

## SOME COURTSHIP DISPLAYS OF THE GOLDEN-WINGED WARBLER

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DESPITE the fact that the Golden-winged Warbler (*Vermivora chrysoptera*) has been of exceptional ornithological interest for more than 75 years because of its interbreeding with the Blue-winged Warbler (*V. pinus*), remarkably few ethological observations have been published (see Ficken and Ficken, 1962). In view of this general lack of behavioral information, it seems worthwhile to publish the following observations on Golden-winged Warbler displays. The terminology, where applicable, follows that of Ficken (1963).

### DISPLAYS

*Gliding.*—On 15 May 1962 a male Golden-wing was observed Gliding at the Cambridge Reservoir, Lexington, Middlesex County, Massachusetts. The context of the Glide was not determined, but briefly what was observed was that the male, which had been singing steadily for a half hour, flew to the top of a tall dead tree, took off, set his wings and Glided to a nearby tree from which he immediately Glided again (Fig. 1). No other bird was visible. Unlike the Redstart (Ficken, 1962), the male did not spread his tail during the Glide.

*Courtship feeding.*—In the late afternoon of 14 May 1964 in Lincoln, Middlesex County, Massachusetts, a female Golden-wing was found feeding halfway up a white pine (*Pinus strobus*). In order to obtain a closer look, I started "squeaking" and immediately a male Golden-wing appeared in a maple adjacent to the pine, chipped a few times, and flew down to sit about 6 inches away on the same branch as the female. At once the female raised her bill and fanned her tail so that the white flashed conspicuously (Fig. 2a). She then thrust her head towards the male and gaped (Fig. 2b). The male,

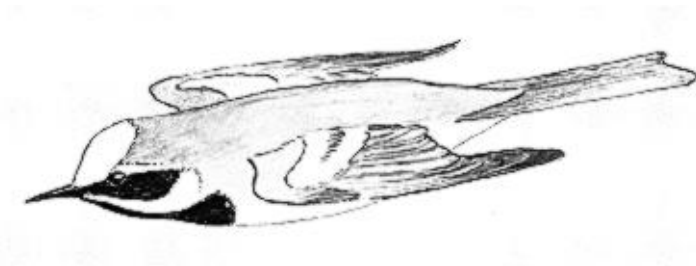


FIG. 1. Male Golden-winged Warbler Gliding.

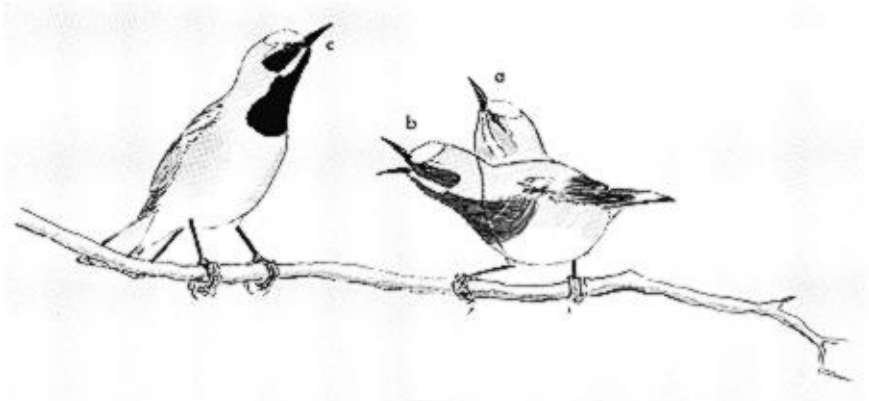


FIG. 2. Agonistic displays of Golden-winged Warblers.

either simultaneously or shortly thereafter, sleeked his plumage and raised his head and pointed his bill upwards at a 45 degree angle (Fig. 2c). As far as could be seen, he did not fan his tail. The female flew and the male followed at once; they then separated, the female foraging low and the male feeding high in an oak.

A few minutes later the male flew down to the female, which was perched on a low dead shrub, and fed her a caterpillar. In feeding the female, the male perched beside her with his body and head held high and his bill pointing down. As the male alighted, the female crouched, turned her head towards him and raised her bill and accepted the caterpillar (Fig. 3). It was not noted whether she wing-quivered.

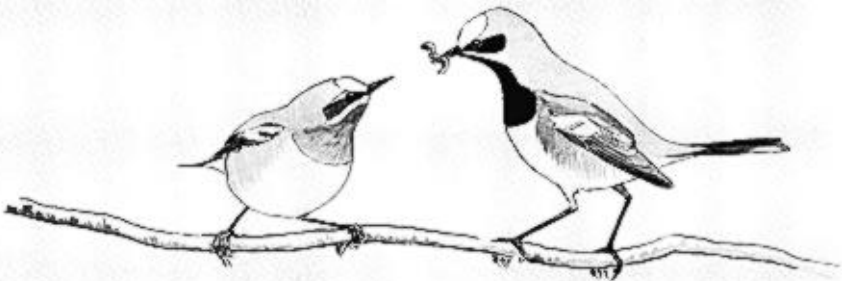


FIG. 3. Courtship Feeding by male Golden-winged Warbler.



