found at the secluded resting site of Sutton's specimen and by the emaciated condition of Mengel's specimen, is that they forage very little. Another possibility is that they forage terrestrially. In watching Chuck-will's-widows walking about on roads swallowing pebbles, Jenkinson and Mengel (Condor 72:236–237, 1970) give the impression that they might easily forage on the ground. An extensive search of the literature, however, reveals no information on ground foraging by Chuck-will's-widows; thus, we report the following observations.

On the evening of 23 June, 1974, in a residential suburb of Fort Myers, Lee Co., Florida, Butler repeatedly observed a Chuck-will's-widow capturing squirrel tree frogs (*Hyla squirella*) from a black-top road surface. The incident occurred in the light cast by a street lamp where the frogs were plentiful, presumably attracted to insects. On several occasions the bird alighted on the road near its intended prey and then captured a frog unaided by wings or feet and swallowed it. Once the initial attack was evaded by a timely series of leaps, but the bird again flew close to the frog and captured it. Similarly, in 1972 Clifford G. Richardson (pers. comm. to Butler) observed a Chuck-will's-widow capturing frogs beneath a street light near his home on Pine Island, Lee Co., Florida.

These observations of Chuck-will's-widows foraging on frogs are significant, not so much because they add an unknown food item to the species' diet, but because they prove ground feeding to be a fact. An apparent difficulty with the ground feeding hypothesis is the very short legs of Chuck-will's-widows; but this may be resolved by the fact that both Sutton's and Mengel's specimens could, indeed, fly. Thus, while individuals in the most intense stages of the molt might be incapable of the sort of maneuvers required to capture flying insects, they could, perhaps, move to points of prey concentration where ground feeding, such as that reported here, might pay. Furthermore, terrestrial foraging would likely be facilitated by the absence of the rictal bristles, thus explaining their simultaneous replacement.—SIEVERT ROHWER, *Dept. of Zoology and Washington State Museum, Univ. of Washington, Seattle 98195,* and JAMES BUTLER, *College of Forest Resources, Univ. of Washington, Seattle 98195.* *Accepted 8 Dec. 1975.*

Feeding responses of fall migrants to prolonged inclement weather.—September 1975 was unusually cold in northwestern Ohio. A light frost on 14 September was the earliest ever recorded, and temperatures remained 3 to 6°C below normal each day thereafter until October. The migration peak for many passerines occurred between 23 and 27 September during a period of heavy cloud cover, gusty winds, frequent rain, and cool temperatures (range 8–16°C). Our home in a wooded area near Toledo, Ohio is surrounded by fruit-bearing shrubs including yews (*Taxus* sp.) and Tartarian honeysuckle (*Lonicera* sp.). During the fall migration many frugivorous species feed at these shrubs; between 23–27 September these species were joined by birds not normally noted for frugivory.

The minimum number of normally non-frugivorous birds eating fruit and the fruits selected (H = honeysuckle, Y = yew) were as follows: flycatcher (*Empidonax* sp.), 1(H); Tennessee Warbler (*Vermivora peregrina*), 1(H); Magnolia Warbler (*Dendroica magnolia*), 1(H); Bay-breasted Warbler (*D. castanea*), 4(Y); Blackpoll Warbler (*D. striata*), 1(Y); Ovenbird (*Sieurus aurocapillus*), 1(Y). In addition, a Ruby-crowned Kinglet (*Regulus calendula*), 2 immature Chestnut-sided Warblers (*D. pensylvanica*) and a male American Redstart (*Setophaga ruticilla*) investigated both yews and honeysuckles but were not actually observed eating berries.

By 27 September the bushes were nearly stripped of ripe berries. On that day the migrants turned to foraging in atypical fashion on or near the ground. One Ruby-crowned Kinglet, 2 Magnolia Warblers, 1 female Black-throated Blue Warbler (*D. caerulescens*), 1 immature Yellow-rumped Warbler (*D. coronata*) and 3 Bay-breasted Warblers crept through the lawn, apparently plucking tiny arthropods off the undersides of grass blades and violet leaves. Simultaneously 2 female or young American Redstarts were observed plucking grass seeds (*Setaria* and *Digitaria*) from their stalks while 10 other American Redstarts foraged clumsily within 2 m of the ground on the trunks of large cottonwoods (*Populus deltoides*) and pin oaks (*Quercus palustris*).

Apparently the species listed above rarely practice frugivory in North America. Bent (1942, 1953, U. S. Natl. Mus. Bull. 179, 203) comments on their food habits as follows: Least Flycatcher (*Empidonax minimus*), fruits 2% of diet or less; Ruby-crowned Kinglet, "6% of stomach contents ... were fruits and seeds" (in California); Tennessee Warbler, "berries in small quantities; ... punctured grapes"; Chestnut-sided Warbler, "a few seeds and berries when hard-pressed," and Audubon saw them eating grass seeds in a May snow; Bay-breasted Warbler, no actual records ("perhaps a little fruit"); Blackpoll Warbler, "a few seeds and berries in the fall"; Ovenbird, "a few seeds and small wild fruits"; and American Redstart, "berries and seeds on rare occasions," although Wetmore found that in Puerto Rico wintering American Redstarts consumed "100% animal food."

The most likely explanation for our observations is that the unusually early onset of cool temperatures prematurely reduced populations of arboreal arthropods that normally comprise the major portion of the diet of fall migrant warblers, kinglets, and flycatchers. Our mosquito population offered circumstantial evidence to support that idea. Mosquitos were insufferable before 14 September, numerous until 21 September, and declined very rapidly thereafter until virtually none could be found by the 27th. Beginning on 23 September the birds turned to eating berries, which could be procured with low energy expenditures. They resorted to atypical (and therefore probably energetically costly) foraging for arthropods on the ground and on tree trunks only when fruits were no longer available.—Elliot J. Tramer and Flora E. Tramer, *Dept. of Biology, Univ. of Toledo, Toledo, OH 43606.* *Accepted 11 Dec. 1975.*

Southbound migration of shorebirds from the Gulf of St. Lawrence.—In a previous study, McNeil (L'Oiseau et R.F.O. 40:185–302, 1970) has shown that most North American shorebird species departing from northeastern Venezuela in northward spring migration have enough energy reserves to reach the southern United States by a non-stop flight over the Caribbean Sea (lower part of route B in Fig. 1). Flight-range capabilities average some 2240 km. Then most shorebirds must reach their breeding grounds by flying either along the Atlantic coast or through the Mississippi flyway.

However, for most species, the fall migration route seems to differ from that used in spring. Many literature references suggest that in fall migration several North American shorebird species deviate in a southeasterly direction. This explains their presence in greater numbers in fall than in spring on the Canadian Atlantic coasts, and their occurrence in fall, but almost total absence in spring over the Atlantic (e.g. in Bermuda: See McNeil 1970; McNeil, Can. J. Zool. 47:525–536, 1969).

Furthermore, some species of shorebirds have higher flight energy reserves for fall migration south from the Gulf of St. Lawrence than for spring migration north from northern South America (McNeil and Cadieux, Naturaliste Can. 99:589–605, 1972; Berthiaume, M.Sc. thesis, Univ. of Montreal, 1974). They have enough reserves to fly