

# Nevada Comprehensive Bird Conservation plan

- Version 1.0, December 2010



Elisabeth Ammon

Jen Ballard

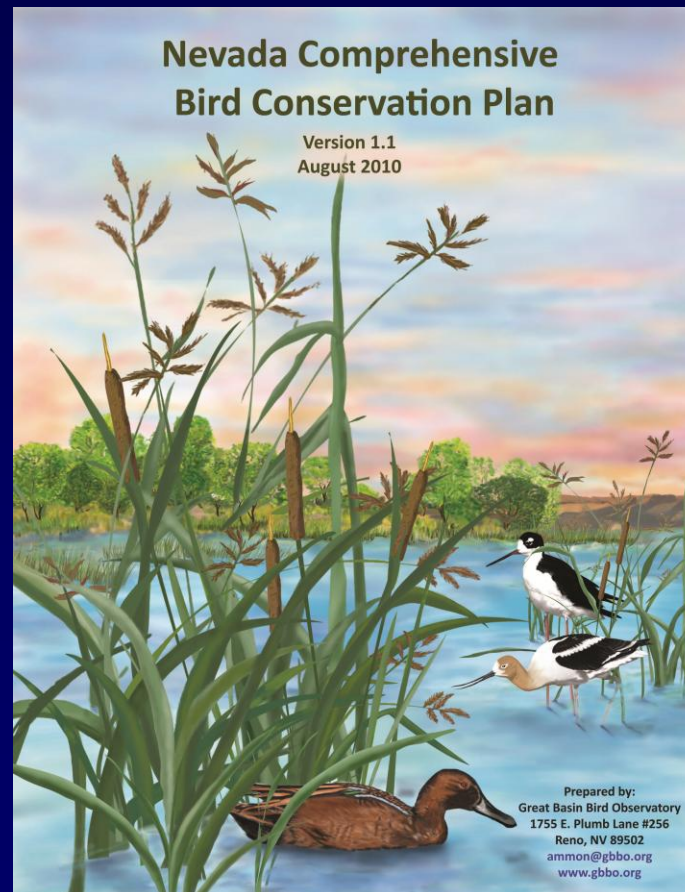
John Boone

Shawn Espinosa

Larry Neel

Ralph Phenix

Jock Young



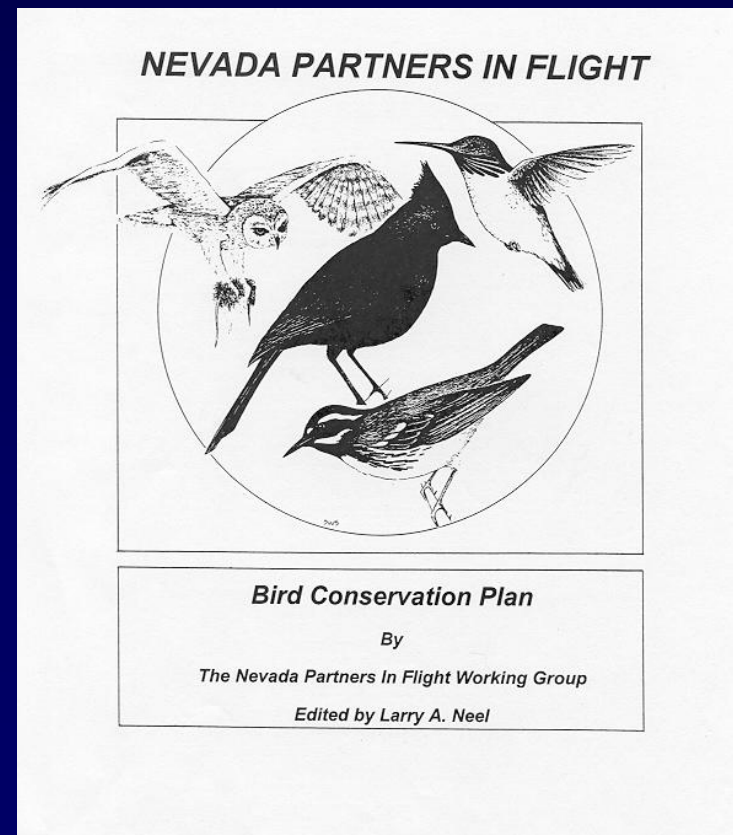
# Nevada Comprehensive Bird Conservation Plan

