

## American Avocet

## *Recurvirostra americana*

WAP 2012 species due to breeding stewardship responsibility and wetland habitat concerns, particularly in the context of climate change.



Agency Status	
NV Natural Heritage	G5S4B
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The population size in Nevada is estimated to be 18,000 (expert, moderate). The trend is cyclic but stable.

**DISTRIBUTION:** Breeds in northeast to western NV; migrant throughout state.

### **GENERAL HABITAT AND LIFE HISTORY:**

Lowland marshes, mudflats, ponds, alkaline lakes, and estuaries (AOU 1983). Usually nests on open flats or areas with scattered tufts of grass on islands or along lakes (especially alkaline) and marshes. Readily nests on artificial islands (such as those created for waterfowl) in impoundments (Giroux 1985).

Eats a variety of aquatic insects and their larvae, crustaceans, and seeds of aquatic plants, obtained mainly from soft muddy bottom or water surface. May extend head, or dive, under surface of water while feeding.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss or degradation of ephemeral and permanent wetlands due to water diversion, development, and drought. Likely to be impacted by changing precipitation patterns associated with climate change.

### **NEEDS:**

**Research Needs:** Improve breeding pair estimates on major wetlands. Improve monitoring coverage of ephemeral wetlands and playas from the breeding season through the post-breeding and fall migration periods (Warnock et al. 1998).

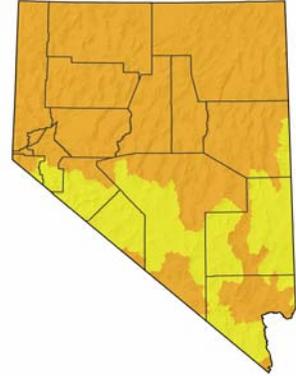
**Monitoring and Existing Plans:** Monitored through the Nevada Aquatic Bird Count and covered in the U.S. Shorebird Conservation Plan, Intermountain West Shorebird Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Continue to monitor via the Nevada Aquatic Bird Count. Focus conservation actions for maximum breeding success in peak water years. Promote seasonal fresh-water runoff into ephemeral wetlands and playas, as well as into sparsely-vegetated permanent marshes, sufficient to create mud flats and maintain a shallow-water shoreline for the longest possible period.

## American Bittern

## *Botaurus lentiginosus*

WAP 2012 species because of perceived population declines in the U.S. and western region (with some potential improvement in the last decade), it is moderately vulnerable to climate change, and its preferred habitat is sensitive and vulnerable to degradation.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G4S3B
<b>USFWS</b>	No Status
<b>CCVI</b>	Moderately Vulnerable

**TREND:** Population size and trend are unknown in Nevada; possible declines across its range.

**DISTRIBUTION:** Breeds primarily across the northern portion of Nevada with wintering birds occurring in the south.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat is primarily large freshwater and (less often) brackish marshes, including lake and pond edges where cattails, sedges, or bulrushes are plentiful and marshes where there are patches of open water and aquatic-bed vegetation. Occurs also in other areas with dense herbaceous cover, such as shrubby marshes, bogs, wet meadows, and, rarely, hayfields (Brewer et al. 1991). Readily uses wetlands created by impoundments. Wetlands of 2.5 ha or more may support nesting; smaller wetlands may serve as alternate foraging sites (Gibbs and Melvin 1992). Eats mainly fishes, crayfishes, amphibians, mice and shrews, insects, and other animals (Palmer 1962).

### **CONSERVATION CHALLENGES:**

Vulnerable to loss and degradation of wetlands due to water diversion, development, drought, and heavy metal contamination.

### **NEEDS:**

***Research Needs:*** Baseline population status and trend and sensitivities to water quality are needed.

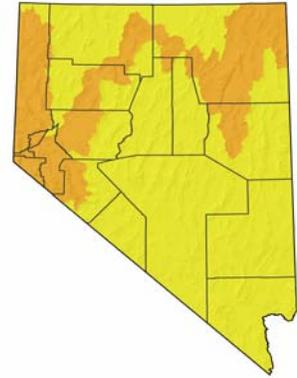
***Monitoring and Existing Plans:*** Not currently monitored; may be captured in the Aquatic Bird Survey program. Included in the Intermountain West Waterbird Conservation Plan.

***Approach:*** Protect and maintain wetland habitats, particularly large (greater than 10 ha), shallow wetlands with dense growths of robust emergents as this species entire life cycle is dependent on this habitat type. Consider purchases of land and water rights or easements to protect vital wetland habitat.

## American White Pelican

## *Pelecanus erythrorhynchos*

WAP 2012 species because it is moderately vulnerable to climate change and high Nevada stewardship responsibility for breeding populations at Anaho Island, which, in some years, is the largest nesting colony in the west.



Agency Status	
NV Natural Heritage	G4S2B
USFWS	No Status
PIF	Priority Bird Species
CCVI	Moderately Vulnerable

**TREND:** The average breeding population estimate is 8,600 (USFWS, high). The population trend is cyclic, but assumed stable.

**DISTRIBUTION:** Breeding bird in northwestern and rarely in northeastern NV, migrant throughout the state.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat is primarily rivers, lakes, reservoirs, estuaries, and marshes. Rests and nests on islands and peninsulas in brackish or freshwater lakes, isolated from mammalian predators. In NV, Anaho Island is the site of one of the most important nesting colonies in the West. Nesting documented on Franklin Lake, northeast Nevada in wet years.

This species is gregarious. It feeds mainly on fishes of little commercial value (e.g., carp, chub, suckers) (Terres 1980), and locally also feeds on trout, centrarchids, or crayfishes. Often forages in shallow water. Sometimes fishes cooperatively, forming a semicircle and herding fishes. In some areas, forages at night as well as diurnally (McMahon and Evans 1992).

### **CONSERVATION CHALLENGES:**

Anaho Island NWR is intensively managed for this species, but issues surrounding water delivery (quantity, quality, timing) to foraging sites as well as the long-term maintenance of water levels in Pyramid Lake can be problematic. Breeding colonies have low tolerance to disturbance and are highly susceptible to predation; susceptible to pesticide contamination; also vulnerable to the loss of breeding and feeding areas.

### **NEEDS:**

**Research Needs:** Connectivity between major western nesting colonies, regional dispersal (breeding and post-breeding), and the relationship of game vs. nongame fish predation to the relative availability of each.

**Monitoring and Existing Plans:** The USFWS monitors the Anaho Island population. Also, breeding populations are monitored under the Nevada Aquatic Bird Count (see GBBO 2005a). Covered under the Intermountain West Waterbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain water levels and productive nongame fisheries where birds nest and forage. Limit or restrict access to breeding colonies especially during courtship and early incubation.

## Bald Eagle (Contiguous US Pop)

## *Haliaeetus leucocephalus*

WAP 2012 species due to delisting recovery monitoring responsibility and Bald and Golden Eagle Protection Act concerns.



Agency Status	
NV Natural Heritage	G5S1B,S3N
USFWS	No Status
BLM-NV	Sensitive
USFS-R4	Sensitive
State Prot	Endangered Birds NAC 503.050.2
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The breeding population in Nevada consists of 3-5 nesting pairs; winter population estimate is 120 (NDOW, high). Trend is stable or increasing.

**DISTRIBUTION:** Winters throughout the state. There are a few scattered breeding occurrences in northern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Often roosts communally, especially in winter. Winter home ranges can be very large, especially for non-breeding birds. Usually nests in tall trees or on cliffs near bodies of water that provide a food base. Nest trees include pines, spruce, firs, and cottonwoods. Nests located on cliffs and rock pinnacles have been reported historically in NV. The same nest may be used year after year, or may alternate between two nest sites in successive years. In NV, preferentially roosts in thick cottonwood groves, but sometimes in conifers or other sheltered sites in some areas; communal roost sites in Nevada have harbored as many as 65 birds in a night and are preferred for their warmer microclimates. Winter distribution is influenced by waterfowl concentrations or wetland sites with abundant dead fish (Griffin et al. 1982). Recent increase in winter numbers in Carson Valley associated with calving; eagles eat the nutrient rich placenta.

Feeds opportunistically on fishes, injured waterfowl, various mammals, and carrion (Terres 1980). Hunts live prey, scavenges, and pirates food from other birds.

### **CONSERVATION CHALLENGES:**

Vulnerable to habitat loss, disturbance by humans, biocide contamination, decreasing food supply, illegal shooting, and incidental poisoning from anti-predator baits (Evans 1982, Green 1985, Herkert 1992). Management of nest territories in areas of high human activity (Beebe 1974, Fraser 1985).

### **NEEDS:**

**Research Needs:** Identify impact of mercury on NV populations (contaminant analysis).

**Monitoring and Existing Plans:** Winter populations monitored by the NV Wintering Bald Eagle Count. Nest success monitoring at active sites by NDOW, USFWS, and LTBMU. Covered in the Pacific States Bald Eagle Recovery Plan, LTBMU Forest Plan, and the Nevada Comprehensive Bird Conservation Plan. Watch List Species in the Clark County MSHCP.

**Approach:** Monitor and develop management plans for active nest territories. Participate in tri-annual mid-winter bald eagle survey. Conduct a thorough inventory of winter roost sites in coordination with the midwinter bald eagle survey (Steenhof et al. 2008). Partner with public land managers and private land owners to maintain nesting success and wintering concentration conservation.

## Bank Swallow

## *Riparia riparia*

WAP 2012 species due to continental population declines, continued concern in California, and it is moderately vulnerable to climate change.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S3B
<b>USFWS</b>	No Status
<b>CCVI</b>	Moderately Vulnerable

**TREND:** The Nevada population estimate is 130,000 (PIF, low). The trend in Nevada is inconclusive, but BBS data indicate a significant survey-wide decline for 1966-2007.

**DISTRIBUTION:** Occurs primarily in northern Nevada.

### **GENERAL HABITAT AND LIFE HISTORY:**

Open and partly open situations, frequently near flowing water (AOU 1983). Nests in steep sand, dirt, or gravel banks, in a burrow dug near the top of the bank, along the edge of inland water or along the coast, or in gravel pits, road embankments, etc. Tends to return to same nesting area in successive years, though may move several kilometers away, especially if nesting was unsuccessful the previous year; yearlings often return to the natal area or nearby (Turner and Rose 1989).

Feeds primarily on flying insects (e.g., beetles, mosquitoes, winged ants, flies, moths). Catches insects in the air over fields, wetlands, water, etc. If necessary, may forage up to several kilometers from nesting area, but usually closer.

The GBBO (2011) analysis of bird population responses to projected effects of climate change could not attach Bank Swallow to any measurable parameter of riparian habitats.

### **CONSERVATION CHALLENGES:**

Vulnerable to desiccation of streamflow as a result of human activities such as damming and water diversion and loss of steep friable cut banks to flood and erosion control projects. However, suitable habitat, such as sand and gravel pits, has also been created by human activities (see Garrison 1999).

### **NEEDS:**

**Research Needs:** Improve population status and trend; inventory colony sites.

**Monitoring and Existing Plans:** Species may be captured in the NBC program.

**Approach:** Protect suitable nesting habitat by maintaining appropriate streamflow and bank configuration. Provide anthropogenic nesting habitat where appropriate. Maintain quality foraging areas particularly open meadows generally within 1 km of the colony.

## Bell's Vireo

## *Vireo bellii*

WAP 2012 species because it is an Audubon watchlist species and IUCN near-threatened species.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S2B
<b>USFWS</b>	No Status
<b>Aud</b>	Red List
<b>CCVI</b>	Presumed Stable

**TREND:** The population estimate for this species is 1,000 (NBC, moderate). Trends are stable to increasing in the U.S., West, and Mojave.

**DISTRIBUTION:** Southern Nevada.

### **GENERAL HABITAT AND LIFE HISTORY:**

Occupies dense, low, shrubby vegetation, generally early successional stages in riparian areas, brushy fields, young second-growth forest or woodland, scrub oak, and mesquite brushlands, often near water in arid regions. May nest in any successional stage with dense understory vegetation. Habitat generalist in riparian scrubland dominated by the introduced shrub saltcedar along the Colorado River in Grand Canyon, AZ (Brown and Trosset 1989); specialist in native seep willow and mesquite habitats of the Lower Colorado River Valley, AZ, where saltcedar is rarely used (Rosenberg et al. 1991). Largely absent in intensively cultivated areas, forests, pure grasslands, open deserts, and elevations >1,300 m (4,265 ft). Nests suspended from small, lateral or terminal forks of low, pendant branches (or even horizontal parallel stems) in dense bushes, small trees, and occasionally herbaceous vegetation (Nolan 1960, Barlow 1962). Most nests located 0.5 to 1.5 m (1.6-4.9 ft) above ground, ranging from 0.2 to 8.0 m (0.7-26 ft).

Diet is 99.3% insects and spiders, 0.7% vegetable matter (fruit); no other vireo consumes as many large insects (Chapin 1925).

The GBBO (2011) analysis of bird population responses to projected effects of climate change predicted little change for Bell's Vireo until saltcedar (*Tamarix* spp.) dominance of riparian tree composition exceeds 90%.

### **CONSERVATION CHALLENGES:**

Land use patterns, particularly along streams and rivers (riparian habitat), strongly influence abundance in breeding range. In the southwestern U.S., riparian habitat modifications including agriculture, urbanization, firewood cutting, grazing, flood control projects, and reservoir construction have reduced habitat for this species. Large water releases from dams and reservoirs in Apr, May, and Jun can inundate low-lying vireo nests in downstream areas, resulting in high nest loss and egg/nestling mortality (Brown and Johnson 1985). In contrast, a vireo range expansion and associated increase in abundance along the Colorado River through Grand Canyon, AZ, has resulted from a local increase in riparian habitat caused by the Glen Canyon Dam (Brown et al. 1983). Modifications that promote habitat patchiness apparently increase rates of cowbird parasitism and act to segregate remaining breeding vireos into disjunct subpopulations that are more susceptible to local extinction (Franzreb 1989). Overgrazing suppresses shrub growth and reduces available nest sites and vireo density (by 50% in Oklahoma; Overmire 1963).

### **NEEDS:**

**Research Needs:** Detailed response of this species to desertification of riparian habitats is needed.

**Monitoring and Existing Plans:** Captured through the NV All Bird Count program. Covered in the Partners in Flight North American Landbird Conservation Plan, Nevada Comprehensive Bird Conservation Plan, Clark County MSHCP Covered Species, and the Lower Colorado River MSCP Covered Species.

**Approach:** Conserve and protect riparian habitats of the southwest. Preserve mesquite bosques through private landowner consultation and responsive development planning.

## Bendire's Thrasher

## *Toxostoma bendirei*

WAP 2012 species due to declining rangewide trends and concerns over the stability of its Mojave shrub habitat, particularly in the context of climate change.



Agency Status	
NV Natural Heritage	G4G5S1
USFWS	No Status
BLM-NV	Sensitive
BLM-CA	Special Status Species
PIF	Priority Bird Species
IUCN	Vulnerable
Aud	Red List
CCVI	Presumed Stable

**TREND:** Although the NV trend is unknown, continentally, they are seriously declining indicating a concern may exist in NV as well.

**DISTRIBUTION:** Range restricted to Joshua tree transitional zones in the Mojave Desert.

### **GENERAL HABITAT AND LIFE HISTORY:**

Uses a variety of desert habitats with fairly large shrubs or cacti and open ground, or open woodland with scattered shrubs and trees, 0-550 m elevation. Avoids uninterrupted brushy cover and continuous grassland (Phillips et al. 1964). In north and at higher elevations, found in sagebrush and scattered junipers. At lower elevations, occurs in desert grassland and shrubland with spiny shrubs or cacti, such as cholla, Joshua tree, mesquite, catclaw, desert-thorn or agave (AOU 1983, England and Laudenslayer 1993). Nests usually about 1-1.5 m (3-5 ft) above ground typically in mesquite, cholla, juniper, Joshua tree, and other yucca species, but occasionally also in catclaw, willow, and saltbush (England and Laudenslayer 1993).

Feeds on insects and other arthropods, especially caterpillars, beetles, grasshoppers, ants, termites. Forages primarily on the ground, but will also pluck fruit and glean vegetation for insects (Terres 1980, England and Laudenslayer 1993). Primarily gleans and probes; also digs with bill in leaf litter and sandy soil although does not dig as much as other thrashers; possibly avoids rocky soils and slopes that preclude digging (England and Laudenslayer 1993, USDA Forest Service 1994).

### **CONSERVATION CHALLENGES:**

Vulnerable to fire and urban, suburban, agricultural, and energy development. This species has low population numbers (probably not historically very numerous) and is more vulnerable to habitat degradation.

### **NEEDS:**

***Research Needs:*** Develop improved methods for monitoring species; collect additional monitoring data to better determine habitat use parameters. Information is needed on habitat preferences, and response to habitat changes to better understand the potential for maintaining or restoring populations. Information is needed on incubation and nestling periods; predators and competitors; brood parasitism rates and behavioral response; diet and foraging strategies; migration; winter range and ecology; habitat preferences; landscape relationships; and metapopulation structure and dynamics.

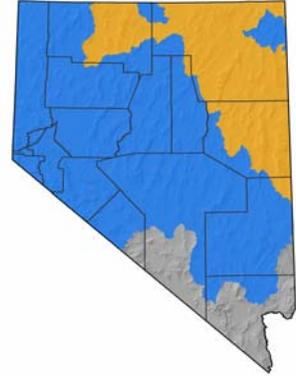
***Monitoring and Existing Plans:*** The NV All Bird Count program captures this species. Species is covered in the Clark County MSHCP, Partners in Flight North American Landbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Determine population status, distribution, and trend in NV. Determine connectivity of NV populations to surrounding populations. Identify factors leading to population declines. Promote additional land protections for critical habitat.

## Black Rosy-Finch

## *Leucosticte atrata*

WAP 2012 species because it is highly vulnerable to climate change, Nevada stewardship responsibility, its restricted range, and concerns over its high-elevation habitat with respect to climate change.



Agency Status	
NV Natural Heritage	G4S3
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Highly Vulnerable

**TREND:** Status and trend unknown.

**DISTRIBUTION:** Winters through central and northern NV. Breeds in Ruby Mountains, Snake Range (GBBO 2005), Santa Rosa Mountains, Jarbidge Mountains, Independence Range, East Humboldt Range, Schell Creek, Toiyabe, Toiyabe and Pilot Mountains.

### **GENERAL HABITAT AND LIFE HISTORY:**

Barren, rocky or grassy areas and cliffs among glaciers or beyond timberline; in migration and winter also in open situations, fields, cultivated lands, brushy areas, and around human habitation (AOU 1983). May roost in mine shafts or similar protected site. Nests usually in rock crevices or holes in cliffs above snow fields. May nest in old abandoned buildings.

Forages on the ground for seeds. In the spring gleans wind-transported insects from the snow. Later in the season may glean insects from vegetation or may chase flying insects and catch them in the air.

### **CONSERVATION CHALLENGES:**

A regional priority species; concern exists regarding its wintering habitat stability. Vulnerable to permanent closures of abandoned mines harboring communal winter night roosts.

### **NEEDS:**

**Research Needs:** Research should be conducted to determine population and breeding status, and distribution in NV.

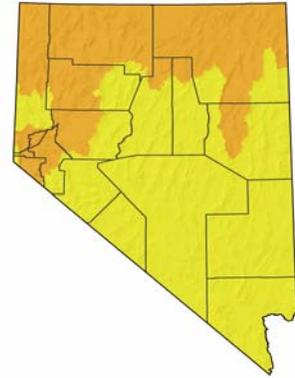
**Monitoring and Existing Plans:** Winter radio telemetry work was conducted by NDOW in 2005. Covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Survey all potential winter night roost habitats within 8 km of known winter foraging habitats (Bradley 2005). Develop roost conservation strategies, including wildlife-friendly mine closure plans in cooperation with land management agencies and Nevada Division of Minerals as appropriate.

