

GENERAL NOTES

Survival of Mourning Doves Unaffected by Withdrawing Blood Samples—Birdbanders and game managers are often reluctant to allow public health officials or wildlife disease investigators to draw blood from birds under their jurisdiction. The main concern is that the bleeding procedure and associated handling will induce stress and trauma which might increase morbidity and mortality. It has been our experience that the degree of concern is inversely related to the size of the bird. In this report, we present observations on a free-flying Mourning Dove (*Zenaida macroura*) population which was subjected to periodic bleeding and banding as part of an arthropod-borne encephalitis surveillance program.

The doves were captured in modified Stoddard traps baited with cracked corn. Trapping was conducted on abandoned runways at Herndon Airport, Orlando, Florida. The traps were operated on a periodic basis from July 1968 through March 1976. Doves were captured during 40 months of this period with emphasis on the July to October interval each year. Between 50 and 100 birds, with emphasis on young-of-the-year, were bled and banded during each trapping session. A volume of 0.5 cc of blood was drawn from a wing vein of each bird using a disposable glass 0.5 cc syringe with a 25 gauge 1.6 cm needle. Pressure was applied to the site of venipuncture for about 10 seconds prior to each dove's release.

A total of 2,557 individual birds were bled and banded. Due to the frequency of trapping and the small number of birds handled during each trapping session, only 440 (17.2%) were recaptured. Birds captured more than once during a single trapping session were counted only once and not re-bled. Of the 440 doves, 353 (80.2%) were recaptured only once whereas multiple recaptures (2 to 6) were made on 87 (19.8%) birds. The median time of recapture whether single or multiple was 2 months, ranging from 1 to 43 months. In addition, 53 birds banded as juveniles and not recaptured, were harvested by hunters. The median time between bleeding and death was 7 months, ranging from 1 to 31 months. All of these birds, except two, were killed within 100 km of the banding site. The other two birds were shot in Illinois 13 months after banding and bleeding and in North Carolina 28 months after banding and bleeding.

The survival of birds that were banded and bled appears unaffected by the removal of 0.5 cc of blood. If it is assumed that the blood volume of a dove is, on the average, approximately 8% of the body weight (Raveling, *J. Wildl. Manage.*, **34**: 941, 1970), then 0.5 cc represents 6 to 10% of the total blood volume. Removal of this volume of blood did not appear to impair the flight capabilities of the doves, many of which were recaptured one or more times during the same trapping session. The time intervals between initial capture and recapture or harvesting by hunters further suggest that survival is unaffected by bleeding. While there was no control group of doves that were banded but not bled, the percentage of our band recoveries does not differ significantly (χ^2 , $P < .005$) with that reported from Florida (Winston, Florida Game and Fresh Water Fish Commission, Tech. Bull. 2, 1954) and South Dakota (Rice and Lovrien, *J. Wildl. Manage.*, **38**: 743, 1974). The percentage of our recaptures also compares favorably with that recorded by Winston. Therefore, we concluded that removal of 0.5 cc of blood from a wing vein of young and adult Mourning Doves apparently does not affect their survival based on recaptures and band returns.—WILLIAM J. BIGLER, GERALD L. HOFF, AND LYMAN A. SCRIBNER, *Health Program Office, Florida Department of Health and Rehabilitative Services, 1323 Winewood Blvd., Tallahassee, Fla. 32301 and Orange County Health Department, 832 W. Central Ave., Orlando, Fla. 32802.* Received 5 November 1976, accepted 5 January 1977.

Foot-quivering in a Foraging Hermit Thrush.—At 0930 on 20 March 1976, while walking through woods at Sapelo Island, Georgia, I stopped to watch a Hermit Thrush (*Catharus guttatus*) perched at eye level 4 m away. The thrush rested motionless except for an occasional raising of its tail. It suddenly flew to an adjacent shrub to eat several red berries. Then, after a pause in which it rested motionless, it flew to relatively open ground 5 m away, under a live oak (*Quercus virginiana*), and carpeted by the freshly shed leaves of the oak. As soon as the thrush landed, its legs and toes began vibrating with a coarse tremor

