

Great Basin Lowland Riparian



Lowland riparian corridor along the Lower Truckee River, Washoe County. Photo by Stewart Rood.

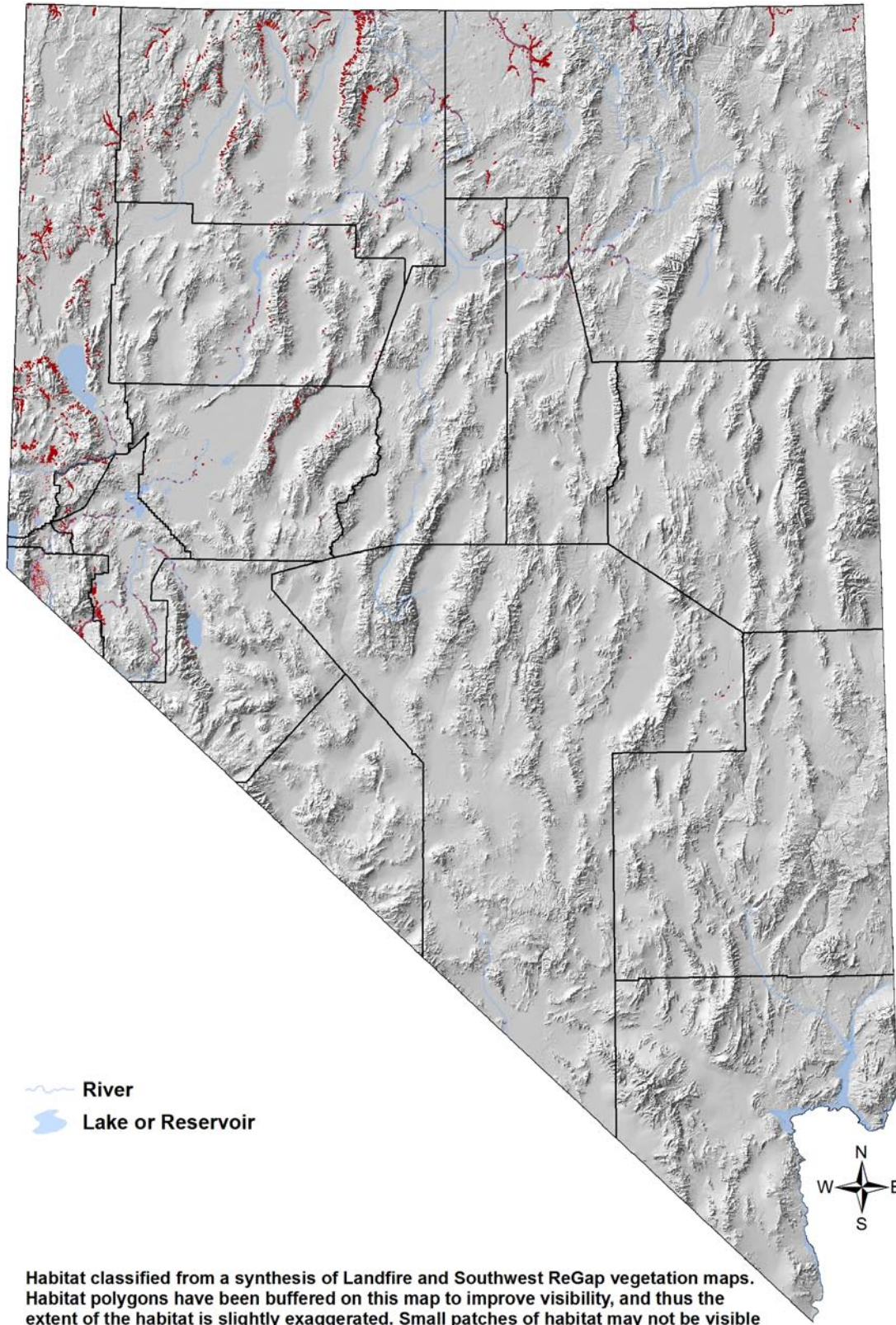
Key Bird-Habitat Attributes

Stand Structure	Multi-aged tree stands with riparian shrub understory, interspersed with groves of dense riparian shrubs (willows and others) and floodplain wetlands
Ideal Scale for Conservation Action	50 ha [125 ac] or more
Plant Species Composition	Mixed stands of cottonwood and tree willow with multiple species of shrubs as understory; tree willows especially productive for birds
Plant Condition	Connection to groundwater critical for riparian woodlands; dying off of shrubs or young trees often first sign that connection to water is being lost
Mosaic	Patches with saturated soils and presence of river-associated wetlands are highly beneficial
Connectivity with Uplands	A buffer of 500 m [1,600 ft] or more is desirable around riparian corridors to accommodate transitional habitats (e.g. buffaloberry) and access by upland bird species
Presence of Cliffs > 30 m [100 ft] Tall	Presence of tall cliffs increases value to birds

