

GENERAL NOTES

A Method for Aging Orange-crowned Warblers in Fall.—No method for aging Orange-crowned Warblers (*Vermivora celata*) by use of plumage characteristics is known other than the one suggested by Foster (*Condor*, **69**: 1-12, 1967). She used primary wing tips: blunt and wide in adults and narrow and more centrally pointed in immature and first-year birds. Use of this method requires experience and considerable judgment.

While banding migrants in central Illinois in the fall of 1975, we noticed that Orange-crowned Warblers showed basically two plumages. When we checked the plumage characteristics against the degree of skull ossification, we found that the differences could be used as an aging method in *Vermivora c. celata* (applicability of our method for other subspecies is unknown).

The plumage characteristics of the adults and immatures differ in the head region, although the adult generally has more yellow in the plumage, especially ventrally. The significant characters used in separating adults and immatures in fresh fall plumage are shown below.

| Plumage character | Adult | Immature |
|--------------------------------|---------------|--------------------------------|
| Crown | Greenish | Gray (almost hood-like effect) |
| Throat | Yellowish | Grayish-white |
| Eye-ring and Superciliary line | Yellowish | Whitish |
| Streaking on breast | More definite | Blurred |

Colorations of these two age groups for this subspecies in the fall are quite distinct, and it is amazing that the distinction has gone unnoticed. Possible explanations include the facts that the Orange-crowned Warbler is not common on the East Coast and that several subspecies occur in the West.

Between late September and late October 1975, we aged 48 Orange-crowned Warblers (14 adults and 34 immatures) by the method stated above. In each case there was a positive correlation between the plumage characters and the degree of skull ossification.—H. DAVID BOHLEN, *Illinois State Museum, Springfield, Ill. 62706*, and VERNON M. KLEEN, *Illinois Department of Conservation, Springfield, Ill. 62706*. Received 19 June 1976, accepted 20 July 1976.

Green Heron as a Potential Prey Species of the Broad-winged Hawk.—

Avian surveys were conducted 21-23 May 1974 in a series of three kettle holes on the Montague Plain, in Franklin County, near Greenfield, Massachusetts. Pitch pine (*Pinus rigida*) dominated the bases and sides of the kettle holes. Ponds, surrounded by a dense growth of meadow-sweet (*Spiraea latifolia*) and *S. tomentosa*, were present in two of the kettle holes.

On 22 May, as we approached the larger pond, a Green Heron (*Butorides virescens*) flushed from the meadow-sweet and was attacked by a Broad-winged Hawk (*Buteo platypterus*). The hawk made contact with the heron approximately midway across the pond, but soon released it. We were in clear view of the hawk and our presence probably caused cessation of the attack. Following the attack, the Green Heron sought cover in a dense clump of meadow-sweet, and the Broad-winged Hawk flew into the surrounding woods. The Green Heron uttered repeated "squawks" during and after the attack. We waited approximately 15 minutes, but the hawk did not return and the Green Heron did not leave the protection of the dense cover of the meadow-sweet.

The behavior of the hawk suggests two possible activities. Either the hawk was nesting in the area and the attack on the Green Heron may have been harassment or it may have been an attack on a prey. We have no evidence that the hawk was nesting in the immediate area, but the presence of numerous adult and larval bullfrogs (*Rana catesbeiana*), a common prey of this hawk, suggests that the hawk was probably hunting around the pond.

Prey of the Broad-winged Hawk is generally small and includes insects, frogs, lizards, snakes, and small mammals and birds. Larger prey species of this

hawk include juvenile domestic fowl, Ruffed Grouse (*Bonasa umbellus*), eastern cottontail (*Sylvilagus floridanus*), and snowshoe hare (*Lepus americanus*) (Rusch and Doerr, *Auk*, **89**: 139-145, 1972; Fitch, *Condor*, **76**: 331-333, 1974). Rusch and Doerr (*ibid*, p. 142) studied the food habits of four nestling Broad-winged Hawks in Alberta, Canada and noted that juvenile Ruffed Grouse, averaging 300 g, constituted the greatest part of their diet. The second largest component in the diet of these hawks was juvenile snowshoe hares, which range from 150-250 g (O'Farrell, *J. Mammal.*, **46**: 406-418, 1965). The weights of three adult Green Herons cited by Palmer ("Handbook of North American Birds," Vol. 1., New Haven, Yale Univ. Press, 1962: 416) were 158.0, 181.5 and 191.6 g, well within the weight range of prey species reported by Rusch and Doerr.

