

Montane Riparian



Montane Riparian habitat at China Creek in the Montana Range, Humboldt County.
Photo by Elisabeth Ammon.

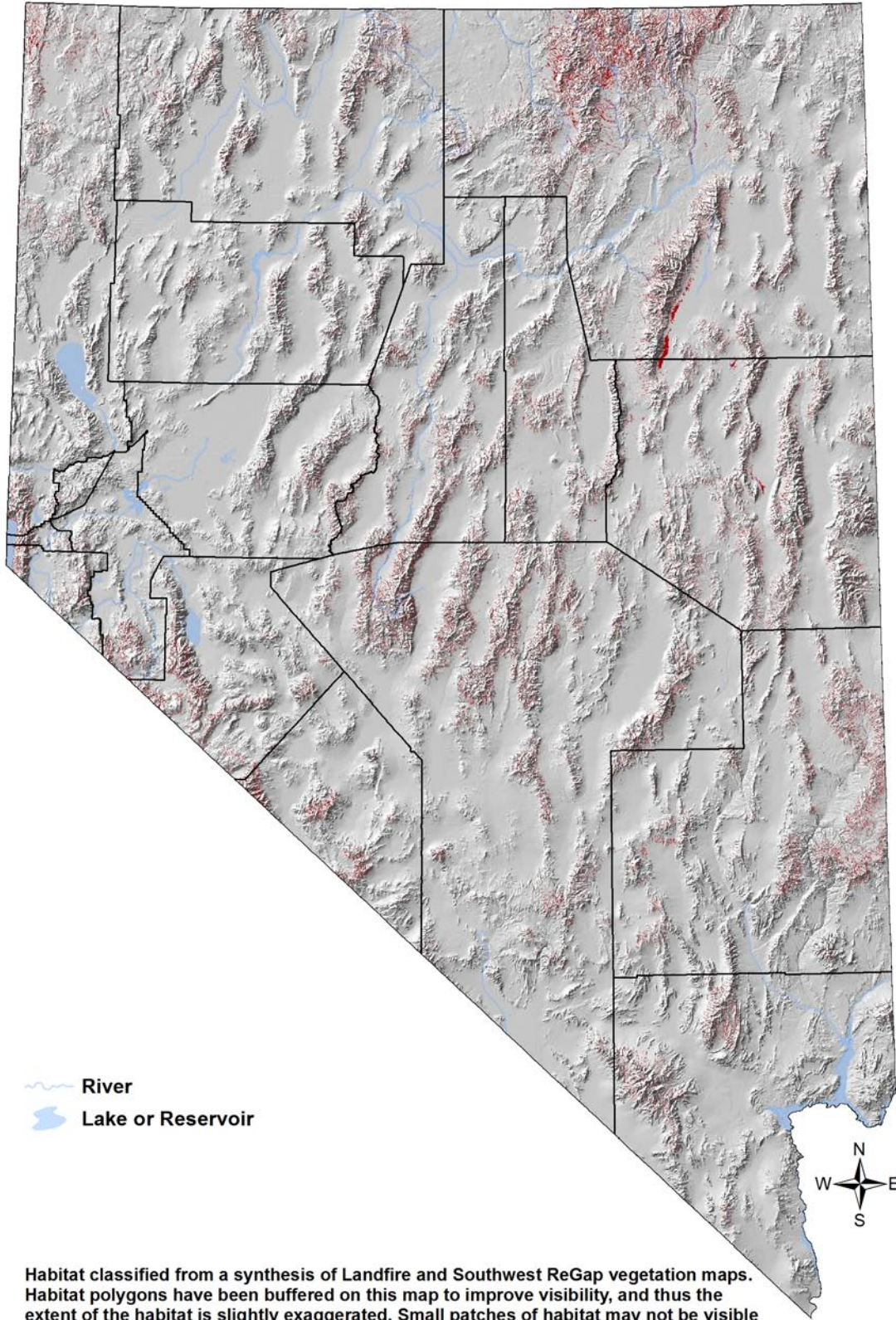
Key Bird-Habitat Attributes

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|---|--|
| Stand Structure | Dense, dwarf trees and shrubs of mesic species, with grass and flowering forb understory, transition into montane shrublands with additional deciduous shrub species |
| Ideal Scale for Conservation Action | 10 ha [25 ac] or more, or minimum of 0.6 – 3 km [1-5 mi] of linear stream distance |
| Plant Species Composition | Aspen, shrub willows, water birch, alder, wild rose, currant, and other mesic species |
| Aspen and Cottonwood | Single trees or small stands of old aspen or cottonwood add particular value for some Priority species |
| Understory | Closed-canopy shrub thickets interspersed with natural meadow openings ideal |
| Presence of Cliffs > 30 m [100 ft] Tall | Presence of tall cliffs increases value to birds |

Conservation Profile

| | |
|---|---|
| Estimated Cover in Nevada | 188,000 ha [466,000 ac] 0.7% of state |
| Landownership Breakdown | BLM = 39% USFS = 33% Private = 18% Other = 10% |
| Priority Bird Species | Sharp-tailed Grouse Mountain Quail Calliope Hummingbird Rufous Hummingbird Lewis's Woodpecker Willow Flycatcher Virginia's Warbler Green-tailed Towhee (Greater Sage-Grouse) (White-throated Swift) (Grace's Warbler) |
| Indicator Species | Cooper's Hawk MacGillivray's Warbler Yellow Warbler Wilson's Warbler Yellow-breasted Chat |
| Most Important Conservation Concerns | Livestock, wild horse and burro grazing Surface water diversion, impoundments Climate change (change in precipitation and temperature) Motorized recreation Non-motorized recreation Increased fire frequency or intensity Plant pathogens |
| Recovery Time | > 20 years |
| Regions of Greatest Conservation Interest | Elko, Humboldt, Washoe, White Pine, Lander, Eureka, and Clark counties |
