

GENERAL NOTES

Extra helpers feeding young of Blue-winged and Golden-winged warblers.

—Various types of relationships in which a nesting pair of birds is aided by a third individual have been categorized and known examples were cited by A. F. Skutch (*Condor*, 63: 198–226, 1961). Several instances of such interactions in Blue-winged Warblers (*Vermivora pinus*) and hybrid Blue-winged × Golden-winged warblers (*V. pinus* × *V. chrysoptera*) are reported herein.

One situation was encountered on 12 and 13 June 1959, on an abandoned farm three miles east of Litchfield, Connecticut ($\frac{3}{4}$ of a mile west of the Naugatuck River). Involved were two hybrid males and a female apparently a Blue-winged Warbler phenotypically. The more dominant male, hereafter designated H2, was pure white below, with nearly separate whitish-yellow wing bars, and dorsum gray anteriorly with some yellow-olive in the middle and lower back region (so-called "Brewster's" Warbler; see comments on hybrid types by L. L. Short, *Proc. XIII Intern. Orn. Congr.*: 149–151, 1963). The second male, designated H1, exhibited apparently white, separate wing bars, yellow underparts, a yellow-green back lacking noticeable gray, and a black face mask ("Lawrence's" Warbler). The area in which they were found was on a gently south-sloping hill covered with second-growth woodland, interspersed occasionally with overgrown clearings and bisected north to south by a cleared right-of-way for a power line.

In a half-acre clearing adjacent to the power line, I first observed H1, calling excitedly, in the early afternoon of 12 June. Both H2 and the Blue-winged Warbler appeared shortly thereafter, also calling *chit*. For half an hour the birds moved back and forth, often close together, interchanging positions frequently. Later, when all three were again present, a chase occurred involving H1 and H2, with the latter apparently doing the chasing. Both hybrids flew off after the Blue-winged when it left. Several hours later H1 reappeared when I entered the clearing. H2 flew in almost immediately, and both again called incessantly, as they moved about near each other. Of the two, H2 seemed more excited and called continuously, while H1 quieted down quickly and perched nearby, calling infrequently. This episode ended in half an hour, with H1 leaving the clearing, followed by H2.

The first vocalization definitely attributable to any of these birds was heard late in the afternoon. Upon entering the clearing, I heard a *bee-bzzzz* (Blue-winged song) emanating from woods north of the clearing. Then H1 flew in from that direction, and again began calling *chit*. As H1 commenced calling, the female Blue-winged and H2 appeared, and all then flew about and called. The vocalizations were rendered in a less excited manner than previously, but H2 called more loudly and continuously than the others. I noted a white grub in H2's bill. Next, the female Blue-winged chased H1 from a small dead poplar in the center of the clearing, as H2 disappeared below the same tree, to reappear shortly without the grub. H2 then commenced calling *chit* and flying about. The female, which had remained nearby after chasing H1, suddenly flew to H2 calling *tzip-tzip* and, facing H2, presented a soliciting posture (drooped wings quivering next to her body, breast low, tail somewhat spread) for 5 to 10 seconds. Both birds then resumed flying about me, calling *chit*. As they moved, H2 maintained its tail partially spread, while the female only infrequently spread her tail. The former disappeared soon thereafter, and reappeared several minutes later at the same moment that H1 arrived on the scene. Both hybrids carried insects. All three birds flew around me as before, calling excitedly. No sign of conflict was noted whenever H1 and the Blue-winged perched beside each other; however, H2 twice attacked and chased H1 when they happened to alight close together. On one occasion

both hybrids went into the air in conflict, falling to the ground together. After each encounter, H1 flew away while H2 remained nearby. I failed to detect tail spreading by either bird in these encounters. H1 was seen bringing in food once more, while H2 perched quietly and the Blue-winged flew about me calling, almost frantically. The last bird once landed unexpectedly beside a Catbird (*Dumetella carolinensis*) which promptly attacked and drove the Blue-winged away.

I returned in the evening and was greeted immediately by the Blue-winged, which was calling as before. When H2 appeared bearing food and flew down under the poplar tree, I immediately investigated the spot, flushing H2 from a ground nest partially covered by a tussock of grass. The nest, open above and constructed of grass, pine needles, and dead leaves, contained two eggs and two newly hatched young. Both the Blue-winged and H2 flew about nearby, calling loudly. As I left, H1 appeared bearing food, and disappeared in the vicinity of the nest.

My final visit to the nest site occurred early the next morning. A Golden-winged Warbler's song was heard nearby and then, as I entered the clearing, H2 sang *tzee-tsip-tsip-tzzzzz* ("nesting" song of M. S. Ficken and R. W. Ficken, *The Living Bird, First Annual Cornell Lab. Orn.*: 103-122, 1962; "song type II" of F. B. Gill and W. E. Lanyon, *Auk*, 81: 54, Fig. 1). The hybrid flew to the tree over the nest, repeated this song, and then sang a typical Golden-winged song (*bee-bzz-bzz*) three times before it flew off. I walked away from the clearing for a few moments to allow the birds to calm down, and encountered an apparent Golden-winged male, singing a variant Blue-winged song (*bee-bzzzz-zz*) in another clearing 60 yards away.

