

## SHORT COMMUNICATIONS

### Two Apparent Hybrid *Zonotrichia* Sparrows

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Hybrid sparrows have been described between the currently recognized genera *Zonotrichia* and *Junco* (Townsend 1883, Short and Simon 1965) and *Zonotrichia* and *Melospiza* (Dickerman 1961). Except for an apparent wild hybrid between *Z. atricapilla* and *Z. leucophrys* described by Miller (1940), hybrids are not known to occur between species within the genus *Zonotrichia*. Here I report two apparent instances of such hybridization.

*Hybrid Zonotrichia atricapilla* × *albicollis*.—On 12 January 1978, J. N. Wykoff captured an oddly plumaged crowned sparrow at the Battle Creek Public Schools Outdoor Education Center at Dowling, Barry County, Michigan. After it was photographed and measured, the bird was released at the banding site, where it flocked with White-throated Sparrows (*Z. albicollis*). The bird was observed by many birders from January until 3 April and was identified as a Golden-crowned Sparrow (*Z. atricapilla*) (Pinkowski 1978, pp. 88, 92). Another Golden-crowned Sparrow was identified by sight in Michigan in October 1976, 80 km from the same location (Pinkowski 1978). Upon examining the photographs and comparing them with museum specimens, I concluded that the banded bird was probably a hybrid Golden-crowned Sparrow × White-throated Sparrow.

The crown was yellow (lemon yellow, not gold, in three Kodachrome slides) from 1–2 mm behind the base of the bill to the level of the eyes, and the yellow extended laterally to the thin blackish-brown stripe on the side of the crown. Behind the yellow area the crown color changed abruptly to pale brownish-gray. The crown, mainly the area behind the yellow, was finely streaked with black throughout. A dark stripe extended back from the base of the mandible along the edge of the crown; the stripe was thick only at the base of the bill. A whitish superciliary stripe extended from near the base of the bill back to the supraocular region. The whitish stripe was replaced by lemon yellow about 3 mm behind the bill to the area above the eye. A blackish stripe ran below the whitish stripe from the bill to the eye, then beyond the eye for the same distance (Fig. 1). The throat was immaculate white, bordered by a thin blackish malar streak. The scapulars were grayish, not rufous, in the color photograph, but as no color standard was available, the color is questionable. The bend of the wing was white, not yellow. The anterior underparts were slightly olivaceous gray, though again the lack of a color standard makes the color indeterminate.

The plumage of the bird is in part a mosaic of characters of *Z. atricapilla* and *Z. albicollis* and in part intermediate between these two species (Fig. 2). The color and extent of the yellow crown patch, the finely streaked crown, the gray posterior crown, the lack of a thick eye stripe, the (questionable) color of the scapulars and underparts, and the white carpals all suggest *Z. atricapilla*. The extent of yellow and the streaking of the crown matches plumage class "4" of *Z. atricapilla* (Stoner 1955, p. 29). Maillard (1932) found that individual (banded) wild Golden-crowned Sparrows sometimes retained a head pattern with even less gold and more streaks over 3 successive years, so age cannot be determined by the crown color in wintering birds of that species. The whitish superciliary stripe, the yellow above the eye, the white throat, and the blackish malar streaks of the Michigan bird all suggest *Z. albicollis*. Immature winter *Z. atricapilla* commonly have a light gray superciliary stripe. Sibley (1956) described an adult Golden-crowned Sparrow with a completely white throat and two others with a partly white throat. The white-throated Golden-crowned Sparrow specimen (Cornell no. 24800) lacks the black border to the white throat. Some specimens (e.g. UMMZ 167,782) have a light throat with a dark border, but none has as prominent a mark as the Michigan bird nor as the illustration of an immature Golden-crowned Sparrow in Robbins et al. (1966). Some adult Golden-crowned Sparrows have yellow over the eye, and Miller (1940) noted yellow in the superciliary stripe of a hybrid *Z. atricapilla* × *Z. leucophrys gambelii*. He found that yellow pigment normally is present but is masked by black in *atricapilla*. Yellow does not extend forward to the bill in the Michigan bird as it does in adult *Z. albicollis*. Although these plumage features occur in occasional individuals of *Z. atricapilla*, I know of no specimen of that species that has all of these plumage features characteristic of *Z. albicollis*. The dark eye stripe extends farther posteriorly than in any *Z. atricapilla*, but it is not as pronounced as in *Z. albicollis*, and it is intermediate in extent as compared to the two apparent parental species.