The literature contains no reference to the Broad-winged Hawk preying on the Green Heron, but the information reported here suggests that this heron should be considered a potential prey item of this hawk.—CARL N. BECKER and STEVE M. BYERS, *NALCO Environmental Sciences, 1500 Frontage Rd., Northbrook, Ill. 60062*. (SMB, present address: *Max McGraw Wildlife Foundation, P.O. Box 194, Dundee, Ill. 60118*). Received 3 July 1976, accepted 7 September 1976.

A Direct Line Recovery of a Red-eyed Vireo.—Direct short-term banding recoveries of small passerines are unusual, documentation of single night flights even rarer, and instances of a bird being weighed before and after such a flight are almost unknown. A few banded birds have been reported from TV tower kills previously (Stoddard and Norris, *Bull. Tall Timbers Research Sta.*, No. 8, 1967; Taylor and Anderson, *Wilson Bull.*, **85**: 42-51, 1973; Crawford, *Bull. Tall Timbers Research Sta.*, No. 18, 1974), but none were direct line recoveries and none provided significant weight change information. In the fall of 1974 a Red-eyed Vireo (*Vireo olivaceus*) was recovered at a North Carolina TV tower less than 48 hours after it had been banded in Pennsylvania. The evidence suggests a one-night flight of approximately 483 km after an exceptionally rapid weight gain.

This vireo, an immature, was banded (820-49947) by Leberman at Powdermill Nature Reserve, Carnegie Museum of Natural History's field station, 4.8 km S of Rector, Westmoreland Co., Pennsylvania (40°10' N, 79° 16' W) at 1120 on 7 September 1974. At the time of banding the bird weighed 16.5 g, and was recorded as having no visible fat. On the morning of 9 September 1974 Browne found the bird dead as part of a kill at the 362 m WRAL-TV tower, 14.4 km S of Raleigh, Wake Co., North Carolina (35°40' N, 78° 32' W). Birds killed that night included 27 passerines, 7 of which were Red-eyed Vireos. The banded bird was immediately weighed and later prepared as a specimen (NCS MNH 5150). It was an immature (skull not pneumatized) male with moderate fat (2 on a scale of 0-3) and a weight of 19.0 g.

A pooled September sample of 401 unsexed immature Red-eyed Vireos banded at Powdermill Nature Reserve had a range of weights between 12.2-25.7 g, with a mean of 17.3 g. A sample of 146 unsexed immatures of the same species collected by Browne and William Post at TV tower kills in Raleigh in September and October had weights of 14.3-28.0 g, mean 21.7 g. The banded and recovered vireo's weights of 16.5 and 19.0 g at the two localities were thus slightly less than the means from both areas.

The available evidence strongly suggests that the vireo made the entire flight during the night of 8 September. When recovered on the morning of the 9th the bird weighed 2.5 g more and had much more fat than it did at the time of banding. It seems unlikely that the bird could have gained sufficient weight in the course of the one afternoon of the 7th to migrate on two successive nights. More likely it remained in the Powdermill area, feeding on the afternoon of the 7th and all day on the 8th. Certainly, to have gained enough weight to have a heavy concentration of fat still remaining after the almost 500 km flight, the vireo must have spent most of the intervening daylight hours feeding. Unfortunately Leberman has seldom recaptured migrating Red-eyed Vireos within a few days of banding, and none have shown a similar heavy and rapid weight gain. That small passerines are capable of single flights of 500 km or more has been demonstrated in many instances: e.g., a Powdermill-banded Lincoln's Sparrow (*Melospiza lincolni*) that traveled 560 km, almost certainly during one night (Clench, *EBBA News*, **31**: 243-245, 1968).