Yellow-headed Blackbird

(*Xanthocephalus xanthocephalus*)

© Peter LaTourrette

Legal Status
Federal: None
State: Species of Special Concern

Global and State Conservation Status: G5S3S4: Global rank, G5 = Secure: Common; widespread and abundant; State rank, S3S4 = somewhere between an S3 which indicates vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation, and an S4 which indicates uncommon but not rare; some cause for long-term concern due to declines or other factors.

Recovery Plan: None

Species Description and Life History

Yellow-headed blackbirds (*Xanthocephalus xanthocephalus*) are short to medium-distance migrants that nest primarily in dense, tall or moderately tall freshwater marshes of the western United States, including in California. They winter in California, Arizona, New Mexico, Texas, and northern Mexico (Twedt and Crawford 1995). Yellow-headed blackbirds are larger than other familiar blackbirds and adult males are unmistakable with their black bodies with striking yellow heads and white wing patches. Females and immature males are blackish-brown with dull yellow on the face and breast.

Seasonal Patterns

Arriving on their breeding grounds in April or May, yellow-headed blackbirds nest in freshwater marshes in tall, emergent, wetland vegetation. Their colonies are relatively small compared to another Species of Special Concern in California (and Yolo County), the tricolored blackbird (Beedy and Hamilton 1999), with colony size found to range from 5-150 pairs during a 1971 survey throughout California (Crase and DeHaven 1972). Shortly after breeding, males leave the breeding grounds and forage in marshlands near their breeding sites, and occasionally they may use nearby agricultural fields. (Twedt and Crawford 1995). Non-breeding flocks are often segregated by sex (Crase and DeHaven 1972). Flocks consisting of 10,000 males have been documented during the non-breeding season along the lower Colorado River Valley (Rosenberg *et al.* 1991), and other large flocks of males have been noted in the Sacramento Valley (Crase and DeHaven 1972, Sterling pers. obs.).

Reproduction

Yellow-headed blackbirds are polygynous, colonial-nesting birds. Males can have as many as seven females within a harem. Females build nests in dead or new emergent vegetation over water—often in vegetation over the deepest water in the marsh (Picman and Isabelle 1995, Twedt and Crawford 1995). They typically initiate egg laying in late-April, within a few days after nest construction is complete and clutches usually comprise 2-5 eggs. Females incubate the eggs alone for 12-13 days. Until they are 4 days old, nestlings are fed exclusively by the female, but afterwards are fed by both parents until they fledge in 9-12 days after hatching (Twedt and Crawford 1995). In Manitoba, nesting success was measured at 41% (n = 447 nests), with predation the primary cause of nest failure (Picman and Isabelle 1995).

Home Range/Territory Size

Males establish nesting territories that they defend against other males within the same colony. Territory size varies primarily with habitat quality, and is related to the local abundance of food—denser colonies and smaller territories are typically found in the most productive foraging areas. Mean territory sizes range from about 120 m^2 in Utah (Fautin 1940) up to about 1,930 m^2 in Washington (Willson 1966). The average area covered with emergent vegetation ranges from 35 to 77%, and there are fewer females per male on lower-quality territories (Willson 1966). Territories are not maintained during winter, when most birds aggregate into large flocks and travel large distances in search of productive feeding areas (Twedt and Crawford 1995).

Foraging Behavior and Diet

Although a comprehensive dietary study has not been conducted in the Central Valley, one such study in the northern Great Plains demonstrated temporal and geographic variation in diet (Twedt *et al.* 1991). During the breeding season, diets consists primarily of aquatic insects associated with their breeding habitat, but during the post-breeding period in summer, fall and winter, they may also forage in nearby agricultural fields , where a variety of grains (sunflower, wheat, oats, corn, millet) and weed seeds were consumed (Twedt *et al.* 1991). In some areas, sunflower seeds were an important food for males during the non-breeding season. Sexual differences in diet occurred primarily during the breeding season, when females consumed more insects and males consumed more cultivated grains (Twedt *et al.* 1991). Hatching-year birds also consumed more insects and small weed seeds than did adults (Twedt and Crawford 1995). Diets of nesting males also varied according to the amount of available prey within their marsh breeding habitat. In productive marshes, much of their diet comprised aquatic insects, but in non-productive marshes, males fed much more frequently in nearby upland areas on terrestrial insects and grains.