Complete revision of State PIF plan (Neel 1999)

~ 30 months to complete

~ 15-20 PIF meeting participants

> 30 additional reviewers



# Nevada Comprehensive Bird Conservation Plan ([www.gbbo.org](http://www.gbbo.org))

Intended Audience:

resource managers in Nevada, who may or may not have bird expertise, but are experienced land managers

Therefore:

Focus on bird conservation needs, desired bird outcomes



# Plan Features: Concepts

- Data-driven and science-based

- Threats analysis

- Translatable into conservation action by any resource manager



Photo by Martin Meyers

- Actions that a typical resource manager can incorporate into work plans

# Plan Features: Content

- New data and analyses (NBC, Atlas, CC MSHCP, LCR MSCP, WMA and NWR data, and species specific data sets)
- Includes gamebirds, waterbirds, shorebirds from regional planning efforts
- Data-driven range maps
- Synthesized habitat map
- Density estimate by habitat for many priority species



Photo by Steve Ting



Photo by Fred Petersen

# Plan Features: Content

**Threats Assessment**

**Habitat Accounts (20  
habitat types)**

**Species Accounts (78  
species)**



# Species Accounts

## Bell's Vireo

*Vireo bellii*



Photo by Martin Meyers

### Habitat Use Profile

Habitats Used in Nevada	
Mojave Lowland Riparian (Mesquite-Acacia) (Springs)	
Key Habitat Parameters •	
Plant Composition	Cottonwoods, willows, saltcedar, mesquite (particularly honey mesquite), arrow-weed, <i>Baccharis</i> <sup>11</sup>
Plant Density & Size	Dense shrub understorey up to 3 m [10 ft] high; tree overstorey either relatively open or absent
Mosaic	Prefers structurally diverse habitat and patches of saturated soils; <sup>11</sup> in areas dominated by saltcedar, interspersions of some native trees increases habitat value
Distance to Water	< 1,000 m [0.6 mi] from water; standing water is an important habitat element <sup>11</sup>
Response to Vegetation Removal	Negative, especially for shrub layer. <sup>11</sup>
Area Requirements •	
Minimum Patch Size	Probably > 5 ha [12 ac], <sup>E0</sup> preferably with opportunity to place territory > 400 m [1,300 ft] from habitat edge <sup>10</sup>
Recommended Patch Size	> 20 ha [49 ac] <sup>11,12, E0</sup>
Home Range	0.2 - 1.6 ha [0.5 - 4.0 ac] <sup>11</sup>

### Conservation Profile

Priority Status	
Conservation Priority Species	
Species Concerns	
Historical and recent declines	
Restricted habitat	
Small population size	
Habitat threats	
Other Rankings	
Continental PIF	Watch List
Audubon Watchlist	Red
NV Natural Heritage	S2B
USFWS	Bird of Conservation Concern, Migratory Bird
BLM	None
USFS	None
NDOW	Conservation Priority
Other	Covered by Clark County MSHCP <sup>4</sup> and Lower Colorado River MSCP <sup>18</sup>
Trends	
Historical •	Rangewide declines <sup>11,16</sup>
Recent •	Persistent declines of ~ 2.7%/ year, most recently stabilizing <sup>16</sup>
Population Size Estimates	
Nevada (NBC) •	1,000
Global •	1,100,000 <sup>14</sup>
Percent of Global	< 1%
Population Objective	
Increase by 100% <sup>14, E0</sup>	
Monitoring Coverage	
Source	Nevada Bird Count, LCR MSCP <sup>18</sup>
Coverage in NV	Good
Key Conservation Areas	
Protection	Muddy and Virgin Rivers, Ash Meadows NWR, Meadow Valley Wash
Restoration	Same

### Natural History Profile

Seasonal Presence in Nevada	
Spring - Summer	
Known Breeding Dates in Nevada	
April - July <sup>6</sup>	
Nest and Nesting Habits	
Nest Placement	Suspended from dense riparian branches, 0.5 - 1.5 m [1.6 - 5 ft] above ground <sup>11</sup>
Site Fidelity	High <sup>11</sup>
Food Habits	
Basic	Arboreal and shrub gleaner
Primary Diet	Insects and spiders <sup>11</sup>
Secondary Diet	n/a