## Black Tern

*Chlidonias niger*

WAP 2012 species due to declining continental trends.



Agency Status	
NV Natural Heritage	G4S2S3B
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 700 (expert, moderate). Range-wide trend is declining, although Shuford (1998) conclude interior West populations are stable. Black Tern's declining trends in Nevada are mostly attributable to the decline and recent loss of the Ruby Lake NWR colony (GBBO 2010).

**DISTRIBUTION:** Migrant throughout NV. Historical and current breeding sites include Ruby Lake NWR, Lahontan Valley, Humboldt Sink, Mason Valley WMA, the Boyd Humboldt Valley IBA, Quinn River, and Pahranaagat NWR.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeds in marshes, rivers, lake shores, impoundments, or in wet meadows, typically in sites with mixture of emergent vegetation and open water. Cattails, bulrushes, burreed, or phragmites commonly are present in nesting areas (Bent 1921, Cuthbert 1954, Goodwin 1960, Bailey 1977, Firstencel 1987, Novak 1990). Nested in greatest numbers where emergent vegetation and open water are in an approximately 50:50 ratio (Weller and Spatcher 1965). Has been described as a semi-colonial nesting species (Cuthbert 1954, Bergman et al. 1970).

On the breeding grounds the black tern is primarily insectivorous, although small crustaceans, spiders and small fishes are also regular food items (McAtee and Beal 1912, Bent 1921). The diet may vary depending on habitat and food availability.

Nest losses have been attributed to wind and wave action, egg inviability, predation, muskrat activity, and intraspecific interactions (Bergman et al. 1970, Bailey 1977, Dunn 1979, Firstencel 1987).

### **CONSERVATION CHALLENGES:**

Vulnerable to loss or degradation of freshwater marsh habitat due to water diversions, declines in water quality, invasion of exotic plants, drought, and development. Changes in water level during incubation may destroy nests. Vulnerable to heavy metal contamination and pesticide use and residual buildup.

### **NEEDS:**

**Research Needs:** Causes of ongoing declines are not well understood and require more detailed research and monitoring in order to determine appropriate conservation actions. Enhanced monitoring and surveying efforts are needed to better determine breeding numbers and distributions at known or potential breeding sites across the state. This could determine whether current declines, largely attributable to the decline and recent loss of the Ruby Lake NWR breeding colony, are systemic across Nevada. Additional research and monitoring is needed to document the ongoing status of the Ruby Lake NWR to determine the causes for the cessation of breeding activity in 2006. Additionally, research should include evaluating the effectiveness of artificial nest platforms for increasing nesting success or population densities. Determine nest site fidelity of adults and site fidelity of young. Determine the effects of contaminants on nesting success, chick development, and juvenile and adult survival. Assess the effects of human disturbance and develop or improve the capability to regulate water levels and manage habitat for the benefit of breeding terns at key wetlands.

**Monitoring and Existing Plans:** Captured in the Nevada Aquatic Bird Count. Covered in the Intermountain West Waterbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Develop beneficial water management strategies through cooperative planning and agreements for colony sites. Historical sites should be identified and restored to colony site potential. Enforce wetlands and water quality regulations; encourage greater public recognition of wetland values.

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**WAP HABITAT LINKS:** Marshes, Lakes and Reservoirs, Desert Playas and Ephemeral Pools, Wet Meadow.

## Black-chinned Sparrow

## *Spizella atrogularis*

WAP 2012 species due to declining trends rangewide and its preferred habitat is sensitive and vulnerable to degradation, particularly in the context of climate change.



Agency Status	
NV Natural Heritage	G5S3B
USFWS	No Status
PIF	Priority Bird Species
Aud	Red List
CCVI	Presumed Stable

**TREND:** The population estimate in NV is 8,400 (NBC, moderate); trend is inconclusive; steep and significant declines for the Western BBS Region.

**DISTRIBUTION:** Mojave Desert region of southern Nevada.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeds in chaparral, sagebrush, and arid scrub; on gentle hillsides to steep, rocky slopes, or in brushy canyons; sea level to nearly 2,700 m (8,860ft) (AOU 1998, Rising 1996, Tenney 1997). In montane chaparral, associated with chamise, ceanothus, and scrub oak-dominated habitats. Nests in loose local colonies (Rising 1996, Terres 1980).

Feeds on insects and small seeds. Forages in brush and on ground. Flies under and over brush in search of food.

Generally moves downslope after breeding or south into desert grassland scrub, where grass and forb seeds are an important winter food source (Tenney, pers. comm.). May forage beneath shrub canopy or in adjacent grassy areas (Tenney 1997). Based on the TNC (2011) model, Black-chinned Sparrows in Nevada may be affected by the decline in late-successional, higher-elevation (mesic) blackbrush, which is partially offset by minor gains in other cover types, resulting in a projected population decrease of 19% in 50 years.

### **CONSERVATION CHALLENGES:**

Vulnerable to local loss of breeding habitat due to mining, off-road vehicles, and overgrazing (Tenney 1997). Also, alteration of fire regimes that are increasing the density of pinyon-juniper woodlands (GBBO 2010).

### **NEEDS:**

**Research Needs:** Studies are needed to better pinpoint key habitat and landscape features important to Black-chinned Sparrows and to identify and quantify conservation threats.

**Monitoring and Existing Plans:** Species is captured by the NV All Bird Count and covered under the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Monitor through the NV Bird Count; develop conservation and restoration strategies for montane shrub communities including thinning overgrown pinyon-juniper woodlands near their shrubland interface which may be beneficial to Black-chinned sparrows.

## Bobolink

## *Dolichonyx oryzivorus*

WAP 2012 species due to declining continental trends, its restricted range in Nevada, and concerns over riparian habitat vulnerability.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S3B
<b>USFWS</b>	No Status
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population size and trend are unknown; significant decline in North America and Great Basin (BBS).

**DISTRIBUTION:** Breeds in northeastern Nevada, associated with the upper Humboldt, Little Humboldt, and Owyhee and Bruneau River drainages.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeds in tall grass areas, flooded meadows, prairie, deep cultivated grains, and hayfields (AOU 1998). Nests on ground in small hollow in area of concealing herbaceous vegetation. Tends to return to breed in same area in successive years, especially if that site has had good Bobolink productivity (Bollinger and Gavin 1989). Prefers habitat with moderate to tall vegetation, moderate to dense vegetation, and moderately deep litter (Tester and Marshall 1961, Bent 1958, Harrison 1974, Bollinger 1995), and without the presence of woody vegetation (Sample 1989, Bollinger and Gavin 1992). Found in native and tame grasslands, haylands, lightly to moderately grazed pastures, no-till cropland, small-grain fields, oldfields, wet meadows, and planted cover (NatureServe 2011, and citations therein).

Eats insects, seeds, grain (Terres 1980); mainly seeds (Stiles and Skutch 1989).

### **CONSERVATION CHALLENGES:**

Decline attributed to decrease in hayfield area, earlier and more frequent hay-cropping. Unsustainable grazing practices that reduce grass cover and increase shrubs would negatively impact this species.

### **NEEDS:**

**Research Needs:** Research on the relationship between grazing regimes and habitat maintenance and population productivity needs to be conducted in Nevada.

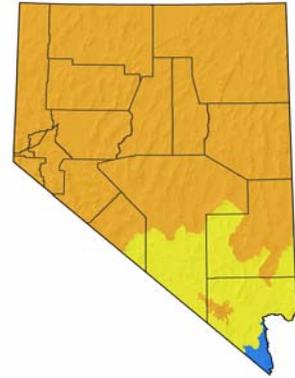
**Monitoring and Existing Plans:** Nevada All Bird Count captures this species, though its limited distribution in Nevada may warrant specific area searches.

**Approach:** Provide large areas of suitable habitat (native and tame grasslands of moderate height and density, with adequate litter), control succession, but defer grazing and hay harvest until after the breeding season, approximately early May to mid-July (Bollinger 1991). Treatments can be done in early spring (several weeks prior to the arrival of adults on the breeding grounds) or in the fall after the breeding season (Martin and Gavin 1995). Appears to respond positively to moderate grazing or short-duration grazing schedule, though there is no research on this topic specifically in Nevada.

## Brewer's Sparrow

*Spizella breweri*

WAP 2012 species because it is moderately vulnerable to climate change and due to the possibility of large-scale sagebrush habitat conversion and loss.



Agency Status	
NV Natural Heritage	G5S4B
USFWS	No Status
BLM-NV	Sensitive
State Prot	Sensitive Birds NAC 503.050.3
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Moderately Vulnerable

**TREND:** The NV population size estimate is 7.4 million (NBC, moderate); significant NV and range-wide decline (BBS).

**DISTRIBUTION:** Breeds throughout northern NV, year-round population in southwest NV, winter resident in extreme southeast NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Strongly associated with sagebrush, and high sagebrush vigor (Knopf et al. 1990), over most of its range, in areas with scattered shrubs and short grass. Can also be found to lesser extent in mountain mahogany, rabbit brush, bunchgrass grasslands with shrubs, bitterbrush, ceanothus, manzanita and large openings in pinyon-juniper (Knopf et al. 1990; Rising 1996; Sedgwick 1987; USDA Forest Service 1994). Positively correlated with shrub cover, above-average vegetation height, bare ground, and horizontal habitat heterogeneity (patchiness); negatively correlated with grass cover, spiny hopsage, and budsage (Larson and Bock 1984; Rotenberry and Wiens 1980; Wiens 1985; Wiens and Rotenberry 1981). Prefer areas dominated by shrubs rather than grass. Prefers sites with high shrub cover and large patch size, but thresholds for these values not quantified (Knick and Rotenberry 1995). Nests low in sagebrush (preferred), other shrub, or cactus, from a few centimeters to about 1 meter from ground. Also place nests higher in taller sagebrush (Rich 1980).

In spring and summer consumes many insects. In fall and winter feeds on seeds. Forages mainly on the ground. Drinks free water when available and will bathe in standing water; but adapted to arid environments and can physiologically adjust to water deprivation, obtaining water from foods (Dawson et al. 1979; Rotenberry et al. 1999). May be food-limited in winter, as winter density is positively correlated with summer rainfall, and rainfall increases abundance of seeds available to wintering birds (Dunning and Brown 1982).

The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates Brewer's Sparrow population change is most affected by projected losses of big sagebrush/mid-open, mountain sagebrush/mid-closed, and mountain sagebrush/depleted covers, and shows the largest projected gains in sagebrush/annual grass and salt desert/shrub/annual covers, for a projected total of a 14% reduction in statewide population size over 50 years.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss, degradation, or possibly fragmentation of high-quality sagebrush and montane sagebrush shrubland due to fire, invasive plants, expansion of pinyon-juniper woodland into sagebrush, unsustainable livestock grazing, and excessive off-highway vehicle use.

### **NEEDS:**

**Research Needs:** Determine extent of breeding in the Mojave habitat type, as well as the salt desert scrub type in the Great Basin. Determine the possibility of multiple breeding seasons (one in each major habitat type). Knowledge of specific use of uncharacteristic sagebrush classes and responses to cheatgrass invasion, pinyon-juniper encroachment, or conversion to rabbitbrush. More research needed on response to prescribed burn patterns. Understanding of minimum patch sizes, fragmentation effects, spatial juxtaposition of habitat patches, and other aspects of landscape ecology are needed. Study of extent of brood parasitism and impact of predation in relation to human alterations of habitat is needed. Further study of direct and indirect impacts of herbicides and pesticides typically used in sagebrush shrub-steppe rangelands is needed. Research life history and ecology during migration and wintering.

**WAP HABITAT LINKS:** Sagebrush, Mojave Warm Desert and Mixed Desert Scrub, Intermountain Cold Desert Scrub, Lower Montane Chaparral.

**Monitoring and Existing Plans:** Monitored through the NV All Bird Count program and covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain native sagebrush habitats with high shrub vigor, horizontal shrub patchiness, and an open understory of native bunchgrasses and forbs. Design Brewer's Sparrow population objectives into sagebrush restoration projects. Monitor results and track population changes. Develop a fire management strategy that ensures that high-quality sagebrush habitat receives priority fire suppression efforts in the immediate future. Additionally, develop fire management strategies that balance the need for short-term habitat protection with long-term habitat viability.

## California Spotted Owl

## *Strix occidentalis occidentalis*

WAP 2012 species because it is moderately vulnerable to climate change, there are concerns over the vulnerability of its preferred habitat (i.e., old-growth forest), and it is a USFS management species.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G3T3S1N
<b>USFWS</b>	No Status
<b>BLM-CA</b>	Special Status Species
<b>CCVI</b>	Moderately Vulnerable

**TREND:** Population is estimated at 1-2 pairs in the Carson Range; nest activity is sporadic.

**DISTRIBUTION:** Known only in the Carson Range.

### **GENERAL HABITAT AND LIFE HISTORY:**

Typical habitat is dense, multi-layered evergreen forest that includes a diversity of tree species, large trees (some greater than 83 cm DBH), some trees with evidence of decadence, and open areas under the canopy; most often on lower, north-facing slopes of canyons, usually within 0.3 km of water (Gould 1977, Bias and Gutiérrez. 1992). Commonly inhabited plant associations include: mixed conifer forest, usually dominated by ponderosa pine (southern Sierra Nevada); ponderosa pine, Douglas-fir, and/or white fir (northern Sierra Nevada) (Gould 1977). In the central Sierra Nevada, 97 percent of the habitat patches in which owls roosted were characterized by the presence of residual trees (greater than 100 cm dbh); owl roost and nest sites were also characterized by residual trees and high structural diversity (Moen and Gutiérrez 1997). Nests are on broken tree tops, cliff ledges, in natural tree cavities, or in tree on stick platforms, often the abandoned nest of hawk or mammal; sometimes in caves. This owl exhibits a high level of nest site fidelity.

Small mammals, particularly nocturnal arboreal or semi-arboreal species, predominate in diet; mostly *Glaucomys*, *Neotoma*, and *Sciurus*. Breeders take larger rodent prey than do nonbreeders (Thraillkill and Bias 1989). Generally hunts from perch at dusk and at night. May cache prey.

Adults may migrate downslope in fall, return to higher elevation in spring; fall (mid-October to mid-November) movements averaged 31 km (19 miles) with a change in elevation averaging 754 m (2,473 ft) in the Sierra Nevada, CA (Dawson et al. 1987, Laymon 1989).

### **CONSERVATION CHALLENGES:**

Potentially vulnerable to landscape-level habitat conversion (e.g., catastrophic wildfire) or stand alteration of critical habitat for fire management purposes.

### **NEEDS:**

**Research Needs:** Study juvenile dispersal and season movements to determine conservation needs, and conduct studies to determine conservation needs of primary prey species.

**Monitoring and Existing Plans:** Multi-agency nest territory monitoring. Covered in LTBMU Forest Plan, Humboldt-Toiyabe Forest Plan, Sierra Nevada Forest Plan Amendment, Partners in Flight North American Landbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Conduct annual monitoring of occupied territories to assure population is maintained. Expand surveys to include atypical habitat. Protect large tracts of old growth forest or younger forest of similar vegetative structure.

WAP 2012 species due to both regional and continental historic population declines.



<b>Agency Status</b>	
NV Natural Heritage	G5S3S4
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The average NV breeding population is 2,700; the winter population estimate is 4,600 (NDOW, moderate). Trend stabilizing or rebounding after decline from 1955-1988.

**DISTRIBUTION:** Year-round in northwestern, breeding through central and northern, migrant elsewhere in NV.

**GENERAL HABITAT AND LIFE HISTORY:**

Habitat includes marshes, ponds, lakes, rivers and bays. Winters on deep, freshwater lakes and rivers (AOU 1983). Nests over water on matted-down emergent vegetation in freshwater marshes, including those bordering lakes, ponds, or rivers. Sometimes nests on old muskrat house or on dry ground. Feeds on aquatic plants; pondweeds, wild celery, water lilies, seeds of grasses, wild rice, bulrush; rhizomes, and tubers. Seeds figure prominently in winter diet. Also some animal food; mollusks, aquatic insects, small fishes, etc. Feeds by diving from surface of water.

**CONSERVATION CHALLENGES:**

Vulnerable to loss and degradation of marsh and open water habitat due to water diversions, declines in water quality, or development (Mowbray, 2002). May abandon breeding efforts during years of drought (Mowbray, 2002), or suffer nest failure in high water years (Kruse et al., 2003a).

**NEEDS:**

**Research Needs:** Responses to climate-induced changes to marsh habitats is needed.

**Monitoring and Existing Plans:** Monitored through the NV Aquatic Bird Count, surveys conducted by refuge biologists, NDOW aerial surveys, and NDOW annual waterfowl breeding population (BPOP) surveys. Covered in the North American Waterfowl Management Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Continue to monitor via NDOW aerial waterfowl survey. Regulate harvest as necessary through Pacific Flyway Council. In breeding marshes, maintain a consistent water level during the nesting period (1 May-15 July); open water migration and wintering habitat should be managed to maintain the presence of submerged aquatic plants at depths up to 5 m [16 ft]. Pursue through partnerships, including the Intermountain West Joint Venture, improving, creating, restoring, and maintaining suitable habitat.

## Cassin's Finch

## *Carpodacus cassinii*

WAP 2012 species due to stewardship responsibility based on significant declining trends continentally, in the U.S., Canada, the West, and in the Sierra Nevadas.



Agency Status	
NV Natural Heritage	G5S5
USFWS	No Status
IUCN	Near Threatened
CCVI	Presumed Stable

**TREND:** The NV population estimate is 130,000 (PIF, moderate); increasing significantly in Nevada (BBS).

**DISTRIBUTION:** NV-wide, year-round, but absent from the Mojave Desert region.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat consists of open coniferous forest; in migration and winter also in deciduous woodland, second growth, scrub, brushy areas, partly open situations with scattered trees (National Geographic Society 1983), and sometimes suburbs near mountains. Usually nests in conifer, 3-25 m above ground, on outer end of limb; may sometimes nest in deciduous tree or in shrub. May return to same nesting area in successive years, though this may be unusual (Mewaldt and King 1985).

Eats seeds and buds, insects, and berries. Forages high in trees or on the ground.

Usually seen in flocks, except during nesting season. Often seen in association with crossbills and evening grosbeaks. Male defends zone around female during breeding period; female more attached to a particular site than is male. The GBBO (2011) analysis of bird population responses to projected effects of climate change, as an appendix in this report, indicates overall populations of Cassin's Finch are projected to remain stable over the next 50 years. Decreases based on habitat cover change are expected in some habitat types, such as pinyon-juniper/early, but these are projected to be offset by increases from other habitat types, such as pinyon-juniper/late. The highest estimated densities currently occur in mixed conifer/dry pine, subalpine pine, and mountain mahogany.

### **CONSERVATION CHALLENGES:**

Regional priority species; local population declines.

### **NEEDS:**

**Research Needs:** Improved population status and trend is needed. Response to habitat transitions to uncharacteristic classes and loss of aspen and conifer habitats to climate change is needed.

**Monitoring and Existing Plans:** NV All Bird Count program captures this species. Covered in the Partners in Flight North American Landbird Conservation Plan.

**Approach:** Continue monitoring species.

## Columbian Sharp-tailed Grouse

## *Tympanuchus phasianellus columbianus*

WAP 2012 species because of their limited and isolated populations in Nevada and it is moderately vulnerable to climate change



Agency Status	
NV Natural Heritage	G4T3S1
USFWS	No Status
State Prot	Game Birds NAC 503.045
CCVI	Moderately Vulnerable

**TREND:** The NV population estimate is 220 (NDOW, moderate); declining in NV.

**DISTRIBUTION:** Small, introduced population in northeastern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Native bunchgrass and shrub-steppe communities. In western Idaho, preferred big sagebrush habitats with moderate vegetative cover, high plant species diversity, and high structural diversity; in general selected vegetative communities that were least modified by livestock grazing (Saab and Marks 1992). Deciduous shrubs are critical for winter food and escape cover (see Saab and Marks 1992). Bunchgrasses and perennial forbs are important components of nesting and brood-rearing habitat (Saab and Marks 1992).

