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## EFFECT OF PLUMAGE WEAR ON THE IDENTIFICATION OF FEMALE RED-WINGED AND TRICOLORED BLACKBIRDS

PHILIP UNITT, Department of Birds and Mammals, San Diego Natural History Museum, P. O. Box 121390, San Diego, California 92112-1390

Among the more difficult bird-identification problems in western North America—at least in Oregon, California, and northern Baja California—is how to distinguish the Red-winged Blackbird (*Agelaius phoeniceus*) and Tricolored Blackbird (*A. tricolor*), especially females. None of the major field guides covers the problem thoroughly. The National Geographic Society guide covers the issue best in text, but in no guide are there illustrations of the difference wrought by the most critical factor: feather wear.

The four photos on this issue's back cover compare the females of the two species in both fresh and worn plumage. The species are more easily distinguished in fall or winter when in fresh plumage. The fresh female of the Red-winged has rich chestnut and buff edges on the upperpart feathers, including the wing coverts and tertials. The shade and relative amount of chestnut and buff vary greatly among the Red-winged Blackbird's subspecies: 19–25, according to various studies (Ridgway 1902, van Rossem 1926, Power 1970, Dickerman 1974, Oberholser 1974, Browning 1990). At least nine of these subspecies occur in the western United States, seven in California. The Red-winged Blackbird in the upper left corner of this issue's back cover, photographed at Ramer Lake, Imperial County, California, is *A. p. sonoriensis*, in which the buff edges are broad and pale. In western North America, the opposite extremes are found in *A. p. caurinus* of the Pacific Northwest, in which most of the edges are a beautiful deep chestnut, and in *A. p. mailliardorum* of coastal central California, in which the edges are narrow and dull, leaving the upperparts largely black (Ridgway 1902, van Rossem 1926, pers. obs. of specimens in San Diego Natural History Museum). Although first-year male Red-winged Blackbirds have considerable (if variable) white streaking distinguishing them from older males, in female Red-winged Blackbirds first-year and older birds are essentially identical.

The monotypic Tricolored Blackbird is most similar to subspecies *mailliardorum* of the Red-winged. The edges on the feathers of both the upperparts and underparts are medium gray and diffuse. The edges of the newly grown tertials and wing coverts are somewhat brownish, as seen in the upper right image on the back cover, of a female Tricolored at Lakeside, San Diego County, California, 12 August 2004. On this date many of the birds from this colony were just finishing molt, with the outermost primary or two still growing in. Even in subspecies *mailliardorum* of the Red-winged, there is some contrast between the chestnut edges on the scapulars and the dull buff edges on the rest of the upperpart feathers. Also, even in this darkest western subspecies of the Red-winged, the whiter edges on the throat feathers make for underparts more contrasting than in the Tricolored. Though present only on females more than one year old, any hint of pink on the throat identifies the Red-winged.

After fledging, these blackbirds molt only once per year, in late summer (Jaramillo and Burke 1999). Among about 600 specimens of the Red-winged and Tricolored from western North America, I see no evidence for any significant molt of body feathers in spring. On the basis of studies in Quebec and Ohio, however, Greenwood et al. (1983) reported some molt of Red-winged Blackbirds in spring, especially frequent and extensive in one-year-old females. Thus, as in the Marsh Wren (*Cistothorus palustris*), there may be geographic variation in the presence or absence of spring molt (Unitt et al. 1996). In the West, the Red-winged and Tricolored are in fresh plum-

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age in the fall only. Through the winter and spring the feather edges, be they gray, buff, or chestnut, wear off, leaving the bird looking drabber and blacker as summer approaches. This process also obliterates the most obvious differences between the Red-winged and Tricolored, as well as among the subspecies of the Red-winged. In the two lower photos on the back cover, of females in worn plumage, perhaps the most obvious difference remaining is the white tips of the median wing coverts of the Tricolored, on the right (photographed in Kern County on 1 May 2004). In the Red-winged, on the left, these edges are duller and narrower. But the difference is not entirely consistent; by late spring some Tricolored Blackbirds are so worn that even their broader edges on the median coverts are lost. And some Red-wingeds retain edges as broad and white as in the average Tricolored.