| Important Bird Areas | Bilk Creek – Montana Mountains Carson Range David E. Moore Bird and Wildlife Sanctuary Goshute Mountains Great Basin National Park High Rock Resource Area Jarbidge Mountains Monitor Valley Mount Grant North Ruby Valley Northern Snake Range Ruby Mountains Spring Mountains Toiyabe Range Wellington-Pine Grove Hills |

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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

Montane Riparian habitat is scarce on Nevada's landscape, and is often so restricted that our land cover maps do not effectively capture them. In the past, montane riparian areas were often the lifeblood for homesteads and outlying ranches, because in many areas they provided the only source of water. Therefore, riparian areas were altered during early settlement for diverting water and for sustaining livestock, and as a result, many montane riparian areas have undergone channel downcutting, loss of riparian vegetation, soil compaction, and reduction of instream flows.

Riparian zones are also the lifeblood of important ecosystems and a major contributor to biodiversity, and at least half of the bird species in some western regions are estimated to depend on riparian habitats (Knopf et al. 1988). Typically, an intact montane riparian area supports narrow stands of willows, some aspen pockets, and a variety of mesic groundcovers throughout the year (Smith et al. 1995, Dickson et al. 2009). At higher elevations, conifer species such as white fir (*Abies concolor*) and Engelmann spruce (*Picea engelmannii*) may be present (Smith et al. 1995). For montane birds, these mesic environments become particularly important during the hottest part of the year, where they provide thermal cover, protection from predators, access to water and, most importantly, foraging opportunities for forbs and insects (e.g., brood-rearing Greater Sage-Grouse, Mountain Quail, and a variety of songbirds). Mist-netting of birds in these riparian habitats has documented a surprisingly large number of upland species, aside from the expected suite of riparian birds (e.g., Heath and Ballard 2003). In Figure Hab-14-1, we illustrate an idealized landscape that features habitat elements required by montane riparian bird species.

