# On the edge of extinction: Can the Tricolored Blackbird (Agelaius tricolor) persist in Mexico?

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### Historical Status

 "rather common along the northwest coast, breeding in all freshwater marshes"

 A. W. Anthony, quoted by W. E. Bryant. 1889. A catalogue of the birds of Lower California, Mexico. Proceedings of the California Academy of Sciences, series 2, 2: 237-320.
 "fairly common resident locally in the northwestern section of the territory, north from about 30°"
 J. Grinnell. 1928. A distributional summation of the ornithology of Lower California. University of California Publications in Zoology 32:1-300.

**Summary.** The highly colonial Tricolored Blackbird is of extreme conservation concern throughout its range. In Mexico, the species is resident in northwestern Baja California, where it was generally considered common 100 years ago. We conducted nesting surveys throughout the Mexican range in 2007, 2008, 2013, and 2016. During this period, nesting was confirmed at six locations but annual averages were 2.75 (range 1-4) occupied sites and approximately 425



Water levels and wetland conditions vary greatly from year to year at Presa Rodríguez, which provides water for the City of Tijuana. Wetland conditions were excellent in 2016, when approximately 250 Tricolored Blackbirds nested successfully at two locations on the lake. Nesting was also confirmed in 2002 and 2008, but did not occur in 2007 and 2013.

Other species of regional conservation concern known to, or believed to, nest at the reservoir at least intermittently include Western (*Aechmophorus occidentalis*) and Clark's (*A. clarkii*) Grebes, Least Bittern (*Ixobrychus exilis*), White-faced Ibis (*Plegadis chihi*), Least Bell's Vireo (*Vireo bellii pusillus*), Clark's Marsh Wren (*Cistothorus palustris clarkae*), Yellow Warbler (*Setophaga petechia*), and Yellowbreasted Chat (*Icteria virens*).

Photo 3 May 2016 by Richard A. Erickson







With ongoing residential/industrial and unfavorable agricultural development (e.g., viticulture), increasing groundwater pumping, and predicted reductions in annual rainfall due to global warming, Mexican Tricolored Blackbirds have obvious challenges ahead. Measures that would benefit the species include official designation as endangered; rigorous annual monitoring of the nesting population; protection of nesting areas through land purchase and appropriate agricultural zoning and allocation of water rights; creation and maintenance of wetland nesting habitat at farm ponds and elsewhere; and public education. Rich opportunities are available for conservation research on this endangered species in Mexico.

Tricolored Blackbirds have nested at two locations at Ciénega Redonda, including this public use park setting (parque recreativo) where approximately 75 birds nested successfully in 2016.

Photo 1 May 2016 by Richard A. Erickson



The main marsh at Ciénega Redonda hosted approximatey 250 nesting Tricolored Blackbirds in 2013 and 2016, but the effort was largely unsuccessful in 2016.

Photo 1 May 2016 by Richard A. Erickson



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	Reside	nt		2005-06	Rainfa San Quintín 33.1	ll Data (in mm) 16 other sites 124.7	San Diego 152.4
	Breeding			2006-07	13.1	100	99.1
				2007-08	43	223.3	182.9
				2008-09	2.6	239.3	231.1
	Our Recent Nesting Survey Results			2009-10	46.6	444.5	266.7
				2010-11	88.4	325.7	317.5
	2007			2011-12	83.3	219.2	203.2
	2000	1 colony at 31.6° 440 birds 4 colonies, south to 30.0°		2012-13	150.5	197.9	165.1
	2008		ר ח <sup>ס</sup> ר	2013-14	26.3	105.3	127
	2013 280 birds 2 colonies, south to 30.0° 2016 850 birds		5.0	2014-15	84.7	225.8	228.6
			).0°	2015-16			279.4
		3 colonies, south to 32	2.4° (<20 k	m south	of the US bord	ler)	

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Ensenada

## **Obvious Threats**

Habitat loss due to:

- residential/industrial development
- unfavorable agricultural development (e.g., viticulture)
- increasing groundwater pumping
- predicted reductions in annual rainfall due to global warming

### **Recommendations and Research Opportunities**

Measures that would benefit the species include:



At >1200m elevation in the Sierra de Juárez, Rancho Japá (shown here) and Rancho Tres Pozos (2005 only) are the highest known nesting sites for Tricolored Blackbirds in Mexico. Approximatey 300 birds were mostly unsuccessful at several patches of emergent marsh on this reservoir in 2016. Nesting was confirmed below the dam in 2008, but did not occur in 2007 and 2013.

Photo 1 May 2016 by Richard A. Erickson



The agricultural Ojos Negros Valley has consistently supported large numbers of Tricolored Blackbirds, but nesting habitat is generally lacking and the species has not been confirmed nesting since 1885. Active creation of nesting habitat might be very effective there. With a little help, a sump like the one shown here could support nesting birds.

Photo 4 May 2013 by Jon S. Feenstra



- official designation as endangered in Mexico
- partnership of Mexican and U.S. agencies and NGOs to identify, monitor, and protect the species in the border region
- rigorous annual monitoring of the nesting population
- protection of nesting areas through land purchase (where land prices are still modest) and appropriate agricultural zoning and allocation of water rights
- creation and maintenance of wetland nesting habitat at farm ponds and elsewhere
- public education.

### Research Questions (with Mexican graduate students in mind, where research dollars go further)

- how interconnected are Mexican and California populations?
- how much site fidelity is there at colony sites?
- how vulnerable/interconnected is the El Rosario "population"?
- what are primary foraging areas (and prey), during nesting and afterward?
- what are primary causes of nest failure, and what can be done to increase productivity?
- what are the factors influencing overwinter survival?
- what must be done to create suitable nesting sites?
- what must be done to maintain, enhance, and rejuvenate existing nesting sites?
- what must be done to ensure that Tricolored Blackbirds coexist in an increasingly human environment in Baja California?

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In the saddle between the Sierras de Juárez and San Pedro Mártir, as many as 100 Tricolored Blackbirds nested at the reservoir at Héroes de la Independencia from 1997 to 2008. Trees have since grown up at the colony site below the dam, making conditions unsuitable for nesting.

Photo 2 May 2016 by Richard A. Erickson



At the south end of the species' range, Tricolored Blackbirds have been known from the El Rosario area since at least 1906, but nesting was not confirmed until 2008 when 200 birds were so engaged. Nesting was confirmed along the Arroyo de El Rosario again in 2013 (colony site shown here), but since then numbers have plummeted in the area, with only four birds seen south of Héroes de la Independencia in all of 2016.

Photo 3 May 2013 by Jon S. Feenstra