FIG. 4. Courtship Display of male Golden-winged Warbler: fluffed display given while following the female.

Although a male had been heard singing in this locale earlier in the day, this male did not sing during any of these displays. The female did quite a bit of chipping (largely in response to my "squeaking"); her most frequent note was a very short *tchip* and occasionally a dry *rattle*.

During this half-hour observation period, the male Golden-wing was seen to chase a male Prairie Warbler (*Dendroica discolor*), a male Magnolia Warbler (*Dendroica magnolia*), a Parula Warbler (*Parula americana*) and a Nashville Warbler (*Vermivora ruficapilla*).

*Courtship display*.—On the afternoon of 17 May 1965 in Lincoln, Middlesex County, Massachusetts, I observed a female Golden-wing foraging along the edge of an alder thicket that bordered the road. A male Golden-wing was persistently following her and continually orienting his head towards her



FIG. 5. Courtship Display of male Golden-winged Warbler: hovering flight display.

(when beneath her, he looked up; when above her, he looked down, when to one side, he looked towards her). During this following, his crown feathers were raised and his cheek and throat feathers were fluffed. His tail was continually being fanned (opened and shut), thus showing the white markings, and occasionally waved from side to side (Fig. 4). The male followed the female in this fashion for a full five minutes. Then he suddenly crouched, raised and spread his tail, raised his wings and started to vibrate them very rapidly, while lifting his head high, and raising his crown feathers (Fig. 5). He then assumed a more normal posture, hopped towards, and resumed following the female. Again he raised his tail, spread it, raised his wings, vibrated them, and this time actually flew to within eight inches of the female, where he hovered briefly, and then, with his wings still upraised and vibrating, made a rapid, sideways flight around the female in an arc of about two feet. He attempted to land either on or near the female but she pecked at

him and he flew away in a normal flight. This was repeated again. Although my attention was focussed on the male, I am reasonably certain that the female maintained a "normal" posture during these displays.

Because of the fragmentary nature of the above observations, detailed discussion of their ethological significance is not possible, however, since apparently none of these displays have been reported in the literature, some comment seems justified.

#### DISCUSSION

Although Gliding in warblers has been shown to be an expression of both agonistic and sexual behavior (Ficken and Ficken, *op. cit.*), it seems likely that the Gliding I observed was a sexual display (despite the fact that a second bird was not seen), since M. S. Ficken informs me (*pers. comm.*) that she has seen ". . . Gliding several times in both Golden-wings and Blue-wings," and that it "definitely seem part of the courtship ceremony (rather than agonistic)."

The observation on Courtship Feeding was preceded by displays by both sexes, which were apparently initiated by the male violating the female's individual distance. The female reacted to the male's intrusion by Bill Raising, Tail Fanning, and then giving a Head Forward display (including Gaping); the male responded by Bill Raising and sleeking his plumage. The most unusual aspect of these essentially agonistic displays was the Bill Raising by both the male and the female. Ficken and Ficken (*op. cit.*) considered that Bill Raising is "apparently lacking in warblers (except the Ovenbird (*Seiurus aurocapillus*))."

Equally interesting was the Courtship Feeding which was observed within minutes after the previous displays. Courtship Feeding has not been reported for the Golden-wing and is apparently rare among warblers; Nolan (1958) found evidence of Courtship Feeding in only "three or four" of 21 parulids reviewed. However, incubation feeding has been reported for many warbler species (Nolan, *op. cit.*), and a male Brewster's Warbler has been seen to feed his mate, an incubating female Golden-wing, on the nest (Carter, 1944).

The actions and the feather postures adopted by the male during the Courtship display were similar to those reported for other warblers (Ficken and Ficken, *op. cit.*—see especially Table IV, p. 115). Particularly noteworthy were the persistent following movements by the male during which the head with its striking markings was directed towards the female, and the display flight, which emphasized the golden wing bars, and the white in the tail. As Ficken and Ficken (*op. cit.*) point out such displays as fluffing the plumage and moving the wings tend to accentuate the species-typical markings.

## SUMMARY

Three sexual displays previously unreported for the Golden-winged Warbler are described: Gliding, Courtship Feeding, and a Courtship display. The behavior of the male during the Courtship display was similar to that of other parulids, involving such display components as plumage fluffing, crown raising, wing movements, etc.

## ACKNOWLEDGMENTS

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## NEW LIFE MEMBER



Mr. Clive Goodwin, of Weston, Ontario, has recently become a Life Member of The Wilson Ornithological Society. A graduate of the University of Toronto, Mr. Goodwin is Executive Director of the Conservation Council of Ontario. He is a member of the AOU, BOU, and British Trust for Ornithology, as well as The Federation of Ontario Naturalists, for which he served as editor of *Ontario Naturalist* and *Young Naturalist*. He has also served as Regional Editor for *Audubon Field Notes*. He has published numerous papers in local journals on his principal ornithological interests, bird populations and migrations. Mr. Goodwin's other interests include photography, biophilately, and music.