Dietary requirement includes woody plant buds or fruits in winter.

### **CONSERVATION CHALLENGES:**

Vulnerable to habitat loss and degradation; vegetation changes caused by cattle grazing, agriculture, large destructive fires, and energy development.

### **NEEDS:**

***Research Needs:*** Conduct additional study of winter habitat use and determine fire strategies that potentially benefit the species versus those that do not. Research the success/failure of translocated populations and the response to habitat transitions to uncharacteristic classes.

***Monitoring and Existing Plans:*** NDOW has developed detailed conservation and management priorities as a managed game bird (NDOW 2008).

***Approach:*** Continue monitoring; maintenance and restoration of sagebrush-steppe and montane shrub.

## Common Loon

*Gavia immer*

WAP 2012 species due to the state's Walker Lake stewardship responsibility.



Agency Status	
NV Natural Heritage	G5S2N
USFWS	No Status
USFS-R4	Sensitive
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV migratory population estimate is 300-500; peak of 1,500 in 1996 (NDOW, moderate); trend is decreasing. The Walker Lake survey data set (NDOW) indicates a pronounced decline in number of migrating loons at Walker Lake. Recently average numbers of migrating loons have fallen below 300, and evidence suggests that similar declines have also occurred on Pyramid Lake (Serdehely 2006).

**DISTRIBUTION:** Migrant throughout Nevada, stages on deepwater lakes.

### **GENERAL HABITAT AND LIFE HISTORY:**

Lakes containing both shallow and deep water areas (McIntyre 1975, 1988; Strong 1985). Water clarity is an important component of breeding habitat selection. Loons are visual predators and generally need clear visibility to at least three to four m (McIntyre 1988), although they can adapt to some conditions of low water clarity (McIntyre 1975). In studies comparing lakes with and without loons, higher turbidity has been suggested as a factor influencing lack of occupancy (Barr 1973, McIntyre 1988).

Dives from surface, feeds mainly on fishes; also amphibians and various invertebrates (Terres 1980).

The Common Loon is a spring and fall migrant through Nevada. Spring migration typically peaks in mid-April in Nevada while fall migration peaks in October. Migration stopover sites are rivers or lakes with adequate food sources that provide opportunities to rest and refuel during migration (McIntyre and Barr 1983). Birds using these stopovers appear to remain for several weeks to meet energy needs for further migration.

### **CONSERVATION CHALLENGES:**

Walker Lake, an important migration stop-over for Common Loons in NV, is threatened by the conversion of the lake from a freshwater to an alkaline/saline system due to inadequate inflows resulting in a decline in fish prey base. This system has also been contaminated by mercury from historic mining operations in the Walker Lake watershed, and high levels of mercury have been documented in loons sampled at the lake. Other stop-over sites in the state appear to be relatively secure for loons.

### **NEEDS:**

**Research Needs:** Additional efforts to census this species on Lake Mead and Lake Mojave are needed to understand the dynamics of the common loon migration and wintering in that region of the state. Expand current monitoring protocol at Walker Lake to cover a range of survey dates during fall migration, to cover spring migration, and to cover additional lakes known or suspected to be used by loons. Identification of the wintering grounds for the Walker Lake loon population is a high priority and needs to be accomplished before the population disappears. As with loons range-wide, a better understanding of how mercury levels affect loon behavior, including reproductive success, is needed (McIntyre and Barr 1997).

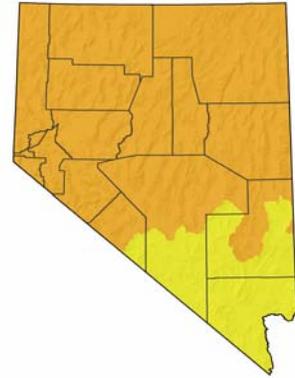
**Monitoring and Existing Plans:** Currently, loons at Walker Lake are monitored by means of an annual survey that occurs in mid-October each year by NDOW biologists. Some other lakes are monitored on an ad hoc basis by birders (e.g., Pyramid Lake), and Pyramid Lake has been surveyed annually in September by GBBO (for all bird species, including common loon). With the exception of the Walker Lake survey, efforts are not timed to record the peak migration of loons through the state, so may yield equivocal results regarding population trends for this species. Intermountain West Waterbird Conservation Plan. Nevada Comprehensive Bird Conservation Plan.

**Approach:** Secure adequate guaranteed inflows for Walker Lake to stabilize its fishery. Maintain good water quality and healthy fisheries in other lakes used by loons (Pyramid Lake, Topaz Lake, and Lake Mead).

## Common Nighthawk

## *Chordeiles minor*

WAP 2012 species due to significant declining trends in the U.S., West, and Great Basin and non-significant declining trends in Nevada.



Agency Status	
NV Natural Heritage	G5S5B
USFWS	No Status
CCVI	Presumed Stable

**TREND:** Trend is inconclusive in NV, BBS data suggest long-term slow decline.

**DISTRIBUTION:** Primarily found across Great Basin region of northern Nevada.

### **GENERAL HABITAT AND LIFE HISTORY:**

Found in mountains and plains in open and semi-open habitat; in open coniferous forests, savanna, grasslands, fields, around cities and towns. Nests on the ground on a bare site in an open area. In some areas, also nests on flat gravel roofs of buildings, perhaps related to prey availability at artificial lights. Prefers sandy soil in the southern U.S.

Feeds on flying insects (e.g., mosquitoes, moths, beetles, flies, caddisflies). Forages at night or during the day. Catches insects high in the air or close to the ground. May forage on insects around artificial lights. Young are fed insects by regurgitation.

### **CONSERVATION CHALLENGES:**

Loss of breeding habitat, indiscriminate use of pesticides, and increased predation on nests may be factors contributing to the decline in the species.

### **NEEDS:**

***Research Needs:*** Determine status and trend for Nevada.

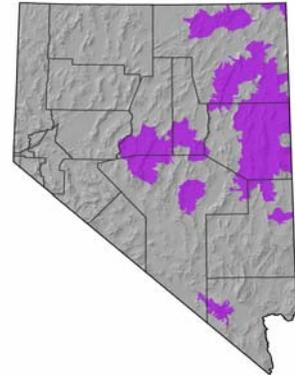
***Monitoring and Existing Plans:*** Not well-sampled by the current NV All Bird Count program.

***Approach:*** Implement a specific nightjar monitoring program throughout the state to better determine distribution, trends, population density, and habitat requirements.

## Dusky Grouse

## *Dendragapus obscurus*

WAP 2012 species due to declining continental and western U.S. trends.



Agency Status	
NV Natural Heritage	G5S3
USFWS	No Status
State Prot	Game Birds NAC 503.045
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** Status and trend in NV is unknown; however estimated 50% declines in western US since 1960s.

**DISTRIBUTION:** Occurs in central and eastern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Primarily a solitary montane species. Coniferous forest, especially fir, mostly in open situations with a mixture of deciduous trees and shrubs (AOU 1983). Spends winter, usually at higher elevation than summer habitat, in conifer forest of various categories of age and tree density; roosts in large conifers with dense foliage. Nests in montane (mixed or deciduous) forest, also in shrubland in some areas. Nests on ground under cover of brush, branches or other vegetation. More inclined than Sooty Grouse to leave the woodlands, ranging up to 2 km [1.2 mi] from the forest edge into areas dominated by sagebrush, montane shrubs, and mountain mahogany, especially in late fall and early winter (NDOW 2008).

In summer feeds on a variety of berries, insects, flowers, and leaves. In the winter feeds mainly on needles and buds of conifers (Douglas-fir often important).

Blue Grouse recently split into two species, Sooty Grouse and Dusky Grouse.

### **CONSERVATION CHALLENGES:**

Little information exists about specific threats. The loss of limber pine, subalpine fir, and montane shrub is of concern. Range conversion by large fires is another likely threat.

### **NEEDS:**

***Research Needs:*** Conduct research to better identify habitat requirements and response to habitat transitions to uncharacteristic classes; delineation of dusky vs. sooty grouse distribution across the state (e.g. Wassuk Range).

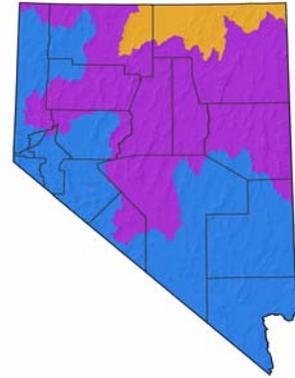
***Monitoring and Existing Plans:*** Not currently monitored but as a game species, NDOW has developed detailed conservation and management priorities for this species. Covered in the Partners in Flight Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Develop conservation plan based on demonstrated need.

## Ferruginous Hawk

## *Buteo regalis*

WAP 2012 species due to potential conflicts with renewable energy development.



Agency Status	
NV Natural Heritage	G4S2
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV breeding population estimate is 1,200 (NBC, moderate); trend is stable.

**DISTRIBUTION:** Breeding population densest in eastern and central NV, densities thin rapidly west of Eureka County, but extend to the California border north of the Truckee River. Winter concentrations have occurred in agricultural valleys such as Lovelock Valley, usually after extended drought and fallow field time.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat includes open country, sagebrush, saltbush-greasewood shrubland, and the periphery of pinyon-juniper and other woodland and desert communities. In NV, nests primarily in live juniper trees. In western NV, also nests on tufa stacks and rock outcrops; sometimes on power line towers; rarely on the ground under thick brush. Lone or peripheral trees are preferred over densely wooded areas (Weston 1968, Lokemoen and Duebbert 1976, Gilmer and Stewart 1983, Woffinden and Murphy 1983, Palmer 1988, Bechard et al. 1990).

Mammals are the primary prey during the breeding season, although birds, amphibians, reptiles, and insects also are taken (Weston 1968, Howard 1975, Fitzner et al. 1977, Blair 1978, Smith and Murphy 1978, Gilmer and Stewart 1983, Palmer 1988, De Smet and Conrad 1991, Atkinson 1992). Jackrabbits are the primary prey species in western shrub-steppe, followed by ground squirrels and pocket gophers (Smith and Murphy 1978, Bechard and Schmutz 1995). Hunts most frequently near sunrise and sunset (Evans 1982). Some types of agricultural production facilitate the increase of ground squirrels and jack rabbits along the agricultural-wild land interface, particularly when drought suppresses production and fields lay fallow through extended periods of time.

### **CONSERVATION CHALLENGES:**

Some habitat has been lost due to agricultural development and type conversion by the invasion of exotic annuals. Sensitive to disturbance during nesting. Vulnerable to shooting on wintering grounds (Harmata 1981, Gilmer et al. 1985). Impacts of indiscriminate or improper pest control are not quantified in NV.

### **NEEDS:**

**Research Needs:** Understanding of the wintering ecology, dispersal, and site fidelity (breeding and winter) is needed for conservation planning. Other research needs include basic biology and spatial relationships between nesting densities of hawks and prey, especially cyclic species with asynchronous regional peaks. The effects of land management actions on Ferruginous Hawks are also poorly known (Bechard and Schmutz 1995), including responses to wildfire habitat conversion and transitions to uncharacteristic classes.

**Monitoring and Existing Plans:** Monitored by NDOW through aerial nest activity surveys. BBS captures this species, though sample size may be too small for meaningful analysis on the scale of NV. Covered in the Nevada Comprehensive Bird Conservation Plan. Watch List Species in the Clark County MSHCP.

**Approach:** Keys to management are providing suitable nest sites, protecting active nest areas from disturbance, and improving habitat for prey. Limit practices that increase the spread of exotic plant species and the conversion of native shrub-steppe to monotypic stands of annual grass. Prescribed burning may increase habitat suitability in shrub-dominated areas. Isolated nest trees might require protection from livestock in nesting habitat. Mitigate development impacts from mining, pipeline construction, and urbanization (Bechard and Schmutz 1995). Encourage rest-rotation or deferred-rotation grazing systems (Olendorff 1993).

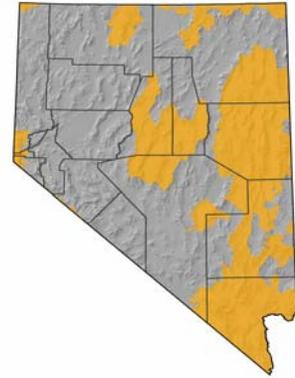
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**WAP HABITAT LINKS:** Lower Montane Woodlands and Chaparral, Sagebrush, Cliffs and Canyons, Salt Desert Shrub, Grasslands and Meadows, Agricultural Lands.

## Flammulated Owl

## *Otus flammeolus*

WAP 2012 species due to rangewide population declines and concerns over conifer habitat with respect to climate change.



Agency Status	
NV Natural Heritage	G4S4B
USFWS	No Status
USFS-R4	Sensitive
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** NV status and trend are unknown.

**DISTRIBUTION:** Breeds in scattered ranges across the state with coniferous forest, including the Carson Range, Spring Mountains, Schell Creek Range, Ruby Mountains, and Snake Range, among others.

### **GENERAL HABITAT AND LIFE HISTORY:**

Montane forest, usually open conifer forests containing pine, with some brush or saplings (typical of the physiognomy of pre-European settlement ponderosa pine forests). Shows a strong preference for ponderosa pine and Jeffrey pine, throughout its range (McCallum 1994b). Prefers mature growth with open canopy; avoids dense young stands. Found in cooler, semi-arid climate, with high abundance of nocturnal arthropod prey and some dense foliage for roosting (McCallum 1994a). Absent from warm and humid pine forests and mesic ponderosa pine/Douglas-fir (McCallum 1994a, Wright et al. 1997). Most often found on ridges and upper slopes (Bull et al. 1990, Groves et al. 1997). Most often nests in an abandoned tree cavity made by Pileated Woodpecker, flicker, sapsucker or other large primary cavity nester, at heights from 1 to 16 meters (Reynolds et al. 1989). Uses dead, large-diameter pine, Douglas-fir or aspen tree; occasionally uses natural cavity or nest box.

Feeds mainly on nocturnal arthropods, especially owlet moths (Noctuidae), beetles (Coleoptera), and crickets and grasshoppers (Orthoptera). Hunts exclusively at night.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss of large snags and changes to the forest mosaic due to fuel gathering, fuels reduction activities, or large, high-severity fires (expert opinion, GBBO 2010).

### **NEEDS:**

**Research Needs:** Population trend research is needed. Factors influencing habitat selection in specific NV habitats and response to climate-induced changes in preferred habitats also needed.

**Monitoring and Existing Plans:** No systematic monitoring occurs for this species. Covered in the Nevada Comprehensive Bird Conservation Plan. Watch List Species in the Clark County MSHCP.

**Approach:** Manage fuels reduction and harvesting activities to conserve large-diameter snags and encourage management activities to include creating or maintaining forests of a mosaic of older trees (especially ponderosa and Jeffrey pine), younger-aged trees, and forest openings with a well-developed shrub layer.

## Gilded Flicker

## *Colaptes chrysoides*

WAP 2012 species due to its restricted range in Nevada and declining trends range-wide.



Agency Status	
NV Natural Heritage	G5S1
USFWS	No Status
PIF	Priority Bird Species
Aud	Red List
CCVI	Presumed Stable

**TREND:** Status and trend in Nevada is unknown.

**DISTRIBUTION:** Southern Clark County, small breeding population near Searchlight, NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat includes stands of giant cactus (saguaro), Joshua tree, and riparian groves of cottonwood and tree willows in warm desert lowlands and foothills (AOU 1995). Nesting density positively correlated with volume of ironwood (*Olneya*) in southern Arizona (Kerpez and Smith 1990), where it did not nest in saguaros less than 5 m tall (Kerpez and Smith 1990). Assumed association with Joshua tree in NV.

Feeds on insects (ants, beetles, wasps, grasshoppers, grubs, etc). Feeds on the ground or catches insects in the air. Also eats fruits, berries, and seeds (Terres 1980).

### **CONSERVATION CHALLENGES:**

Threats in Nevada are conjectural, but may include impacts to Joshua Trees and other yuccas including development, fire, potential invasion of weeds, and heavy OHV use (GBBO 2010).

### **NEEDS:**

***Research Needs:*** Research needed to better understand status and needs of this species.

***Monitoring and Existing Plans:*** Nevada Bird Count program and monitoring efforts through the Lower Colorado River MSCP cover this species. Included in the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Protect habitat from stand-replacing wildfire and development.

## Golden Eagle

*Aquila chrysaetos*

WAP 2012 species due to Bald and Golden Eagle Protection Act concerns and conflicts with renewable energy development.



Agency Status	
NV Natural Heritage	G5S4
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 2,400-3,000 (NDOW/NBC, moderate); declines are suspected in the west, but the trend is inconclusive in Nevada.

**DISTRIBUTION:** Found across NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Found generally in open country, in prairies, arctic and alpine tundra, open wooded country, and barren areas, especially in hilly or mountainous regions. In NV, nests predominantly on the rock ledge of a cliff; occasionally in a large tree. Pair may have several alternate nests; may use same nest in consecutive years or shift to alternate nest used in different years.

Feeds mainly on small mammals (e.g., rabbits, marmots, ground squirrels). May also eat insects, snakes, birds, juvenile ungulates, and carrion. Rarely attacks large, healthy mammals (e.g., pigs, sheep, deer) (Terres 1980). Can fast for days between feedings. Hunts while soaring or from perch (latter especially used by young). May hunt cooperatively. See Palmer 1988 for further details.

Territory size in several areas of the western U.S. averaged 57-142 sq km (Palmer 1988).

### **CONSERVATION CHALLENGES:**

Vulnerable to reduction of prey populations due to degradation or loss of rangelands to development; wind turbine collisions; potential disturbance activity causing nest abandonment.

### **NEEDS:**

**Research Needs:** Improve monitoring and survey coverage to generate a current population trend. Research response to habitat conversions and transitions to uncharacteristic classes.

**Monitoring and Existing Plans:** Statewide nesting inventory by GBBO and NDOW, NBC and NDOW winter raptor surveys capture this species. Covered in the Nevada Comprehensive Bird Conservation Plan. Watch List Species in the Clark County MSHCP.

**Approach:** Habitat management should primarily focus on maintaining prey populations such as jackrabbits, cottontails, and large rodent species; preservation of suitable nest substrates; and reduction of risk of collision with wind turbines.

## Gray-crowned Rosy-Finch

## *Leucosticte tephrocotis*

WAP 2012 species because it is highly vulnerable to climate change, its restricted range in Nevada, and concerns over alpine habitat.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S3N
<b>USFWS</b>	No Status
<b>CCVI</b>	Highly Vulnerable

**TREND:** Status and trend in NV is unknown.

**DISTRIBUTION:** Winter resident throughout NV, though absent from the Mojave Desert region.

### **GENERAL HABITAT AND LIFE HISTORY:**

Barren, rocky or grassy areas and cliffs among glaciers or beyond timberline; in migration and winter also in open situations, fields, cultivated lands, brushy areas, and around human habitation (AOU 1983). Nests usually in rock crevices or holes in cliffs.

Forages on the ground for seeds. In the spring gleans wind-transported insects from the snow. Later in the season may glean insects from vegetation or may chase flying insects and catch them in the air.

### **CONSERVATION CHALLENGES:**

Vulnerable to permanent sealing of mine shafts used for winter roost sites.

