



1

## AT-RISK BIRD SPECIES

14



2



3

# CHAPTER SUMMARY

This chapter presents the results of the first effort to create a list of at-risk bird species focused specifically on the Central Valley (Shuford and Hertel 2017). Because the list includes all at-risk species found in the region—not just those with threatened or endangered status—it can be used to broaden the scope and improve the effectiveness of large-scale conservation planning efforts in the region.

How conservation objectives have been set for birds has evolved over time (CVHJV 1990; CVJV 2006; this Implementation Plan update). The 2006 Implementation Plan focused on just waterfowl, but this current Implementation Plan includes chapters for several bird groups, members of which are allied by a combination of taxonomic association, seasonal occurrence, or habitat affinity. Yet, these chapters do not cover all birds, or all key seasons or habitats for some birds. Conservation objectives in the other bird-group chapters are currently set for only 50% of the at-risk species identified, even though their populations have declined out of proportion to overall habitat loss compared to other species using the same broad habitat types. To address these gaps, this chapter presents a framework for setting conservation objectives to ensure that all at-risk species are covered in future Plan updates.

## HABITAT TYPE

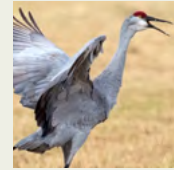
Virtually all of the habitat types in the Central Valley are home to at-risk bird species, including wetlands, agricultural crops, grasslands, riparian, oak woodland/oak savannah, and saltbush scrub. The habitats used and to what degree varies among species, by sub-region, and seasonally or annually depending on the management or hydrologic regime. Importantly, there are some at-risk species that are not captured elsewhere in this Plan, in part because of their habitat preferences, particularly those associated with saltbush scrub and open-water habitats.

## HABITAT SUCCESS STORIES

- In 2011, The Urban Bird Foundation garnered the support of over 20 conservation organizations for a statewide Comprehensive Conservation Strategy for burrowing owls. The group was also recognized in 2012 by the California Department of Fish and Wildlife as being responsible for the state's new mitigation guidelines to protect burrowing owls.
- Since 2004 the Tricolored Blackbird Working Group has focused on halting or reversing the sharp population decline of this nomadic, colonial-nesting landbird by various means, including using innovative incentives to protect birds nesting in grain crops (see Success Story sidebar).
- In 2013, the Bank Swallow Technical Advisory Committee published the Bank Swallow Conservation Strategy for the Sacramento River Watershed, California. This collaborative group of state, federal and NGO interests produced quantitative objectives for restoration for this at-risk species. These objectives supported the development of targets that were identified as state funding priorities in the 2017 Central Valley Flood Protection Plan, which will guide near and long-term investments in flood protection projects throughout the Central Valley. This is an excellent example of how planning for an at-risk species can result in direct investments in habitat creation and species recovery.

## BIRD SPECIES INCLUDE:

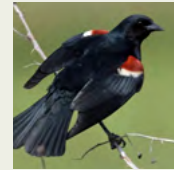
Examples of Central Valley at-risk bird species:



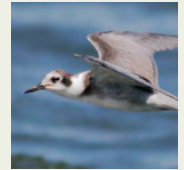
Greater sandhill crane\*



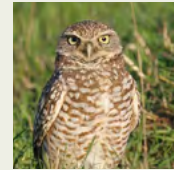
Yellow-billed cuckoo\*\*\*\*



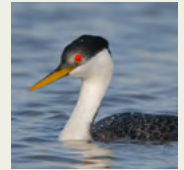
Tricolored blackbird\*\*



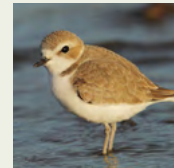
Black tern\*\*\*



Burrowing owl\*\*\*



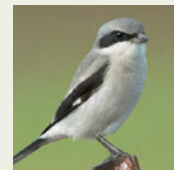
Western grebe\*\*\*



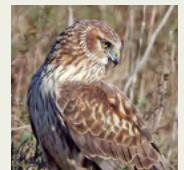
Snowy plover\*\*\*



Short-eared owl\*\*\*



Loggerhead shrike\*\*\*



Northern harrier\*\*\*

\* Image: Bruce Miller \*\* Image: Ted Beedy \*\*\* Image: Tom Grey  
\*\*\*\* Image: Ed Harper

(1) Tri-colored blackbird - Lee Karney/USFWS (2) Sacramento-San Joaquin River Delta - Steve Martarano/USFWS (3) Burrowing owls - Tom Grey

