

PROBABLE BREWSTER'S WARBLER X GOLDEN-WINGED WARBLER MATING IN NORTH CAROLINA

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On 23 April 1979, I caught and banded an adult male Brewster's Warbler (*Vermivora chrysoptera* X *pinus*) near Cullowhee, Jackson County, N.C. The bird (Fig. 1) was the white-breasted variety as described by Pough (1946) and Parkes (1951). According to these authors, this plumage represents a "Backcross Brewster's Warbler Genotype," which is described as the product of a Brewster's Warbler X Golden-winged Warbler mating.

After release, the warbler began to establish a territory, the boundaries of which shifted considerably. After about 3 days, a territory over 400 m long and 100 m wide was claimed. This territory contained three distinct areas, each delimited by a natural or man-made boundary (Fig. 2). Area 1 included Sectors J, K, and L. Area 2 included Sectors A, C, E, and G. Area 3 included Sectors B, D, F, H, and I. Each of these areas was roughly equivalent to an average territory of either parental species (see Ficken and Ficken 1968a).

During the first three mornings after release, the bird was observed singing in all sectors. His song resembled that of a Golden-winged Warbler (*V. chrysoptera*) except for differences in the introductory syllable (see Figs. 3 and 4). Throughout the next 4 weeks, singing activity was concentrated in Sectors C, E, and G of Area 2, and Sectors B, D, and F of Area 3.

On 12 May, the bird was observed displaying with an adult female Golden-winged Warbler in Sector L. The displays included a variety of vocalizations, tail fanning, and wing quivering by both individuals. Throughout most of the display, the birds remained



Fig. 1. Adult male Brewster's Warbler caught and banded 23 April 1970 near Cullowhee, Jackson County, N.C. (Photo by M. Tove)

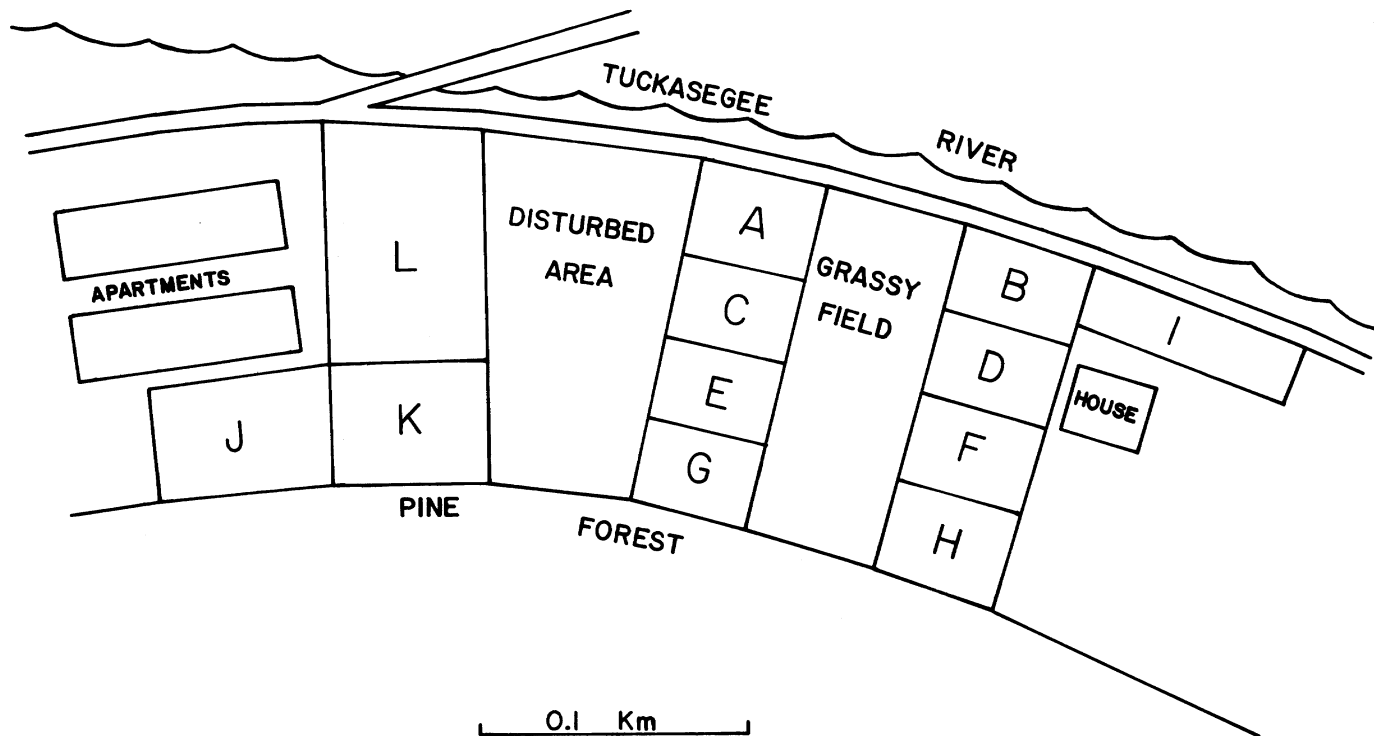


Fig. 2. Map of the territory defended by the Brewster's Warbler.

