

Ephemeral Wetland and Playa



Ephemeral wetland in Churchill County.
Photo by Steve Ting.

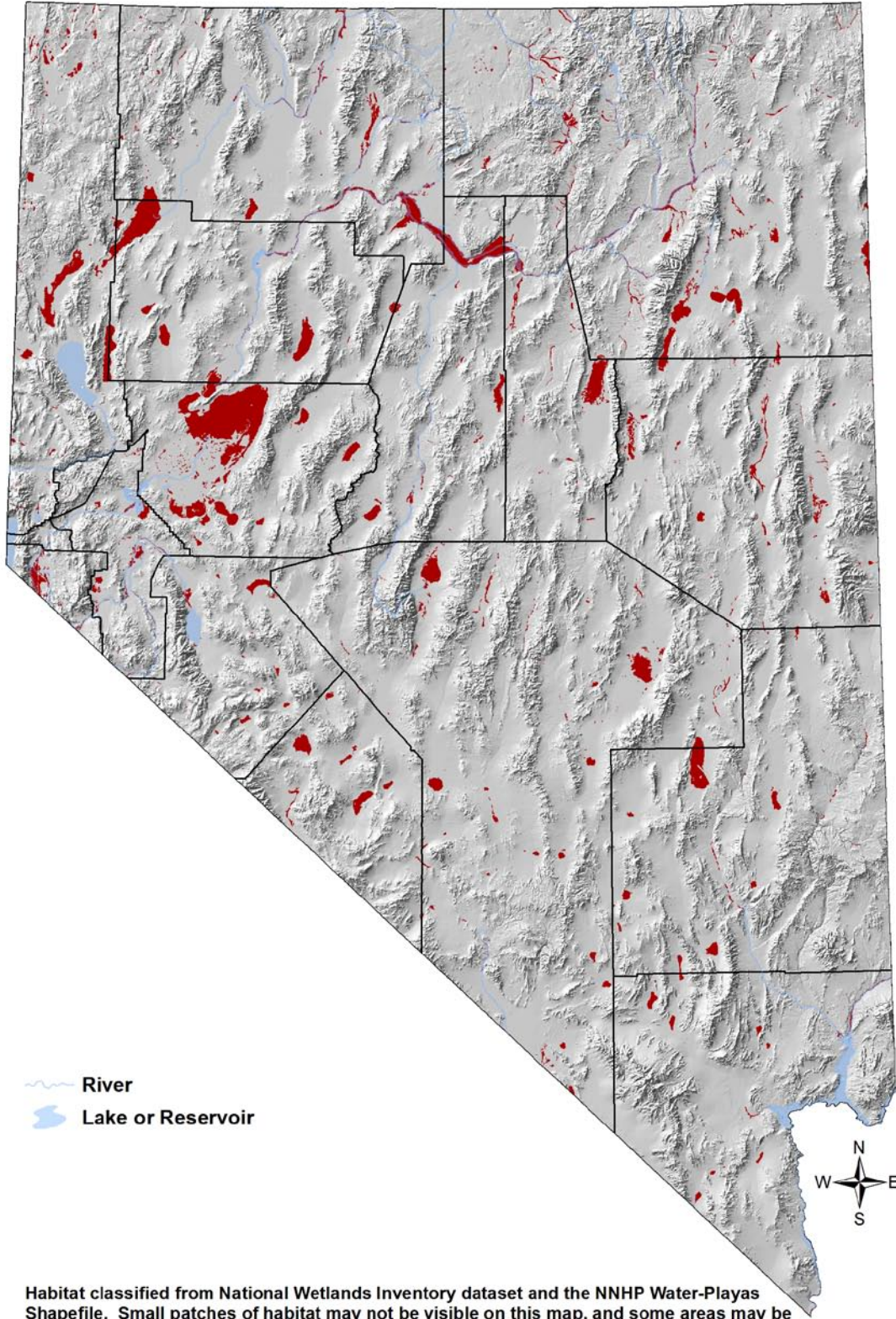
Key Bird-Habitat Attributes

Plant Species Composition	Playa wetlands are often sparsely vegetated, but may have rushes and sedges when wet, especially in areas where inundation is relatively frequent; adjacent areas may have saltgrass, greasewood, creosote bush, and salt bush, or be relatively barren
Ideal Scale for Conservation Action	Entire high-water perimeter and adjacent shoreline
Land Uses	Few land use impacts; when water is present, OHV use may damage playa beds and could possibly reduce its ability to retain water
Other Features	Natural environment includes very sparse vegetation and embedded rocks that may be important to nest site selection of some priority species

