GENERAL NOTES

Late June Blackburnian Warblers in Southern Connecticut.—The Blackburnian Warbler, *Dendroica fusca*, is listed as a bird of passage for southern Connecticut (Bent, 1953; A. O. U. Checklist, 1957) and is common during mid-May around New Haven. Sage, Bishop, and Bliss (1913) cite an old summer record from Lyme and state that the bird "doubtless" breeds in northern Litchfield County where nesting specimens have been collected. Outside of Litchfield County there are seven additional June and July records of individuals or pairs between 1932 and 1950 (kindly furnished by E. A. Bergstrom from his notes toward a new checklist of Connecticut birds). These are all from the northern part of the state, none south of Portland after the end of the spring passage until the fall.

Early on the morning of June 22, 1958, I identified two different male Blackburnians on the northern end of West Rock, near New Haven. They were feeding quietly within 100 feet of each other in maple trees surrounding a small stand of pines in second growth deciduous forest. West Rock is a 400-foot rocky outcrop which rises sharply on its southern end and falls away into low rolling hills to the north. Further attempts to locate the warblers on June 29 and July 1 were unsuccessful. The Blackburnian Warbler, according to Bent, breeds in June in the Appalachian Mountains as far south as Northern Georgia but is not found at low altitudes. It prefers hemlocks for its Pennsylvania and New York breeding and spruce and fir farther north. No heavy conifer stands were present where the birds were seen.

The evidence suggests that these two individuals which did not sing during my observations, may have belonged to a floating non-breeding and non-territorial population similar to that demonstrated in warbler species by Stewart and Aldrich (1951) and Hensley and Cope (1951) during two seasons of Spruce Budworm *(Choristoneura fumiferana)* outbreak in Maine. Although in general, spring migration was late in 1958 (Audubon Field Notes, 1958), the warblers were not unduly retarded in the northeast and therefore it is most improbable that these could have been migrants, one month late.

In the present case there is an interesting correlation with the Spruce Budworm. In 1957 a major outbreak severely damaged nearly 1,000,000 acres of boreal conifer forest in Maine. The following spring, 1958, heavy budworm populations were present so that between June 10 and 20, 302,000 acres of northeast Aroostook County were sprayed with DDT. A 96% reduction in budworm larvae was noted 10-14 days after spraying (U. S. Dept. Agr. For. Ser., 1958). Mook and Waters (1959) summarize for the year: "Growth loss and mortality (of trees) due to secondary insects were much less than we expected. So was damage by primary pests in general." In addition, "budworm populations in New Hampshire, Vermont, and New York (were) at a very low level. Only one larva was found during the examination of 50 permanent Spruce Budworm plots in the Adirondacks" (U. S. Dept. Agr. Northeastern For. Exp. Sta., 1958). Kendeigh (1947) and Mitchell (1952) showed that during outbreak years, budworm larvae constitute a large proportion of Blackburnian Warbler food, but major food ratios shift toward Coleoptera in normal years.

The fact that the two Blackburnian males were over 40 miles from the nearest regular potential breeding grounds and conifer feeding habitat in late June, 1958, implies that individuals of the non-reproductive floating population range more widely during years of reduced food supply when competition for food may be increased among warblers with overlapping niches (MacArthur, 1958). Other Connecticut records, even those from the north central part of the state in apparently suitable habitat for nesting, may also represent non-breeding individuals, as their highly sporadic occurrence suggests.

The author is a National Science Foundation predoctoral fellow. He is grateful to W. E. Waters for elucidating some insect problems.—George E. Watson, Peabody Museum of Natural History, Yale University, New Haven, Conn.

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Dyes for Color-Marking.—For the past eight years I have been operating a small bird banding station at my home in Bedford, New Hampshire. As I am a reasonably busy doctor subject to emergency call, this is definitely a small, part-time operation, and I have used almost exclusively pull traps, in which the birds feed and which I can operate by strings from the house when I have time to do banding. I have been particularly interested in studying my local Black-capped Chickadee *(Parus atricapillus)* population and have a steady population of sixty to seventy chickadees fall, winter, and spring in my feeders. Initially, I found that I would catch certain tamer individuals over and over and still be unable to band a large proportion of the birds.

I therefore decided to color-mark individuals and to concentrate on catching the uncolored birds. I found this gave a far better method of keeping track of the individuals.

Initially I tried vegetable dyes from a local grocery store ordinarily used for coloring cake frostings. In watery solution these rolled off the birds' feathers without staining. This was corrected by adding five drops of detergent (Trend) per ounce, which gave a good stain but which washed off in a few weeks. I then tried commercial wool dyes without marked success. I then had a dye chemist in a local textile mill try making me some special dyes, again without great success. The plain aqueous solutions did not stain. With detergents the dyes ran. During the fall of 1960 I stained a group of birds with commercial stamp pad ink, to which had been added detergent. This lasted six to eight weeks, but ran and blurred and also was difficult to apply without getting it all over one's hands, being rather messy.

In November, 1960, I started using Drimark. This is a commercial product made in Japan of a dye in a highly volatile organic solvent, which is supplied in small bottles with a plastic sponge in the cork which can be used almost like a broad fountain pen. The product dries instantly, makes a well-demarcated spot which does not run, and is the most satisfactory method I have so far used, particularly in the red color.

Three colors were used, red, orange, and green. The orange fades to a tanish color in four to eight weeks and is not easily seen in the field.

I have recorded the red and green Drimark in over fifty birds, scoring as follows: ++ equals bright colors, easily visible in the field. + equals definite colors visible in the field. ± equals definite color not easily seen in the field but visible with the bird in the hand. With Drimark green I have fourteen observations between five and seventeen weeks. Only one of these recorded ++ after six weeks. Seven showed + in six to eight weeks, one visible as ± at seventeen weeks. The Drimark orange faded to an orangey-tan at seven weeks. Drimark red was the most satisfactory, and observations are shown in the following table. Birds marked with this Drimark R show an easily visible discrete color marking lasting eight to ten weeks during the winter in this area, gradually fading after this.