

**A COMMON YELLOWTHROAT
EXHIBITING MALE AND FEMALE PLUMAGE
(*Bilateral Gynandromorph*) IN ESSEX COUNTY, NEW YORK**

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ABSTRACT

A bird that is genetically part female and part male is called a gynandromorph. An apparent bilateral gynandromorph Common Yellowthroat (*Geothlypis trichas*) was banded, photographed, and released at Crown Point State Historic Site, Essex County, NY, on 27 May 1999. Presumably the same individual was observed singing the next day. We believe that this is the first bilaterally gynandromorphic Common Yellowthroat reported.

OBSERVATIONS

Between May 8 and May 31, 1999, we operated a banding station located on the grounds of the 360 acre Crown Point State Historic Site at the northern tip of the Crown Point peninsula (44°01'N, 73°26'W), two miles southeast of Port Henry, NY. Mistnets were set in hawthorn thickets (*Crataegus* sp.) west of the ruins of the British fort. On the afternoon of May 27, a Common Yellowthroat (*Geothlypis trichas*) was captured which was an apparent bilateral gynandromorph.

This Common Yellowthroat appeared to be male on the right side, with slightly mottled black forehead and auriculars forming a mask on the right face (Figure 1). The left auricular was olive brown, as in a female of the species. The gray forehead line over the mask occurred on the right (male) side only. The rectrices were worn. We aged the warbler conservatively as after-hatching-year (AHY), although in the experience of both master banders the mask's mottled appearance and the thin superior gray line, without white outline, suggested a second-year (SY) bird. Sex was recorded as unknown (U), with qualification. After discussion,

we decided not to collect the bird, although we were aware of the importance of a specimen. It was banded with a U.S. Fish and Wildlife Service band, photographed and released that afternoon. Regrettably, no measurements were taken.

According to Gill (1995, p.352), "Nothing is known about the breeding activities of such birds." On the following morning (May 28) at about 6:15 a.m., Peterson was walking near the northern tip of the peninsula in search of an Orchard Oriole which he had heard singing earlier. He noticed a small bird perched on the dead upper limb of a tall deciduous tree. Through 10X42 binoculars, he could see the left side of a plain olive bird, well-lit by the rising sun behind it, throwing its head back and opening its bill in song. Moving closer, he could just hear a well-spaced "tee...tee...tee," the end of the song. Finally, he heard the song resolve into the familiar "witchity-witchity-witchity-witch" of the Common Yellowthroat, issuing from an olive-brown bird with yellow undertail coverts, but no visible mask. The songster paused to turn its head in a glance over its right shoulder, revealing the black mask on the right side. Shortly after, the bird flew to the west, not to be seen again. No band was seen, but the obvious presumption is that this was the gynandromorph banded the day before.

Because the banding station closed on May 31, we do not know whether this Common Yellowthroat, one of 32 banded at Crown Point between May 10-30, 1999, was a late transient or newly arrived local bird. But we did learn that at least one bilateral gynandromorph could initiate the breeding activity of singing.

DISCUSSION

Normally, the bodies of birds and other animals - humans included - show a certain symmetry. External bilateral symmetry, in which the left side is the mirror image of that of the right, is the norm in higher order animals. While bilateral asymmetry due to injury is common, developmental asymmetry is unusual. A bird, or other animal, that is genetically part female and part male is called a gynandromorph. Collectively, they are referred to as "gynanders" (Kumerlove, 1954).

Butterfly watchers may be familiar with bilateral sexual mosaics that crop up from time to time. This would seem unlikely in birds and mammals due to the impact of hormones on secondary sexual characters, say size and color in birds. However, reports of avian mosaics and gynandromorphs have appeared sporadically since 1874 (Bond 1914;

Laybourne 1967; Witschi 1961, p. 127). Kumerloeve (1987) presents an extensive list of such reports. In native wild birds, gynandromorphs have been reported most frequently from the family Fringillidae, particularly Evening Grosbeaks (*Coccothraustes vespertinus*) in the U.S. But the condition is now known to occur in many avian families, including Emberizidae (Patten 1993). It may be that the perceived rarity of the condition is due to its not being well-known among the birding public or to the transitory nature of many field observations. For example, a sighting may be written off as an incomplete or delayed molt. As Evening Grosbeaks frequent bird feeders, and are large and, have dramatic plumage differences between the sexes (dimorphic plumage), the mosaics and gynandromorphs among them may be more readily noticed than those of other species. This might lead to over reporting in comparison to other species.