Conservation Profile

Estimated Cover in Nevada	490,000 ha [1.2 million ac] 1.7% of state
Landownership Breakdown	BLM = 60% USBR = 10% Private = 10% DOD = 8% Other = 12%
Priority Bird Species	Snowy Plover Black-necked Stilt American Avocet Western Sandpiper Least Sandpiper Long-billed Dowitcher Wilson's Phalarope Red-necked Phalarope (Cinnamon Teal) (Marbled Godwit)
Indicator Species	None needed
Most Important Conservation Concerns	Surface water diversions, impoundments Climate change (change in precipitation and temperature) Motorized recreation
Habitat Recovery Time	1 year
Regions of Greatest Conservation Interest	Northwestern, central, and southern Nevada
Important Bird Areas	Ash Meadows NWR Franklin Lake Gridley Lake High Rock Resource Area Lahontan Valley Wetlands Monitor Valley Oasis Valley Sheldon NWR Swan Lake Washoe Valley

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Overview

Ephemeral wetlands and playas are characteristic features of the Great Basin and Mojave Desert regions that come alive during wet years when water covers the flat valley-bottoms. Birds that depend on ephemeral wetlands have adapted to annual variation in water conditions, and are known for their flexible annual distribution patterns. Recent research indicates that these birds rely on a large network of playas and other wetlands that extend over hundreds of miles, selecting each year from among the subset of sites that are sufficiently wet (Robinson and Oring 1996; see also American Avocet species account, p. Spp-32-1). Therefore, while one particular ephemeral wetland is likely not critical to the conservation of a Priority species, a regional wetland network is critical.

Ephemeral wetland environments are characterized by short, infrequent, and unpredictable water availability, which determines if and when birds are present. The majority of Great Basin playas and associated wetlands are fed by snowmelt runoff, and unless other water sources are available, the amount of snowmelt and summer temperatures determine how long water stays within the wetland. In the Mojave Desert region, ephemeral wetlands may also receive water through snowmelt channeled down ephemeral washes, but many receive water only from occasional heavy rain events that occur during the monsoon season. Some ephemeral wetlands are located on the periphery of a permanent or semi-permanent water source (such as a spring, a terminal marsh, or agricultural return flows) and may consequently receive more frequent and predictable inflows. These sites can be particularly important for conservation, as they serve as insurance that at least some birds have access to suitable habitat during long drought periods. The key habitat feature for many of the Priority species that specialize on ephemeral wetlands is the availability of very shallow shoreline areas (< 2.3 cm [6 in] water depth) and mudflats. Most Priority species using these sites probe and peck for invertebrates that inhabit the shallows and the wet shorelines. Figure Hab-7-1 illustrates habitat elements of typical ephemeral wetlands that are used by Priority species.

We mostly associate Ephemeral Wetland and Playa habitat with shorebirds like the Snowy Plover, American Avocet, and Black-necked Stilt. However, anecdotal evidence suggests that ephemeral wetlands also provide important stopover opportunities for a large variety of species. The playa lake of Eldorado Valley (Dry Lake, south of Boulder City in Clark County) only has water from winter rains once every five years, on average. In September of 1997, sixty Sandhill Cranes, a Red Knot, several Snowy Plovers, a Pectoral Sandpiper, several Semipalmated Plovers, several Baird's Sandpipers, a Black-bellied Plover, several Greater and Lesser Yellowlegs, and a few Solitary Sandpipers and Marbled Godwits were among the hundreds of birds stopping over at Dry Lake after a recent downpour (Meyers et al. 1998). These sites may only have water for a few weeks, but if they are located in a migratory pathway and are flooded at the right time, they may provide much-needed invertebrate resources and resting opportunities for migrating shorebirds on their journey across the desert.

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Main Concerns and Challenges

The following top four conservation concerns were identified in our planning sessions for ephemeral wetlands or playas in Nevada:

- Surface water diversion, impoundments
- Change in precipitation and snowmelt resulting from climate change
- Change in temperature resulting from climate change
- Motorized recreation

Playas are among the least economically productive habitat types and are therefore not used heavily. Perhaps the most immediate threat to ephemeral wetlands is the diversion of water that would otherwise flow into the playa bed. The extent to which this actually reduces wetland extent and availability has not been closely studied outside of major management areas, but it seems reasonable to suspect that the effect can be considerable. Therefore, opportunities for restoration exist whenever it would be possible to make water runoff more available to playa beds in historical wetland sites.