# INTRODUCTION

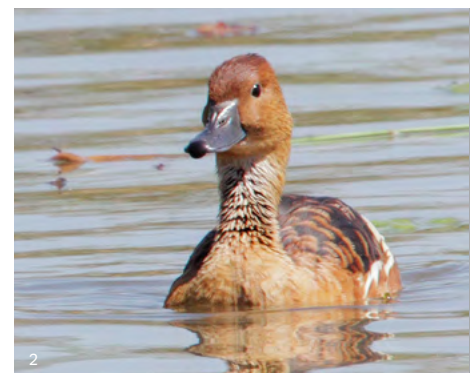
Once a vast mosaic of wetlands, riparian forests, grasslands, oak woodlands, and saltbush scrub, California’s Central Valley has been dramatically transformed over the last century. The loss of a large proportion of native habitat by conversion to agriculture, channelization and urban development (Katibah 1984; Frayer et al. 1989; CPIF 2000; DGP-GIC 2003) has caused a dramatic decline of Central Valley wildlife. Many bird species that were formerly abundant are now reduced to relatively small populations or have been entirely extirpated from the Central Valley. A number of these species have been listed as threatened or endangered by the state or federal governments; some of these have recovery or conservation plans that should guide Central Valley conservation efforts. Additional at-risk bird species identified by various conservation assessments should also be considered in Central Valley conservation activities. If possible, conservation actions for these additional at-risk species should be implemented while they are in the early stages of decline, reducing their risk of becoming threatened or endangered.

The comprehensive list of at-risk bird species in the Central Valley presented here is an important resource to guide Central Valley habitat restoration, enhancement, and management efforts. The habitat conservation objectives for more common species defined in other chapters of this Plan often overlap with the habitat needs of at-risk species. However, meeting the needs of at-risk species frequently requires more focused conservation actions, given that many at-risk species have declined out of proportion to overall habitat loss compared to other species using the same broad habitat types. After all, rare species are rare for a reason and, hence, they typically have subtler habitat needs than those of more common species. They may not respond well to restoration of general habitat types unless their more specific habitat needs are met.

Protecting, restoring, and managing habitat to benefit at-risk bird species can also provide many benefits for other native animals and plants of the Central Valley. These species, in turn, collectively benefit the people and communities of the Central Valley. For example, restoring and enhancing riparian habitat and wetlands can reduce flood risk, improve water quality, sequester carbon, and recharge groundwater (Finlayson et al. 1999; Zedler and Kercher 2005). Restored grassland and oak savannah can sequester carbon, provide habitat for pollinators, and contribute to food and fiber production (Havstad et al. 2007; Kroeger et al. 2009; Chaplin-Kramer et al. 2011; Cameron et al. 2014). All of these efforts can collectively increase property values, provide recreational opportunities, and attract wildlife viewers and hunters who help support local economies (Carver 2013; Carver and Caudill 2013; Liu et al. 2013).

## CONSERVATION GOAL

The Central Valley Joint Venture’s long-term goal is to increase populations of at-risk bird species in the Central Valley to robust, self-sustaining levels that will reduce or eliminate conservation concern on their behalf. Success will be measured by changes in population trajectories of the at-risk species, and, ultimately, by removal of species from this list and from the other lists from which this one was derived.



(1) Agency personnel and private landowner partnering to protect bird habitat - USFWS. (2) Fulvous whistling-duck - Tom Grey.

## WHICH SPECIES ARE INCLUDED?

The CVJV identified 38 at-risk species, subspecies, or distinct populations of birds (hereafter referred to as “species”; Table 14.1). At the time of writing, eight of the 38 are listed, or are candidates for listing, as state or federally threatened or endangered; 23 are considered bird species of special concern in California at various priority levels (Shuford and Gardali 2008); and seven were chosen on the basis of their inclusion on one or more conservation lists at the national or regional level.