Harrison (1964 p. 645) and others (Bond 1914; Crew and Munro 1938; Holland 1975; Huxley and Bond 1934; Laybourne 1967; Lillie 1931; Lowther 1977; Terres 1980, p. 472) indicate that mosaics and gynanders may exhibit dimensional development consistent with the "gender" of the particular parts. That is, those parts that exhibit female characters will be proportionately smaller if that is the normal condition for the female of that species. Furthermore, the dimensional differences will be within the normal ranges for females of the species which are not gynandromorphs when compared to normal males (Lowther 1977).

Avian gynanders result from an aberration that occurs during the first mitotic division of the fertilized ovum. One half of the embryo carries the male (ZZ) chromosomes and the other half the female (ZW) chromosomes, becoming a bilateral gynandromorph (Gill 1995, p. 352). [Note: Gill (1990 p. 323) used XX and XY, respectively, while Witschi (1961 p. 117) uses ZZ and ZO with the "O" indicating the lack of a partner gene in the female]. Not only do such birds have both an ovary and a testis, but the plumage shows a sharp division down the median line: female on one side, male on the other (Gill 1995, p.352). Usually, the plumage corresponds to the internal anatomy with the female side being to the left. However, Kumerloeve (1954) reports that the reverse is true in about 15% of the cases.

While a true gynandromorph has both a testis and an ovary, an avian mosaic may have one or the other (Hollander 1975). In these birds the sexual characters of the plumage are scattered about, but sometimes the distribution approximates the bilateral asymmetry of gynanders. Hollander (1975) presents several excellent photographs of spontaneous

[natural] mosaics in pigeons. Of the 182 mosaic individuals he studied over a 25 year period, only one was a true gynandromorph. He hypothesizes that mosaics are not caused by the mitotic aberration cited above, but by bipaternity with the incorporation of some supernumerary sperm into the embryo, thus providing the conflicting genotypes displayed in the asymmetrical phenotypic patchwork of male and female plumage [the mosaic] (Graves et al. 1996). Huxley and Bond (1934) offer another explanation of mosaics. They reason that an ovo-testis is present, and that this gland, containing both ovarian and testicular tissues, is capable of producing both male and female hormones, thereby causing portions of the plumage to exhibit female and other portions to exhibit male traits

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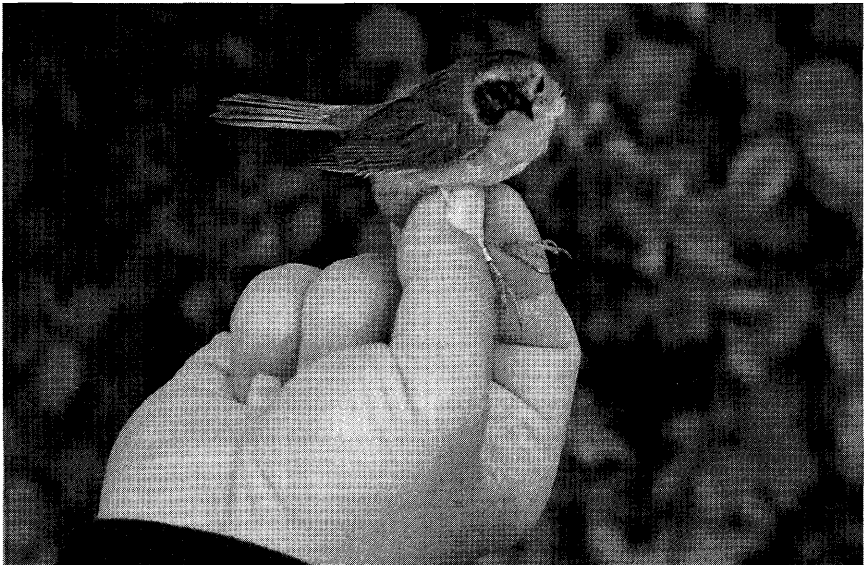


Figure 1: Bilateral gynandromorph Common Yellowthroat (*Geothlypis trichas*) banded 2410-18813 at the Crown Point State Historic Site, Essex County NY, on 27 May 1999.