Wing length of the Michigan bird was 73.7 mm (chord), and the tail was 77.0 mm (rule inserted to base of rectrices); measurements of the banded bird were taken by Ray Adams of the Kalamazoo Nature



Fig. 1. Apparent hybrid *Zonotrichia atricapilla* × *albicollis*, caught and photographed on 12 January 1978.

Center. Wing length of 20 male and 20 female *Z. atricapilla* in the University of Michigan Museum of Zoology collections averages  $78.2 \pm 2.8$  mm (SD) (range 72–83 mm), and wing length of 20 male and 20 female *Z. albicollis* from Michigan averages  $70.9 \pm 3.0$  mm (range 65–76 mm). The Michigan bird was smaller than almost any *Z. atricapilla* but was near the mean (72.6 mm) of male *Z. albicollis*. Tail length was midway between the shortest *Z. atricapilla* (range 73–83 mm) and the longest *Z. albicollis* (range 67–81 mm).

Golden-crowned Sparrows and White-throated Sparrows are geographically replacing forms and barely contact each other in British Columbia (Brooks and Swarth 1925, A.O.U. Check-list 1957). Mayr and Short (1970) regard them as members of a single superspecies. Perhaps the apparent hybrid was born in this contact area, or perhaps an eastward-wandering Golden-crowned Sparrow (A.O.U. Check-list 1957) bred with a local White-throated Sparrow.

*Hybrid Zonotrichia querula* × *leucophrys*.—A hybrid Harris' Sparrow (*Z. querula*) × White-crowned Sparrow (*Z. leucophrys*) was taken on 12 May 1969 at Long Point, Norfolk County, Ontario, by D. J. T. Hussell. The bird was prepared by H. B. Tordoff as a museum specimen (UMMZ 215,481). The crown is gray and is mottled with many crown feathers having a broad blackish streak along the shaft. A broad, black, lateral crown streak extends from the base of the bill over the mid-crown to about 5 mm behind the eye. A black half-collar extends from behind the auricular region back and medially behind the crown, but is interrupted dorsally by a gray gap of 8 mm. The face is gray. A poorly defined whitish-gray superciliary stripe runs above the eye and merges with darker gray in front of the eye. The head pattern is intermediate between that of *Z. querula* and *Z. leucophrys*. In the first winter, or sometimes in later years (Baumgartner 1968), *Z. querula* has black crown feathers with margins of buff or gray; in *leucophrys* the feathers are tan or white. The lateral crown stripe extends back 10 mm beyond the eye in *leucophrys*; in most older *querula* the entire crown is black, including all areas that are black in *leucophrys*. The black half-collar of the hybrid corresponds to the posterior end of the black eye stripe of *leucophrys* (Fig. 3). In *querula* there is no distinct black eye stripe, but there is a thin stripe that extends back to a black postauricular vertical mark. This mark is separated from the black of the occiput by a posterior projection of the facial gray. This area is unmarked in the hybrid.

Plumage of the back is intermediate in color in the hybrid (brownish-gray in *querula*, gray in *leucophrys*), the difference being in both the edges of the feathers, brown in *querula* and gray in *leucophrys*,