Conservation Profile

Estimated Cover in Nevada	15,500 ha [38,300 ac] 0.05% of state
Landownership Breakdown	Private = 77% BLM = 12% Tribal = 3% Other = 8%
Priority Bird Species	Snowy Egret Bald Eagle Swainson's Hawk Sandhill Crane Yellow-billed Cuckoo White-throated Swift Rufous Hummingbird Willow Flycatcher (Cinnamon Teal) (Northern Pintail) (Greater Sage-Grouse) (American White Pelican) (Willet) (Short-eared Owl)
Indicator Species	Yellow Warbler (breeding) Wilson's Warbler (migration)
Most Important Conservation Concerns	Surface water diversions, impoundments Flood control Livestock, wild horse and burro grazing Invasive weeds Urban, suburban, and industrial development Biocontrol activities Climate change (change in precipitation and temperature) Groundwater pumping
Habitat Recovery Time	25 years
Regions of Greatest Conservation Interest	Truckee, Carson, Walker, and Humboldt rivers, and multiple smaller streams and rivers, such as Mary's, Reese, Little Humboldt, Quinn and King's rivers
Important Bird Areas	Boyd Humboldt Valley Wetlands Carson River Delta Carson Valley Lahontan Valley Wetlands Mary's River Monitor Valley North Ruby Valley Washoe Valley

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Habitat classified from a synthesis of Landfire and Southwest ReGap vegetation maps. Habitat polygons have been buffered on this map to improve visibility, and thus the extent of the habitat is slightly exaggerated. Small patches of habitat may not be visible on this map, and some areas may be misclassified.

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Overview

Although they only cover about one-half percent of the Nevada landscape, lowland riparian woodlands in the Great Basin have historically supported a large proportion of its bird species. Riparian-obligate breeding birds are most often thought of in this context, but it should also be noted that riparian woodlands are perhaps the most important migration stop-over habitat for many other landbird species that pass through the Great Basin. Riparian habitat, in addition, provides benefits to some upland birds, such as Greater Sage-Grouse, Rufous Hummingbird, and Brewer's Sparrow, in the form of sheltering and foraging opportunities. Additionally, upland vegetation located adjacent to riparian zones may be more "lush" than normal because it can access groundwater, and may therefore be especially suitable for some upland birds. Finally, the rivers that support significant fish populations are important for birds such as American White Pelican, Snowy Egret, and Bald Eagle, that wander throughout the Great Basin during the post-breeding, migration, or winter seasons in search of productive fishing areas.

Great Basin Lowland Riparian habitat is distinct in several ways from Mojave Lowland Riparian habitat, which is treated separately (p. Hab-11-1). Dominant tree species in Great Basin systems include Fremont cottonwood (*Populus fremontii*), narrowleaf cottonwood (*P. angustifolia*), and various willows (*Salix* spp.). Other riparian shrubs, trees and a large variety of sedges, rushes, grasses and forbs are also found in intact systems, and a diverse plant species composition is likely important for maintaining the richest possible bird community. Recent reviews of the historic changes in the bird communities of the lower Truckee and Carson Rivers (Ammon 2002, Ketner and Ketner 2002) indicate that the widespread loss of riparian woodland that occurred over the last century severely impacted riparian birds. These reviews, along with recent data from the Walker River (GBBO unpublished data), also indicate that the loss of riparian-associated wetlands, such as oxbows, backwaters, and sloughs, is a major cause of reduced bird species richness. Therefore, the restoration of riparian shrub thickets, gallery forests, and floodplain wetlands are all critical for optimizing habitat for Nevada's riparian birds.

The key feature of intact, healthy lowland riparian habitats is a high diversity of microhabitats, including old-tree groves, shrub thickets, shrub willow, early-successional woodlands, sedge and forb meadows, oxbows and backwaters, and transitional mesic shrubs along the periphery of the riparian corridor. In combination, these elements support birds with a diverse array of habitat needs and food requirements (Figure Hab-8-1). Fortunately, if a river system has a natural or semi-natural hydrological regime, sufficient water flows, and is not channelized, it can usually generate and maintain a desirable microhabitat mosaic as a result of natural dynamic processes. Achieving these prerequisites, however, is challenging in many settings.