Habitat Requirements and Ecology

Nesting

In California, yellow-headed blackbirds are found year-round, but breed and winter in different locations and habitats. They are restricted to breeding in freshwater marshes with stands of tule, cattail, bulrush (Twedt and Crawford 1995, Ward and Weatherhead 2005). Water depth is an important parameter for successful nest sites, as deep water levels reduce the number and diversity of predators that have access to nests (Picman *et al.* 1993) and controls vegetative cover and structure (Lederer *et al.* 1975). Mean water depth at occupied nesting colonies in Manitoba ranged from about 29 to 38 cm (Picman and Isabelle 1995). If water levels are allowed to drop due to evaporation or water diversions, nesting colonies may be abandoned or otherwise fail (Twedt and Crawford 1995). However, if water levels are too deep emergent vegetation growth may be delayed and not provide the structure and percent cover to support suitable nest sites, as was found in a Lassen County marsh with water levels of 1.1 m (Lederer 1975).

Reproductive success is positively correlated with distance of nest from marsh wren territories; marsh wrens often puncture the eggs of yellow-headed blackbirds, and other marsh-nesting species. An experimental study found that yellow-headed blackbirds monitored marsh wren locations by listening to wren vocalization, and males defended territories from marsh wren intrusion, while females defended active nests from the wrens (Bump 1986). Thus, marshes are often spatially segregated between the two antagonistic species (Picman and Isabelle 1995, Leonard and Picman 1986, Verner 1975). This spatial segregation is based upon aggressive exclusion rather than differences in habitat or microhabitat preferences (Leonard and Picman 1986); however, in a more recent study ((Linz *et al*. 1996) percent cover of live marsh vegetation was positively correlated with yellow-headed blackbird abundance, and alterations in cattail density resulted in reduced blackbird breeding populations.

Foraging

In the Central Valley, important foraging areas for nesting yellow-headed blackbirds tend to be in pastures, and agricultural crops, especially in alfalfa fields where insect prey are abundant (Crase and DeHaven 1972, Twedt and Crawford 1995) and rice fields up to 1 km from freshwater marshes supporting breeding colonies (Twedt and Crawford 1995). Yellow-headed blackbirds winter primarily in sexually-segregated flocks in agricultural fields and pastures; rarely do they mix with other blackbird species in mixed-flocks.

Species Distribution and Population Trends

Distribution

Yellow-headed blackbirds breed throughout much of the interior western United States and winter primarily in Arizona, New Mexico, Texas, and Mexico, as well as at a few locations in California (Twedt and Crawford 1995, Jaramillo 2008,). In California, they

winter in isolated sites in the Central Valley and Delta region, as well as the Lower Colorado River Valley and the Imperial Valley (Jaramillo 2008, Crase and DeHaven 1972, Rosenberg *et al.* 1991, Twedt and Crawford 1995).

Population Trends

Declines in populations of the yellow-headed blackbird in California are a result of habitat loss (wetland drainage for irrigation, flood control or water diversion; Jaramillo 2008) and sometimes competitive exclusion from great-tailed grackles (*Quiscalus mexicanus*) that have invaded California and have spread northward in the Central Valley in recent years. The potential effects of pesticides on nestling mortality have been hypothesized (Twedt and Crawford 1995), but there are no specific studies of the effect of pesticides on the species (Jaramillo 2008), Because there were no estimates of historical population levels in California, the extent of population declines is not fully understood (Twedt and Crawford 1995).

Distribution and Population Trends in the Plan Area

Yellow-headed blackbirds are uncommon nesters (from April through June), and rare winter visitors in Yolo County (Yolo Audubon Society Checklist Committee 2004). Until the late 1980s, small colonies (about 15-20 pairs) nested in most years at the Spreckle's Sugar Ponds, north of Woodland, and at the Trestle Ponds, along Highway 16, just east of Woodland (Beedy 1993). The Sugar Ponds were drained and leveled in the mid-1980s, and the colony at the Trestle Ponds has occupied this site only intermittently in recent years. In more recent years, small numbers (i.e., a few pairs) have also nested at the City of Davis Wastewater Treatment Facility (Meese pers. comm.). Potentially suitable breeding habitat areas also exist at the recently restored wetlands at the Yolo Bypass Wildlife Area and at Roosevelt Ranch.

Threats to the Species and Other Conservation Issues

Throughout their range in North America, the primary threats to yellow-headed blackbirds have been the conversion of wetlands to croplands and urbanization, and this has been especially true in the Central Valley (Twedt and Crawford 1995). Abrupt changes in water levels of occupied marshes can also cause nesting failures and abandonment (Jaramillo 2008). Additionally, nesting females are easily disturbed by humans (including researchers) entering active colonies, or approaching them too closely (Twedt and Crawford 1995).

Aggressive marsh wrens can destroy blackbird eggs and/or kill nestlings (Verner 1975) and are considered to represent the most important nest "predator" on these birds (Picman and Isabelle 1995). Mammalian and avian egg/nestling predators such as mink (*Mustela vison*) and black-crowned night-heron (*Nycticorax nycticorax*) may threaten nesting colonies. The threat of competitive exclusion at nesting sites from great-tailed grackles needs to be studied and evaluated. Similar to tricolored blackbirds, the colonial nesting

behavior of yellow-headed blackbirds permits them to observe and warn each other of approaching predators (Picman *et al.* 2002).