that made the small dry oak leaves on which it stood shake also. Almost none of the tremor seemed to be communicated to the body of the bird. Neither in the round, limpid eye nor elsewhere in the bird could I detect any motion or pose indicative of excitement of any cause. After foot-quivering (Dilger, *Auk*, 73: 313, 1956) a few moments, the thrush hopped forward 5 to 8 cm, tossing leaves aside very rapidly and appearing to feed. Then, with a few more hops, it moved to another spot and foot-quivered again. This took place in three different places under the oak and was seen well with 8 x 40 binoculars. In between, the thrush rested on a stick about 8 cm above the ground. The foot-quivering stopped and the bird remained motionless. When a Red-tailed Hawk (*Buteo jamaicensis*) flew by at near tree top level, the thrush disappeared.

These observations appear to add points to those made by Dilger (1956) under different circumstances, namely on thrushes in captivity or in the wild when disturbed by complicating apparatus in the breeding season. In these situations he favored the idea that foot-quivering was a displacement activity. He discusses the possibility that thrushes "might employ these movements to flush insects from the detritus of the forest floor" but states that he had never seen the behavior in wild birds. All of the foot-quivering was characterized by Dilger as of low intensity.

The Hermit Thrush at Sapelo, in contrast, was observed in the nonbreeding season and outside of the breeding range. It was obviously foraging and gave no indication of being disturbed. Its foot-quivering seemed to be of high intensity, sufficient to shake the dry leaves on which it stood. The Red-tailed Hawk that came through the woods at the end of the observation came flying from a distance. Had the Thrush seen it earlier, it seems doubtful if it would have fed in an open place shaking leaves as it did so.

A possible overall interpretation of foot-quivering, combining Dilger's with present findings, is that the behavior evolved as a foraging technique that has developed later, and in secondary fashion, into a displacement activity. Although it is often difficult to watch foraging thrushes of the genus *Catharus* at close range, the problem is an interesting one and additional observations would be helpful.—LAWRENCE KILHAM, *Department of Microbiology, Dartmouth Medical School, Hanover, New Hampshire 03755*. Received 27 May 1976, accepted 5 January 1977.

Longevity Record for the Red-tailed Hawk.—On 17 Oct 1960 we trapped a migrating Red-tailed Hawk (*Buteo jamaicensis calurus*) at the Cedar Grove Ornithological Station, on the western shore of Lake Michigan about 60 km north of Milwaukee, Wisconsin. The bird still had some juvenal remiges, and thus was slightly more than 1 year old at the time. On about 1 March 1976 the bird was struck by a vehicle near Athens, Tennessee. The band number and approximate date of recovery were confirmed in a telephone conversation with Marc Sudheimer, a conservation official who reported the band. Kennard (*Bird-Banding*, 46: 55-73, 1975) gave 13 years, 7 months as the greatest age record for this species. Our record extends this to 16 years, 9 months, assuming a hatch date of June, as did Kennard.

The fifth edition of the A.O.U. "Check-list of North American Birds" (1957) states that *B. j. calurus* winters east to Louisiana and that it is casual in Illinois, southern Ontario, Pennsylvania and New Jersey. Athens is in extreme southeastern Tennessee, and this locality and southeastern Wisconsin would appear to be east of the normal range for the subspecies. However, *B. j. calurus* is considerably more common than "casual" in Wisconsin. We have colored photographs of a number of individuals, and we have deposited several specimens in the museum of the Department of Zoology at the University of Wisconsin. Examples of the subspecies are captured every autumn at Cedar Grove; we ceased documenting their occurrence with photographs many years ago. For example, in the autumn of 1960 we trapped 3 adult and 77 juvenile Red-tailed Hawks; 2 of the adults and 2 of the juveniles were *B. j. calurus* (5% of the total). —HELMUT C. MUELLER, *Department of Zoology and Curriculum in Ecology, University of North Carolina, Chapel Hill, North Carolina 27514*, DANIEL D. BERGER, AND GEORGE ALLEZ, *Cedar Grove Ornithological Station, Route 1, Cedar Grove, Wisconsin 53013*. Received 8 January 1977, accepted 17 January 1977.