### **NEEDS:**

***Research Needs:*** Improved population status and distribution data are needed.

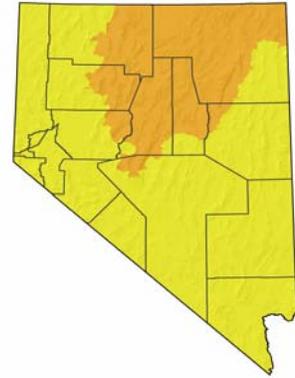
***Monitoring and Existing Plans:*** Captured during the Christmas Bird Count.

***Approach:*** Monitor via Christmas Bird Count and other winter censuses. Survey all potential winter night roost habitats within 8 km of known winter foraging habitats (Bradley 2005). Develop roost conservation strategies, including wildlife-friendly mine closure plans in cooperation with land management agencies and Nevada Division of Minerals as appropriate; develop specific discovery surveys to ascertain breeding status in NV.

## Great Basin Willow Flycatcher

## *Empidonax traillii adastus*

WAP 2012 species due to declining continental trends and concerns over montane riparian habitat vulnerability.



Agency Status	
NV Natural Heritage	G5T5S1S2
USFWS	No Status
USFS-R5	Sensitive
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** NV trend declining due to severe degradation of required riparian habitat, range-wide decline >20%. Exceedingly rare in recent decades, and historical data from the lower Truckee River indicate that the species was considered abundant in the 1800s, but has not been detected as a breeder recently (Ammon 2002).

**DISTRIBUTION:** Although this species can be found throughout the Great Basin, it is restricted to riparian areas of high structural complexity in soils that remain saturated through most of the breeding season.

### **GENERAL HABITAT AND LIFE HISTORY:**

In central, eastern, and northern Nevada the species is found in both lowland and montane riparian habitats, and occasionally in other inundated areas such as aspen stands or wet meadows (GBBO 2010). Uses the lower Colorado River corridor during migration (USFWS 2002c). Willows are the traditionally preferred vegetation (Sogge et al. 2010), but other shrub species are also used. Nests in fork or on horizontal limb of small tree, shrub, or vine, at height of 0.6-6.4 m (mean usually about 2-3 m) (Harris 1991), with dense vegetation above and around the nest.

Eats mainly insects caught in flight, sometimes gleans insects from foliage; occasionally eats berries. In breeding range, forages within and occasionally above dense riparian vegetation.

### **CONSERVATION CHALLENGES:**

Highly sensitive to changes in its breeding habitats, especially related to habitat structure and hydrology. Loss, degradation, and fragmentation of lowland riparian habitat due to water diversions and improper riparian grazing by livestock.

### **NEEDS:**

***Research Needs:*** Conduct research on the distribution, trends, population size, subspecies ranges, and specific ecological needs of the Willow Flycatcher in the Great Basin.

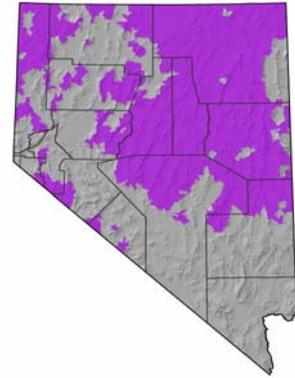
***Monitoring and Existing Plans:*** The NV All Bird Count is covering this species, though their low numbers may require focused area searches. Included in the Partners in Flight North American Landbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Promote the restoration of riparian systems throughout the Great Basin. Continue intensive monitoring efforts to track population trends in NV.

## Greater Sage-Grouse

## *Centrocercus urophasianus*

WAP 2012 species because it is highly vulnerable to climate change, it is vulnerable to decline due to large-scale habitat conversion and loss, conflicts with energy infrastructure development, and federal listing concerns.



Agency Status	
NV Natural Heritage	G3G4S3
USFWS	C
BLM-NV	Sensitive
USFS-R4	Sensitive
State Prot	Game Birds NAC 503.045
PIF	Priority Bird Species
IUCN	Near Threatened
Aud	Yellow List
CCVI	Highly Vulnerable

**TREND:** The NV population estimate is 68,000-88,000 (NDOW, moderate); trend is declining.

**DISTRIBUTION:** Parallels the range and distribution of the sagebrush steppe and Great Basin sagebrush ecosystem types. A 2008 analysis conducted by NDOW estimated that there are 22 million acres of suitable Greater Sage-Grouse habitat.

### **GENERAL HABITAT AND LIFE HISTORY:**

Uses a wide variety of sagebrush mosaic habitats with meadows and aspen in close proximity. Roosts in sagebrush and uses seeps, wet meadows, riparian areas, alfalfa fields, potato fields, and other cultivated and irrigated areas. Leaks are located on relatively open sites surrounded by sagebrush, or in areas where sagebrush density is low, such as exposed ridges, knolls, or grassy swales (Schroeder et al. 1999). Nests are located in thick cover in sagebrush habitat and consist of a shallow depression on the ground. Habitat for brood-rearing in early spring is critical to brood survival. Sagebrush overstory, herbaceous understory, and the presence of plentiful insects that provide a high-protein diet for broods (especially Hymenoptera and Coleoptera; species typical of sagebrush upland steppe) are the three important factors (Connelly 1999b). Insects are especially important in the diet of newly hatched broods. Over the fall, birds shift from consuming large amounts of forbs, to eating mostly sagebrush (Wallestad 1975). See Schroeder et al. (1999) for greater detail on diet and food selection. Often winter on windswept ridges kept relatively snow-free under big sage or taller low sage bushes. May sit for weeks under a single bush without moving more than a few feet to feed.

### **CONSERVATION CHALLENGES:**

Most significant threats to sage-grouse in Nevada are natural system modifications due to wildfire and the subsequent loss of habitat combined with impacts of invasive species (cheatgrass) and problematic native species encroachment (pinyon-juniper). Also, habitat fragmentation and disturbance, particularly roads and utility service lines as a result of both renewable and non-renewable energy resources, habitat degradation caused by improper grazing, recreational activities, and loss of upland meadows to mining.

### **NEEDS:**

**Research Needs:** Further research is needed on effects of fragmentation, area requirements, use of habitat corridors, population movements throughout the seasons, juxtaposition of habitats, the relationship between habitat quality and grouse movements, and differences among populations. The effects of habitat manipulations on grouse also need further study, especially grazing regimes, prescribed fire, and mechanical brush treatments. Basic research on behavior, predation, genetics and other aspects of life history and biology is still needed.

**Monitoring and Existing Plans:** Extensive monitoring for this species is conducted by NDOW. Covered in the Sage Grouse Conservation Plan for Nevada and Portions of Eastern California, also 6 sub-plans; Partners in Flight Landbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Ongoing monitoring, both at the core and the periphery of its range, is recommended to continue to document population trends, particularly responses to habitat improvement projects. Identification and conservation/maintenance of priority sage-grouse habitat is essential. Restoration of degraded habitat to expand existing suitable habitats is also important. Continue to support partnerships, community education programs, and enhanced communication between local area planning groups.

## Le Conte's Thrasher

## *Toxostoma lecontei*

WAP 2012 species due to declining rangewide trends and concerns over the stability of its Mojave shrub habitat (particularly saltbush flats) in the context of climate change.



Agency Status	
NV Natural Heritage	G4S2
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** Nevada population estimate is 100 (expert, moderate); trend is inconclusive.

**DISTRIBUTION:** Year-round resident in the Mojave Desert of southern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat consists of desert scrub, particularly creosote bush associations (AOU 1983), also Atriplex, Opuntia, etc. In NV, seems particularly associated with saltbush flats and wash systems. Nests in cholla, saltbush, small tree, or shrub. Le Conte's Thrasher is part of a nesting guild (including Cactus Wren and Loggerhead Shrike) that may compete for limited nest sites among thorny dense plants (Sheppard 1973). Therefore, areas that contain cholla or similarly desirable nesting substrates may be of particular conservation interest for this species.

Food habits are probably similar to other thrashers that feed on insects, berries, and seeds.

Home ranges in saltbush-cholla scrub averaged 40 hectares. Breeding territories were considerably smaller, averaging 6 hectares. The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates Le Conte's Thrashers are projected to experience a population reduction of 10% over 50 years.

### **CONSERVATION CHALLENGES:**

Sensitive to habitat fragmentation, degradation, or conversion stemming from a variety of disturbances including development (urban, agricultural, or industrial), heavy OHV use, and fire (Sheppard 1996); extended late-summer livestock grazing (Shuford and Gardali 2008); energy development and invasive plants.

### **NEEDS:**

**Research Needs:** Improve monitoring efforts and generate improved population size and trend estimates; estimate population losses to solar and wind development scenarios and develop mitigation strategies to offset temporary or permanent displacement.

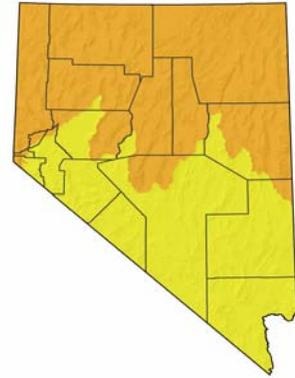
**Monitoring and Existing Plans:** NV All Bird Count program captures this species. Species is covered in the Partners in Flight North American Landbird Conservation Plan, Clark County MSHCP, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Sensitivity to habitat alteration makes this species a good indicator of habitat quality, therefore, protect occupied habitat at the recommended patch size from habitat conversion and development; maintain corridors of suitable habitat between occupied areas; minimize habitat fragmentation where development occurs focusing on maintaining larger contiguous habitat patches.

## Lewis's Woodpecker

## Melanerpes lewis

WAP 2012 species due to historic population declines and reliance upon aspen/cottonwood riparian areas, a vulnerable habitat type.



Agency Status	
NV Natural Heritage	G4S3
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
Aud	Red List
CCVI	Presumed Stable

**TREND:** NV population estimate is 13,000 (NBC, moderate); trend unknown; range-wide declines >25% (Rich et al. 2004).

**DISTRIBUTION:** Year-round resident in northern NV, summer only in northeast, winter resident in the south.

### **GENERAL HABITAT AND LIFE HISTORY:**

Important habitat features include an open tree canopy, a brushy understory with ground cover, dead trees for nest cavities; dead or downed woody debris, perch sites, and abundant insects. Uses open ponderosa pine forests, open riparian woodlands dominated by cottonwood, and logged or burned conifer. In Nevada this species is most strongly associated with deciduous riparian woodlands dominated by aspen or cottonwood (GBBO unpublished NBC data). It is no longer known to breed in the valley-bottom riparian woodlands where they are thought to have historically occurred. A weak excavator, it is even more dependent on dead trees than other woodpeckers. Tends to nest in a natural cavity, abandoned northern flicker hole, or previously used cavity. Mated pair may return to the same nest site in successive years. Key habitat factors include the presence of large, partly-decayed snags, an open forest structure for aerial foraging, and a well-developed shrub or native herbaceous layer that promotes healthy populations of flying insects (Abele et al. 2004).

Feeds on adult emergent insects (e.g., ants, beetles, flies, grasshoppers, tent caterpillars, mayflies) in summer, ripe fruit and nuts in fall and winter. Unlike other woodpeckers, does not bore for insects but will flycatch and glean insects from tree branches or trunks; also drops from perch to capture insects on the ground.

The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates that under the climate model, Lewis's Woodpecker populations are projected to decrease based primarily on losses in aspen/late-open, and aspen woodland/early, but they will gain birds from increases in aspen/mid-closed, with an overall projected loss of 12% statewide.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss of nesting sites (large snags) from logging, natural stand collapse, or degradation of riparian habitats by drought and overgrazing. Fire suppression lengthens fire interval and reduces acreage and frequency of stands of burned dead conifer. Long term cottonwood gallery habitat loss in northern Nevada is a concern.

### **NEEDS:**

**Research Needs:** A determination of the current status, population trend, and the reasons for declines in recent decades is a high priority. Further study is needed of relationships fire regimes and stand-level habitat characteristics in Nevada. The importance of riparian habitat as a corridor is unknown. May not be very sensitive to patch size and habitat connectivity, but landscape relationships need study.

**Monitoring and Existing Plans:** Detected on BBS and CBC in sufficient numbers for trend estimates at the broadest scales, but at smaller scales data is inadequate for analysis due to a combination of small sample sizes, sparse distribution of survey routes in appropriate habitats, and the scattered distribution of the species (see Sauer et al. 1996, 1997). The NV Bird Count program captures this species. Covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Requires specialized, habitat-specific monitoring due to its quiet habits, erratic distribution, and generally low densities on breeding and wintering grounds (USDA Forest Service 1994, Saab and Rich 1997). Conservation in Nevada should focus on maintaining open-canopied coniferous forests, riparian cottonwood forests and aspen stands with snags, mature trees, shrubby understory, and a productive insect fauna. Conifer burns should leave some standing dead stems on-site to sustain woodpecker foraging and fall naturally.

## Loggerhead Shrike

## *Lanius ludovicianus*

WAP 2012 species due to declining rangewide trends.



Agency Status	
NV Natural Heritage	G4S4
USFWS	No Status
BLM-NV	Sensitive
State Prot	Sensitive Birds NAC 503.050.3
CCVI	Presumed Stable

**TREND:** Nevada population estimate is 160,000 (PIF, moderate); declining 5% annually since 1966, on-going significant decline range-wide.

**DISTRIBUTION:** Resident throughout NV, except Sierras where it may be found in migration.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeds in open country with scattered trees and shrubs, savanna, desert scrub, and, occasionally, open woodland; often perches on poles, wires or fence posts (AOU 1983). Suitable hunting perches are an important part of the habitat (Yosef and Grubb 1994). Nests in shrubs or small trees.

Feeds primarily on large insects (especially beetles and orthopterans), also other invertebrates, small birds, lizards, frogs, and rodents; sometimes scavenges (Fraser and Luukkonen 1986). Diet varies with season and location. Captures prey usually via a short flight from a perch; sometimes hovers kestrel-like or walks when foraging (Bent 1950, Luukkonen 1987). Sometimes impales food items on a plant thorn or on barbed wire (Fraser and Luukkonen 1986); such items may be eaten later or fed to young (Applegate 1977).

The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates Loggerhead Shrike populations in Nevada are projected to be most negatively impacted by losses of salt desert/mid-late and mountain sagebrush/mid-closed, but are expected to see gains in the habitat types salt desert/shrub/annual, creosote/late, washes/late, and greasewood/shrub/annual, with an overall stable population size.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss of desert scrub and shrub steppe to wildfire-facilitated invasive grass and forblands. May be susceptible to indiscriminant pesticide use.

### **NEEDS:**

**Research Needs:** Response and tolerance threshold to habitat conversion to invasive grass and forblands; improved habitat suitability modeling is needed.

**Monitoring and Existing Plans:** The NV All Bird Monitoring program and BBS routes capture this species. Covered in the Partners in Flight North American Landbird Conservation Plan and the Clark County MSHCP.

**Approach:** Maintain suitable nesting and wintering habitat in areas of regular shrike activity. Thorny shrubs, barbed-wire fences, and other objects suitable for impaling prey are also significant features of habitat that should be maintained. Hands et al. (1989) recommended restricting pesticide use in shrike habitat in order to avoid depressing the abundance of potential prey items.

## Long-billed Curlew

## *Numenius americanus*

WAP 2012 species due to historic population declines and concerns of wetland habitat quality.



Agency Status	
NV Natural Heritage	G5S2S3B
USFWS	No Status
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** The NV population estimate is 1,150 (NDOW, moderate); trend is stable.

**DISTRIBUTION:** Breeds throughout NV north of the Mojave Desert.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeds in grassy meadows, generally near water (AOU 1983). Nests in moist meadows, on ground usually in flat area with short grass, sometimes on more irregular terrain, often near rock or other conspicuous object. In Nevada, recent study documented nesting in unharvested wet meadows as well as in short grass adjacent to wet meadows when meadows were flooded. Broods move immediately into tall grass in wet meadows after hatching (Hartman and Oring 2009).

Fairly opportunistic. Feeds on various insects (grasshoppers, beetles, caterpillars, etc.), and some berries. During migration also feeds on crayfishes, crabs, snails, and toads. Grasshoppers and carabid beetles are dominant in the chick diet in ID (Redmond and Jenni 1985). May obtain insect larvae by probing into loose soil (Allen 1980). Predation on nestling birds has been observed. Picks food from ground or water, probes with bill in sand or mud in or near shallow water, plucks berries.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss of wet meadows to water diversions, groundwater pumping, or development, in addition to loss of flood-irrigated agricultural fields to habitat conversion. Vulnerable to untimely livestock grazing, haying, or dragging that cause inadvertent nest losses (Dugger and Dugger 2002, Paige and Ritter 1999).

### **NEEDS:**

**Research Needs:** Response and tolerance threshold to exotic weed invasion into haymeadows.

**Monitoring and Existing Plans:** This species may be captured by the NV All Bird Count (GBBO), but specific area searches of known high quality habitat may also be needed. Covered under the U.S. Shorebird Conservation Plan, Intermountain West Shorebird Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Work with private landowners to accommodate species' life history requirements in private land management strategies.

## Long-billed Dowitcher

## *Limnodromus scolopaceus*

WAP 2012 species due to Nevada's stewardship responsibility for this species during migration.



Agency Status	
NV Natural Heritage	G5S4N
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** Historically, the NV migration population has been estimated at 30,000-100,000. The current migration population estimate is 20,000 (NDOW, moderate); trend is cyclic and declining.

**DISTRIBUTION:** Migrant throughout NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Non-breeding birds found in marshes, shores of ponds and lakes, mudflats and flooded fields, primarily in freshwater situations (AOU 1983).

Forages shallow fresh water and mud bars, probing into mud with bill. Feeds on insects and their larvae, mollusks, crustaceans, marine worms, spiders, and seeds of aquatic plants (bulrushes, pondweeds, sedges, etc.).

### **CONSERVATION CHALLENGES:**

Susceptible to water level management that doesn't provide for adequate invertebrate population loading of primary feeding sites corresponding with spring and fall migration periods. Nevada has been known to service as much as 30 percent of the world population (30,000 to 100,000 birds) in peak years.

### **NEEDS:**

***Research Needs:*** Effects of water quality need further research. Determine if possible declines are actual declines or cyclic fluctuation, and research the possible causes.

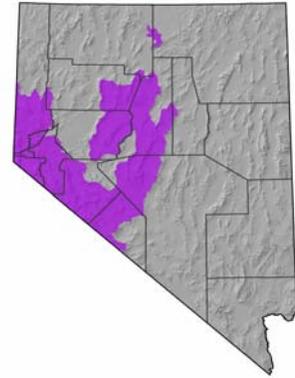
***Monitoring and Existing Plans:*** Monitored through the Nevada Aquatic Bird Count. Covered under the U.S. Shorebird Conservation Plan, Intermountain West Shorebird Plan, and the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Maintain high quality migrating staging sites through active wetland unit planning and management.

## Mountain Quail

## *Oreortyx pictus*

WAP 2012 species due to uncertain trends and fragmented nature Nevada populations.



Agency Status	
NV Natural Heritage	G5S3
USFWS	No Status
USFS-R4	Sensitive
State Prot	Game Birds NAC 503.045
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** The NV population estimate is 800-1,000 (BBS, moderate); trend is declining.

**DISTRIBUTION:** Western NV, with scattered, isolated populations in central and north-central NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Brushy mountainsides, coniferous forest, forest and meadow edges, dense undergrowth, and chaparral. Favors areas with tall dense shrubs, close to water (Brennan et al. 1987). May move to areas with suitable mast crops in fall. Nests on the ground in a shallow scrape lined with plant material. Usually nests under protective cover of a tree, shrubs, fallen branches, etc., within a few hundred meters of water.

In spring and summer feeds on herbaceous vegetation especially leaves, buds, and flowers of legumes) and some insects (grasshoppers, beetles, ants). Eats seeds, acorns, and fruits during the rest of the year (Terres 1980). Chicks eat mainly flower heads, seeds, and relatively few insects. Usually forages in early morning and late afternoon, resting at mid-day.