Loggerhead shrike - Tom Grey

SPECIES COMMON NAME (SCIENTIFIC NAME)	CONSERVATION STATUS <sup>a</sup>	CONSERVATION OBJECTIVES <sup>b</sup>	KEY HABITATS	OTHER MAJOR THREATS
<b>Fulvous whistling-duck<sup>c</sup></b> ( <i>Dendrocygna bicolor</i> )	BSSC, CCV	--	Semi-permanent wetlands and grain crops	Disease
<b>Tule greater white-fronted goose</b> ( <i>Anser albifrons elgasi</i> )	BSSC	--	Seasonal wetlands and grain crops	--
<b>Redhead</b> ( <i>Aythya americana</i> )	BSSC	--	Semi-permanent wetlands	--
<b>Eared grebe</b> ( <i>Podiceps nigricollis</i> )	NAWCP, WCP-32, CCV	Waterbirds	Semi-permanent wetlands; less frequently seasonal wetlands	--
<b>Western grebe</b> ( <i>Aechmophorus occidentalis</i> )	NAWCP, WCP-32, CCV	Waterbirds	Semi-permanent wetlands	--
<b>Yellow-billed cuckoo</b> (western distinct population segment) ( <i>Coccyzus americanus</i> )	FT, SE, BCC, BCC-32, WL, CCV	Riparian	Riparian	--
<b>Yellow rail</b> ( <i>Coturnicops noveboracensis</i> )	BSSC, NAWCP, WCP-32, BCC, BCC-32, WL, CCV	--	Seasonal wetlands	--
<b>California black rail</b> ( <i>Laterallus jamaicensis coturniculus</i> )	ST, NAWCP, WCP-32, BCC, BCC-32, WL, CCV	Waterbirds	Semi-permanent wetlands; less frequently riparian	--
<b>Greater sandhill crane</b> ( <i>Grus canadensis tabida</i> )	ST, WCP-32	Waterbirds	Seasonal wetlands, grain crops, and grassland/ rangeland; less frequently forage and other row/ field crops	Crop conversion
<b>Lesser sandhill crane</b> ( <i>Grus canadensis canadensis</i> )	BSSC, WCP-32	Waterbirds	Seasonal wetlands, grain and forage crops, and grassland/rangeland; less frequently other row/ field crops	Crop conversion
<b>Snowy plover (interior)</b> ( <i>Charadrius nivosus</i> )	BSSC, SCC, BCC, BCC-32, WL, CCV	Non-Breeding Shorebirds	Semi-permanent wetlands (alkali); less frequently seasonal wetlands	--
<b>Mountain plover</b> ( <i>Charadrius montanus</i> )	BSSC, SCC, BCC, BCC-32, WL	--	Row/field crops and grassland/rangeland	--
<b>Whimbrel</b> ( <i>Numenius phaeopus</i> )	SCC, BCC, BCC-32, CCV	Non-Breeding Shorebirds	Forage crops; less frequently seasonal wetlands and grain crops	--
<b>Long-billed curlew</b> ( <i>Numenius americanus</i> )	SCC, BCC, BCC-32, WL	Non-Breeding Shorebirds	Forage crops; less frequently seasonal wetlands, grain crops, and grassland/rangeland	--
<b>Black tern</b> ( <i>Chlidonias niger</i> )	BSSC, NAWCP, WCP-32, CCV	Waterbirds	Grain crops; less frequently semi-permanent and seasonal wetlands	--
<b>Forster's tern</b> ( <i>Sterna forsteri</i> )	NAWCP, WCP-32, CCV	Waterbirds	Semi-permanent wetlands; less frequently seasonal wetlands and grain crops	--
<b>Least bittern</b> ( <i>Ixobrychus exilis</i> )	BSSC, NAWCP, WCP-32, CCV	Waterbirds	Semi-permanent wetlands	--
<b>Bald eagle</b> ( <i>Haliaeetus leucocephalus</i> )	SE, BCC, BCC-32	--	Semi-permanent and seasonal wetlands; less frequently riparian and oak woodland/ savannah	Pollution
<b>Northern harrier</b> ( <i>Circus cyaneus</i> )	BSSC	Grassland/oak savannah	Semi-permanent wetlands and grassland/ rangeland; less frequently grain, forage, or other row/field crops	Crop conversion

