GENERAL NOTES

Quebec Banded Wood Duck Recovered In Saba, Netherlands Antilles.—Storms that carry airborne animals great distances off course are common causes of irregular movements. This report concerns a juvenile male Wood Duck (*Aix sponsa*) that reached Saba, Netherlands Antilles, in a storm. The bird (band no. 727-60985) was one of 25 hand-reared Wood Ducks (13 males, 12 females) released by Dr. John Hackney and banded in Senneville, Quebec (45°25′N, 73°57′W) on 22 July 1975. The birds were placed in an open-topped enclosure at approximately four weeks of age and later flew from the enclosure but remained in the vicinity until mid-September. The particular male was next recorded in Saba (17°39′N, 63°15′W), a 13 km² Caribbean island consisting largely of rock and devoid of surface water, on 10 December 1975. It had been flying in the area of recovery for the previous several days and probably arrived during a prolonged period of rain, fog, and strong winds from the east and northeast. The emaciated bird was about to be eaten when its band was removed.

Two other Wood Ducks (1 male, 1 female) from the same release group were recovered near Nichols, South Carolina (34°N, 79°W) having been shot on 19 and 27 November 1975. Wood Ducks are resident in western Cuba and have been recorded in Jamaica and New Providence, Bahamas during the fall and winter (Palmer, R. S. 1976. Handbook of North American Birds, Vol. 3, New Haven, Conn., Yale Univ. Press). Wood Ducks regularly migrate to Florida and the Carolinas (Bellrose, F. C. 1976. Ducks, Geese and Swans of North America. Harrisburg, Pa., Stackpole). This extended movement to the southeast to land on a rock lacking freshwater is thus considered exceptional.—R. D. TITMAN, *Macdonald College of McGill University, Ste. Anne de Bellevue, Quebec and* G. A. SEAMAN, *Windward Side, Saba, Netherlands Antilles.* Received 2 September 1977, accepted 7 November 1977.

Eastern Bluebird Mortality at Winter Roosts in Tennessee.—Eastern Bluebirds (*Sialia sialis*) often roost communally in cavities, especially during severe winter weather (Forbush, 1929; Frazier and Nolan, 1959). Although Zeleny (1976) discussed winter roosting habits and the possibility of high rates of mortality to roosting bluebirds, few actual cases of such mortality have been reported. This account documents the death of seven bluebirds in a roost in 1961, and 19 bluebirds (seven of which had been banded) in five roosts in 1977. Observations were made in northwest Tennessee on my study area in Obion County, where approximately 50 nest boxes are located, and around my home in adjacent Weakley County, where eight nest boxes are located.

My first record of roosting mortality occurred in 1961. During the first inspection (early March) of nest boxes on the Obion County study area seven dead bluebirds were found in one nest box. Earlier in the winter 16 bluebirds roosted in a nest box approximately 200 m away.

Nest boxes were inspected several times each year, but no additional cases of roosting mortality were discovered until the winter of 1976–1977. On 22 January 1977, I inspected six boxes in Obion County and found four dead bluebirds in one box and 10 in another box. Three weeks earlier bluebirds roosted in both of these boxes. Also on 22 January, I inspected nest boxes at my home and found two dead bluebirds in a nest box where roosting bluebirds had been seen earlier in the winter. On 29 January 1977, all of the Obion County boxes were inspected and three other dead bluebirds were found, two in one box and one in another box. No bluebirds were observed during the remainder of the winter. In all, 12 males and seven females were found dead.

Of the 19 dead bluebirds, seven had been banded earlier on the study areas. Two of the birds were banded at a nest box roost earlier in the winter, and nothing else is known of their past. Two of the birds nested on the study area, where they were captured and banded at their nests on the same day. One of these birds, with its mate of 1976, was captured at a nest box roost on 1 January 1977. The remaining three birds were banded as nestlings (two in 1976, and one in 1975) on the study area, but they had not been recaptured prior to their deaths. Two of these birds died in the nest boxes where they were reared and banded.

Some bluebirds may suffocate in communal roosts (Zeleny, 1977). However, considering the body condition of each of the dead birds from my study area, the cause of death

was apparently a combination of food shortage and severe cold. All of the dead birds were emaciated and had no fat reserves. Their weights ranged from 19.5 to 25.9 g, with an average of 22.2 g. The weights, however, may have been slightly reduced by dehydration in the interval between death and the time of weighing. Normal weight is approximately 30 g.

Usually at this latitude severe cold spells are brief and are followed by warmer weather during which, even in December, January, and February, some arthropods are active and, consequently, available to bluebirds. However, the winters of 1960–1961 and 1976–1977 were exceptionally cold. January 1961 temperatures averaged 3.8°C below normal with a minimum of −19.5°C (U.S. Weather Bureau, 1961). January 1977 temperatures averaged 8.6°C below normal and only 15 days had temperatures above 0°C (U.S. Weather Bureau, 1977). In addition, snow and/or ice covered the ground throughout January except for one brief period early in the month. Fruits and berries such as sumac (*Rhus* sp.) were the primary components of feces in nest boxes where bluebirds had roosted and would probably sustain bluebirds during brief periods of extreme cold. The short days for feeding, the absence of any insects, and the enduring abnormally cold weather and snow and ice cover apparently prevented the bluebirds from obtaining sufficient food.

Other writers (e.g., James, 1961, 1962, 1963) have noted the tendency of bluebird populations to be much lower in years following abnormally cold or severe weather in the winter range. The breeding population on my Obion County study area dropped from 25 pairs in 1976 to 14 pairs in 1977. None of the banded adult females from 1976 returned to nest in 1977. Therefore, I suspect many of the nesting birds on the study area in 1977 were emigrants.

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Long-distance Displacement of Two Southern Barn Owls.—Displacement data for banded Barn Owls (*Tyto alba*) showed that adults moved as much as 1,371 km (850 mi) but that 77 percent of the recoveries were within 83 km (50 mi) of the banding site (Stewart, *Auk*, **69:** 227–245, 1952). When the recovery data were separated into northern and southern populations, however, not one of the southern recoveries was made more than 161 km (100 mi) from the banding site. Stewart tentatively concluded that southern Barn Owls are relatively sedentary compared to their northern counterparts. Two recoveries of Barn Owls banded in Texas offer additional data concerning the movements of the southern population of this species.

The first record concerns an adult captured and banded on 2 February 1967 in a nest box erected on the Rob and Bessie Welder Wildlife Foundation near Sinton, Texas. Band number 716-94623 was affixed to the unsexed bird. The bird evidently was using the box as a daytime roost because no eggs were present even though the species regularly nests in the boxes (see Otteni et al., *Wilson Bull.*, **84:** 434–448, 1972). The bird was recovered near Veracruz, Mexico, during November 1974 (no specific day available) 7 years