### **CONSERVATION CHALLENGES:**

Degradation of montane riparian and shrubland habitats due to improper livestock grazing, large, intense fires, invasive plants, water diversions, and fuel reduction projects (Gutierrez and Delehanty 1999).

### **NEEDS:**

**Research Needs:** Research is needed to determine response and tolerance thresholds to exotic plant invasion of preferred habitats. Research winter habitat requirements and factors affecting winter survival.

**Monitoring and Existing Plans:** The NV Bird Count program captures this species, though additional surveys may be needed to increase detection and statistical power. As a managed game bird, detailed conservation and management priorities for this species have been developed by NDOW (NDOW 2008). Covered in the Partners in Flight Landbird Conservation Plan and Nevada Comprehensive Bird Conservation Plan.

**Approach:** Continue efforts to establish populations within historic range, expand existing populations, and increase connectivity between populations through reintroduction program.

## Northern Goshawk

## *Accipiter gentilis*

WAP 2012 species because this species is moderately vulnerable to climate change, is sensitive to disturbance, and is reliant upon aspen riparian areas, a vulnerable habitat type.



Agency Status	
NV Natural Heritage	G5S2
USFWS	No Status
BLM-NV	Sensitive
State Prot	Sensitive Birds NAC 503.050.3
PIF	Priority Bird Species
CCVI	Moderately Vulnerable

**TREND:** The NV population estimate is 700 (BBS, moderate); trend is declining.

**DISTRIBUTION:** Breeds in northeastern, eastern, central, and western NV, may be found in winter throughout the state.

### **GENERAL HABITAT AND LIFE HISTORY:**

In Nevada, forages in open sagebrush adjacent to riparian aspen stands (Younk and Bechard 1992, cited in Squires and Reynolds 1997). Aspens are a key feature in most of NV, though in the Sierras will use conifers. Nests are generally constructed in the largest trees of dense, large tracts of mature or old growth stands with high canopy closure (60-95 %) and sparse groundcover, near the bottom of moderate slopes, and near water or dry openings (Bull and Hohmann 1994, Daw and DeStefano 2001, Hargis et al. 1994, Reynolds et al 1982, Siders and Kennedy 1994, Squires and Ruggiero 1996, Younk and Bechard 1994). May use same nest in successive years and may use another hawk nest as a base.

Preys on a wide variety of vertebrates and, occasionally, insects. Prey items include tree squirrels, ground squirrels, lagomorphs, and various bird species. During the nesting season, the diet can vary with prey availability.

### **CONSERVATION CHALLENGES:**

In Nevada, decline, degradation, or loss of older age aspen habitats is likely the greatest threat to this species. Fire suppression, improper grazing, and insect and tree disease outbreaks can result in the deterioration or loss of nesting habitat (Graham et al. 1999).

### **NEEDS:**

**Research Needs:** Update statewide population status and trend; territory life span (years of activity); mate and territory fidelity; adult and juvenile dispersal; variations in diet composition and prey abundance; response of populations to variations in prey abundance; and home range size and plasticity. Need to develop compatible forest and aspen management practices and an effective means of tracking population trends through time.

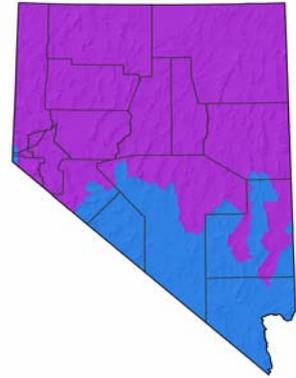
**Monitoring and Existing Plans:** USFS breeding territory inventory and monitoring (1980-present); NDOW aerial breeding territory inventory and active nest monitoring (1974-present); Regional Plan for the Lake Tahoe Basin: Goals and Policies; LTBMU Forest Plan; Nevada Comprehensive Bird Conservation Plan; Humboldt-Toiyabe Forest Plan Revision; and Watch List Species in the Clark County MSHCP.

**Approach:** Protection of large, mature to old-growth forest tracts including restoration and enhancement of aspen stands. In addition to forest cover type, other habitat attributes such as stand structure, patch size, landscape features, woody debris, snags, understory vegetation, openings, and canopy closure are important to goshawks and their prey, and therefore must be considered in preserve design (Graham et al. 1999). Habitat patch connectivity and scale is important to consider. Rather than concentrating on breeding home-ranges, entire ecological units (about 100,000 ha (247,105 acres) in extent) need to be managed across vegetation types, land ownership, and political boundaries (Graham et al. 1994). Ecological units need to include a wide variety of forest conditions, from regenerating stands to mature second-growth or old-growth stands (Reynolds et al. 1992). Aspen regeneration should be planned and implemented at a landscape scale with specific provisions for existing goshawk nest territories.

## Northern Pintail

*Anas acuta*

WAP 2012 species due to both regional and continental historic population declines.



Agency Status	
NV Natural Heritage	G5S5
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 400 breeding and 6,000 wintering (NDOW, moderate); trend in Nevada is stable to slightly increasing; and there is an increasing continental trend.

**DISTRIBUTION:** Year-round resident across northern NV; winter resident in central and southern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeds on lakes, rivers, marshes and ponds in grasslands, meadows, or cultivated fields. Most breeding associated with seasonal and semipermanent wetlands (Suchy and Anderson 1987). Often nests near freshwater lakes and ponds, but may nest some distance from water, under cover of low vegetation or in open. Nest is a depression lined with plant material and down. The main seasonal difference in the habitat requirements of Northern Pintails is that during the breeding season, they require a sizable buffer of upland vegetation or other suitable habitat (such as traditional agricultural fields) around waterbodies for nesting (Austin and Miller, 1995). Broods use emergent vegetation for escape cover. In migration and winter found in both fresh-water and brackish situations (AOU 1983). Nevada's primary contribution to Northern Pintail conservation probably occurs during migration and wintering seasons.

Eats various plants and animals, depending on availability. Feeds on seeds and nutlets of aquatic plants (sedges, grasses, pondweeds, smartweeds); also eats mollusks, crabs, minnows, worms, fairy shrimp, and aquatic insects. Animal foods important to females during pre-laying and laying periods. Diet of juveniles includes mostly insects (Suchy and Anderson 1987). Dabbles for food; may also feed on waste grain in fields.

### **CONSERVATION CHALLENGES:**

Breeding Bird Survey data indicate a significant population decrease in North America between 1966 and 1989 (Droege and Sauer 1990); however, trend increasing since 1989. Vulnerable to loss and degradation of marsh and open water habitat due to water diversions, declines in water quality, or development; haying and other inadvertent agricultural disturbances in upland breeding sites during the nesting period; predation on eggs and nesting females can be substantial in some areas; and susceptibility to avian botulism and cholera (Austin and Miller, 1995).

### **NEEDS:**

**Research Needs:** Continue surveillance monitoring for avian influenza; continue pre- and post-breeding season banding studies conducted by NDOW in cooperation with the California Department of Fish and Game, the California Waterfowl Association, and the Yukon Delta NWR.

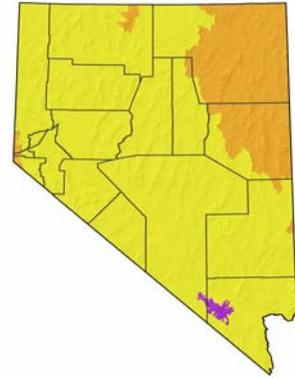
**Monitoring and Existing Plans:** Annual harvest rates are set by NDOW in consultation with the Pacific Flyway Council. This species is monitored through the NV Aquatic Bird Count, by counts on refuges, NDOW aerial surveys, and NDOW annual waterfowl breeding population (BPOP) surveys. It is covered in the North American Waterfowl Management Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain emergent marsh habitats with open water and suitable nesting habitat in healthy riparian systems. Pursue habitat improvement, restoration, creation and maintenance through partnerships with private landowners and the Intermountain West Joint Venture.

## Olive-sided Flycatcher

*Contopus cooperi*

WAP 2012 species due to declining trends range-wide.



Agency Status	
NV Natural Heritage	G4S2B
USFWS	No Status
PIF	Priority Bird Species
IUCN	Near Threatened
Aud	Yellow List
CCVI	Increase Likely

**TREND:** The NV population estimate is 5,600 (NBC, moderate); trend inconclusive, range-wide decline >60%.

**DISTRIBUTION:** Breeds in coniferous forests in the Sierra Nevada, Spring Mountains, and isolated forests of the mountain ranges of eastern Nevada from Tonopah and Winnemucca to the Utah state line.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat includes a variety of forest, woodland, and open situations with scattered trees, especially where tall dead snags are present; subalpine coniferous forest and mixed coniferous-deciduous forest (AOU 1983). Birds also forage along small mountaintop ponds. Nests are placed most often in conifers (Harrison 1978, 1979), on horizontal limbs from 2-15 m from the ground (Harrison 1979, Peck and James 1987). Nevada Bird Count data indicate that Olive-sided Flycatchers are most often found in areas where >50% of the landscape is covered by coniferous forest. NBC data also show that except in western Nevada, they may occasionally breed in aspen and pinyon-juniper woodlands that are relatively distant from coniferous forests. Densities and frequencies of occurrence in these alternate habitats tend to be lower than in coniferous forests.

The diet is made up almost entirely of flying insects, and this bird has a special fondness for wild honeybees and other Hymenoptera (Forbush 1927, Bent 1942, Terres 1980). Forages primarily by hovering or sallying forth, concentrating on prey available via aerial attack. Generally launches these aerial attacks from a high, exposed perch atop a tree or snag.

Usually territorial in nonbreeding areas (Stiles and Skutch 1989) and may display strong year-to-year site fidelity on the breeding (Altman 1997) and wintering grounds (Marshall 1988, Altman 1997). Possibly because of their dependence upon flying insects as prey, these birds arrive rather late on their breeding grounds. Olive-sided flycatchers are early fall migrants. The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates that based on the relatively small sample size to run through the TNC (2011) climate model, the population is projected to be stable over the next 50 years.

### **CONSERVATION CHALLENGES:**

In the Sierra Nevada region it is likely that fire suppression has reduced the frequency of smaller fires that create the forest openings preferred by this species. Habitat loss and degradation on the flycatcher's wintering grounds in South and Central America may be contributing to the species decline (Altman and Sallabanks 2000).

### **NEEDS:**

**Research Needs:** Continue monitoring to determine trends in Nevada, and to obtain better estimate of population size. Search for Olive-sided Flycatchers in mountain ranges where there is currently no breeding evidence; determine distribution and population densities in eastern Nevada limber pine stands. Create habitat suitability modeling for non-Sierra habitats. Investigate the role of fire intensity, scale, and frequency in creating suitable habitat for Olive-sided Flycatchers, and develop fire management strategies based upon these findings.

**Monitoring and Existing Plans:** Captured through the Nevada All Bird Count. Covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain old growth and mature coniferous forest stands in blocks of 20 hectares or greater when possible; otherwise maintain occupied stands at whatever the size. Retain snags when logging in known inhabited areas. Implement silvicultural practices that mimic natural disturbances, e.g., small-patch clearcuts that leave snags and trees and selection cuts. Retain some standing dead trees of varying heights after a fire and leave some areas unsalvaged. Some retained snags should be as tall as the canopy or extend above it.

## Peregrine Falcon

## *Falco peregrinus*

WAP 2012 species due to ESA recovery monitoring requirements.



Agency Status	
NV Natural Heritage	G4S2
USFWS	No Status
BLM-NV	Sensitive
USFS-R4	Sensitive
State Prot	Endangered Birds NAC 503.050.2
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 140-180 (NDOW, moderate); trend is increasing.

**DISTRIBUTION:** Occurs throughout the state; however nesting since 1960 has only been confirmed in Clark, White Pine, and Lincoln Counties.

### **GENERAL HABITAT AND LIFE HISTORY:**

Utilizes various open environments including open water, desert shrub, and marshes usually in close association with suitable nesting cliffs; also mountains, open forested regions, and human population centers (AOU 1983). When not breeding, occurs in areas where prey concentrate, including marshes, lake shores, rivers and river valleys, cities, and airports. In Nevada, often nests on a ledge or hole on face of rocky cliff or crag; also uses ledges of city high-rise buildings. On cliffs, nest ledges are commonly sheltered by an overhang (Palmer 1988, Campbell et al. 1990). See Grebence and White (1989) for information on nesting along the Colorado River system.

Feeds primarily on birds (medium-size passerines up to small waterfowl); rarely or locally, small mammals (e.g., bats), lizards, fishes, and insects (by young birds) may be taken. Prey pursuit initiated from perch or while soaring. May hunt up to several km from nest site (Skaggs et al. 1988).

### **CONSERVATION CHALLENGES:**

Vulnerable to loss of wetland habitat of primary prey and food chain contamination from use of persistent pesticides. Pesticide-caused reproductive failure now apparently is rare or absent in northern populations, though organochlorine levels in the environment are still high in some areas (e.g., NM, Hubbard and Schmitt 1988; see also Peakall 1990; see Banasch et al. 1992 for information on contaminants in prey in Panama, Venezuela, and Mexico). Studies suggest that falcons continue to be exposed to environmental contaminants (e.g., Steidl et al. 1991). Energy development (wind and solar) may impact foraging areas and migration corridors.

### **NEEDS:**

**Research Needs:** Conduct exploratory surveys for new breeding activity. Determine prey preferences for Colorado River breeding pairs and assess the influences of water level management in Lake Mead and Lake Mojave on the maintenance and availability of preferred prey populations.

**Monitoring and Existing Plans:** The USFWS has proposed to monitor selected populations annually for 5 years or more to verify the continued recovery of this species. NDOW partners with NPS to conduct monitoring in NV. BBS also captures this species, though sample size may be too low for meaningful analysis on the scale of NV. Regional Plan for the Lake Tahoe Basin: Goals and Policies. Humboldt-Toiyabe Forest Plan Revision. LTBMU Forest Plan. Clark County MSHCP Covered Species. Nevada Comprehensive Bird Conservation Plan.

**Approach:** Manage habitat near known or likely nesting locations and consistently-used migratory sites for avian prey productivity. Protect known nesting cliffs or structures and adjacent foraging habitat from disturbance. Encourage seasonal closures of recreational climbing routes near known nest locations on managed lands.

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**WAP HABITAT LINKS:** Cliffs and Canyons, Developed Landscapes, Marshes.

WAP 2012 species due to rangewide population declines.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S3S4
<b>USFWS</b>	No Status
<b>BLM-NV</b>	Sensitive
<b>PIF</b>	Priority Bird Species
<b>IUCN</b>	Vulnerable
<b>Aud</b>	Yellow List
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population estimate is 428,000 (NBC, moderate); there has been a 9.9% annual decrease since 1966; and the BBS indicates 50% range-wide decline.

**DISTRIBUTION:** Permanent resident in NV where pinyon is present.

**GENERAL HABITAT AND LIFE HISTORY:**

Pinyon-juniper woodland, less frequently pine; in nonbreeding season, also occurs in scrub oak and sagebrush (AOU 1983). Nests in shrubs or trees (e.g., pine, oak, or juniper), about 1.5-9 m (5-29.5 ft) above ground. Nests when and where adequate numbers of pine seeds are available.

Eats pinyon and other pine seeds, berries, small seeds, and grain. Also insects (larvae, nymphs, and adults); beetles, grasshoppers, caterpillars, ants, etc. May eat bird eggs, hatchlings. Communally caches large numbers of seeds.

Lives in loose flocks of multiple breeding pairs and their offspring from previous nesting seasons. The flock has an established home range but may wander to other areas in search of food. During nesting season flocks of yearlings may form. GBBO radio-telemetry study found that foraging Pinyon Jays appeared to favor transitional areas where pinyon-juniper woodland is interspersed with sagebrush. During the daytime, jays were usually found within 800m [2,600 ft] of woodland edge, and always within 2 km [1.2 mi] of the edge. Roosting and nesting, jays went deeper (but usually no more than 3 km [1.8mi]) into the woodland interior to denser tree stands. Jays were nearly always found in areas with diverse woodland canopy closure and age structure; they were not observed in large contiguous areas of mature, dense woodland. Although very large flocks have been reported elsewhere, the telemetry study most often observed smaller subflocks (<30 birds) that periodically joined other subflocks to form flocks of 50-100 birds. Subflock home ranges were <20 km sq [5,000 ac] in all cases. The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates Pinyon Jay populations are projected to experience losses from habitat change in mountain sagebrush/mid-closed, big sagebrush/shrub/annual, and pinyon-juniper, and they are expected to gain birds in Wyoming big sagebrush/late, pinyon-juniper/late, and mountain sagebrush/late-open, for an overall projected population decline of 19%.

**CONSERVATION CHALLENGES:**

Preliminary data suggest that Pinyon Jay declines may be at least partly related to substantial increases in the acreage of closed-canopy, mature (or senescent) woodland with a poor shrub understory, coupled with a corresponding loss of mixed-age woodland mosaics with openings and a complex shrubland edge. These landscape scale changes are largely the result of altered fire regimes, although grazing pressure and invasive plants may be contributing factors.

**NEEDS:**

**Research Needs:** Continue monitoring for population trends. Additional studies need to be conducted to confirm, refine, or revise the preliminary findings derived from the radio-telemetry studies done by GBBO. In depth studies of the landscape-scale successional processes that may impact or control pinyon pine nut production and the potential impacts of climate change on pinyon nut production are needed.

**Monitoring and Existing Plans:** The NV All Bird Count program captures this species. Covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Develop successful protocol for locating nesting colonies and develop a predictive model for the identification of suitable nesting colony habitat. Maintain or increase the proportion of pinyon-juniper woodland that is characterized by mixed-age structure, woodland openings, interspersed with sagebrush habitat, and well-developed shrub understory. An ideal landscape would contain (within a patch size of ~3,000 ha [7,400 ac]) mature cone-bearing trees, some dense closed-canopy stands near the woodland edge, and large numbers of younger trees interspersed with shrubland. Pinyon-juniper treatment projects should try to avoid creating a sharp, well-defined edge between dense woodland and recovered shrubland.

WAP 2012 species due to potential conflicts with renewable energy development.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S4
<b>USFWS</b>	No Status
<b>PIF</b>	Priority Bird Species
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population estimate is 11,500 (NBC, moderate); trend is inconclusive.

**DISTRIBUTION:** Resident statewide.

**GENERAL HABITAT AND LIFE HISTORY:**

Preferred landscapes are cliffs adjacent to arid valleys with low vegetation. Often observed foraging over a variety of sagebrush, salt desert, and Mojave scrub shrublands throughout the year, and they also occur in agricultural lands, especially during the winter months (GBBO 2010). Typically nests in pot hole or well-sheltered ledge on rocky, vertical cliff or steep earth embankment, 10 to more than 100 meters above base. May nest in man-made excavations on otherwise unsuitable cliffs (Cade 1982). Nests typically are placed on south-facing aspects, with overhangs offering some protection from solar radiation. May use old nest of raven, hawk, eagle, etc. Commonly changes nest site within territory in successive years (see Palmer 1988). In Mojave Desert, remote nests had higher productivity than did nests that were closer to human activity (Boyce 1988). Generally prefer to forage over open areas of early successional stages, low vegetation height, and bare ground.

Primarily feeds opportunistically on mammals (especially ground squirrels), lizards, snakes, and birds, generally up to size of quail and rabbits. Usually captures prey on or near ground. May cache prey in vegetation, on ledge, or in small crevice or cavity; caching most common during early brood rearing.

**CONSERVATION CHALLENGES:**

Conversion of rangeland habitats to exotic grasslands and forblands; indiscriminate poisoning of ground squirrels; and changes in agricultural practices that reduce fallow field acreages and duration.