Photo by Martin Meyers

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Species Concerns	
Historical and recent declines Restricted habitat Small population size Habitat threats	
Other Rankings	
Continental PIF Audubon Watchlist NV Natural Heritage USFWS  BLM USFS NDOW Other	Watch List Red S2B Bird of Conservation Concern, Migratory Bird  None None Conservation Priority Covered by Clark County MSHCP <sup>4</sup> and Lower Colorado River MSCP <sup>18</sup>
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Historical ◦ Recent ◦	Rangewide declines <sup>11, 16</sup> Persistent declines of ~ 2.7%/ year, most recently stabilizing <sup>16</sup>
Population Size Estimates	
Nevada (NBC) ◦ Global ◦ Percent of Global	1,000 1,100,000 <sup>14</sup> < 1%
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Monitoring Coverage	
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### Natural History Profile

Seasonal Presence in Nevada



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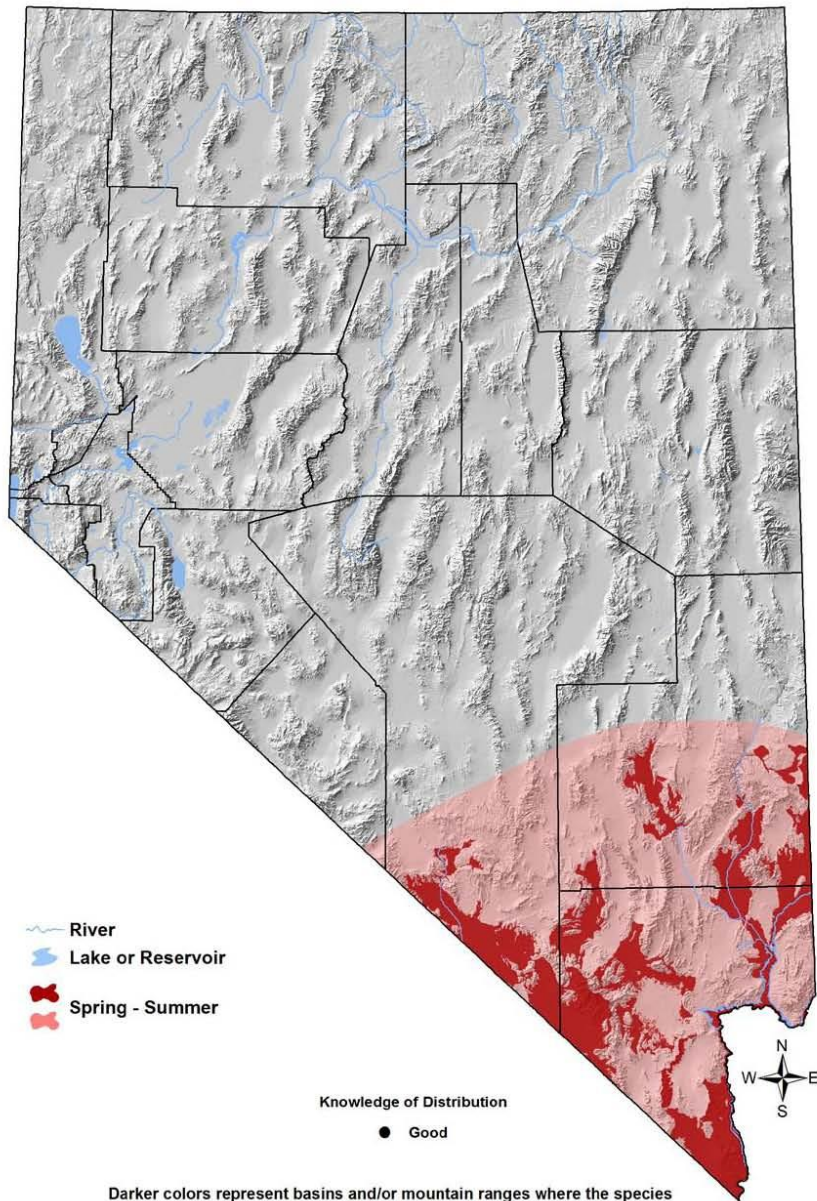
Confidence in Available Data: ●High ○Moderate ○Low

NDOW	Conservation Priority
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Trends	
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Spp-61-1



Darker colors represent basins and/or mountain ranges where the species has been recorded within the past 12 years. Lighter colors represent the broader area within which the species is presumed to occur in appropriate habitat types.