<b>Swainson's hawk</b> ( <i>Buteo swainsoni</i> )	ST, BCC, CCV	--	Riparian, grassland/rangeland, forage and other row/field crops; less frequently grain crops and oak woodland/savannah	Crop conversion
<b>Burrowing owl</b> ( <i>Athene cunicularia</i> )	BSSC, BCC-32	Grassland/oak savannah	Row/field crops and grassland/rangeland	Crop conversion
<b>Long-eared owl</b> ( <i>Asio otus</i> )	BSSC, WL	--	Habitat preferences not well known; uses riparian, grassland/rangeland, forage crops and other row/field crops	--
<b>Short-eared owl</b> ( <i>Asio flammeus</i> )	BSSC, BCC	--	Habitat preferences not well known; uses semi-permanent wetlands, grassland/rangeland, and grain, forage, and other row/field crops	--
<b>Loggerhead shrike</b> ( <i>Lanius ludovicianus</i> )	BSSC <sup>d</sup> , BCC, BCC-32	Grassland/oak savannah	Grassland, oak savannah, and open shrubland; less frequently riparian and oak woodland	--
<b>Least Bell's vireo<sup>c</sup></b> ( <i>Vireo bellii pusillus</i> )	FE, SE, WL, CCV	Riparian	Riparian	--
<b>Yellow-billed magpie</b> ( <i>Pica nuttalli</i> )	BCC, BCC-32, WL, CCV	Grassland/oak savannah	Oak woodland/savannah <sup>e</sup> ; less frequently riparian and grain, forage, and other row/field crops	Pollution, disease
<b>Purple martin</b> ( <i>Progne subis</i> )	BSSC	--	Very limited distribution <sup>f</sup>	Invasive alien species
<b>Bank swallow</b> ( <i>Riparia riparia</i> )	ST, CCV	Riparian	Riparian	--
<b>Oak titmouse</b> ( <i>Baeolophus inornatus</i> )	BCC, BCC-32, WL	--	Riparian and oak woodland/savannah	--
<b>LeConte's thrasher</b> ( <i>Toxostoma lecontei</i> )	BSSC <sup>g</sup> , BCC, BCC-32, WL, CCV	--	Saltbush scrub	Invasive alien species
<b>Oregon vesper sparrow</b> ( <i>Pooecetes gramineus affinis</i> )	BSSC, WL	--	Grassland/rangeland	--
<b>Grasshopper sparrow</b> ( <i>Ammodramus savannarum</i> )	BSSC	Grassland/oak savannah	Grassland/rangeland; less frequently forage crops	Invasive alien species
<b>"Modesto" song sparrow</b> ( <i>Melospiza melodia</i> )	BSSC, CCV	Riparian	Semi-permanent and seasonal wetlands; less frequently riparian	--
<b>Suisun song sparrow</b> ( <i>Melospiza melodia maxillaris</i> )	BSSC, BCC-32, CCV	--	Semi-permanent wetlands; less frequently seasonal wetlands	--
<b>Yellow-breasted chat</b> ( <i>Icteria virens</i> )	BSSC	Riparian	Riparian	--
<b>Yellow-headed blackbird</b> ( <i>Xanthocephalus xanthocephalus</i> )	BSSC	--	Semi-permanent wetlands	--
<b>Tricolored blackbird</b> ( <i>Agelaius tricolor</i> )	ST, BSSC, BCC, BCC-32, WL	--	Semi-permanent wetlands, grassland/rangeland, and grain and forage crops; less frequently seasonal wetlands and riparian	Crop conversion, pollution, direct mortality from harvest.
<b>Yellow warbler</b> ( <i>Setophaga petechia</i> )	BSSC, BCC-32	Riparian	Riparian	--

<sup>a</sup> Conservation status designations: **FE**, federally endangered, or **FT**, federally threatened species; **SE**, state endangered or **ST**, state threatened species; **SC**, candidate for state listing; **BSSC**, state bird species of special concern (Shuford and Gardali 2008); **SCC**, U.S. Shorebirds of Conservation Concern species categorized as needing Immediate Management or Management Attention (USSCPP 2015); **NAWCP**, colonial waterbird species of continental conservation concern in the North American Waterbird Conservation Plan (Kushlan et al. 2002); **WCP-32**, waterbirds of conservation concern in the Coastal California Bird Conservation Region (Shuford 2014); **BCC**, USFWS Birds of Conservation Concern (USFWS 2008); **BCC-32**, USFWS Birds of Conservation Concern in the Coastal California Bird Conservation Region (USFWS 2008); **WL**, species on the North American Bird Conservation Initiative's 2016 Watch List or subspecies on the 2014 list (Rosenberg et al. 2014; NABCI 2016); and **CCV**, species ranked among the most vulnerable to climate change (Gardali et al. 2012).

<sup>b</sup> Population and/or habitat objectives for the species can be found in the chapter dealing with the bird/habitat group listed.

<sup>c</sup> Largely extirpated.

<sup>d</sup> Mainland population only (vs. Channel Island population).

<sup>e</sup> Also uses ranch yards, wind breaks, roadside plantings, and orchards with large trees and open ground.