Main Concerns and Challenges

The following top conservation concerns were identified in our planning sessions for Montane Riparian habitat in Nevada:

- Overgrazing by livestock, wild horses and burros
- Surface water diversion, impoundments
- Change in precipitation and snowmelt related to climate change
- Change in temperature related to climate change
- Motorized recreation
- Non-motorized recreation
- Increased fire frequency or intensity
- Plant pathogens

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Both riparian vegetation and bird communities change along elevational gradients (e.g., Dobkin and Wilcox 1986, Dickson et al. 2009), and their distributions are therefore expected to change with climate. Because of the vertical linearity and topographic complexity of montane riparian habitats, the effects of climate change will probably not be as simple as moving up or down in elevation (Fleishman et al. 2001), but increases or decreases in the timing or amount of water availability will affect entire stream courses. Riparian ecosystems are naturally resilient, provide linear habitat connectivity, and create thermal refugia for wildlife, all of which could contribute to mitigation of climate change effects (Seavy et al. 2009). Riparian areas could provide critical buffering of climate change effects for riparian birds and birds of adjacent habitats (Ackerly et al. 2010). Conservation and restoration planners should therefore consider options for how they can enhance the resilience of riparian ecosystems to climate change (Seavy et al. 2009).

Today, past impacts still leave their mark on Nevada's Montane Riparian habitats, and are compounded by new threats, such as climate change, prolonged droughts, and motorized recreation. Overgrazing by livestock, wild horse and burros, and stream diversions are the two primary disturbance factors affecting montane riparian vegetation, and either one can prevent riparian systems from reaching their ecological potential (Smith et al. 1995). Prolonged overgrazing impacts riparian areas through physical removal of vegetation and simplification of structure, hydrological changes from soil compaction, and channel alteration (Belsky et al. 1999), and negative effects of grazing on riparian bird populations have been well documented (Saab et al. 1995). In some cases, these impacts are a result of increased nest predation that occurs after grazing opens up vegetation structure and reduces nest concealment (Ammon and Stacey 1997). Impacts to riparian vegetation also occur from stream downcutting caused by prolonged road development, livestock use, or natural runoff events (Green et al. 2003).

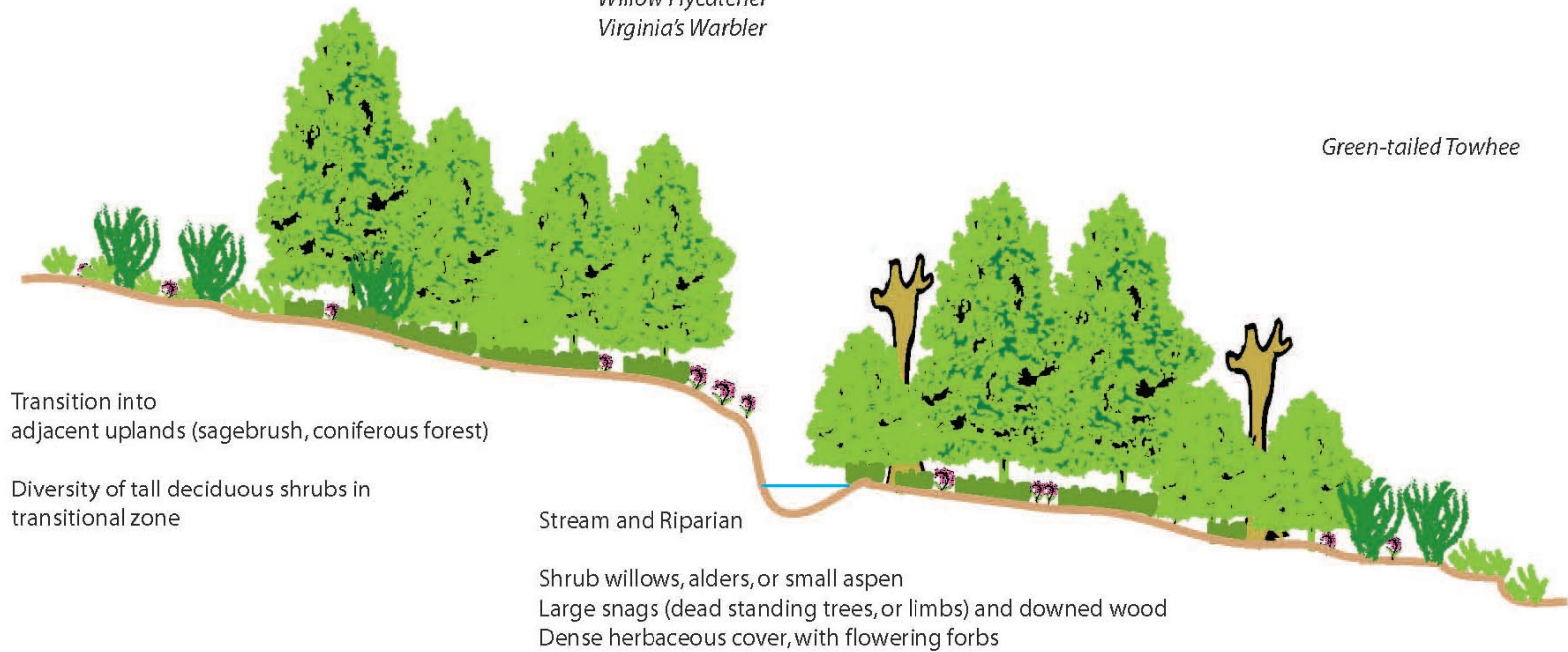
Fortunately, montane riparian plant communities respond readily to restoration and enhancement efforts if sufficient water is available (Stromberg 2001). Many areas that are no longer critical for other land uses can be relatively easily restored, as has been demonstrated by multiple protection and restoration projects conducted on lands managed by BLM and the USFS, where sections of stream corridor have been fenced off to allow for passive recovery. These projects create substantial conservation returns in exchange for relatively modest expenditures, and are therefore one of our main recommended conservation actions for Montane Riparian habitat.