## Abundance and Occupancy by Habitat

### Birds / 40 ha on NBC Transects in the Mojave Region

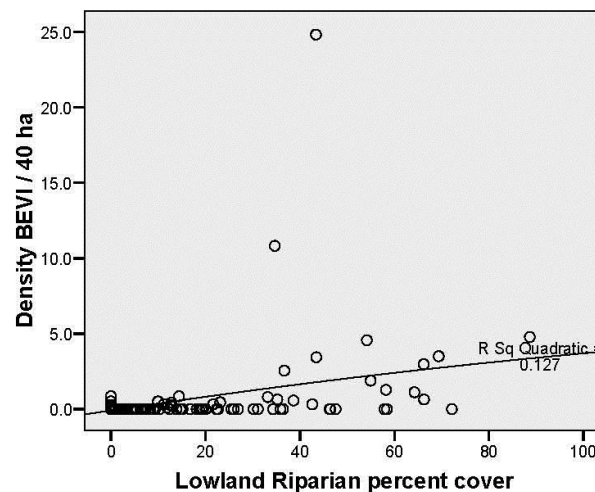
Primary Habitat at Transect	Transects Occupied	Birds/40 ha (95% C.I.)
Lowland Riparian	64% (23/36)	3.3 (1.1 – 5.5)
Mesquite-Acacia	21% (3/14)	0.4 (0.1 – 0.7)

- Pair densities across geographical range vary from 0.5 – 200 / 40 ha [0.005 – 2.0 / ac]<sup>11</sup>
- In southwest, densities in mesquite are highly variable<sup>11</sup>

## Nevada-Specific Studies and Analyses

### Landscape Associations (NBC)

As expected, transect-level logistic regressions indicated that Bell's Vireos were closely associated with Mojave Lowland Riparian habitat (which includes saltcedar), and were also more likely to be found in close proximity to water. All 30 transects where Bell's Vireos were detected were classified as Lowland Riparian based on either visual examination or the presence of at least 10% riparian cover as indicated within the GIS habitat classification. As shown in the figure below, density of Bell's Vireos appears to be closely related to the percent cover by Lowland Riparian habitat in the transect.



## Bell's Vireo

*Vireo bellii*

### Conservation Strategies

#### Habitat Strategies

- The Mojave Lowland Riparian (p. Hab-11-1) habitat conservation strategy benefits this species
- Manage riparian habitat to provide early and intermediate successional stages characterized by dense shrub understory
- Protect existing native riparian woodlands (cottonwood, willow, and riparian mesquite) that exhibit suitable shrub understory density
- Restore degraded areas or those dominated by saltcedar, but plan restorations so that large amounts of saltcedar are not removed without concurrently creating suitable replacement habitat

#### Research, Planning, and Monitoring Strategies

- Continue monitoring for population trends
- Develop fire management strategies balancing the need short-term habitat protection and long-term habitat regeneration
- Conduct nesting studies in Nevada to better assess the relative habitat quality of native vegetation versus saltcedar
- Investigate possible presence of Least Bell's Vireo within Nevada, especially at Ash Meadows NWR

#### Public Outreach Strategies

- None identified

References: <sup>1</sup>Averill-Murray et al. (1999); <sup>2</sup>Brand et al. (2010b); <sup>3</sup>Budnik et al. (2002); <sup>4</sup>Clark County (2000); <sup>5</sup>GBBO (2009); <sup>6</sup>GBBO unpublished Atlas data; <sup>7</sup>Greaves (1989); <sup>8</sup>Krueper et al. (2003); <sup>9</sup>Kus and Whitfield (2005); <sup>10</sup>Kus et al. (2008); <sup>11</sup>Kus et al. (2010); <sup>12</sup>Lynn (1996); <sup>13</sup>Morrison and Averill-Murray (2002); <sup>14</sup>Rich et al. (2004); <sup>15</sup>Rothstein and Peer (2005); <sup>16</sup>Sauer et al. (2008); <sup>17</sup>Sharp and Kus (2006); <sup>18</sup>LCRMSCP (2004); <sup>19</sup>Walker (2006); <sup>EO</sup> Expert opinion



# Habitat Accounts



Lowland riparian habitat along Lake Mohave, Clark County. Photo by Elisabeth Ammon.