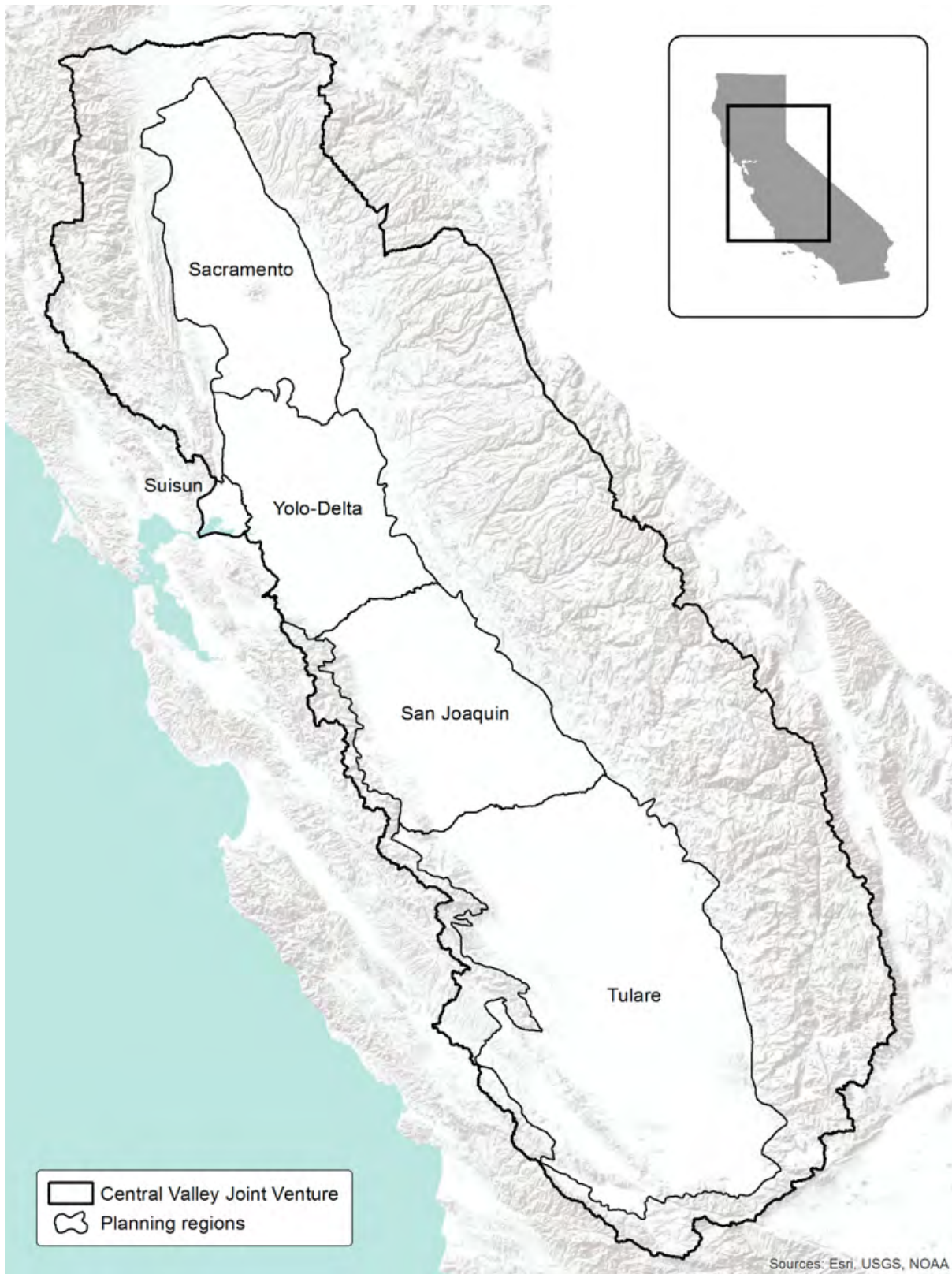
<sup>f</sup> Formerly nested in the northern Central Valley in riparian habitats and in urban buildings, but a remnant population is now confined to bridge nest sites in Sacramento.

<sup>g</sup> San Joaquin population only.

**TABLE 14.1 Bird species at risk in the Central Valley: Conservation status, broad-scale habitat affinities, and major threats (from Shuford and Hertel 2017). "Other major threats" are those beyond habitat loss and degradation, which threatens all of these species. See Shuford and Hertel (2017) for additional threats (realized or potential) not yet known to have caused substantial impacts.**

# WHICH GEOGRAPHIC AREAS ARE INCLUDED?

The Plan evaluated at-risk species within the five planning regions of the CVJV's Primary Focus Area (Figure 14.1).



**FIGURE 14.1** Central Valley Joint Venture perimeter and Primary Focus Area, showing the five planning regions.

# DEVELOPING THE AT-RISK SPECIES LIST

The CVJV used a two-step process to develop the list of bird species at risk in the Central Valley (Figure 14.2). First, all bird species were considered that occur regularly in the Central Valley at some point in their life cycles in numbers sufficient to expect that conservation actions on their behalf would be likely to benefit their populations, or species that formerly met this criterion and reasonably could be expected to recover with appropriate conservation actions. Researchers then gauged which of these species should be considered at risk in the Central Valley, including species that are (1) state and/or federally threatened or endangered (or a current candidate for listing) or ranked as a California Bird Species of Special Concern; (2) ranked in the category of “Immediate Management Action” or “Management Action” on the Watch List of Shorebirds of Conservation Concern in the United States; (3) ranked as highest, high, or moderate concern at the continental level by the North American Waterbird Conservation Plan and ranked either of high or moderate concern by the Coastal California (BCR 32) Waterbird Conservation Plan; or (4) included on both the national and BCR 32 lists for U.S. Fish and Wildlife Service’s list of Birds of Conservation Concern and on the North America Bird Conservation Initiative’s national/continental Watch List.