**NEEDS:**

**Research Needs:** Studies of responses and tolerance thresholds to rangeland transitions to uncharacteristic classes (e.g., exotic grasslands, forblands, rabbitbrush) are needed.

**Monitoring and Existing Plans:** NV All Bird Count captures this species. Covered in the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Continue monitoring to better estimate ongoing population trend and population size. Where possible, maintain a disturbance-free buffer zone around nesting cliffs. Manage shrublands in the vicinity of cliffs to maintain or restore habitat-appropriate understory cover and control invasive weeds (GBBO 2010).

## Redhead

## *Aythya americana*

WAP 2012 species due to both regional and continental historic population declines.



Agency Status	
NV Natural Heritage	G5S4B
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 200 breeding and 5,000 wintering (NDOW, moderate); trend is cyclic, but stable to increasing.

**DISTRIBUTION:** Breeds throughout NV, except Mojave Desert where it is a winter resident.

### **GENERAL HABITAT AND LIFE HISTORY:**

Nests in large freshwater marshes (semipermanently and seasonally flooded palustrine wetlands) with persistent emergent vegetation; optimum nesting conditions are wetlands that are 2 ha (5 acres) or more and <0.4 km (0.25 miles) from a large permanent or semipermanent lake; nests usually are placed in dense bulrush or cattail stands that are interspersed with small areas of open water usually within 3-4m. Broods use shallow ponds if emergent vegetation is available for escape cover; ideally these should have high invertebrate populations; later, access to deeper water with ample pondweeds is important (Custer 1993). After nesting, many move to large lakes to molt (Custer 1993).

Diet includes tubers, rhizomes, seeds, other parts of aquatic plants, and aquatic invertebrates, including insects, crustaceans, and mollusks (Custer 1993). Usually feeds in mornings and evenings; may feed at night.

### **CONSERVATION CHALLENGES:**

Loss and degradation of marsh and open water habitat due to water diversions, declines in water quality, or development (Shuford and Gardali, 2008). Drought and low water conditions adversely affect breeding success and increase predation pressure (Woodin and Michot, 2002).

### **NEEDS:**

***Research Needs:*** Determine response to changes in marsh vegetation and structure affected by climate change.

***Monitoring and Existing Plans:*** This species is monitored through the NV Aquatic Bird Count, surveys conducted by refuge biologists, NDOW aerial surveys, and NDOW annual waterfowl breeding population (BPOP) surveys. It is covered in the North American Waterfowl Management Plan and the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Because Redheads are relatively flexible in their habitat use, habitat management strategies that benefit other ducks are likely to benefit Redheads as well. However, their requirement for relatively deep summer water (>1m; [3 ft]) does make them vulnerable to changes in water levels (Shuford and Gardali, 2008; Woodin and Michot, 2002). In breeding marshes, maintain a consistent water level during the nesting period (1 May - 15 July). Improve, create, restore, and maintain habitat through partnerships with private landowners, Ducks Unlimited, and the Intermountain West Joint Venture.

## Red-necked Phalarope

## *Phalaropus lobatus*

WAP 2012 species because it is moderately vulnerable to climate change, arctic breeding populations are declining, and migration stewardship responsibility.



Agency Status	
NV Natural Heritage	G4G5S4M
USFWS	No Status
PIF	Priority Bird Species
CCVI	Moderately Vulnerable

**TREND:** The NV migration population estimate is 3,000 (NDOW, moderate); trend is cyclic and highly variable.

**DISTRIBUTION:** Migrant throughout NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Occurs in Nevada during migration on ponds, lakes, open marshes (AOU 1983), and sewage ponds, particularly saline and hypersaline lakes (e.g., Big Soda Lake, Walker Lake). There is a large migration staging population at Mono Lake, CA not far from NV.

Feeds on plankton, insects (larvae and adults), crustaceans, and mollusks. Feeds on water, often whirling around in circles (Terres 1980); also may pick food from emergent stones and vegetation. In fall migrations at Mono Lake, CA, they concentrate near shore and feed on brine flies (Jehl 1986).

### **CONSERVATION CHALLENGES:**

Vulnerable to loss or degradation of marshes, ponds, and lakes due to water diversions, declines in water quality, or development.

### **NEEDS:**

**Research Needs:** Improved global population estimate and improved Great Basin region migration estimate are needed.

**Monitoring and Existing Plans:** Monitored through the Nevada Aquatic Bird Count. Covered under the US Shorebird Conservation Plan, Intermountain West Shorebird Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain high quality migration staging sites through active wetland unit planning and management.

## Rufous Hummingbird

## *Selasphorus rufus*

WAP 2012 species due to rangewide population declines and climate change concerns over high-elevation riparian and alpine habitats.



Agency Status	
NV Natural Heritage	G5S3M
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** Status and trend in NV are unknown; continental decline reported by BBS.

**DISTRIBUTION:** Migrant throughout NV; breeding in highest elevations of the state possible but not yet documented.

### **GENERAL HABITAT AND LIFE HISTORY:**

In migration and winter, found in open situations where flowers are present (AOU 1998). During southward migration, will use mountain meadows, disturbed habitats, and hummingbird feeders.

Feeds on nectar, insects, and tree sap from sapsucker wells. Uses wide variety of flowers, including columbine, scarlet gilia, penstemons, paintbrushes, sage, lilies, larkspurs, heaths, currants, salmonberry, honeysuckles, fireweed, horsemint, toad-flax, snapdragon, and bee-flower (Calder 1993). Insect prey items include gnats, midges, whiteflies, and aphids which provide an important source of fat, protein, and salt.

Aggressive in defense of feeding and nesting territory both inter- and intraspecifically (Cody 1968; Baltosser 1989; Calder 1993). Will establish and defend territories around nectar sources on breeding sites, migration stopovers, and wintering sites. Stopover habitats critical to refueling for this hummingbird's metabolism.

### **CONSERVATION CHALLENGES:**

Possibly vulnerable to destruction or degradation of habitat that significantly reduces abundance of blooming plants during fall migration, including plant phenological changes affected by climate change.

### **NEEDS:**

***Research Needs:*** Investigate possibility of breeding in northeast Nevada and other high-elevation sites; pursue a fall migration monitoring effort that would allow determination of migrant population size, trends, and habitat use. Study the impacts of changes in fall flowering plant availability affected by climate change.

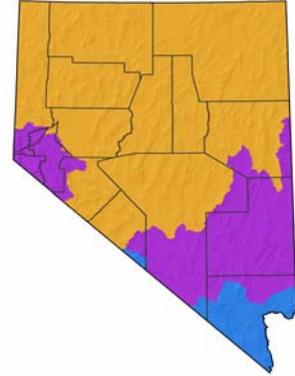
***Monitoring and Existing Plans:*** Rufous Hummingbirds in fall migration are poorly monitored by the breeding-season NBC program. Covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Manage primary habitats to encourage structural and floristic diversity that results in patches of high forb/flow density, particularly during spring and fall migration.

## Sage Sparrow

## *Amphispiza belli*

WAP 2012 species because it is moderately vulnerable to climate change and due to the possibility of large-scale sagebrush habitat conversion and loss.



Agency Status	
NV Natural Heritage	G5S4B,S4N
USFWS	No Status
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Moderately Vulnerable

**TREND:** The NV population estimate is 2.9 million (NBC, moderate); trend is stable in NV and range-wide.

**DISTRIBUTION:** Breeds throughout NV north of the Mojave Desert, winters in southern NV and extreme southwestern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Strongly associated with sagebrush for breeding. Also found in salt-bush brushland, shadscale, antelope brush, rabbitbrush, mesquite, and chaparral (AOU 1998; Green and Smith 1981; Martin and Carlson 1998; Paige and Ritter 1998; Reynolds 1981). Prefers semi-open habitats, shrubs 1-2 m tall (Martin and Carlson 1998). Nests on the ground or in a shrub, up to about 1 m above ground (Terres 1980). In the Great Basin, usually nests in living sagebrush where cover is sparse but shrubs are clumped (Petersen and Best 1985). Placement may be related to density of vegetative cover over the nest, as will nest higher in a taller shrub (Rich 1980). In migration and winter also in arid plains with sparse bushes, grasslands and open situations with scattered brush, mesquite, and riparian scrub; preferring to feed near woody cover (Martin and Carlson 1998; Meents et al. 1982; Repasky and Schluter 1994). Flocks in Mojave Desert appear to follow water courses (Eichinger and Moriarty 1985). Wintering birds in honey mesquite of lower Colorado River select areas of higher inkweed density (Meents et al. 1982).

Feeds on insects, spiders and seeds (especially in the winter). Runs along the ground stopping to pick up food.

The GBBO (2011) analysis of bird population responses to projected effects of climate change demonstrated a significant negative sensitivity to invasion of sagebrush habitat by pinyon-juniper. The analysis also indicates Sage Sparrow populations are projected to be most affected by reductions in mountain sagebrush/mid-closed and salt desert/mid-late covers, but are expected to see population gains in salt desert/shrub/annual covers, for a projected statewide population reduction of 20%.

### **CONSERVATION CHALLENGES:**

Sage Sparrows are negatively affected by factors that reduce the shrub component in their preferred habitats including fire, cheatgrass invasion, expansion of pinyon-juniper woodland into shrubland, heavy OHV use (GBBO 2010), and urban and suburban development.

### **NEEDS:**

**Research Needs:** Further research is needed on Sage Sparrow subspecies delineation throughout its range. Understanding of minimum patch sizes, fragmentation effects, spatial juxtaposition of habitat patches, and other aspects of landscape ecology are needed to accurately assess the effects of applied range restoration techniques in sagebrush (e.g. prescribed fire, mechanical and chemical brush control). Conduct additional research to ascertain responses and tolerance thresholds to pinyon-juniper encroachment into sagebrush habitats and responses and tolerance thresholds to habitat transitions to other uncharacteristic classes (e.g., annual grass and rabbitbrush).

**Monitoring and Existing Plans:** This species is captured by the NV All Bird Count and the BBS program. Species is covered in the Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Protect large expanses of high-quality sagebrush and mixed xeric shrub (saltbush, hopsage) from wildfire. Where pinyon-juniper encroachment is known to have recently occurred within high-quality sagebrush habitat, conduct pinyon-juniper removal projects. The species can likely persist with moderate grazing and other land management activities that maintain shrub cover.

## Sage Thrasher

## *Oreoscoptes montanus*

WAP 2012 species because it is moderately vulnerable to climate change and due to the possibility of large-scale sagebrush habitat conversion and loss.



Agency Status	
NV Natural Heritage	G555B
USFWS	No Status
BLM-NV	Sensitive
State Prot	Sensitive Birds NAC 503.050.3
PIF	Priority Bird Species
CCVI	Moderately Vulnerable

**TREND:** The NV population estimate is 1.5 million (NBC, moderate); trend may be stabilizing after a significant historical decline between 1966-99 (BBS 2011).

**DISTRIBUTION:** Primarily Great Basin region of Nevada, breeding range extends southward into the northern Mojave region in areas where sagebrush habitat is present.

### **GENERAL HABITAT AND LIFE HISTORY:**

In northern Great Basin, breeds and forages in tall sagebrush/bunchgrass, juniper/sagebrush/bunchgrass, mountain mahogany/shrub, and aspen/sagebrush/bunchgrass communities (Maser et al. 1984). Positively correlated with shrub cover, shrub height, bare ground, and horizontal heterogeneity (patchiness); negatively correlated with spiny hopsage, budsage, and grass cover (Rotenberry and Wiens 1980, Wiens and Rotenberry 1981). Usually nests within 1 meter of ground in fork of shrub (almost always sagebrush); sometimes nests on ground (Harrison 1978, Reynolds 1981, Rich 1980). In winter, uses arid and semi-arid scrub, brush and thickets.

Feeds on a wide variety of insects, including grasshoppers, beetles, weevils, ants, bees, etc. Also feeds on fruits and berries.

The GBBO (2011) analysis of bird population responses to projected effects of climate change demonstrated a decline in Sage Thrasher density in pinyon-juniper-encroached sagebrush habitats, although the response was not as severe as that of Sage Sparrow. Analysis also indicates that Sage Thrasher is expected to be most affected by projected losses in mountain sagebrush/mid-closed, big sagebrush/mid-open, and salt desert shrub/late covers, and is expected to gain some birds in salt desert shrub/annual, Wyoming big sagebrush/late, and greasewood/shrub/annual covers, for a total projected statewide population loss of 21%.

### **CONSERVATION CHALLENGES:**

Loss, degradation, or fragmentation of high-quality sagebrush shrubland due to fire, invasive plants, expansion of pinyon-juniper woodland into sagebrush, improper livestock grazing and excessive OHV use (GBBO 2010).

### **NEEDS:**

**Research Needs:** Study to determine Sage Thrasher's patch size requirements, and to better quantify its sensitivity to patch size in order to more accurately assess responses to applied range restoration techniques in sagebrush (e.g., prescribed fire, mechanical and chemical brush control). Further research is needed to determine responses and tolerance thresholds to pinyon-juniper encroachment into sagebrush habitats.

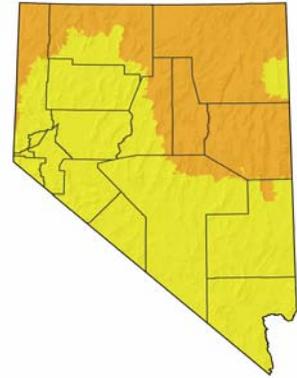
**Monitoring and Existing Plans:** Captured in the NBC program and covered in the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain large, continuous areas of high-quality sagebrush habitat. Develop sagebrush rangeland restoration techniques that allow for Sage Thrasher adjustment to treated areas at local and landscape scales [(e.g., applied brush control in mosaics on three-stage timetables that preserve old, tall big sage on the landscape until initial treatments have recovered to suitable Sage Thrasher habitat (20-30 years recovery time)] (Neel et al., unpub. 2007).

# Sandhill Crane

# *Grus canadensis*

WAP 2012 species due to concerns over riparian habitat stability.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S2B
<b>USFWS</b>	No Status
<b>PIF</b>	Priority Bird Species
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population estimate is 650-1,000 (NDOW, USFWS, moderate); trend is stable to increasing in Nevada, although low recruitment has occurred in some years and should be monitored (Drewien et al. 1995, Ivey and Herziger 2006).

**DISTRIBUTION:** Breeds in northeastern, east-central, and western Nevada. Also congregates in large numbers in migration in eastern Nevada.

**GENERAL HABITAT AND LIFE HISTORY:**

Open grasslands, marshes, marshy edges of lakes and ponds, river banks (Terres 1980). Nests on the ground or in shallow water on large mats of vegetation, bogs, fens, or wet forest meadows. Exhibits high fidelity to breeding territories (see Littlefield 1995). Roosts at night along river channels or natural basin wetlands. Often feeds and rests in fields and agricultural lands.

Feeds on roots, tubers, seeds, grain, berries, small vertebrates (mice, lemmings, birds, snakes, lizards, etc.), earthworms, and insects. Forages in marshes, meadows, pastures, and fields (Terres 1980). Most food items are obtained on the surface of the ground or among low vegetation; also may use bill to dig out roots, tubers, and frogs. Feeding in fields occurs primarily on excess grains in non-breeding areas. Young forage for invertebrates during first few weeks of life.

Gregarious in winter and in migration. Migratory populations begin moving north late February to mid-March. Nevada breeding cranes belong to the subspecies *G. c. tabida*, the Greater Sandhill Crane. Within this subspecies, there are two distinct populations, named for their wintering grounds, the Lower Colorado River Valley population (LCRVP) in northwestern and central Nevada, and the Central Valley population (CVP) in western Nevada.

**CONSERVATION CHALLENGES:**

Loss or degradation of wet meadow, marsh, and riparian habitat due to habitat conversion (agriculture, gravel operations, development, etc.), water diversions, possible impacts of groundwater pumping in occupied areas, heavy livestock grazing during nesting and fledging season, particularly in wet meadows, and invasive plants. Also, loss of traditional crop agriculture in migration stopover sites, and early haying may impact nests or young. Effects of predator populations have been noted, but predator control efforts do not always result in increased crane productivity (Laca et al. 2008).

**NEEDS:**

**Research Needs:** Responses and tolerance thresholds to exotic plant invasion into riparian meadows. Update subpopulation dynamics and degree of mixing on breeding grounds between several delineated subpopulations.

**Monitoring and Existing Plans:** NDOW conducts a tri-annual aerial survey for breeding pairs. Covered in the Intermountain West Waterbird Conservation Plan, Pacific Flyway Management Plan: Lower Colorado River Population of Greater Sandhill Cranes, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** The majority of Nevada's cranes depend significantly upon habitat on privately-owned lands; therefore, partnerships with agricultural landowners to manage and maintain nesting and staging areas, wet meadows and pastures, and to delay haying operations until post fledging are essential. Provide nesting/security cover in nesting areas. Facilitate the maintenance of open space through community planning and conservation easements where development threatens crane habitat. Some predator control may be necessary, especially where local coyote populations have demonstrated a focus on Sandhill Crane colts as a prey item.

## Scott's Oriole

## *Icterus parisorum*

WAP 2012 species due to declining population trends in Nevada and its preferred habitat is sensitive and vulnerable to degradation.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S4B
<b>USFWS</b>	No Status
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population estimate is 60,000 (PIF, moderate); trend in NV is inconclusive, but BBS data indicate a significant population decrease in California since 1966.

**DISTRIBUTION:** Breeds primarily in southern NV extending north and east with pinyon-juniper in low densities possibly as far as Ruby Valley.

### **GENERAL HABITAT AND LIFE HISTORY:**

Joshua tree (yucca), pinyon-juniper, arid oak scrub and palm oases (upper Tropical to lower Temperate zones) (AOU 1983). Foothills, desert slopes of mountains, and more elevated semi-arid plains (Bent 1958). Nests in trees or yuccas, 1-6 m above ground.

Feeds on insects (grasshoppers, beetles, caterpillars, etc.), fruit (cactus fruit and berries), and nectar. Forages in foliage for insects and berries.

The GBBO (2011) analysis of bird population responses to projected effects of climate change indicates Scott's Orioles are projected to decrease primarily in areas where blackbrush/early, washes, and blackbrush-mesic/late decline, and increase with increases in blackbrush/shrub/annual and blackbrush-thermic/late, with an overall projected reduction in the statewide population of 11%. The primary element influencing association with those habitats is assumed to be the presence of Joshua tree, not blackbrush itself.

### **CONSERVATION CHALLENGES:**

Vulnerable to habitat loss to development, wildfire, and loss of Joshua tree to pinyon-juniper canopy closure. North of the Mojave pinyon-juniper removal may be detrimental.

### **NEEDS:**

**Research Needs:** Develop a better understanding of species distribution in pinyon-juniper habitats not associated with Joshua tree.

**Monitoring and Existing Plans:** The NV All Bird Count program captures this species. Covered in the Partners in Flight North American Landbird Conservation Plan.

**Approach:** Develop fire management strategies that curtail the loss of Joshua tree habitat and Mojave range restoration techniques that can effectively restore Joshua tree to the landscape; develop open space strategies to mitigate impacts of urban/suburban development, and population maintenance strategies to mitigate impacts of pinyon-juniper control outside of the Mojave Desert.

## Short-eared Owl

*Asio flammeus*

WAP 20112 species due to significant declining U.S. population trends.



Agency Status	
NV Natural Heritage	G5S4
USFWS	No Status
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** The NV population estimate is 5,000 (BBS/PIF, moderate); trend in NV is inconclusive, BBS and CBC data indicate a significant decline (North America) since 1966.