### Key Bird-Habitat Attributes

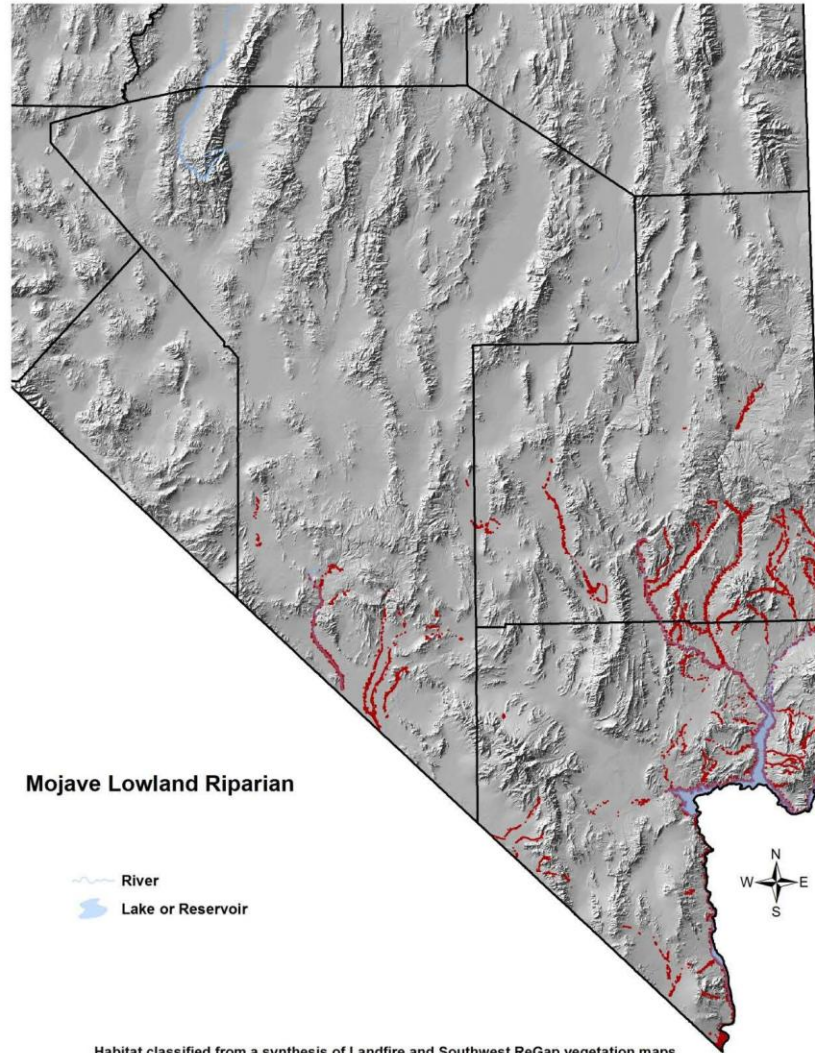
Stand Structure	Multi-aged tree stands with riparian shrub understory, interspersed with groves of dense riparian shrubs (willows and others) and floodplain wetlands
Ideal Scale for Conservation Action	50 ha (110 acres) or more
Plant Species Composition	Mixed stands of cottonwood and tree willow with multiple species of shrubs as understory, with emphasis on willows; tree willows especially productive for birds; saturated soils or patchy wetlands particularly valuable
Snags	Old-growth riparian trees, including snags and large dead branches add nesting opportunities for several priority species
Salt Cedar	Removal of salt cedar should be followed by immediate revegetation, to the extent possible; tamarisk beetle invasion should be closely monitored and loss of large stands mitigated to the extent possible with revegetation
Presence of Cliffs > 30 m (100 ft) Tall	Presence of tall cliffs increases value to birds

