

**Western Riverside County Multiple Species Habitat Conservation Plan  
Biological Monitoring Program  
2021 Wintering Tricolored Blackbird Surveys**

**INTRODUCTION**

The Tricolored Blackbird (*Agelaius tricolor*) is one of 45 bird species covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP; Dudek & Associates 2003) and is a Threatened species in the State of California. Most (>90%) breeding Tricolored Blackbirds are found in California's Central Valley (Hamilton 2000), with the remaining birds occurring in other lowland areas west of the Cascade and Sierra Nevada mountains (Beedy 2008). The statewide population is considered seriously reduced (>80%) since population estimates reported by Grinnell and Miller (1944), with a current estimate of 100,000–1,000,000 birds. The range size of Tricolored Blackbirds in California is stable ( $\leq 10\%$  reduced) or increasing since the publication of Grinnell and Miller (1944). Habitat loss, habitat degradation, or other human-induced threats are projected to seriously reduce (>20%) the species' population in California by 2028 (Beedy 2008).

Nonbreeding Tricolored Blackbirds in southern California typically roost in cattail (*Typha* spp.) and bulrush (*Scirpus* spp.) marshes and forage in agricultural land, grassland, playas and vernal pools, or riparian woodland and scrub (Dudek & Associates 2003; Beedy et al. 2020). Roosts and foraging flocks during the nonbreeding season (September–February; Beedy et al. 2020) may also include Brewer's Blackbirds (*Euphagus cyanocephalus*), Brown-headed Cowbirds (*Molothrus ater*), European Starlings (*Sturnus vulgaris*), Red-winged Blackbirds (*Agelaius phoeniceus*) or Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) (Orians 1961).

The MSHCP identifies six species objectives for Tricolored Blackbirds. Objective 1 requires the conservation of  $\geq 420$  ac ( $\geq 170$  ha) of primary habitat including freshwater marsh and cismontane alkali marsh within the Riverside Lowlands and Foothills Bioregions. Objective 2 requires the inclusion of five Core Areas, including Alberhill, Collier Marsh and Lake Elsinore grasslands, Mystic Lake/San Jacinto Wildlife Area, the San Jacinto River floodplain, and Vail Lake/Wilson Valley/eastern Temecula Creek. Objective 3 requires the conservation of  $\geq 66,510$  ac ( $\geq 26,916$  ha) of secondary habitat including agriculture land; grasslands; playas and vernal pools; and riparian scrub, woodland, and forest. Objective 4 requires the continued use of, and successful reproduction within, at least one Core Area every five years. Objective 5 requires ensuring the maintenance, preservation, or restoration of hydrological processes and habitat within the designated Core Areas. Finally, Objective 6 requires the inclusion within the Conservation Area of any known nesting locations, including a 100-m buffer around such locations (Dudek & Associates 2003).

Biological Monitoring Program (BMP) biologists have detected Tricolored Blackbirds 34 times on Conserved Land from September–February, which is considered the nonbreeding season for the species (Beedy et al. 2020). The majority of these detections ( $n = 30$ , or 88.2%) occurred within the Davis Unit of the San Jacinto Wildlife Area (WA), which is a Core Area

for the species. Two additional detections occurred along the San Jacinto River floodplain south of Perris, which is also a Core Area for Tricolored Blackbirds. The remaining two detections occurred in the grasslands south of Lake Mathews, and on the eastern end of Lake Hemet.

For this project, we will survey for Tricolored Blackbirds by driving roads within apparently suitable nonbreeding habitat in the five Core Areas identified by the MSHCP (Dudek & Associates 2003). We will attempt to locate flocks of Tricolored Blackbirds in these areas and determine the approximate number of Tricolored Blackbirds in each flock. We will survey each point once during November 2021.

### **Goals and Objectives**

1. Determine whether nonbreeding Tricolored Blackbirds are using any of the five Core Areas identified in the MSHCP.
  - a. Conduct driving surveys within apparently suitable habitat in the five Core Areas and estimate flock sizes when Tricolored Blackbirds are encountered.