**DISTRIBUTION:** Breeds in northeastern and east-central NV, winter resident throughout state.

### **GENERAL HABITAT AND LIFE HISTORY:**

Breeding habitat includes broad expanses of open land with low vegetation for nesting and foraging and high rodent densities. Habitat types frequently mentioned as suitable include fresh and saltwater marshes, grassy plains, old fields, river valleys, meadows, and open woodland (Dement'ev et al. 1951, Clark 1975, Mikkola 1983, Holt and Melvin 1986). Roosts by day on ground, on low open perch, under low shrub, or in conifer. Nests on ground, generally in slight depression (Terres 1980), often beside or beneath a bush or clump of grass. Many nests are near water but generally are on dry sites. Same nest site may be used in successive years.

Eats mainly rodents (commonly *Microtus*); also regularly other small mammals, small birds, and insects (Terres 1980, Holt 1993). Forages primarily by flying low, typically into wind, and dropping down onto prey, sometimes after brief hover. Sometimes caches food.

### **CONSERVATION CHALLENGES:**

Preferred habitats are vulnerable to a variety of land use demands including improper grazing of meadows and water withdrawals. Appear to be particularly sensitive to habitat fragmentation and vulnerable to mammalian predation. Prey abundance determines annual distribution and breeding success (Melvin et al. 1989).

### **NEEDS:**

**Research Needs:** Study breeding bird response to pro-active meadow management strategies, for example, deferred grazing to post-fledging; application of different grazing treatments during the post-fledging season; response to "refugia" (fenced portion of a larger meadow), including minimum effective acreage; responses to different rest-rotation strategies. Conduct additional research on the distributions and habitat requirements of wintering populations.

**Monitoring and Existing Plans:** Species monitored through the Nevada All Bird Count and covered under the Nevada Partners in Flight program, Partners in Flight North American Landbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Management for suitable habitat includes maintaining large tracts of open grassland, salt or freshwater marshes, or other appropriate habitat. Restoration or new establishment of grasslands may offer potential habitat. Manage livestock grazing of meadows to allow for suitable nesting sites, including full-rest pastures, deferred grazing until July 15, moveable fenced refugia, etc. Manage a portion of meadow habitat within a project for residual herbaceous vegetation build-up on an annual basis, rotating as appropriate. Retain cured emergent vegetation stands on dry wetland units to facilitate the build-up of rodent populations; burn or remove only when stand structure begins to disintegrate. In addition, care must be taken to allow for adequate build-up of the litter layer that provides habitat for microtine rodents. *Microtus* populations require adequate cover for several aspects of their ecology (Birney et al. 1976). Maintenance of an adequate prey base is essential since distribution and abundance seems to be tied to prey density (Adair 1892, Lockie 1955, Clark 1975, Melvin et al. 1989).

## Sierra Nevada Mountain Willow Flycatcher

## *Empidonax traillii brewsteri*

WAP 2012 species due to declining continental trends and concerns over montane riparian habitat vulnerability.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5T3T4S2B
<b>USFWS</b>	No Status
<b>PIF</b>	Priority Bird Species
<b>CCVI</b>	Presumed Stable

**TREND:** NV population size and trend are unknown.

**DISTRIBUTION:** Occurs in western Nevada, particularly the Sierra Nevadas.

### **GENERAL HABITAT AND LIFE HISTORY:**

Found in shrubby deciduous habitats, especially riparian areas and meadows with shrubby patches dominated by willows or alder. Minimum area requirements and patch dynamics are still largely unknown. Small openings in deciduous shrub habitats or adjacent stream edges increase habitat suitability, and large, contiguous willow patches apparently do not support willow flycatchers at the interior of the patch (USDA Forest Service 1994). In montane meadows in CA, the smallest documented nesting area is a 0.25 ha (0.6 acre) meadow in the Sierra Nevada, but other observers found most nesting territories in meadows >8.0 ha (2 acre) and none in meadows <0.4 ha (1 acre) (USDA Forest Service 1994). In the Sierra Nevada, needs riparian areas and wet meadows at least 0.25 ha (0.6 acre) in size with openings and large, dense patches of deciduous shrubs, and dense foliage at mid-heights (1-2 meters(3-6 ft)); habitat areas of at least 8 ha (19.75 acres) are optimal. Territories contained 5-80 % willow cover (average 44 %), 18-78 % (average 54 %) foliage density in the 0-1 m (0-3 ft) shrub layer, and 45-96 % (average 69 %) foliage density in the 1-2 m (3-6 ft) shrub layer (Sanders and Flett 1989).

### **CONSERVATION CHALLENGES:**

BBS data indicate significant population declines in parts of OR, WA, and CA. NV populations may extend from the Sierra Nevada into lowland riparian habitats along the Carson, Truckee, and Walker Rivers. Vulnerable to invasion of montane and lowland riparian habitats by exotic plants, channel entrenchment, and loss of willow to improper grazing practices.

### **NEEDS:**

**Research Needs:** So few pairs are thought to exist in the NV portion of the Sierras that focused area searches are likely needed. Genetic studies of willow flycatcher pairs on the Truckee, Carson, and Walker Rivers are needed to determine subspecies distribution. Annual population and productivity monitoring is needed as well as surveys to determine presence/absence, and habitat relationships. Information is needed on landscape relationships, minimum area requirements, and patch dynamics; also the effect of breeding habitat isolation and connectivity. Further study is needed of habitat preferences throughout the species range, particularly in relation to productivity, tolerance of non-native vegetation, relationship to land management activities, and response of flycatchers to habitat restoration. More information is needed on parasitism rates, productivity of parasitized nests, response to parasitism, and activities and habitat that promote the incidence of cowbirds. Effects of pesticides on the species are unknown.

**Monitoring and Existing Plans:** Monitored in the past by the Forest Service (see USDA Forest Service 2004), but no consistent monitoring effort is known in NV. Low population numbers will require focused area searches. Covered in the Nevada Comprehensive Bird Conservation Plan, Partners in Flight North American Landbird Conservation Plan, and the Humboldt-Toiyabe Forest Plan.

**Approach:** Riparian and meadow restoration is the primary conservation action. Where cowbirds are affecting population viability, measures to reduce cowbird presence during the breeding season will be needed. Forest Service standards and guidelines for management of montane meadows should be implemented.

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**WAP HABITAT LINKS:** Intermountain Riparian, Wet Meadows, Grasslands and Meadows.

# Sooty Grouse

# *Dendragapus fuliginosus*

WAP 2012 species due to declining continental and western U.S. trends.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5SNR
<b>USFWS</b>	No Status
<b>State Prot</b>	Game Birds NAC 503.045
<b>PIF</b>	Priority Bird Species
<b>Aud</b>	Red List
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population size and trend are unknown; however, estimated 50% declines in western U.S. since 1960s.

**DISTRIBUTION:** Occurs in the Carson Range of the Sierras, the Sweetwater Range, and the White Mtns.

**GENERAL HABITAT AND LIFE HISTORY:**

Primarily a solitary montane species. Coniferous forest, especially fir, mostly in open situations with a mixture of deciduous trees and shrubs (AOU 1983). Spends winter, usually at higher elevation than summer habitat, in conifer forest of various categories of age and tree density; roosts in large conifers with dense foliage. Nests in montane (mixed or deciduous) forest, also in shrubland in some areas. Nests on ground under cover of brush, branches or other vegetation.

In summer feeds on a variety of berries, insects, flowers, and leaves. In the winter feeds mainly on needles and buds of conifers (Douglas-fir often important).

Blue Grouse recently split into two species, Sooty Grouse and Dusky Grouse.

**CONSERVATION CHALLENGES:**

Vulnerable to loss of chaparral understory in coniferous forest habitats due to exotic plant invasion and indiscriminate fuels management practices.

**NEEDS:**

**Research Needs:** Conduct research to better the distribution of Sooty and Dusky Grouse in Nevada. Research the importance of old-growth conifer forests to this species as in California (Jim Bland); determine responses and tolerance thresholds to invasion of exotic plants into chaparral understories of Sierra Nevada coniferous forest habitats.

**Monitoring and Existing Plans:** Not currently monitored but as a game bird, NDOW has developed detailed conservation and management priorities for this species. In addition, NDOW does a wing collection effort each year; however, the sample size is small. Covered in the Partners in Flight Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain healthy, diverse coniferous forest habitats with a mosaic of densely stocked stands with closed canopies for roosting and wintering and open, thinly stocked stands with well-developed chaparral understories for nesting and brooding.

## Southwestern Willow Flycatcher

## *Empidonax traillii extimus*

WAP 2012 species due to its federally endangered status and because its preferred habitat is sensitive and vulnerable to degradation.



Agency Status	
NV Natural Heritage	G5T1T2S1B
USFWS	LE
BLM-NV	Sensitive
USFS-R4	Endangered
State Prot	Endangered Birds NAC 503.050.2
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 90 (NDOW, moderate); trend is assumed stable.

**DISTRIBUTION:** Restricted to willow or tamarisk habitats in saturated soils in southern Nevada along the Colorado River and its tributaries.

### **GENERAL HABITAT AND LIFE HISTORY:**

Restricted to riparian habitat in Mojave river systems and tributaries. Nests primarily in swampy thickets in willow or tamarisk 4-7 m or more in height. Habitat patches as small as 0.5 ha can support one or two nesting pairs (see USFWS 1995). Nests in fork or on horizontal limb of small tree, shrub, or vine, at height of 0.6-6.4 m (mean usually about 2-3 m) (Harris 1991), with dense vegetation above and around the nest.

Eats mainly insects caught in flight, sometimes gleans insects from foliage; occasionally eats berries. In breeding range, forages within and occasionally above dense riparian vegetation.

### **CONSERVATION CHALLENGES:**

All occurrences can be considered threatened as they are highly susceptible to predation and brood parasitism. Vulnerable to activities that result in floodplain desertification, habitat alteration due to fire, and Brown-headed Cowbird brood parasitism.

### **NEEDS:**

**Research Needs:** Continue current monitoring and research efforts. Responses and tolerance thresholds to exotic plant invasion and desertification of native floodplain habitats are needed.

**Monitoring and Existing Plans:** Considerable survey effort expended in recent years by USFWS, BLM, NPS, FS, NDOW, and other entities in connection with land management activities and endangered species conservation. Final Recovery Plan Southwestern Willow Flycatcher (Southwestern Willow Flycatcher Recovery Team Technical Subgroup 2002), Partners in Flight North American Landbird Conservation Plan, Clark County MSHCP Covered Species, Lower Colorado River MSCP Covered Species, Nevada Comprehensive Bird Conservation Plan.

**Approach:** Protect all known nesting habitat from disturbances, degradation, and conversion. Restore lost or degraded riparian habitat to a willow-dominated condition. Phase restoration projects to avoid removing large amounts of tamarisk before creating suitable replacement habitat (GBBO 2010). Continue intensive monitoring efforts to track population trends in NV.

## Tricolored Blackbird

## *Agelaius tricolor*

2012 WAP species because there is only one isolated breeding population in the state and there are concerns about federal listing within its core range.



Agency Status	
NV Natural Heritage	G2G3S1B
USFWS	No Status
PIF	Priority Bird Species
IUCN	Endangered
Aud	Red List
CCVI	Presumed Stable

**TREND:** The NV population estimate is 100 (PIF, moderate); trend assumed stable.

**DISTRIBUTION:** Limited to Carson Valley. This single reliable breeding colony is migratory, and is peripheral and disjunct from the main population (CA) of Tricolored Blackbirds, which it rejoins in the winter months. This colony usually breeds in a small privately-owned marsh in Douglas County, in close proximity to both Red-winged and Yellow-headed Blackbirds (Ammon and Woods, 2008).

### **GENERAL HABITAT AND LIFE HISTORY:**

Highly gregarious. Roosts and forages in flocks; range widely to > 15 km from nesting colony (Beedy and Hamilton 1999). Breeds in fresh-water marshes of cattails, tule, bulrushes and sedges (AOU 1983). Historically strongly tied to emergent marshes; in recent decades much nesting has shifted to non-native vegetation.

Insects (e.g., beetles, caterpillars) comprise a large portion of the diet. Feeds on seeds and grain in fall and winter.

### **CONSERVATION CHALLENGES:**

Considered vulnerable because of its highly localized distribution and small population occurring on private land that is not managed specifically for wildlife. Vulnerable to natural or anthropogenic disturbance.

### **NEEDS:**

**Research Needs:** Basic local comparative ecology should be completed relative to what is known about CA birds.

**Monitoring and Existing Plans:** A focused monitoring effort for Tri-colored Blackbirds began in 2005 ([www.tricoloredsurvey.com](http://www.tricoloredsurvey.com)). Covered in the Partners in Flight North American Landbird Conservation Plan and Nevada Comprehensive Bird Conservation Plan.

**Approach:** Attempt to secure some form of protection for the known and possible breeding marshes, through the IBA program or other mechanisms. Encourage landowners at and around the known persistent colony to continue their stewardship. Develop private lands conservation program for Carson Valley in cooperation with local conservation district, including wetlands management funding support through government assistance programs. Develop and maintain alternative suitable habitat on managed properties (e.g., The Nature Conservancy's River Fork Ranch).

WAP 2012 species due to slight declining trends rangewide and concerns over riparian habitat stability, particularly in the context of climate change.

<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5S4B
<b>USFWS</b>	No Status
<b>PIF</b>	Priority Bird Species
<b>Aud</b>	Yellow List
<b>CCVI</b>	Presumed Stable

**TREND:** The NV population estimate is 8,200 (NBC, moderate); trend in NV unknown, apparently stable range-wide.

**DISTRIBUTION:** Breeding range scattered throughout NV, excluding northwest roughly south of Interstate 80 from Reno to Battle Mountain, then extends north to Idaho state line across to Utah state line.

**GENERAL HABITAT AND LIFE HISTORY:**

Breeds in arid montane woodlands, oak thickets, pinyon-juniper, coniferous scrub, chaparral (AOU 1998). Brushy steep mountain slopes within or near dry coniferous woodlands (Dunn and Garrett 1997). Will inhabit ravines or rocky slopes with dense scrub oaks or mountain mahogany. Also found along mountain streams in cottonwood and willow habitat at 1,800-2,800 m (5,900 to 9,186 ft), usually associated with pinyon-juniper or mountain mahogany uplands. Nests on ground among dead leaves, or in small depression under cover of brush, tufts of grass, or similar cover. Well-concealed by vegetation, bark, grasses, roots, mosses, and lichens; rim of nest may be level with surface (Bent 1953; Griscom and Sprunt 1957). In very dry years, may select wetter sites in drainage bottoms, but may also be more vulnerable to higher nest predation rates (Martin and Olson 1999).

Insectivorous. Forages on ground in thick brush and flies into air to catch insects; both parents seen carrying caterpillars to young (Terres 1980). Will probe, glean, hover, and hang upside down to catch insects (Martin and Olson, in press).

Migrates later than other warblers, arriving in NV in late April/May. Possibly disperse to lower elevations after breeding and before migration. Fall migration from mid-August, occur in mixed species flocks after breeding season (Fischer 1978, cited in Martin and Olsen 1999). Virginia Warbler is projected to decrease by 9% over the next 50 years based on the climate change model (TNC 2011). Estimated densities are relatively low for this species in all habitat types it is known to use during nesting, and the main losses projected under the climate model occur in aspen mixed-conifer/late and blackbrush-mesic/late, while birds are expected to be gained in aspen mixed-conifer (GBBO 2011).

**CONSERVATION CHALLENGES:**

Listed on the Partners in Flight WatchList as a species of moderate conservation priority chiefly due to limited knowledge of the species biology (Muehter 1998). May be vulnerable due to its narrow geographic distribution on breeding and wintering ranges and lack of large populations in breeding range (Reed 1992). Habitat threats may include unsustainable grazing by livestock or wild horses and burros, fire, exotic plant invasion and desertification of montane riparian habitats, and residential development, especially in southern Nevada.

**NEEDS:**

**Research Needs:** Improved population estimate and distribution in NV is needed. Little is known about natural history and ecology. Need quantified information on habitat, microhabitat, and landscape relationships, including possible importance of mountain mahogany and proximity to water, and the possible use of aspen habitat in southern Nevada.

**Monitoring and Existing Plans:** NV All Bird Count program. Partners in Flight North American Landbird Conservation Plan and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Patchy distribution, uncertainty about population trends, and the likelihood that specific habitat requirements exist that are not yet quantified, form the basis for conservation concern for this species (GBBO 2010). Address research needs listed above. Restore and maintain riparian habitats in healthy, multi-storied condition. Develop conservation strategy for mountain-mahogany and other montane brush types.

## Western Burrowing Owl

## *Athene cunicularia hypugaea*

WAP 2012 species due to (non-significant) declining population trends in the west and localized urban development (i.e., Clark Co.).



Agency Status	
NV Natural Heritage	G4T4S3B
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 3,000 (NBC, moderate); trend is inconclusive.

**DISTRIBUTION:** Found statewide.

### **GENERAL HABITAT AND LIFE HISTORY:**

Optimum habitat typified by short vegetation and presence of fresh small mammal burrows (Zarn 1974). Found in open grasslands, sagebrush, and sagebrush-steppe, sometimes in open areas such as vacant lots near human habitation (e.g., campuses, airports, golf courses, perimeter of agricultural fields, banks of irrigation canals). Spends much time on the ground or on low perches such as fence posts or dirt mounds. Nests and roosts in abandoned burrow dug by mammal (especially ground squirrel in NV (*Citellus* spp.), badger (*Taxidea taxus*), fox, tortoise. Rarely excavates own burrow, preferring to enlarge or modify existing burrow. Uses satellite burrows around nest burrows, moving chicks at 10-14 days presumably to reduce risk of predation. Pattern of burrow use influenced by availability, soil, dynamics of [small mammal] population, and other owls (Desmond and Savidge 1998).

Feeds primarily on large insects (especially in warmer months) and rodents; sometimes eats birds and amphibians. Catches prey in flight or drops to ground.

In Nevada, Burrowing Owls occur sporadically in valley bottoms, sometimes in loose colonies (Hall et al. 2003, Paige and Ritter 1999).

### **CONSERVATION CHALLENGES:**

In NV, vulnerable to habitat loss and fragmentation primarily due to urban land conversion and habitat degradation from control and extermination of colonial burrowing mammals (Dundas and Jensen 1995, Haug et al. 1993, Rodriguez Estrella et al. 1998). Also vulnerable to vehicle collisions, predators, persecution, harassment by dogs, collapse of burrows, and food availability (Erickson 1987, Haug and Didiuk 1991, James and Espie 1997, see also Wedgwood 1979, Wellicome and Haug 1995).

### **NEEDS:**

**Research Needs:** A standardized survey effort specific to burrowing owls is recommended to determine population status and trend. Further investigations are also needed regarding use of habitat enhancements (e.g., artificial burrows and perches); responses to relocation and reintroduction; and impact of predators on nest success (Millsap et al. 1997).

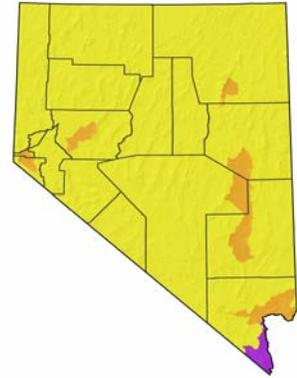
**Monitoring and Existing Plans:** Some recorded monitoring completed during BBS and NBC efforts, but frequency of sampling is too low to provide adequate data on a NV-wide scale. Covered in the Clark County MSHCP (Evaluation Species), and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Establish and implement effective monitoring programs and determine population status and trend in Nevada. Manage known colony locations to maintain short vegetation, healthy populations of burrowing animals, and healthy owl prey populations. Limit disturbance around active nest burrows and use artificial burrows as mitigation for habitat loss to urban development (GBBO 2010).

## Western Least Bittern

## *Ixobrychus exilis hesperis*

WAP 2012 species because it occurs in low densities in restricted habitats and its population status is unknown.



