowned Night-Heron (b)	9	· Maintain suitable breeding habitats to support at least 455 nests.
Least Bittern (b)	9	· No net loss of existing seasonal or semi-permanent wetland habitats.
American Bittern (b)	9	· No net loss of existing seasonal or semi-permanent wetland habitats. · Maintain freshwater wetlands >10 ha (2.5 ac) (Brown and Dinsmore 1986).
White-faced Ibis (b)	9	· Maintain suitable emergent wetland breeding habitats at Carson Lake, Stillwater NWR, Ruby Lake NWR, and Franklin Lake and other nesting sites to support at least 6,115 nests (Ivey et al. *in prep* b). · Mitigate losses of flood irrigated agricultural feeding sites in the Lahontan Valley by creating seasonal wetlands.
American White Pelican (b)	9	· Maintain suitable nesting sites at Anaho Island in Pyramid Lake to support at least 6,310 nests. · Provide adequate water level management of Pyramid Lake such that a land bridge from Pyramid Point to Anaho Island would never be exposed (Nevada Partners In Flight 1999). · Consider building a nesting Island at Ruby or Franklin Lake.
Common Loon (m)	9	· Acquire enough water to maintain suitable fish forage base at Walker Lake to support at least 1,000 staging loons.
NEW MEXICO:		
Virginia Rail, Sora (b)	16	· No net loss of existing seasonal wetlands or wet meadow habitats.
Pied-billed Grebe	16	· No net loss of existing seasonal or semi-permanent wetlands.