## **METHODS**

### **Survey Design**

We began study site selection by selecting Tricolored Blackbird habitats that were identified as suitable secondary foraging habitat (i.e., agricultural land; grassland; playas and vernal pools; and riparian scrub, woodland, and forest) by the MSHCP (Dudek & Associates 2003) within our ArcGIS (ESRI 2019) vegetation layer (CDFG et al. 2005). After we identified appropriate Tricolored Blackbird habitat in GIS, we clipped that layer to a separate GIS layer consisting of Conserved Land within the five Core Areas identified by the MSHCP (Dudek & Associates 2003). Finally, we generated survey points along roadways within the secondary habitat, separated from one another by at least 500 m.

We will conduct roadway surveys for Tricolored Blackbirds by making single visits to survey points ( $n = 99$  points) within the five MSHCP-identified Core Areas (Fig. 1). During September and October 2021, we will visit all potential survey points within the aforementioned areas to determine their suitability for Tricolored Blackbirds, and to verify that they are accessible and within the aforementioned secondary habitat types.

### **Field Methods**

We will define individual survey efforts by a single survey point from which we will survey for Tricolored Blackbirds. We will survey each site once during this project and our surveys will occur during November 2021. We will conduct surveys in the morning, no earlier than 1 h after sunrise, by which time Tricolored Blackbirds have usually left their overnight roost sites to forage (Beedy et al. 2020). Finally, we will not conduct surveys during periods of rain or heavy fog, either of which will reduce our ability to detect Tricolored Blackbirds.

Surveys will begin when a pair of observers reaches a survey point. Upon arrival, observers will record on the datasheet (Appendix A) the date, their initials, and the survey point number. Next, observers will record the starting weather, temperature, and wind speed. After these initial data are recorded, observers will record on their datasheet the survey start time. Observers shall spend 5–10 min at each survey point, during which time they will scan the surrounding habitat for the presence of Tricolored Blackbird or co-occurring species including Brewer’s Blackbirds, Brown-headed Cowbirds, European Starlings, Red-winged Blackbirds, or Yellow-headed Blackbirds. If no Tricolored Blackbirds are detected during this time, observers will move on to the next survey point after completing the datasheet.

If observers detect Tricolored Blackbirds, they will spend an additional 10 min at the survey point. During this time the two observers will independently estimate the number of Tricolored Blackbirds that are present. Observers will then agree upon an overall estimate of the number of Tricolored Blackbirds present, and this estimate will be recorded on the datasheet.

## **TRAINING**

All field personnel will demonstrate proficiency at visual and aural identification of Tricolored Blackbirds, co-occurring blackbirds, and European Starlings. Biologists who participated in Purple Martin or California Spotted Owl surveys in 2021 will have demonstrated proficiency with these species, so will be considered qualified to conduct Tricolored Blackbird surveys. All personnel will also demonstrate proficiency with survey techniques before field surveys commence.

## **DATA MANAGEMENT**

While observers are in the field, they will collect data on paper datasheets that are designed to correspond with a data entry form within the MSHCP electronic database. This will assure inferential integrity of collected data. After observers have returned to the office, they will enter their field data into an electronic Microsoft Access database, after which the data sheet will be marked as having been entered. Datasheets that have been entered into the database will be double-checked by another biologist and subsequently certified by the data manager.

## **DATA ANALYSIS**

Because we are conducting single-visit surveys, we do not anticipate conducting any analyses on the data.

## TIMELINE

- Summer 2021: GIS work, specifically identifying habitat, assigning survey points.
- September and October 2021: Distribution of study materials, getting access to survey areas, and ground-truthing potential survey sites.
- November 2021: Surveys will be conducted. Data will be entered concurrently with surveys.
- Winter 2021–2022: Report writing.