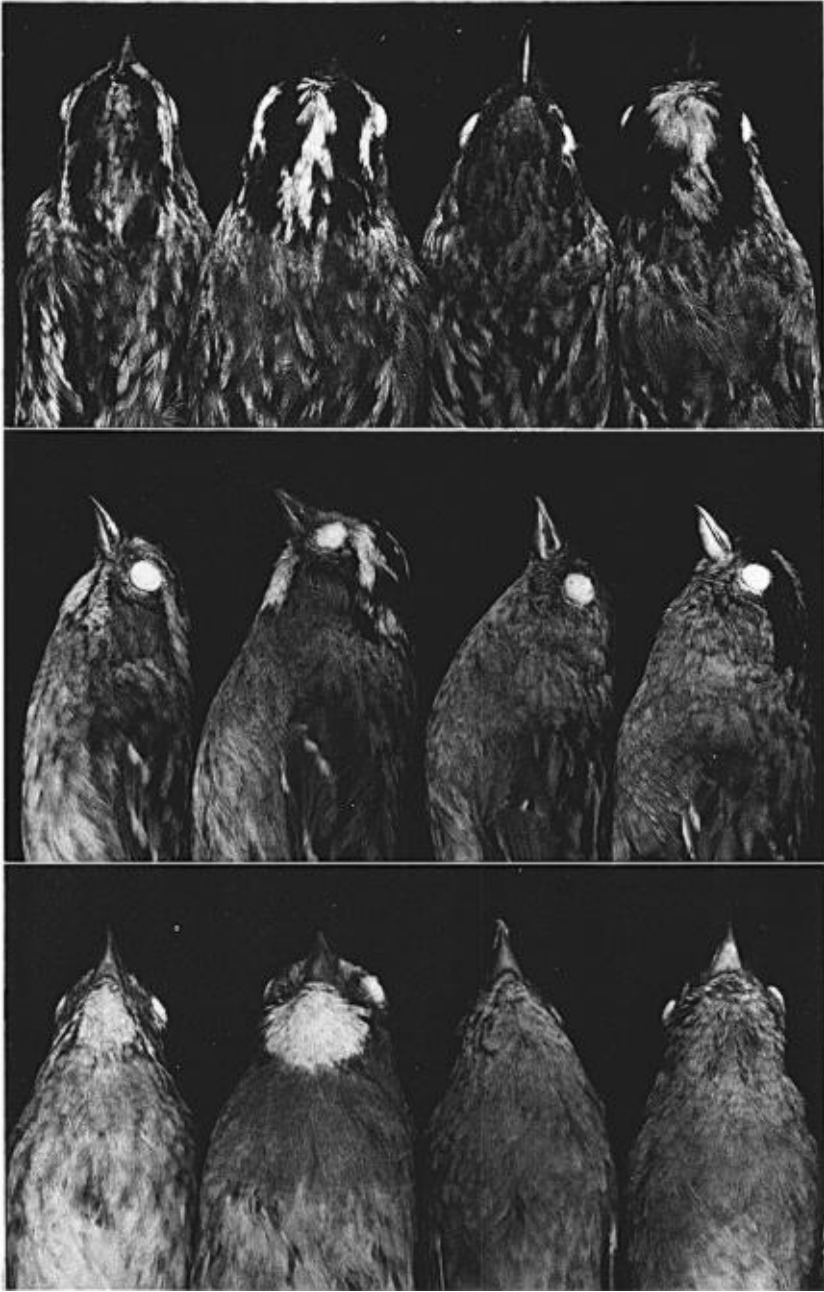


Fig. 2. Photographs of museum specimens of *Zonotrichia* sparrows showing extremes in variation of plumage. From left to right: *Z. albicollis* male, UMMZ 115,091; *Z. albicollis* female, 136,594; *Z. atricapilla* male, 150,856; *Z. atricapilla* female, 167,772.

and the central stripe, darker in *querula*. The nape, brown in *querula* and gray in *leucophrys*, is intermediate in the hybrid. The chin and throat are whitish in the hybrid as in *leucophrys* and in first-winter *querula*. The upper breast and sides are lightly streaked with brown in the hybrid, heavily streaked blackish in *querula*, and unstreaked in *leucophrys*. The bill is uniformly colored in the hybrid and in both parental species (though the tip is darkish in some western subspecies of *leucophrys*).