### Conservation Profile

Estimated Cover in Nevada	16,150 ha (39,900 ac) 0.06% of state
Landownership Breakdown	BLM = 40% NPS = 36% Private = 8% State Lands = 5% Tribal = 4% FWS = 2% Other = 5%
Priority Bird Species	American White Pelican Least Bittern Snowy Egret Bald Eagle (Prairie Falcon) (Golden Eagle) Peregrine Falcon Clapper Rail Gambel's Quail Yellow-billed Cuckoo White-throated Swift Willow Flycatcher Bell's Vireo Lucy's Warbler Abert's Towhee
Indicator Species	Yellow Warbler (breeding) Wilson's Warbler (migration)
Most Important Conservation Concerns	Change in precipitation and snowmelt Change in temperature Biocontrol activities Livestock, wild horse and burro grazing Surface water diversion, impoundments Groundwater pumping Flood control Urban, suburban, and industrial development Motorized recreation Invasive weeds Increase in fire frequency or intensity
Habitat Recovery Time	25 years
Regions of Greatest Conservation Interest	Virgin and Muddy rivers, Lake Mojave and Big Bend of Colorado River, Meadow Valley Wash, Pahrangat Valley, Ash Meadows NWR, and multiple other spring systems
Important Bird Areas	Ash Meadows NWR Lake Mead Lower Muddy River Meadow Valley Wash Moapa Valley Oasis Valley Pahrangat Valley Complex Virgin River



## Mojave Lowland Riparian



### Mojave Lowland Riparian

- River
- Lake or Reservoir

Habitat classified from a synthesis of Landfire and Southwest ReGap vegetation maps combined with manual re-classification. 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.

# Mojave Lowland Riparian

## Main Concerns and Challenges

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

- Change in precipitation and snowmelt
- Change in temperature
- Biocontrol activities
- Livestock, wild horse and burro grazing
- Surface water diversion, impoundments
- Groundwater pumping
- Flood control
- Urban, suburban, and industrial development
- Motorized recreation
- Invasive weeds
- Increase in fire frequency or intensity

Not surprisingly for a desert state, the list of conservation concerns is long for our rivers and streams. As with most habitat types, climate change effects are among the top concerns, as decreased winter precipitation and increasing temperatures directly threaten our water supplies. Increasing demand on water therefore leads our list of concerns, as surface water diversion, groundwater pumping, flood control, and ungulate grazing are all expected to put more pressure on riparian resources when water availability decreases. Given that riparian areas provide the most commonly used migration stopover habitat for landbirds, the current network of riparian sites throughout the Mojave Desert is probably critical for landbird migration in the region. We are therefore concerned about any further losses of this habitat type, which has already been greatly diminished from historic water development projects and agricultural uses.

Starting in the 1970s, lowland riparian areas of the southwest were invaded by saltcedar (tamarisk), which followed major landscape perturbations such as channelization, impoundments, and surface water diversion in the Lower Colorado River and its tributaries (Stromberg et al. 2009). Much has been reported on the relatively low habitat value of saltcedar compared to its native counterparts (e.g., Brand et al. 2008), and as a result, conservation literature for the southwest from the 1980-90s often focused on saltcedar eradication. However, several priority species, including Southwestern Willow Flycatcher, Bell's Vireo, and Lucy's Warbler, have since colonized saltcedar as nesting habitat, and today, often rely on mixed or pure