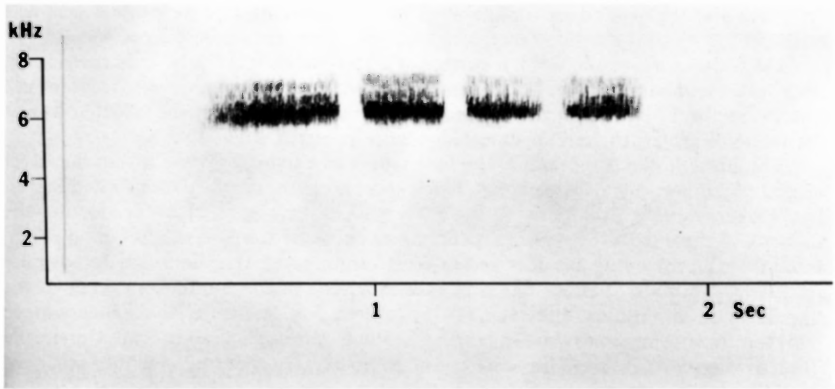


Fig. 3. Sonogram of the territorial song of the Brewster's Warbler. Recording made 27 April 1979 by M. Tove.

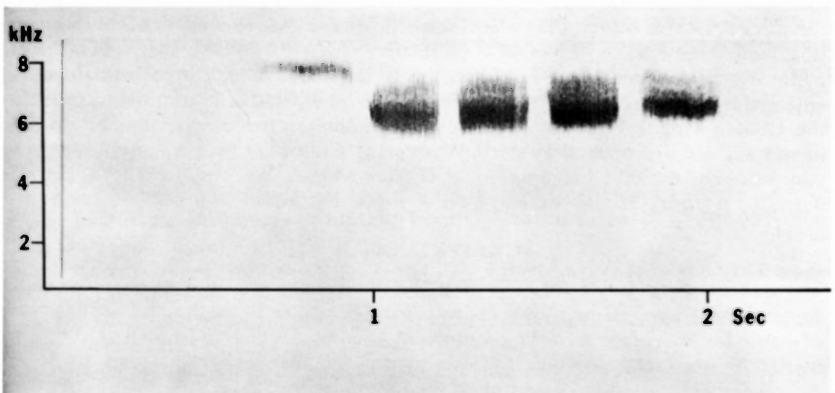


Fig. 4. Sonogram of the territorial song of a Golden-winged Warbler on the Blue Ridge Parkway in North Carolina. Recording made 30 April 1979 by M. Tove.

close to each other, often engaging in chase sequences and occasionally making contact. So intense was the display, that the commotion induced a brief mobbing response from other nearby birds.

I did not see the female after that occasion, but changes in the male's behavior provide evidence that he was paired. After 21 May, the male began to spend more time defending Sector L. Defense of Areas 2 and 3 continued, although at a greatly reduced rate.

Two weeks later, the male was observed carrying food into a particularly dense thicket of sumac and blackberry near the center of Sector L. Because of the thickness of

the brush and the ground-nesting habit of the birds, no attempt to locate a nest was made.

On 27 June, a juvenile Golden-winged Warbler was caught and banded in Sector J. On 5 July, an unbanded juvenile Golden-winged and a juvenile Brewster's Warbler were seen in Sector L. Although there is no proof that these young were fathered by the Brewster's Warbler, the circumstantial evidence is highly suggestive.

The present paper represents the first report of a hybrid mating within the Blue-winged (*V. pinus*) - Golden-winged Warbler complex in the southeastern United States. The Fickens (1968b) presented a summary of known cross-matings, reporting the majority of these from the Northeast and none south of Pennsylvania. LeGrand (1976) noted that interbreeding has occurred in West Virginia and Maryland, but details were not given. Normally, neither parental species breeds in the Southeast except in the Appalachian Mountains. LeGrand (1976) located five territorial male Blue-winged Warblers in extreme southwestern North Carolina. Although he also located territorial Golden-winged Warblers in the same counties, no overlap occurred and no evidence of hybridization was found.

The Fickens (1968a) indicate that territory sizes for this complex are roughly 5000 to 7000 m². This is approximately the size of Sector L in Area 1, which was most vigorously defended after pairing occurred. Thus the continued defense of Areas 2 and 3 is interesting. Moreover, during the 1978 breeding season, Areas 2 and 3 each had at least one pair of nesting Golden-winged Warblers. At that time, Sector L and the disturbed area were heavily overgrown and did not provide suitable nesting habitat for the species. During March 1979 when the disturbed area was cleared for house construction, only Area 1 was affected by construction activity. This involved removal of the dense vegetation from Sector L. Consequently, the total available breeding habitat was enlarged by this activity. Having lived in the area for 3 years, I can confidently state that the Golden-winged Warbler is locally a very common breeding species of old-field habitat. Thus the male Brewster's Warbler at Cullowhee was apparently able to competitively exclude breeding male Golden-winged Warblers, even though the defended territory probably could have supported at least two other pairs.

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