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Not to Scale

*Greater Sage-Grouse
Sharp-tailed Grouse
Mountain Quail
Lewis's Woodpecker
Rufous Hummingbird
Calliope Hummingbird
Willow Flycatcher
Virginia's Warbler*

Green-tailed Towhee



Suitable Patch Size: 10 ha (22 acres) or more, or minimum of 1- 5 miles of stream

Indicator Species: Cooper's Hawk, MacGillivray's Warbler, Yellow Warbler

Figure Hab-13-1: Idealized montane riparian landscape to maximize the number of riparian associated Priority bird species.

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Conservation Strategies

Habitat Strategies

- Manage at a relatively small scale, if necessary, of **10 ha [25 ac], or 1.6 – 8 km [1-5 mi]** of stream, with preference given to larger areas, wider riparian corridors, or more miles of stream. Even small patches are valuable, but the desired mesic conditions are better achieved with larger overall patch sizes
- Important habitat components include **dense shrub thickets** (willow, alder, wild rose, or other mesic species) with patches of herbaceous cover interspersed. Land uses that have impacts to these vegetation components, such as prolonged overgrazing and recreation, may be excluded by fencing and providing alternate access to water and shade
- Single **large trees**, or small stands, and **large snags** provide important resources for some Priority species, and should therefore be protected from loss and disturbance to the extent possible
- Presence of **cliffs** > 30 m [100 ft] tall raises the priority level of a site for bird conservation
- Mitigation for past or current losses may include **restoration of historic stream channels and associated floodplains**. The primary requirement is sufficient water, and if no source vegetation is available, plantings of native species will significantly accelerate restoration
- Maintain **grazing and OHV use** 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 disturbances should be minimized

Research, Planning, and Monitoring Strategies

- Narrow riparian areas are badly under-inventoried throughout the state, because available land cover maps often misclassify or omit them. One of the highest statewide priorities for riparian planning is to **generate a comprehensive, accurate map** of riparian habitats and springs
- Mapping of Montane Riparian should include a **stand condition assessment** characterizing the habitat elements that support Priority bird species. This inventory, which would ideally be an interagency effort, could then be turned into a periodic (e.g., every 10 years) monitoring effort of riparian areas.
- Continue **long-term monitoring of landbirds** statewide through the Nevada Bird Count
- Monitor status of **invasive weeds** to assess threat level locally and statewide

Public Outreach Strategies

- **Promote the value and important features** of riparian habitat to private landowners and the public (e.g. Schenk and Goldblatt 2005). Materials may include tips on avoiding unintentional impacts to riparian resources