In most subspecies of the Red-winged the worn females can be distinguished from the worn Tricolored by some white streaks still remaining on the belly. But in subspecies *mailliardorum*, *californicus* (occurring in California's Central Valley), and *aciculatus* (restricted to South Fork Valley and Walker Basin, Kern County, California), the belly of the worn female is as uniformly black as in the Tricolored. Jaramillo and Burke (1999) concluded that in the range of these subspecies worn females cannot be distinguished except by wing formula. Another source of possible confusion is that in the juvenile plumage of the Tricolored the belly is completely streaked.

One difference evident in the photos is the thicker bill of the Red-winged versus the thinner bill of the Tricolored. The subspecies of the Red-winged, however, vary greatly in bill shape. In the western United States, the thinnest-billed subspecies is *aciculatus*, in which bill length divided by bill depth is about 2.1 (van Rossem 1926). The thickest-billed is *fortis*, occupying the Great Plains and Rocky Mountains, in which this figure is about 1.6 (Ridgway 1902). Photographed on 27 May 2004 at Butterbredt Spring on the desert slope of Kern County, the worn Red-winged shown on the back cover is not at a nesting site reported for any subspecies; on the basis of its largely black belly and fairly thick bill it is probably a wanderer of *californicus*, in which bill length divided by bill depth is about 1.8. In *aciculatus* the bill is as long and thin as in the Tricolored, in which bill length divided by bill depth is about 2.0 (Ridgway 1902). In *mailliardorum*, the subspecies of the Red-winged most similar to the Tricolored, this figure is about 1.9, so of marginal value in the field. Pyle (1997: table 11), measuring bill depth from the tip of the nares, a method different from van Rossem's (1926), gave the following ranges for bill length divided by bill depth: 1.94–2.51 in the female Red-winged (all subspecies pooled?), 2.41–3.00 in the female Tricolored.

The Red-winged and Tricolored Blackbirds differ in wing shape, the Tricolored having a more pointed wing than even the northern, migratory subspecies *arctolegus* of the Red-winged. In the Red-winged, primary 9 (the outermost) is shorter than primary 6, whereas in the Tricolored it is longer (Jaramillo and Burke 1999). In the folded wing this difference is visible in the gap between primary 6 and primaries 7 and 8, which make up the wing tip. In the Tricolored this gap is about 5 mm, whereas in the Red-winged it is less than 1 mm. But in the field, where all the primaries cannot be counted, distinguishing the gap between primaries 6 and 7 in the Tricolored from the gap between primaries 5 and 6 in the Red-winged is probably impossible. Complications are variable breakage of the primary tips when the birds are in worn plumage and the schedule of wing molt, which may extend at least from early July to the end of September (specimens in San Diego Natural History Museum).

In the field, some worn female blackbirds are better identified by behavior than by plumage. At the time of year when they are most similar, their profound differences in nesting biology identify them readily. The Red-winged follows a strategy more or less traditional for a songbird, with each male advertising a territory and defending it from other males—though each male may have a harem of several females nesting within its territory. The Tricolored Blackbird, on the other hand, follows the model of colonial seabirds. Males maintain no individual territories, and females may nest

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barely out of pecking distance of each other. Unfortunately, the Tricolor's intensely social habits put it at risk. Numbers throughout the species' range have declined seriously, especially in coastal southern California (Beedy and Hamilton 1999). Accurate identification of blackbirds is no longer an academic question for ornithologists and birders. It has become a skill vital to the conservation of a bird following an evolutionary path unique among North American passerines.

For more on the Red-winged and Tricolored Blackbirds from the perspective of coastal southern California, see <http://www.sdnhm.org/research/birdatlas/focus/blkbirds.html>, an article I wrote for the San Diego County bird atlas newsletter.

Thanks to Jack Daynes, Peter LaTourrette, and Bob Steele for contributing the photos. Jack Daynes made several field trips especially for this article, attempting to photograph both the Red-winged and Tricolored Blackbirds in fresh plumage. Peter LaTourrette worked with me patiently while we struggled to recruit photos as comparable as possible of each species. Thanks to Alvaro Jaramillo and Peter Pyle for their thoughtful reviews. And thanks to Peter LaTourrette and Joseph Morlan for suggesting this topic in the first place.

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