Since they breed and forage almost exclusively in agricultural environments, yellow-headed blackbirds are often exposed to a variety of pesticides and herbicides, and aerial-applied compounds can drift into occupied colonies resulting in mortality of nestlings (Twedt and Crawford 1995). The impacts of pesticides in the diet of yellow-headed blackbirds are not fully understood and have not been evaluated in California (Jaramillo 2008).

Significant data gaps relating to many aspects of the ecology of the yellow-headed blackbird exist, including: the effects of pesticides on reproductive success, minimum patch size for successful breeding colonies, parameters of population sinks, dispersal distances of juveniles from nesting colonies, foraging distances of nesting adults, sources of direct mortality, competition and exclusion from breeding sites by great-tailed grackles, local effects of marsh wren aggression on nesting success, site fidelity and movement on their wintering grounds, winter diet, and foraging ecology.

Many wetland areas in the Central Valley appear to be unoccupied, but apparently represent suitable habitat for yellow-headed blackbird (Sterling pers. obs.). In addition, factors determining local population fluctuations need to be fully understood in order to guide effective management actions to increase and stabilize populations at local carrying capacity.

Contributors to this species account:

John Sterling, HT Harvey & Associates
Jim Estep, Independent Biological Consultant
Ted Beedy, Independent Biological Consultant

References

Photo Credit: June 2007 © Peter LaTourrette www.birdphotography.com

Beedy, E. C. 1993. Checklist of the birds of Yolo County. Yolo Audubon Society, Davis, CA.

Bump, S. R. 1986. Yellow-headed Blackbird Nest Defense: Aggressive Responses to Marsh Wrens. Condor 88: 328-335.

California Natural Diversity Data Base (CNDDB). 2005. Rarefind. California Department of Fish and Game, Sacramento, California.

Crase, F. T., and R. W. DeHaven. 1972. Current breeding status of the Yellow-headed Blackbird in California. Calif. Birds 3: 39–42.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Pac. Coast Avifauna no. 27. Cooper Ornith. Society. 608 pp.

Jaramillo, A. 2008 Yellow-headed Blackbird. In Shuford, W. D., and Gardali, T., eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Lederer, R. J., W. S. Mazen, P. J. Metropulos. 1975. Population fluctuation in a Yellow-headed Blackbird marsh. West. Birds 6: 1–6.

Leonard, M. L. and J. Picman. 1986. Why are Nesting Marsh Wrens and Yellow-headed Blackbirds Spatially Segregated? Auk 103:135-140.

Linz, G. M., D. C. Blixt, D. L. Bergman, and W. J. Bleier. 1996. Responses of Red-winged Blackbirds, Yellow-headed Blackbirds, and Marsh Wrens to glyphosate-induced alterations in cattail density. J. Field Ornithol. 67: 167-176.

Picman, J., Pribil, S., and Isabelle, A. 2002. Antipredation value of colonial nesting in yellow-headed blackbirds . Auk 119:461– 72 .

Picman, J. and A. Isabelle. 1995. Sources of Nesting Mortality and Correlates of Nesting Success in Yellow-headed Blackbirds. Auk 112: 183-191.

Picman, J., M. L. Milks, and M. Leptich. 1993. Patterns of Predation on Passerine Nests in Marshes: Effects of Water Depth and Distance from Edge. Auk 110: 89-94.

Rosenberg, K. V., R. D. Ohmart, W. C. Hunter, B. W. Anderson. 1991. Birds of the lower Colorado River Valley. Univ. of Arizona Press, Tucson.

Twedt, D. J., W. J. Bleier, and G. M. Linz. 1991. Geographic and Temporal Variation in the Diet of Yellow-headed Blackbirds. Condor 93: 975-986.

Twedt, D. J., and R. D. Crawford. 1995. Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*). In The Birds of North America, No. 192 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

Verner, J. 1975. Interspecific aggression between Yellow-headed Blackbirds and Long-billed Marsh Wrens. Condor 77: 328–331.

Ward, Patrick J. Weatherhead. 2005. Sex-specific differences in site fidelity and the cost of dispersal in yellow-headed blackbirds. Behavioral Ecology and Sociobiology [Behav. Ecol. Sociobiol.]. Vol. 59, no. 1, pp. 108-114. Nov 2005.

Yolo Audubon Society Checklist Committee. 2004. Checklist of the Birds of Yolo County, California. Revised April 2004. Yolo Audubon Society, Davis, CA.

Personal Communication

Meese, Robert. Tricolored Blackbird research biologist, University of California, Davis. January 28, 2008 email correspondence.