## LITERATURE CITED

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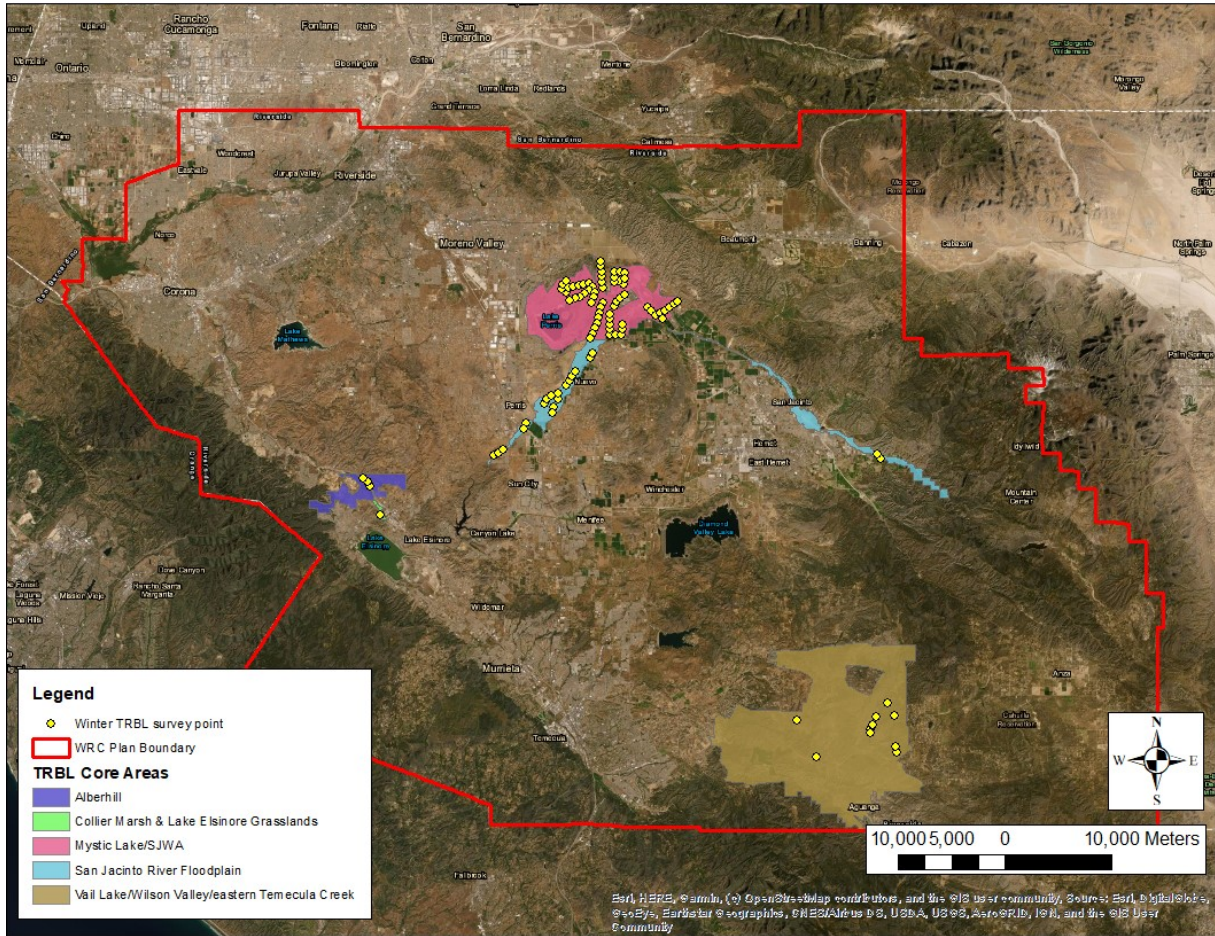


Figure 1. Locations of 2021 Tricolored Blackbird (TRBL) survey points within the Core Areas identified by the MSHCP.

**Appendix A.** 2021 Tricolored Blackbird survey datasheet.

MSHCP Wintering Tricolored Blackbird Datasheet, 2021

Point ID: TB21- \_\_\_\_\_ Date: \_\_\_\_\_ Observers: \_\_\_\_\_  
 Start time: \_\_\_\_\_ End time: \_\_\_\_\_

Site conditions

	Interval	Result	Units
Average wind	@ start		km/h
Maximum wind	@ start		km/h
Temperature	@ start		°C
Sky code <sup>1</sup>	@ start		N/A
Noise <sup>2</sup>	@ start		N/A

Co-occurring species present (circle all that apply):    BHCO   BRBL   EUST   RWBL   YHBL   None

Are TRBL present?    Yes    No

If TRBL are present, provide estimates of counts below:

	Female	Male
Adult		
Immature		
Unknown age/sex		

Notes:

<sup>1</sup> Sky condition codes: 0 = clear or few clouds, 1 = partly cloudy, 2 = overcast, 3 = fog or smoke, 4 = light drizzle, 5 = constant snow.

<sup>2</sup> Noise codes: 0 = no noise, 1 = noise, but not affecting bird detection, 2 = moderate noise, may be affecting detection, 3 = loud noise, reducing ability to detect birds, 4 = very loud noise, difficult to hear anything at all.