For each of the 38 species identified as at-risk, researchers used books, peer-reviewed papers, accounts in Birds of North America Online (BNA 2016), unpublished materials, and regional experts to identify the species’ broad-scale habitat affinities, threats they face, and the season(s) and region(s) of the Central Valley they use. Affinities were considered for nine habitat types, including two wetland types, four native upland habitats, and three agricultural crop categories. Wetland types were seasonal and semi-permanent (man-

aged) wetlands (including ponds, lakes, reservoirs, rivers, or other water bodies with extensive open water). The four native upland habitats were riparian forest, oak woodland/oak savannah, grassland/rangeland, and saltbush (*At-riplex* spp.) scrub. The three categories of agricultural crops were grain crops (rice, corn, wheat, triticale, barley, etc.), forage crops (alfalfa, irrigated pasture, and other hay crops), and miscellaneous field and row crops (also including weedy and bare fallow fields).

Finally, researchers assessed the severity of known historical and current threats to at-risk birds in the Central Valley, including habitat loss (and degradation), invasive alien species, pollution, overexploitation, and disease (Wilcove et al. 1998, 2000; Shuford and Gardali 2008). “Crop conversion” (from suitable to incompatible crops, e.g., orchards or vineyards) was added as a



Bald eagle - Tom Grey

specific form of habitat loss and degradation.

Additional details on the sources of data, methods, results, and references can be found in Shuford and Hertel (2017).

## TWO-STEP PROCESS TO DEVELOP A LIST OF BIRD SPECIES AT RISK IN THE CENTRAL VALLEY

### STEP 1 SPECIES DETERMINATION

Species either (a) occur regularly in the Central Valley during the relevant season(s) in numbers sufficient to expect conservation success, or (b) do not currently meet these conditions but formerly did and are reasonably expected to recover with appropriate conservation.

### STEP 2 SUFFICIENT CONSERVATION CONCERN IN STUDY REGION

Species meet one or more of the following criteria:

1. State or Federally Endangered – OR – California Bird Species of Special Concern
2. “Immediate Management Action” or “Management Action” on Watch List of Shorebirds of Conservation Concern
3. At Least Moderate Concern, Continental Level, N. Am. Waterbird Conservation Plan – AND – At Least Moderate Concern By the BCR 32 Waterbird Conservation Plan
4. On National and BCR 32 Lists for USFWS List of Birds of Conservation Concern – AND – the N. Am. Bird Conservation Initiative’s National/Continental Watch List

**FIGURE 14.2.** The two-step process to identify at-risk bird species in the Central Valley. “Species” can also indicate a subspecies or distinct population.

# CURRENT CONDITIONS

## Current Population Sizes, Trends, and Distribution

Many of the at-risk species lack current estimates of their population sizes and trends in the Central Valley. Available population size estimates, however, range from near zero for the nearly extirpated least Bell’s vireo to over 40,000 for the grasshopper sparrow and the “Modesto” song sparrow (DiGaudio et al. 2017; Dybala et al. 2017). The yellow-billed cuckoo, burrowing owl, bank swallow, and horned lark were all estimated to be steeply declining in the Coastal California Bird Conservation Region (BCR 32; Sauer et al. 2014), with an average decline of more than 30 percent over 10 years (DiGaudio et al. 2017; Dybala et al. 2017). Tricolored blackbird numbers have declined by more than 80 percent from historical population levels (see Success Story side bar). Populations of many waterbirds change dramatically with short-term fluctuations in precipitation, making assessment of medium to long-term trends difficult (e.g., black and Forster’s terns; Shuford et al. 2016).

The primary “season of concern” (the season[s] for which there is conservation concern in the Central Valley) for the various at-risk bird species include the breeding, non-breeding, and migration seasons and year-round (Table 14.2). Hence, the Central Valley is important to seasonally at-risk species throughout the calendar year. At-risk species are unevenly distributed among the five planning

regions of the CVJV’s Primary Focus Area, with substantial portions of the total Central Valley populations of these species occurring in the Sacramento (19 species), Tulare (16 species), San Joaquin (14 species), Yolo-Delta (13 species), and Suisun (five species) planning regions (Table 14.2).

## Current Habitat

Primary habitat types in the Central Valley for at-risk birds are wetlands (18 species), various agricultural crops (eleven species), grasslands (ten species), riparian (seven species), oak woodland/oak savannah (two species), and saltbush scrub (two species) (Table 14.1; Shuford and Hertel 2017). As detailed in the other bird chapters, the current extent of habitat types varies by sub-region. The extent of some types varies greatly seasonally and annually, depending on the timing and extent of intentional flooding in managed wetlands and crops (during irrigation and postharvest) as well as natural flooding more broadly during periods of extreme precipitation and runoff. Some at-risk species use habitats not included elsewhere in the Plan, such as saltbush scrub, which was formerly widespread in the San Joaquin and Tulare planning regions but has declined greatly in extent in parallel with decreasing numbers of the LeConte’s thrasher (Fitton 2008). Likewise, some species (e.g., western grebe) use reservoirs and other open water bodies that are not accounted for in estimates of wetland extent in other bird chapters.