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Main Concerns and Challenges

The following top nine conservation concerns were identified in our planning sessions for Great Basin lowland riparian habitats in Nevada:

- Surface water diversions, impoundments
- Flood control
- Overgrazing by livestock, wild horses and burros
- Invasive weeds
- Urban, suburban, and industrial development
- Biocontrol activities
- Change in precipitation and snowmelt related to climate change
- Change in temperature related to climate change
- Groundwater pumping

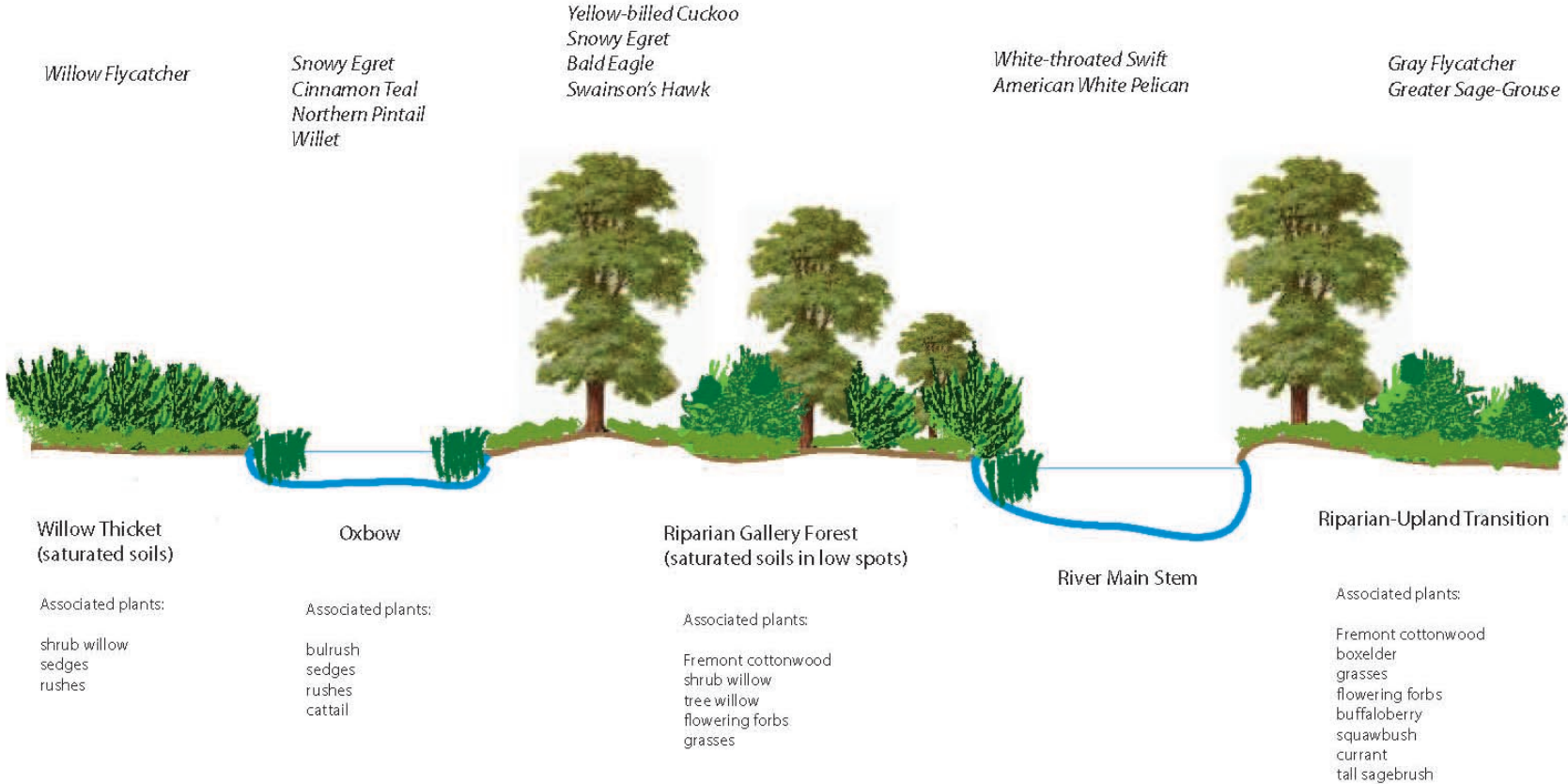
Historical losses of riparian habitat throughout the West have been well-documented (Ohmart 1994), and Nevada is no exception. For instance, along the lower Truckee River corridor, an estimated 80% of the original riparian habitat cover has been lost (Otis Bay Environmental Consultants, *pers. comm.*) to surface water diversions, impoundments, channelization, and habitat conversion to agricultural and urban uses, and we suspect this pattern is fairly typical of other major rivers in the state. Continued demands on water, particularly given the prospect of a warmer climate with less winter precipitation, will continue to pose significant challenges to resource managers. In addition, riparian habitats are susceptible to compounded threats. For instance, water diversions and flood control engineering often disconnect the river channel from its floodplain, leaving riparian vegetation “high and dry”, and creating conditions largely unsuitable for germination of seedlings. At the same time, overgrazing may further degrade remaining habitat, while urban or agriculture development converts it.