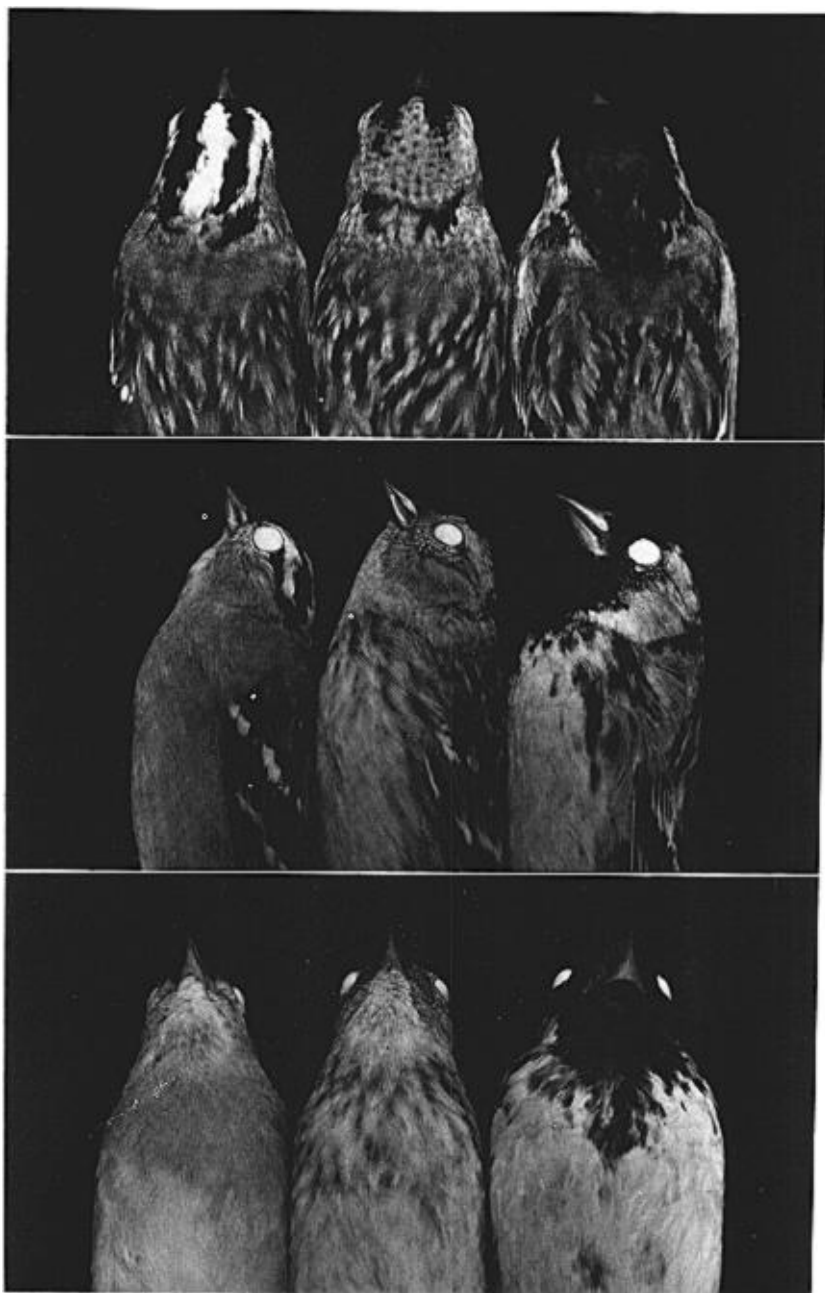


Fig. 3. Photographs of an apparent hybrid *Z. querula* × *leucophrys* and the parental species. From left to right: *Z. leucophrys*, male, UMMZ 116,008; hybrid *Z. querula* × *leucophrys*, 215,418; *Z. querula* male, 83,933.

In size the hybrid is intermediate, with the wing (chord) 77 mm and the tail 74 mm. Wing measurements of 20 male and 20 female *querula* average  $83.8 \pm 2.2$  mm (range 79–92 mm), and measurements of 20 male and 20 female *leucophrys* from Michigan average  $76.3 \pm 3.0$  mm (range 71–82 mm). Tail length in 40 *Z. querula* averages  $85.0 \pm 4.0$  mm (range 78–95 mm) and in 40 *Z. leucophrys* averages  $74.9 \pm 3.1$  mm (range 70–82 mm), and again the hybrid is more like the smaller parental species. The hybrid weighed 28.5 g and was very fat. The gonads were "abnormal," with one a small dot about 1 mm, the other a curved streak of  $1 \times 3$  mm. Possibly the first was an undeveloped testis, and the second gonad was a rudimentary ovary or an ovotestis. The small size and abnormal appearance of the gonads in this late spring migrant suggest that the hybrid was sterile. White-crowned Sparrows breed throughout the breeding range of Harris' Sparrows (A.O.U. Check-list 1957).

The overall appearance of the Ontario hybrid is intermediate to that of *Z. querula* and *Z. leucophrys*, but a few characters represent those of each parental species in a mosaic pattern (presence or absence of streaks below, presence or absence of black eye streak or postauricular streak). The hybrid lacks heavy melanin deposits in those areas in which they are missing in one of the two parental species. Miller (1940) interpreted the mosaic of plumage characters in his hybrid *Z. atricapilla*  $\times$  *leucophrys* as a probable result of genetic dominance; the intermediate characters such as size may reflect additive genetic differences. The mosaic nature of some characters in this bird parallel the more mosaic, less intergrading nature of the apparent hybrid *Z. atricapilla*  $\times$  *albicollis* and Miller's *Z. atricapilla*  $\times$  *leucophrys*. The tendency for wing length in both apparent hybrids (as well as in Miller's hybrid) to be less than midway between the mean wing length of the two species suggests a breakdown of development in the hybrids. The abnormal gonads of the hybrid *Z. querula*  $\times$  *leucophrys* (but not the fully developed testes of the hybrid *Z. atricapilla*  $\times$  *leucophrys*) also point to abnormal development in hybrids.

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