

# Snowy Plover

## *Charadrius alexandrinus*



Photo by Larry Neel

### Habitat Use Profile

Habitats Used in Nevada	
Ephemeral Wetland and Playa (Open Water (shorelines))	
Key Habitat Parameters •	
Plant Density	Very sparse or barren; avoids all moderately to densely vegetated areas <sup>6</sup>
Mosaic	Alkali flat, mudflat, or flat beach adjacent to permanent or seasonal surface water; unvegetated or nearly so; often in highly alkaline soils <sup>6</sup>
Hydrology & Water Quality	Readily accepts ephemeral wetlands and alkaline conditions, but water must be present during breeding season, even if only as a small seep <sup>6, 10</sup>
Response to Vegetation Removal	Neutral or positive <sup>EO</sup>
Area Requirements ○	
Minimum Patch Size	Unquantified, but sometimes present adjacent to very small seeps <sup>10</sup>
Recommended Patch Size	> 10 ha [25 ac] <sup>EO</sup>
Home Range and Territory Size	Unknown

### Conservation Profile

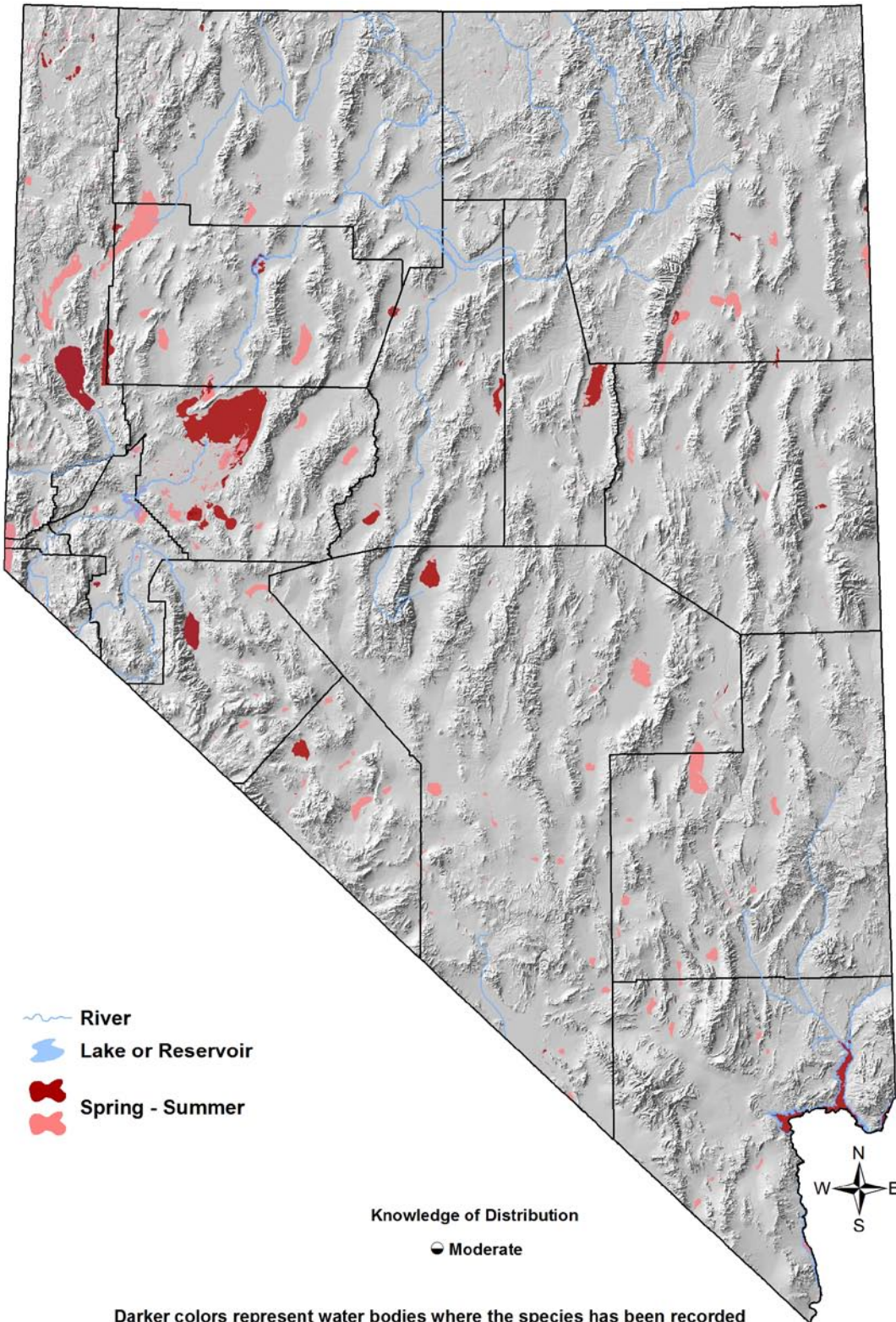
Priority Status	
Conservation Priority Species	
Species Concerns	
Historical and possible recent declines Habitat threats Small population size	
Other Rankings	
Continental PIF Audubon Watchlist NV Natural Heritage USFWS	None None S3B Bird of Conservation Concern, Migratory Bird
BLM USFS NDOW IW Shorebird Plan	Sensitive Species None Conservation Priority Critically Important
Trends	
Historical • Recent ○	Rangewide declines <sup>6</sup> Declining regionally, trends in Great Basin not well quantified
Population Size Estimates	
Nevada • Global ○ Percent of Global	~ 350 – 1,000, with high annual variability <sup>2, 3</sup> 18,000 <sup>4</sup> (North American population) 2% (% of North American population)
Population Objective	
Increase by 100% <sup>EO</sup>	
Monitoring Coverage	
Source Coverage in NV	NDOW shorebird surveys, NWR and WMA counts, Aquatic Bird Count Fair for established management areas, Poor for many playa lakes
Key Conservation Areas	
Protection Restoration	Northwest playa lakes, Lahontan Valley Playa lakes or springs that are dewatered during the breeding season