Habitat protection efforts (ensuring sustainable grazing levels, engaging in weed control, revegetation with native species, etc.) are probably best directed towards riparian reaches where floodplain connectivity and hydrological dynamics are still relatively intact, or where they can potentially be restored. Significant riparian restoration efforts of this sort are underway along the Truckee River and other riparian systems in Nevada, and careful planning and implementation of similar projects may lead to some recoveries of historic bird habitat.

One new concern has only recently surfaced related to a biocontrol agent, the tamarisk beetle, that has been deployed to combat tamarisk (saltcedar) invasion. The beetle, which defoliates large stands of saltcedar, has been released throughout riparian areas in the Great Basin portion of Nevada. While saltcedar control is an understandable objective of riparian management, our concern lies in the apparent lack of recovery of native riparian vegetation following defoliation of saltcedar. The treated sites appear to remain dominated by dead or dying saltcedar “skeletons”, which render the site unsuitable for most riparian associated birds. In the affected areas, active revegetation with plantings will likely be necessary to recover native habitat in a reasonable time frame.

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Not To Scale



Suitable Patch Size: 50 ha (110 acres), smaller patches also valuable

Indicator Species: Yellow Warbler, Wilson's Warbler

Figure Hab-7-1: Idealized Great Basin lowland riparian landscape to maximize the number of riparian associated priority bird species.

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Conservation Strategies

Habitat Strategies

- **Manage at a landscape scale (> 50 ha or [125 ac])**, but smaller patches are also valuable if intact. Maintain or restore a mosaic of open, mixed-age tree canopy, riparian shrub thickets, flowering shrubs and forbs, and interspersed floodplain wetlands. High species richness in plants and presence of willows are particularly beneficial. Patch sizes within the mosaic may be small (0.1 – 0.4 ha [0.25 - 1 ac]), but the overall riparian and wetland corridor should be contiguous.
- Old-growth trees are important to several Priority species, but the overall value of a patch is most often improved by adding a **native riparian shrub and wetland** component
- Riparian areas near urban or rural settlements in particular attract feral cats and other predators. Strategic plantings of particularly **impenetrable shrubs** (e.g., wild rose) are useful for discouraging opportunistic predators and cowbirds.
- Presence of nearby **cliffs** (> 30 m, [100 ft]) tall raises the value of a site for bird conservation
- Removal of invasive plants, such as tamarisk (salt cedar), Russian olive, or tall whitetop, should be immediately followed by **active restoration of native riparian vegetation** in treatment areas, as weedy species often take advantage of recently disturbed soils
- Maintain **grazing activity** at levels that do not permanently impact the shrub and forb understory or cause soils to be exposed
- The majority of Priority bird species nest between **May 1 and July 15**, and some of them are particularly sensitive to nest disturbance. This is the time period when intensive treatments or potentially disruptive activities should be largely avoided

Research, Planning, and Monitoring Strategies

- Given the value of any riparian patch to overall species conservation, **habitat restoration opportunities** should be aggressively explored, in collaborative efforts between agency and private partners, for **all regions and all stream sizes**. In particular, the Humboldt River system and its smaller tributaries appears to have significant restoration potential

Public Outreach Strategies

- **Promote public appreciation** of healthy lowland riparian habitat and its bird communities, particularly with regard to native understory vegetation and their potential impacts. Outreach through fishing and other outdoor-recreation groups, as well as through urban open space planning, may be particularly effective