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ABSTRACT

I collected a second-year male Blackpoll Warbler (Setophaga striata) *in aberrant female-like plumage at a stopover site in southern Manitoba, on 5 Jun 1976. This male was apparently infertile with testes < 1 mm in length, whereas a typically plumaged, after-second-year male taken in southern Manitoba during the 1974 spring migration had testes that measured 4.5 x 2.3 mm and 3.9 x 1.8 mm, which presumably produced sperm. This male is compared with another male Blackpoll Warbler in female plumage that had been observed tending a nest in Vermont in Jun and early Jul 1998 (Rimmer and Tietz 2001).*

While conducting field research on riparian birds in the dune-ridge forest, Delta Marsh, MB (50° 1′ N, 98° 19′ W), I mist-netted and subsequently collected an oddly plumaged Blackpoll Warbler (*Setophaga striata*) on 5 Jun 1976. I recognized the bird as a male in female-like plumage, but it was not until Oct 2016 that Paula M. Grieef determined it to be in its second year based on plumage characteristics described in Pyle (1997); thus, the bird was entering its first potential breeding season. Dissection of the gonads confirmed the bird was a male (both testes < 1 mm in length) whose plumage closely resembled that of an alternate-plumaged female (Fig. 1). The bird had a 70.5-mm wing chord (low end of range of female wing lengths [DeLuca et al. 2013]), body fat was recorded as "heavy", and the bird weighed 15.5 g. This individual had stopped over in the dune-ridge forest during spring migration, as this species does not nest at Delta Marsh (Briskie 1996). This constitutes the second documentation of a male Blackpoll Warbler in female-like plumage, or apparently of any wild male passerine.

The first documentation of this plumage situation was made by Rimmer and Tietz (2001) who described a male Blackpoll Warbler in aberrant female-like plumage that was observed feeding nestlings at a montane site in Vermont in 1998. The bird had been noted in typical alternate-male plumage when it was banded in the same area the previous summer – it had changed from typical male plumage in one breeding season to a female-like plumage the following year. The authors suspected that the aberrant plumage was due to hormonal influences on pigmentation. This was apparently the first documentation of a wild adult male passerine in female-like alternate plumage, although the reverse, females expressing male-like plumage, has been reported (e.g., Bergtold 1916, Stoddard 1921, Buchanan and Parkes 1948, Summers and Kostecke 2004, Perlut 2008).

Because documentation of the female-like plumage of the male Blackpoll Warbler from Manitoba is supported by a photograph, I note here only differences in the plumage of the Vermont and Manitoba birds. Both birds' crowns were greenish-gray but instead of 10-12 feathers on the forecrown being more heavily tipped with blackish than others, as in the Vermont bird, most crown feathers were tipped with black in the Manitoba bird (Fig. 1). Nevertheless, both individuals lacked the solid black-crown of typical alternate-plumaged males. Small, black pre- and post-ocular spots were not apparent in the Manitoba bird, and the mantle and back feathers possessed the black central streaks typical of alternate-plumaged males, not just the 8-10 feathers with prominent black centers exhibited by the Vermont bird. In both birds, the rump and upper-tail coverts were greenish with indistinct dusky centers. The lesser coverts were grayish with little streaking, as in the Vermont bird, but the median and greater coverts of both birds were composed of mixed feather generations. The 5-6 proximal coverts on each wing were darker, fresher and more broadly tipped with grayish (not white as in the Vermont bird) than the distal coverts, which were duller, grayer and more narrowly tipped (worn) with yellowish white. The tips of

Fig. 1. Top: second-year male Blackpoll Warbler with female-like plumage (UMZM 110), Delta Marsh, MB, 5 Jun 1976. Middle: after-second-year male Blackpoll Warbler in typical plumage (UMZM 109), Winnipeg, MB, 22 May 1974. Bottom: second-year female Blackpoll Warbler (MM 1797), Crean Lake, Prince Albert National Park, SK, 8 Jun 1943.

the greater coverts, however, were yellowish-gray and worn, which differed from the Vermont bird. Rimmer and Tietz (2001) noted that these differences correspond to the pattern expected following replacement of proximal coverts during the definitive prealternate molt of this species, as described by Pyle (1997), which is consistent with this individual having undergone a prealternate molt.

The underparts of both birds were female-like in appearance, but the black malar stripe of the Manitoba bird was more prominent with more black feathers; hence, more similar to male Blackpoll Warblers in alternate-plumage (Fig. 1). In the Vermont bird, the malar stripe consisted of a few prominent but discontinuous streaks, which gave the stripe a broken appearance (Rimmer and Tietz 2001). The cheeks were dark as in the female, and the chin was not streaked, whereas streaking on the throat, sides and flanks in the Manitoba bird were bolder, as in typical males, and the rest of the underparts were whitish yellow, not greenish yellow as in the female. Both males looked like females with some male features.

The circumstances underlying the Manitoba male's female-like appearance are unknown, except that it was in its second year. The Vermont bird, however, was described as having a typical male-like appearance when banded the previous year, but when it was recorded mated and tending a nest the following year, in 1998, its appearance had changed from male-like to female-like through a presumed typical prealternate molt (Rimmer and Tietz 2001). These authors suggested the abnormal plumage was due to hormonal influences on pigmentation, previously undocumented in a wild adult male. The testes of the Manitoba male (UMZM 110) in female-like plumage probably were not producing sperm, but whether they would have recrudesced upon arrival on the breeding grounds was not known. By contrast, testes of a male Blackpoll Warbler (UMZM 109; wing chord, 75.8 mm) salvaged during spring migration in southern Manitoba on 22 May 1974 (see Fig. 1) measured 4.5 x 2.3 mm and 3.9 x 1.8 mm, apparently commensurate with this species' copulatory behavior documented during spring migration in southern Manitoba (Briskie 1996, also see Quay 1985). Quay (1985) found that the cloaca of at least one female Blackpoll Warbler contained sperm during spring migration near Foley, Missouri, approximately 1490 km from the southern

edge of the breeding range. Briskie (1996) dissected apparently functional sperm from one male Blackpoll Warbler collected during spring migration at Delta Marsh in May 1994, but apparently sperm that arose from inseminations occurring en route were unlikely to remain viable in the females' sperm storage tubules until arrival on the breeding grounds. Briskie (1996) concluded that copulations en route were not an adaptation to fertilize eggs, but rather apparently reflected the need for the birds to arrive on the breeding grounds in reproductive condition. The female-plumaged male in Vermont was observed tending nestlings it had apparently sired (Rimmer and Tietz 2001), although the parentage of the nestlings was not confirmed.

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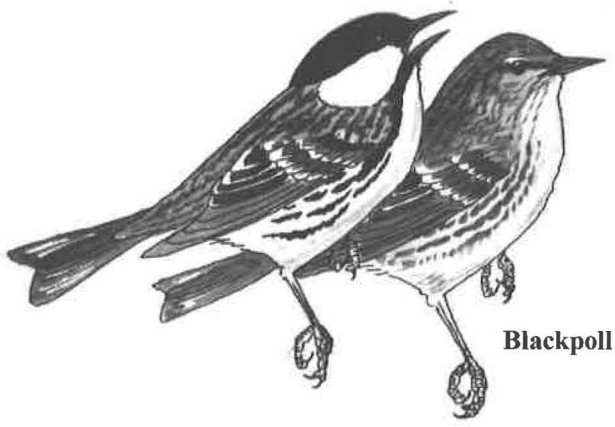

Blackpoll Warbler by George West