### Natural History Profile

Seasonal Presence in Nevada	
Spring – Summer	
Known Breeding Dates in Nevada	
Late March – July <sup>1, 2</sup>	
Nest and Nesting Habits	
Nest Placement	Scrape on bare ground, usually near water edge but can be up to 3 km [1.8 mi] away <sup>6</sup>
Site Fidelity	Moderate for breeding sites with predictable water <sup>6, 10</sup>
Food Habits	
Basic Primary Diet	Prober and ground gleaner Benthic, aquatic, and terrestrial invertebrates, such as brine flies and brine shrimp <sup>6</sup>
Secondary Diet	N/A

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Darker colors represent water bodies where the species has been recorded within the past 12 years. Lighter colors represent water bodies where the species could potentially occur. Smaller water bodies may be difficult to visualize on the map.

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### **Overview**

It is easy to describe the Snowy Plover's habitat preferences in Nevada, namely the barren shorelines of alkaline playa lakes. Nevada breeders are part of the species' interior population, and they are not part of the federally listed Western Snowy Plover population of the Pacific coast. The interior population has its own conservation issues, however, which have been best studied at Great Salt Lake, where at least half of the inland population breeds.<sup>7</sup> In Nevada, at least 85 sites either have confirmed Snowy Plover records, or meet the basic breeding habitat requirements of the species. In the recent USFWS Regional Inventory of Western Snowy Plovers, conducted in Nevada by GBBO and NDOW in 2007-2008, Snowy Plovers were located at 20 sites, 14 of which had confirmed breeding. One of these, Lake Mead, had not previously been known as a Snowy Plover breeding site. In this inventory, 350 adults were recorded, with the greatest numbers of birds at Big Well (Railroad Valley), Gridley Lake, the Muddy River delta of Lake Mead, Massacre Lakes, and Stillwater NWR. In other recent surveys, Carson Lake in Lahontan Valley and Ash Meadows NWR have also been hotspots for the species.

The Snowy Plover has been declining regionally for an extended period, and it seems likely that Nevada's population has been declining as well. Quantifying a long-term trend for Nevada is difficult, however, because it is obscured by the "noise" of shorter-term fluctuations that occur in response to drought cycles or other factors, both regional and local. For instance, counts in western Nevada playas in 1988 totaled only 71% of 1980 population levels,<sup>4,5</sup> probably due to drier conditions and loss of water in many playas. At the same time, however, the number of plovers increased on Walker Lake, probably because recent drops in the lake's water level created new habitat consisting of recently exposed, moist, and barren shoreline.<sup>5</sup> Also during the same time frame, a severe decline in Snowy Plover numbers in Owens Lake, CA, was reversed by the shallow flooding of large areas for dust control.<sup>8</sup> These complex spatial and temporal patterns of plover abundance highlight an important feature of the species' biology, namely that overall population health depends on being able to shift to alternative breeding locations when conditions at the primary locations are unsuitable.

The most obvious threat facing Snowy Plovers in Nevada is the diversion of runoff water away from the terminal playas where it historically collected.<sup>9</sup> Further efforts are needed to catalogue the scope of this problem, and to determine the degree to which it can be reversed or mitigated. Additionally, the possible impacts of other habitat threats have received very little study or attention.

### **Abundance and Occupancy by Habitat**

Known peak population in recent decades was ~ 900 breeding birds in northwestern Nevada in 1980.<sup>3</sup> In the most recent inventory (2007-2008), Nevada populations were estimated at < 400.

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## Nevada-Specific Studies and Analyses

There have been at least two systematic Snowy Plover inventory efforts in Nevada, one by Page et al.<sup>5</sup> in the late 1980s, and more recently by GBBO and NDOW in 2007-2008. There has been no species-specific ecological or conservation research in the state, however.

## Main Threats and Challenges

### Habitat Threats

- Dewatering of playas or springs during the breeding season due to water diversions or drought

### Research, Planning, and Monitoring Challenges

- Nevada-specific population trends need to be better clarified
- Dewatering of playas by water diversion needs to be more systematically catalogued and monitored

## Conservation Strategies

### Habitat Strategies

- The Ephemeral Wetland and Playa (p. Hab-6-1) habitat conservation strategy benefits this species
- Protect or restore season water inflow for playas through the end of the breeding season (approximately 1 July)
- Manage or restrict playa activities to protect the integrity of the clay soil pan and maximize water retention

### Research, Planning, and Monitoring Strategies

- Continue periodic species-specific (or playa-centric) inventory efforts to clarify long-term population trends
- Investigate the extent to which water diversions reduce the amount of suitable breeding habitat for Snowy Plovers, and investigate opportunities to reverse or mitigate dewatering

### Public Outreach Strategies

- None identified

References: <sup>1</sup>GBBO unpublished Atlas data; <sup>2</sup>GBBO unpublished Snowy Plover inventory data; <sup>3</sup>Herman et al. (1988); <sup>4</sup>Morrison et al. (2006); <sup>5</sup>Page and Stenzel (1991); <sup>6</sup>Page et al. (2009); <sup>7</sup>Paton (1995); <sup>8</sup>Ruhlen et al. (2006); <sup>9</sup>Shuford et al. (2002); <sup>10</sup>Shuford and Gardali (2008); <sup>EO</sup> Expert opinion