SPECIES	SEASON OF CONCERN	SACRAMENTO	SUISUN	YOLO-DELTA	SAN JOAQUIN	TULARE
Fulvous whistling-duck	breeding	--	--	--	--	•
Tule gr. white-fronted goose	wintering	●	•	--	--	
Redhead	breeding	●	--	--	●	●
Eared grebe	breeding	--	--	--	•	●
Western grebe	breeding	●	--	•	●	●
Yellow-billed cuckoo	breeding	•	--	--	--	--
Yellow rail	wintering	--	•	--	--	--
California black rail	year-round	●	●	●	--	--
Greater sandhill crane	wintering	●	--	●	•	--
Lesser sandhill crane	wintering	•	--	●	●	●
Snowy plover (interior)	breeding	--	--	•	•	●
Mountain plover	wintering	•	--	•	●	●
Whimbrel	migration	•	•	•	●	●
Long-billed curlew	non-breeding	•	•	●	●	●



Black tern	breeding	●	--	--	•	•
Forster's tern	breeding	--	--	--	•	●
Least bittern	breeding	●	•	•	•	●
Bald eagle	year-round	●	•	•	•	•
Northern harrier	breeding	●	●	●	●	●
Swainson's hawk	breeding	●	•	●	●	•
Burrowing owl	breeding	●	•	●	●	●
Long-eared owl	breeding	•	--	--	--	•
Short-eared owl	breeding	•	●	•	•	•
Loggerhead shrike	breeding	•	•	●	●	●
Least Bell's vireo	breeding	—	--	--	•	--
Yellow-billed magpie	year-round	●	--	●	•	•
Purple martin	breeding	•	--	--	--	--
Bank swallow	breeding	●	•	--	--	--
Oak titmouse	year-round	●	●	●	●	•
LeConte's thrasher	year-round	--	--	--	--	•
Oregon vesper sparrow	wintering	●	--	●	●	●
Grasshopper sparrow	breeding	•	?	•	•	--
"Modesto" song sparrow	year-round	●	--	●	--	--
Suisun song sparrow	year-round	--	●	--	--	--
Yellow-breasted chat	breeding	●	--	•	•	•
Yellow-headed blackbird	breeding	●	•	●	●	●
Tricolored blackbird	breeding	●	•	•	●	●
Yellow warbler	breeding	•	--	--	•	--

**Distribution across the five planning regions is designated as:**

- **Substantial:** This planning region supports a substantial portion of the species' population in the Central Valley. This category not used at all if the Valley-wide population of the species is very small.
- **Low to Modest:** This planning region supports a low to modest portion of the species' population in the Central Valley; or, the species occurs in the indicated planning region(s), but the entire population in the Valley is very small.

**TABLE 14.2 Patterns of current distribution of at-risk species during their "season of concern," across five planning regions of the Central Valley (Figure 14.1).** For species that occur in the Central Valley in more than one season (breeding, wintering, migration), the "season of concern" is the season for which there is conservation concern. "Non-breeding" encompasses wintering and migration seasons. "Year-round" indicates there is conservation concern for this species in the Valley during every season.

# CONSERVATION OBJECTIVES

The Plan does not define specific habitat or population objectives for at-risk species, except those that are included within one of the other bird chapters (referenced in Table 14.1). Of the 38 species identified as at risk, 19 (50 percent) have habitat and population objectives developed in other chapters of this Plan. Another 14 species use habitats in which species of their taxonomic or habitat group were evaluated but the at-risk species were not selected as focal species; still, some of these species are likely to benefit to some degree from the habitat objectives defined in the other chapters. Only five species were not otherwise addressed in the current Plan: bald eagle, purple martin, LeConte's thrasher, Suisun song sparrow, and yellow-headed blackbird.



(1) Water control structure, Gray Lodge Wildlife Area - Ducks Unlimited  
(2) Tricolored blackbird flock in a field farmed for silage - Samantha Arthur

# CONSERVATION CONSIDERATIONS FOR AT-RISK SPECIES

## Framework for Setting Objectives in Future Plan Updates

The CVJV endorses a framework for setting conservation objectives for at-risk species in the future that includes (1) evaluating assumptions about limiting factors, (2) considering adopting objectives already set for threatened or endangered species, (3) assessing whether objectives set for species groups or focal species meet the needs of at-risk species otherwise lacking objectives, (4) applying established methods to at-risk species with respect to habitats or seasons not currently addressed, and (5) determining whether new information is needed to effectively set objectives.