<b>Agency Status</b>	
<b>NV Natural Heritage</b>	G5T3T4S2B
<b>USFWS</b>	No Status
<b>CCVI</b>	Presumed Stable

**TREND:** Population size and trend in NV are unknown.

**DISTRIBUTION:** Small, widespread populations throughout NV. Historic evidence of breeding at Carson Lake; probably breeds in southern NV as well.

### **GENERAL HABITAT AND LIFE HISTORY:**

Habitat consists of tall emergent vegetation in marshes, primarily freshwater. Prefers marshes with scattered bushes or other woody growth. Forages in shallow water or along banks. Heavy growths of cattail, bulrush, wild rice, burreed, water smartweed, and reeds are favored feeding sites (Brewer et al. 1991).

Eats small fishes, amphibians, leeches, slugs, snails, crustaceans, insects, and occasionally small mammals (Palmer 1962); possibly the eggs and young of marsh-nesting blackbirds.

Usually solitary, extremely secretive and difficult to survey.

### **CONSERVATION CHALLENGES:**

Appears to be exceedingly rare in NV, but this could be an artifact of lack of survey efforts for this species. Vulnerable to loss or degradation of marshes due to water diversions, declines in water quality, or development.

### **NEEDS:**

**Research Needs:** Improve population status and trend; conduct studies to better determine specific preferred habitat parameters.

**Monitoring and Existing Plans:** Secretive marsh bird protocols are being incorporated into NV waterbird surveys. Covered in the Intermountain West Waterbird Conservation Plan, Clark County MSHCP Watch List Species, Lower Colorado River MSCP Covered Species, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Implement statewide surveys based on secretive marsh bird protocols (Conway 2004). Maintain vigorous emergent marsh habitats in fresh water with diverse macroinvertebrate and small fish populations.

## Western Sandpiper

## *Calidris mauri*

WAP 2012 species due to Nevada's stewardship responsibility for this species during migration.



Agency Status	
NV Natural Heritage	G5S5M
USFWS	No Status
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** The NV migration population estimate is 12,000 with peaks up to 50,000; trend is cyclic but appears to be declining across their range.

**DISTRIBUTION:** Migratory across Nevada.

### **GENERAL HABITAT AND LIFE HISTORY:**

Nonbreeding habitat includes mudflats, beaches, shores of lakes and ponds, shallow lagoons, artificial salt ponds, and flooded fields; various coastal habitats with flat or gently sloping muddy, sandy, or gravelly shores; less often inland at pond edges, rain pools, wet fields (Stiles and Skutch 1989).

Feeds primarily on aquatic insects; also eats mollusks, worms, and crustaceans. Runs along edge of water snatching up prey from wet mud.

### **CONSERVATION CHALLENGES:**

Loss or degradation of flat, muddy open water shorelines due to water diversions, declines in water quality, or development (GBBO 2010).

### **NEEDS:**

***Research Needs:*** Improved global population estimate and trend; determine relative importance of ephemeral wetlands and playas as migration habitat (GBBO 2010).

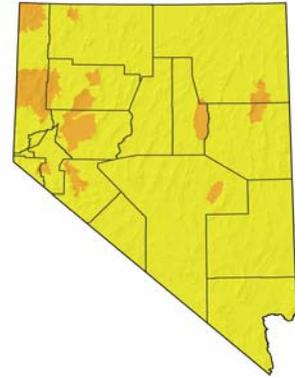
***Monitoring and Existing Plans:*** Monitored through NDOW shorebird surveys, NWR and WMA counts, and Aquatic Bird Count. Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Maintain flooded conditions at very shallow water depths with attendant wet mud flats in important habitat during migration periods, prevent mid-summer dewatering and encourage seasonal runoff into ephemeral wetlands and playas (GBBO 2010).

## Western Snowy Plover

## *Charadrius nivosus nivosus*

WAP 2012 species because it is moderately vulnerable to climate change and federally listed as threatened.



Agency Status	
NV Natural Heritage	G3T3S3B
USFWS	No Status
BLM-NV	Sensitive
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Moderately Vulnerable

**TREND:** The NV population estimate is 350-1,000 (PIF, moderate). Trend cyclic, apparently declining.

**DISTRIBUTION:** In NV, breeds in Churchill, Clark, Elko, Eureka, Humboldt, Lyon, Mineral, Nye, Pershing, Washoe, and White Pine counties. Migrant throughout the state. Distribution is based upon water availability on alkali playas throughout the state.

### **GENERAL HABITAT AND LIFE HISTORY:**

Often seen on alkali playas near standing pools of shallow water. During times of drought they rely heavily on artesian wells and springs that spill water onto the dry playas. Nests generally on recently exposed alkaline flats (Paton and Edwards 1992).

Eats insects, small crustaceans, and other minute invertebrates (Terres 1980). Picks food items from substrate, probes in sand or mud in or near shallow water, sometimes uses foot to stir up prey in shallow water.

Predation by gulls, common raven, red fox, skunk, raccoon, and/or coyote may result in a high rate of clutch loss in some areas (Page et al. 1985; Paton and Edwards 1991, 1992). Usually solitary or in twos during non-breeding, though may form pre-migratory flocks of hundreds in some areas.

### **CONSERVATION CHALLENGES:**

Vulnerable to habitat loss from development and as a result of dewatering of playas or springs during the breeding season due to water diversions, drought, or climate change.

### **NEEDS:**

**Research Needs:** Continue periodic species-specific (or playa-centric) inventory efforts to clarify long-term population trends. Investigate the extent to which climate change will impact runoff events to playas and model impacts to availability of nesting habitat.

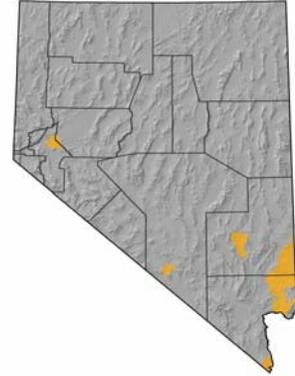
**Monitoring and Existing Plans:** The Nevada Aquatic Bird Count should capture this species. Covered in the U.S. Shorebird Conservation Plan, Intermountain West Regional Shorebird Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** 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 (GBBO 2010).

## Western Yellow-billed Cuckoo

## *Coccyzus americanus occidentalis*

WAP 2012 species because it is moderately vulnerable to climate change, it is highly linked to specific characteristics of riparian habitat, a sensitive habitat type, and it is a federal candidate for listing.



Agency Status	
NV Natural Heritage	G5T3QS1B
USFWS	C
BLM-NV	Sensitive
State Prot	Sensitive Birds NAC 503.050.3
PIF	Priority Bird Species
CCVI	Moderately Vulnerable

**TREND:** The NV population estimate is 10-20 (NDOW, moderate); trend is unknown and occurrences are highly variable between years.

**DISTRIBUTION:** Currently known from only a few localities in southern NV, but historically, occurred statewide, in large, contiguous riparian corridors; last detected on the Carson River above the Lahontan Reservoir in 1996.

### **GENERAL HABITAT AND LIFE HISTORY:**

Riparian obligate species which requires dense cottonwood-willow forested tracts. In some areas, birds required 17+ ha (42 acres), including a minimum of 3+ ha (7.5) of closed-canopy, broad-leaved forest. Nests are placed in willows, but cottonwoods are used extensively for foraging.

Primarily eats large insects. Consumes many smooth, hairy, or spiny caterpillars, especially tent caterpillars which are available in abundance when present. Eats a variety of moths and crickets, and occasionally beetles, flies, spiders, frogs, and small lizards. Most frequently forages by gleaning insects from leaves and stems, usually while perched, but occasionally while hovering.

Territorial status unclear; needs more study. May establish breeding territory that covers many acres in some areas. However, in other areas no evidence of breeding or foraging territories found. Solitary during breeding season; observed alone or in breeding pairs. Associates in larger numbers during migration. Major predators include falcons (adults), jays, grackles, snakes, and some small mammals (eggs and nestlings).

### **CONSERVATION CHALLENGES:**

Deciduous riparian forests have declined throughout the west as a result of water diversions, dams and river flow management, stream channelization and stabilization, unsustainable livestock grazing, groundwater pumping, woodcutting, and invasion of non-native vegetation such as tamarisk (USFWS 2003, Hunter et al. 1988, Ehrlich et al. 1992). Remaining riparian habitat is largely in a degraded condition (Katibah 1984). Also considered very vulnerable to deforestation on its wintering grounds (Morton 1992). Very sensitive to habitat fragmentation; may require intact woodlands of at least 40 ha to breed in CA, and prefers woodlands greater than 80 ha (Laymon and Halterman 1989).

### **NEEDS:**

**Research Needs:** Continue intensive single-species monitoring, including nesting documentation; habitat use and preferences still mostly unknown specific to Nevada..

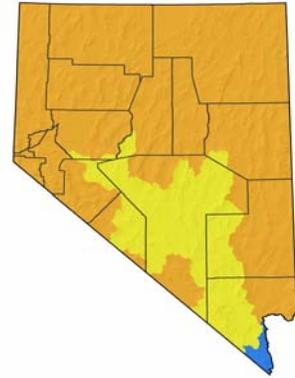
**Monitoring and Existing Plans:** Species is intensively monitored in southern NV by BOR, NDOW, USFWS. Covered Species in the Clark County MSHCP, Lower Colorado River MSCP Covered Species, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Restore and enhance complex riparian habitats with mature cottonwood overstory and woody willow mid-story. Design and implement a coordinated fire management strategy that protects occupied remnants of cuckoo habitat.

## White-faced Ibis

## *Plegadis chihi*

WAP 2012 species due to breeding stewardship responsibility and wetland habitat concerns, particularly in the context of climate change.



Agency Status	
NV Natural Heritage	G5S3B
USFWS	No Status
PIF	Priority Bird Species
CCVI	Presumed Stable

**TREND:** The NV population estimate is 5,000-6,000 with high annual variability (USFWS/expert, moderate); trend is currently declining from peaks in 1990s.

**DISTRIBUTION:** Breeds in western and northeastern NV, migrant throughout the state.

### **GENERAL HABITAT AND LIFE HISTORY:**

Primary habitat is marshes, swamps, ponds and rivers, mostly in freshwater habitats (AOU 1983). Nests in marshes; in low trees, on the ground in bulrushes or reeds, or on a floating mat.

Typically feeds on crayfish, frogs, fishes, insects, newts, earthworms, crustaceans, etc. (Terres 1980). In Nevada forages predominantly in flooded agricultural fields for earthworms.

### **CONSERVATION CHALLENGES:**

Vulnerable to habitat alteration, dewatering of nest colonies during nesting, and pesticide contamination. Breeders in NV were still being contaminated with DDE-DDT in Mexican wintering areas as late as the 1990s (Henny and Herron 1989).

### **NEEDS:**

***Research Needs:*** Improved Great Basin subpopulation estimate and trend; connectivity of major Great Basin breeding locations (Lahontan Valley, NV; Great Salt Lake, UT; Malheur NWR, OR; Klamath NWR, CA) .

***Monitoring and Existing Plans:*** Monitored through the NV Aquatic Bird Count and NDOW aerial colonial waterbird surveys. Covered in the Intermountain West Waterbird Conservation Plan, White-faced Ibis Status and Management Guidelines: Great Basin Population, and the Nevada Comprehensive Bird Conservation Plan. Watch List Species in the Clark County MSHCP.

***Approach:*** Continue monitoring program as a means of better documenting breeding distribution, numbers and trends in NV. Provide consistently flooded nesting habitat through the breeding season to ensure chick fledging.

## White-headed Woodpecker

## *Picoides albolarvatus*

WAP 2012 species due its restricted range in Nevada, specific habitat preferences, and climate change vulnerability of Jeffrey Pine habitat.



Agency Status	
NV Natural Heritage	G4S2
USFWS	No Status
USFS-R4	Sensitive
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** The NV population size estimate is 840 (NBC, moderate); trend in NV is unknown. Region-wide BBS trend data indicate stable to increasing.

**DISTRIBUTION:** Restricted to the Carson Range of far western Nevada.

### **GENERAL HABITAT AND LIFE HISTORY:**

Montane coniferous forest, primarily pine and fir (AOU 1983). Important habitat components are an abundance of mature pines of species that produce large cones and abundant large seeds, relatively open canopy of 50-70 % closure, and numerous snags and stumps for nest cavities (Garrett et al. 1996). In the Sierra Nevada, CA, inhabits mixed conifer forests of ponderosa pine and sugar pine, white fir, red fir, Douglas-fir, and black oak. Also occurs locally on dry east-slope Jeffrey pine forests and high-elevation lodgepole pine and western white pine forests; prefers mature and older stands with open canopies, less than 69 % canopy cover (Milne and Hejl 1989, Garrett et al. 1996). In some areas, may descend to lower elevations for winter. May wander within suitable coniferous forest habitat during non-breeding season (Garrett et al. 1996).

Pine seeds are a major part of the species diet, especially in fall and winter. Birds cling to sides and bottoms of cones as they chip cones open to obtain seeds (Ligon 1973). Also probe, glean, and pry off loose bark for spiders, beetles, ants, fly larvae, and other insects (Ligon, 1973, Terres 1980, Spahr et al. 1991). May also catch some flying insects.

Excavates a nest cavity usually in a dead tree trunk or stump, 1-8 m (3-26 ft) above ground. Nests excavated in larger snags, usually more than 58 cm (1.9 ft) dbh. In central and southern Sierra Nevada, most nests are in dead pine or fir, usually broken-topped snags, nest cavities average of 3 m (10 ft) above ground (Milne and Hejl 1989). The GBBO (2011) analysis of bird population responses to projected effects of climate change suggested losses of White-headed Woodpecker pairs at lower elevations if Jeffrey pine habitat converted to chaparral or pinyon-juniper. Net loss was not quantified.

### **CONSERVATION CHALLENGES:**

Vulnerable to habitat degradation. The preferred large-diameter trees are also prized for their commercial value. Logging practices (in NV, snag removal and salvage logging) and forest fragmentation have contributed to local declines (Garrett et al. 1996). Fire suppression over the past 50 years has altered fire regimes so that ponderosa pine forests are no longer maintained by frequent natural fire, but are being replaced by Douglas-fir and true fir developing in the understory, now susceptible to stand-replacing fires.

### **NEEDS:**

**Research Needs:** Further research is needed regarding habitat relationships throughout the range such as area sensitivity, effects of fragmentation and landscape composition. An inventory of suitable habitat is needed, as is an assessment of approaches and feasibility of restoring late-seral forest characteristics. Much of its biology and ecology remains unstudied.

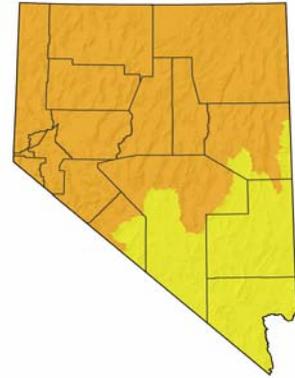
**Monitoring and Existing Plans:** Captured by the NV All Bird Count. Covered under the Humboldt-Toiyabe Forest Plan, LTBMU Forest Plan, Partners in Flight North American Landbird Conservation Plan, and the Nevada Comprehensive Bird Conservation Plan.

**Approach:** Maintain stands of mature and old-growth coniferous forest of appropriate tree species composition with large-diameter snags. Implement active management to restore appropriate fire regimes, restore late-seral stands over time, maintain continuous blocks of habitat, and protect snags from cutting (especially fire-wood cutting). Maintain large-diameter snags for nesting and roosting and live trees for snag recruitment and foraging and nesting habitat. Small diameter (<30 cm dbh) incense cedar should also be retained as an important foraging tree, especially for winter use (Morrison et al. 1985, Morrison and With 1987).

## Wilson's Phalarope

## *Phalaropus tricolor*

WAP 2012 species because it is moderately vulnerable to climate change, its preferred breeding habitat is sensitive and vulnerable to degradation, and Nevada also has migration stewardship responsibility.



Agency Status	
NV Natural Heritage	G5S2S3B,S4M
USFWS	No Status
PIF	Priority Bird Species
CCVI	Moderately Vulnerable

**TREND:** The NV population size estimate is 3,000 during breeding and 12,000 during staging and migration with wide annual migratory population fluctuations (NDOW/expert, moderate). Trend is unknown but probably declining.

**DISTRIBUTION:** Breed fairly widely across northern Nevada; migrate statewide.

### **GENERAL HABITAT AND LIFE HISTORY:**

Found in shallow freshwater and saline ponds, marshes and wet meadows (AOU 1998). Nests on the ground in wet meadows, grassy marshes, and along edges of shallow inland waters. The nest is a well-concealed scrape, lined with grass. Uses both fresh and alkali wetlands with three characteristics: open water, emergent vegetation, and open shoreline (Saunders 1914, Hohn 1967, Stewart 1975, Prescott et al. 1995, Naugle 1997). Non-breeding season found on lake shores, mudflats, salt marshes, freshwater marshes, alkaline ponds; rarely along seacoasts; stages on salt lakes (Colwell and Jehl 1994, AOU 1998). Also at sewage ponds.

Eats insects (larvae and adults), especially mosquitoes and crane flies. On salt flats may feed on alkali flies, brine shrimps, seeds of aquatic plants. Feeds as it walks along muddy shores, wades in shallow water, or swims and whirls.

### **CONSERVATION CHALLENGES:**

Vulnerable to loss or degradation of marshes, ponds, and lakes due to water diversions, declines in water quality, development, or climate change (GBBO 2010).

### **NEEDS:**

***Research Needs:*** Improved breeding population estimate; research conservation needs of breeding birds and the relative importance of ephemeral wetlands such as flooded playas during spring migration; response and tolerance thresholds to exotic plant invasion of suitable nesting habitat (riparian meadows).

***Monitoring and Existing Plans:*** Monitored through NDOW shorebird counts, WMA and NWR counts and the Aquatic Bird Count. Covered in the Nevada Comprehensive Bird Conservation Plan.

***Approach:*** Maintain critical wetland areas across Nevada that are important for staging Wilson's phalaropes; maintain native haymeadow in unmowed (ungrazed) condition through breeding season (approx. July 1).

# Yuma Clapper Rail

# *Rallus longirostris yumanensis*

WAP 2012 species due to its federal listing status as endangered.



Agency Status	
NV Natural Heritage	G5T3S1
USFWS	LE
BLM-NV	Sensitive
State Prot	Endangered Birds NAC 503.050.2
PIF	Priority Bird Species
Aud	Yellow List
CCVI	Presumed Stable

**TREND:** The NV population estimate is 20-40 (expert, high); trend is unknown.

**DISTRIBUTION:** Resident along the Colorado River and its tributaries, southern NV.

### **GENERAL HABITAT AND LIFE HISTORY:**

Generally in freshwater and alkali marshes dominated by stands of emergent vegetation interspersed with areas of open water and drier, upland benches (Biosystems Analysis 1989). Nests probably on dry hummocks or in small shrubs among dense cattails or bulrushes along the water edges with stable water levels (Ehrlich et al. 1992).

Eats crayfish, small fishes, clams, isopods, and various insects. Probably probes in mud or sand in or near shallow water or picks items off substrate (Ehrlich et al. 1992).

### **CONSERVATION CHALLENGES:**

Loss or degradation of marshes due to water diversions, decline in water quality, and development are the main threats to the species.

### **NEEDS:**

**Research Needs:** Implement secretive marshbird survey protocols in potential habitat and conduct studies to determine whether seasonal movements occur.

**Monitoring and Existing Plans:** Focused surveys have been conducted in southern NV under contract by the Southern NV Water Authority, and by Bureau of Reclamation biologists. Secretive marsh bird surveys within the Nevada Aquatic Bird Count. Covered in the Yuma Clapper Rail Recovery Plan, Lower Colorado River MSCP, and the Nevada Comprehensive Bird Conservation Plan. Watch List Species in the Clark County MSHCP.

**Approach:** Implement conservation strategies outlined in the Yuma Clapper Rail Recovery Plan.