# Mojave Lowland Riparian

Not To Scale

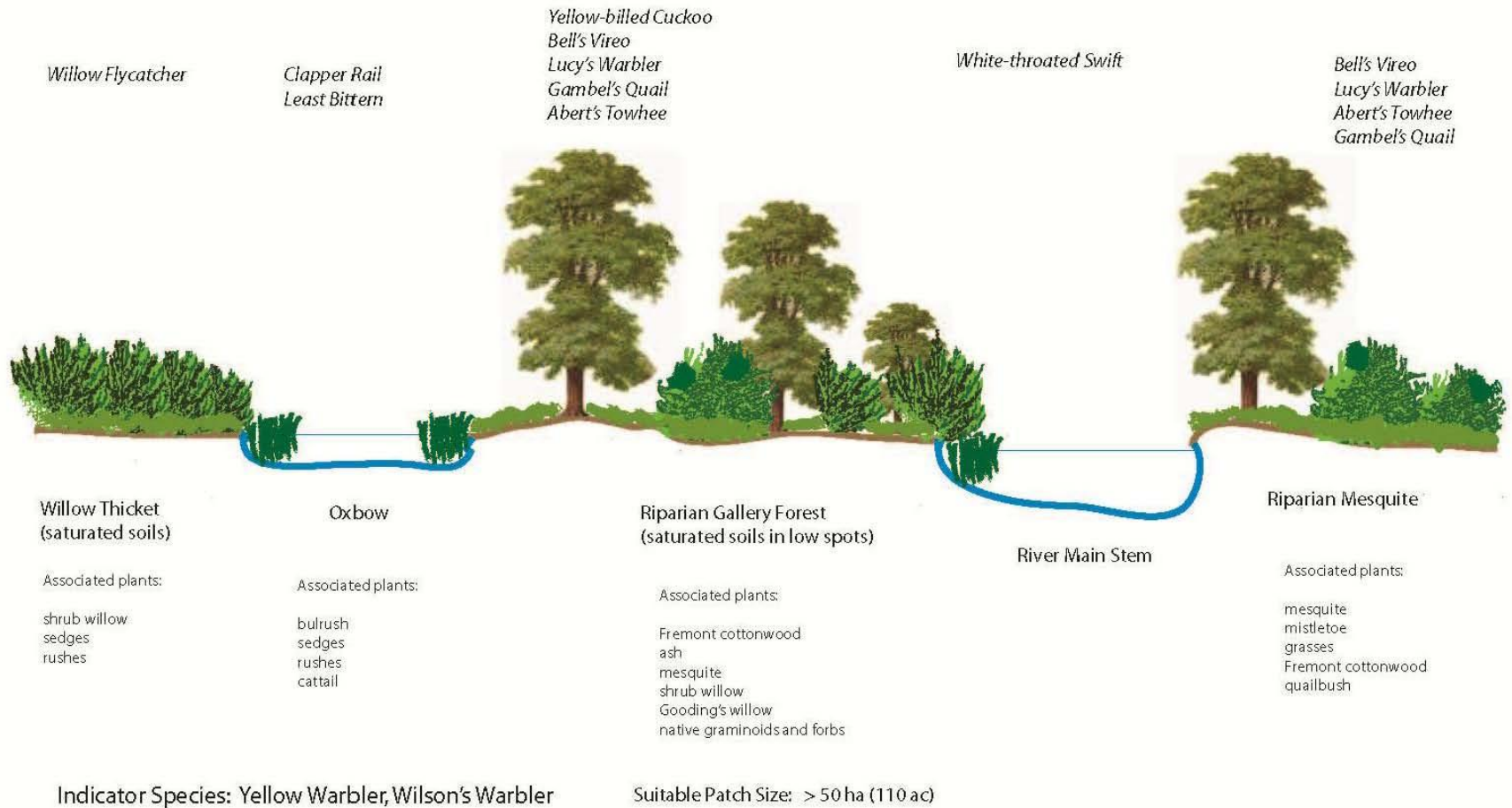


Figure Hab-12-1: Idealized Mojave lowland riparian landscape to maximize the number of riparian associated priority bird species.



# Mojave Lowland Riparian

## Conservation Strategies

### Habitat Strategies

- **Manage at landscape scale (> 50 ha or 110 acres)**, but smaller patches are also valuable if intact) with the goal of maintaining 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 suitable for birds. Patch sizes within the mosaic may be small (1/4 - 1 acre), while the overall riparian woodland corridor should be contiguous.
- **Old-growth trees** are important to several priority species, but in sites that already have trees, the value of a patch is likely most improved by adding a **native riparian shrub and wetland** component.
- **Opportunities to restore channels with natural flow regimes**, or flows that mimic natural regimes, should be aggressively sought out and pursued for conservation and restoration.
- **Active revegetation** should be done in all areas where saltcedar is eradicated and native vegetation can be supported.
- 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 **April 1 and July 1**, and some of them are particularly sensitive to nest disturbance. This is the time period when intensive treatments or heavy land uses should be largely avoided.
- 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. Feral cat colonies should be moved away from riparian areas.

### Research, Planning, and Monitoring Strategies

- Planning that allows for **opportunistic habitat restoration** in places that become available may be key to maintaining riparian areas. Even small patches of intact

# Acknowledgments

- Nevada State Lands (Q1 Bond Issue)
- Nevada Department of Wildlife
- All NV bird conservation planners
- USFWS
- USFS
- NPS
- BLM
- USBR
- NV PIF and Western Working Group
- USGS
- And others



# More info

- [www.gbbo.org](http://www.gbbo.org) for plan download, suggestions for revision, etc.
- [plan@gbbo.org](mailto:plan@gbbo.org) for more info about Nevada PIF, the plan, and plan updates
- [www.partnersinflight.org](http://www.partnersinflight.org) for PIF