Returning to the vicinity of the nest, I was greeted by H1 singing *bee-bzzzzz*, which it repeated at intervals for about 20 minutes as it perched 30 feet from the nest. The female then appeared bearing food, and commenced her excited flying about and calling. Immediately, H2 flew in, and both this hybrid and the Blue-winged called and flew around the clearing repeatedly. They were joined briefly by H1, which was less spirited and flew away after several minutes. I withdrew at this time, leaving the Blue-winged and H2 flying about the nest site, and was unable to return. Six days later, Gordon Loery checked the nest, finding it unoccupied and the adults nowhere about. The pair, in this instance, apparently consisted of the male H2 and the female Blue-winged, with H1 the helper.

The only other definite instance of a "helper" situation I have noted involved three Blue-winged Warblers feeding two recently fledged young near Ladentown, Rockland County, New York, in June, 1961. If the three adults had not been observed simultaneously, I would not have suspected a "helper" in this case. I happened upon a Blue-winged feeding one of two young in a bush. As I crouched down in the grass nearby, the adult flew to the top of a tree some 25 yards away and proceeded to sing *bee-bzzzz*. Within 5 minutes, two other adults simultaneously appeared with food. One of these fed the second juvenile bird and left immediately, as the other flitted about near the young birds. After 10 minutes the singing male finally left. The remaining adult then fed one of the young, following which it called *chit* repeatedly and moved through nearby bushes. I was compelled by the lateness of the hour to leave the area.

Frank Gill kindly gave me access to his notes concerning helpers at nests of Blue-winged Warblers at the American Museum of Natural History's field station in Dix Hills, Huntington, Long Island, New York, in the breeding seasons of 1961 and 1962. Once (in 1961) the helper, a color-banded male, was observed feeding young of an established pair. About a week after these young had fledged, the same helper male was noted carrying food near a nest with young of another pair. This helper male returned in 1962 and nested within 10 feet of the site of the second 1961 nest at which

he had apparently helped feed young. In 1962 another male was observed feeding young at the nest of an established pair. Later in the season this helper male was seen near the site of the first nest, feeding young of a different brood (this brood accompanied by another banded female).

These observations suggest that extra "helpers" feeding young of these warblers may not be uncommon. Indeed, it is possible that such interactions occur with sufficient frequency as to be significant in the population dynamics of the species. The situation involving the hybrids illustrates the complexity of relationships which can exist within such trios. Many questions remain to be answered. Are helpers invariably first-year birds? May individuals of both sexes be helpers? How does the presence of the helper affect the relationship between members of the pair being assisted? Further observations, particularly of color-banded birds, are necessary to provide data to clarify these and other questions relating to this interesting phenomenon.

I am grateful to Ernst Mayr and S. Dillon Ripley for informing me of the occurrence of the hybrid warblers at Litchfield. Gordon Loery and Mrs. A. R. Miles guided me to the spot where the hybrids had been seen, and Loery, through the White Memorial Foundation, kindly provided me with overnight accommodations. The report has benefitted also from discussions I had with Frank Gill, who also provided field notes, and Wesley E. Lanyon.—LESTER L. SHORT, JR., *Fish and Wildlife Service, U.S. National Museum, Washington 25, D.C.*

Notes on the Horned Larks of western Minnesota and the Great Plains.

—Roberts (*Birds of Minnesota*, Minneapolis, Univ. of Minnesota Press, 1932) recognized four subspecies of Horned Larks (*Eremophila alpestris*) in Minnesota as follows: two large, migrant, arctic forms, *E. a. alpestris* and *E. a. hoyti*; *praticola*, the race nesting over the largest portion of the central and eastern sections; and *leucolaema*, the nesting bird of the western counties. The latter was based on a number of specimens labeled as *enthymia* by H. C. Oberholser. The A.O.U. Check-list (fifth edit., 1957) does not recognize a pale prairie form as nesting within the state. Actually, while 14 males from Rock, Lac Qui Parle, and Wilkin counties, collected in the early part of the nesting season, average slightly darker than do 9 recently-taken males from South Dakota, the former are easily separable from *praticola* of southeastern Minnesota; and the stated range of the pale prairie form should therefore be modified to include the western tier of counties of Minnesota.

To determine the proper name to apply to the birds of western Minnesota, we must review the nomenclature of the prairie nesting forms. East of the Rocky Mountains, there is a series of pale populations. These are somewhat paler and grayer to the east (North and South Dakota), intergrading with *praticola* in central Minnesota, and somewhat browner to the west, the last grading into more reddish birds in the southwest. These populations are divided into five subspecies in the A.O.U. Check-list (1957) as follows.

E. a. enthymia (Oberholser) (*Proc. U. S. Natl. Mus.* 24: 807, 1902), the palest and grayest-backed of the forms, inhabits the eastern prairie regions, west to eastern Montana, Wyoming, and Colorado. Type locality: St. Louis, Saskatchewan.

E. a. leucolaema Coues (*Check-list of North American birds*, 1874, p. 125) was described from Fort Randall, South Dakota. However, the type series was thought by Oberholser to have consisted of migrants of the somewhat browner western population. This permitted him to rename the eastern population *enthymia*. *E. a. leucolaema* is currently considered to range from western Montana, Wyoming, and Colorado south into eastern New Mexico and northwestern Texas.