## Unique habitats and species

As noted earlier, some habitats important to at-risk species are not included in other chapters of this Plan. LeConte's thrasher is the only species dependent solely on saltbush scrub and so its conservation and management require a special focus on this habitat type. Additionally, purple martins currently nest in the Central Valley only under bridges in the Sacramento region (Airola and Williams 2008; Airola et al. 2014), but at present, the CVJV Plan does not consider urban cover types for conservation. Some species with very specialized ecological needs, such as the tricolored blackbird, face difficult conservation challenges, which may best be addressed by species-specific working groups (TBWG 2009).

## Multiple habitats

Some at-risk species use multiple habitats but currently have conservation objectives set for only one habitat. The northern harrier, for example, uses both grassland and wetland habitats, but conservation objectives have been set only for grasslands. Still, the wetland objectives that the Plan establishes for other taxonomic groups (e.g., breeding shorebirds and waterbirds) can also benefit the northern harrier, yellow-headed blackbird, and other at-risk species that use wetlands, as long as their needs are taken into consideration in habitat restoration, enhancement, and management decisions.

## Multiple Threats

There are multiple major threats for at-risk species in the Central Valley. The greatest of these is habitat loss and degradation, which affects all 38 species. Other important threats are crop conversion (compatible to incompatible; six species), invasive alien species (three species), pollution (e.g., pesticides or other contaminants; three species), and disease (two species) (Table 14.1).

For some at-risk species, limiting factors have changed over time or are obscure, complicating conservation efforts. The purple martin, for example, formerly nested in riparian trees

in the Sacramento Valley, but declines in its populations were closely linked to the expansion of the European starling (*Sturnus vulgaris*), which outcompetes martins for nesting cavities (Airola and Williams 2008). Starlings are no longer a major threat to the small remnant population of purple martins breeding under bridges in the Sacramento region (Airola et al. 2014). However, new factors have been contributing to a sharp decline in this martin population since 2006, including predation by American kestrels (*Falco sparverius*), vehicle collisions, and, perhaps, the large increase in use of neonicotinoid pesticides (Airola et al. 2014).

Similarly, the yellow-billed cuckoo continues to decline in the Sacramento Valley despite large-scale riparian habitat restoration over the past 30 years. An estimated 97 percent of suitable restored habitat appears to be unoccupied (Dettling et al. 2015). Hence the primary limiting factor for cuckoos may not currently be suitable breeding habitat in the Central Valley, but instead could be any of several other factors such as limitations of food resources, or the habitat quantity or quality on their wintering grounds or at migratory stopovers (Dettling et al. 2015). Because of the substantial losses of historical habitat in the Central Valley, the first assumption is that habitat loss and degradation is the primary limiting factor for most at-risk species. However, when habitat restoration appears to have limited success, further study is required to guide the most strategic conservation actions that should be considered, particularly for migratory species that spend large portions of their annual cycle outside the Central Valley.

## Recovery Plans for Threatened and Endangered Species

Of the eight at-risk bird species in the Central Valley that are currently state or federally listed, four have a recovery or conservation plan: Swainson's hawk (FOSH 2009), least Bell's vireo (USFWS 1998), bank swallow (CDFG 1992; BANS-TAC 2013), and tricolored blackbird (TBWG 2009). Of the four, only the plans for the vireo and the swallow have quantitative population or habitat objectives. In many cases, these recovery plans include detailed recommendations for the restoration and management of habitat for these species. When implementing restoration projects designed to meet the CVJV habitat objectives, it is strongly recommended that practitioners consult these recovery plans to ensure that any unique habitat requirements for at-risk species are met.

## SUCCESS STORY

### TRICOLORED BLACKBIRD WORKING GROUP

The Tricolored Blackbird Working Group was formed in 2004 to bring together state, federal, and academic biologists, non-governmental organizations, and industry representatives to address the population decline of tricolored blackbirds. This colonial-nesting species, found almost exclusively in California, has seen a decline of more than 80 percent from historical population levels. The working group's multifaceted, cooperative approach focuses on voluntary conservation actions.

Coordinated by Audubon California, the working group developed an updated conservation plan (TBWG 2009) and has collaborated with others to conduct triennial population surveys, enhance wetland and upland habitat, and protect tricolored blackbird nesting colonies established in forage crops (e.g., triticale and wheat).

Partnering with the working group, the Natural Resources Conservation Service enrolls farmers in practices to delay harvest of forage crops, thus allowing tricolored blackbird colonies to complete the nesting cycle. This effort has significantly reduced tricolored blackbird mortality, saving the reproductive output of more than 200,000 nesting birds in the past four years.



(1) Biologists banding a tricolored blackbird - USFWS (2) Tricolored blackbirds - Jerry Ting



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