In the longer term, changes in precipitation and temperature that are predicated as the result of climate change are even larger concerns. The fauna of ephemeral wetlands operates close to its physiological limits even in “normal” climate conditions, with invertebrates routinely going into dormancy through years of drought and birds wandering through the region in search of wetlands. Limits on viability of invertebrate prey and on bird persistence in these extreme environments are poorly understood, particularly when climate change is factored in. However, the conservative view is that such thresholds are more likely to be reached if temperatures warm and snowpacks decrease.

Groundwater pumping was listed as a concern for the case of ephemeral wetlands that receive inflows from springs or groundwater sources. It was not clear how frequently this situation might occur, so we recommend that this concern be evaluated on a case-by-case basis.

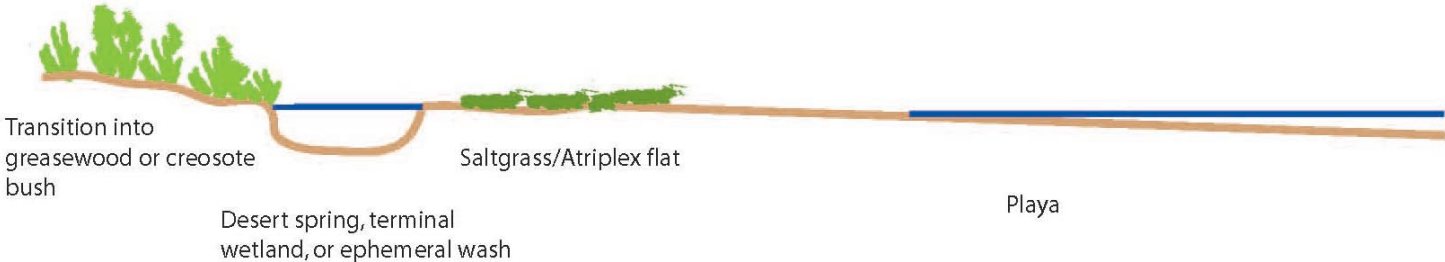
Finally, we listed motorized recreation as the only active land use of concern of which we are aware. The concern lies in the potential for motorized vehicles to damage the waterproof sediment layer of the wetland bed that helps to retain ephemeral water. If this layer is broken, water may seep into deeper soil layers and become more rapidly lost.

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Not To Scale

Sage Thrasher
Sage Sparrow
Burrowing Owl
Le Conte's Thrasher

Snowy Plover
Black-necked Stilt
American Avocet
Least Sandpiper
Western Sandpiper
Wilson's Phalarope
Red-necked Phalarope



Suitable Patch Size: Entire wetland complex (wetted perimeter during high water)

Figure Hab-6-1: Idealized ephemeral wetland and playa landscape to maximize the number of ephemeral wetland associated priority bird species.

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Conservation Strategies

Habitat Strategies

- Manage at the scale of the **entire playa and wetland complex**. In wet conditions, the wetted perimeter of the complex and the sparsely vegetated playa shore should be protected from all significant disturbances, including heavy OHV use
- Where opportunities exist to **reduce surface water diversion** to allow additional snowmelt flow into an ephemeral wetlands, this measure is a valuable conservation strategy, particularly in major migration corridors
- If the wetland complex is supported by **groundwater**, limit pumping to levels that do not cause habitat conversion

Research, Planning, and Monitoring Strategies

- Planning and research should identify a **minimum-sized regional network of ephemeral wetlands** necessary to provide sufficient breeding and migratory habitat for Priority species. Prior to this research, planning could also determine opportunities for having at least some ephemeral wetlands in a regional network flooded at any given time during the seasonal periods most important to Priority birds
- A statewide **monitoring plan for migratory and breeding shorebirds** of ephemeral wetlands needs to be developed and implemented. This would likely involve a statistical sampling scheme, not complete coverage, of ephemeral systems in the state

Public Outreach Strategies

- **Promote public appreciation** of ephemeral wetlands through promotional materials, birding trips, and school classes (e.g., using dormant invertebrates as educational material, field trips to ephemeral wetlands).