

hirundo) at night and their return to the sites during the day. The cause of night desertion was not identified but it may have been related to a heavy infestation of ticks such as *O. capensis*.

A Soldado-like virus was isolated from our Texas tick samples sent to Rocky Mountain Laboratory. When *O. capensis* ticks collected from sick Sooty Terns on Bird Island were allowed to feed on young domestic chickens, they transmitted a Soldado virus that caused the death of their host (Converse et al., op. cit.). Feare (op. cit.) found an unusually high number of dead young terns and felt the Soldado virus transmitted by the ticks may have contributed to the die-off.

In our study the occurrence of a spring storm 30 April within the period of desertion (24 April–2 May) complicated defining the cause of nest abandonment. Winds reaching 38 knots and rainfall of 0.41 cm were recorded at the nearest National Weather Service station in Victoria (63 km). However, the 6 nests which had been active on 24 April showed no sign of damage by wind or high water when they were examined on 7 May. We therefore concluded that the infestation of ticks was the probable cause of nest desertion.

In contrast to the complete failure of the Brown Pelican's first nesting attempt, the later nesting on Pelican Island produced young; 9 fledged from 11 nests. We found no *Ornithodoros* ticks associated with the young pelicans, their nests, or in the soil and litter beneath the nests on Pelican Island.

Distribution of *O. capensis* is influenced by bird movements. Our preliminary investigations reveal the occurrence of *O. capensis* in several heronries on the central Texas Coast. Host species noted so far include the Brown Pelican, Roseate Spoonbill, Cattle Egret (*Bubulcus ibis*), Reddish Egret (*Dichromanassa rufescens*), Black-crowned Night Heron (*Nycticorax nycticorax*), Laughing Gull (*Larus atricilla*), and Black Skimmer (*Rynchops nigra*). The long-term effects of ticks on pelicans and other colonial nesting birds remain to be determined.—KIRKE A. KING, U. S. Fish and Wildlife Service, Patuxent Wildlife Research Center, Gulf Coast Field Station, P. O. Box 2506, Victoria, TX 77901; DAVID R. BLANKINSHIP and RICHARD T. PAUL, National Audubon Society, 115 Indian Mound Trail, Tavernier, FL 33070; ROBIN C. A. RICE, Dept. of Entomology, Univ. of Hawaii, 2500 Dole Street, Room 28, Honolulu 96822. Accepted 13 July 1976.

Prairie Warbler feeds from spider web.—A note in the March 1976 Wilson Bulletin described an incident of feeding from a spider web by a Cedar Waxwing (*Bombycilla cedrorum*) (Burt et al., Wilson Bull. 88:157–158, 1976). It was believed that this represented the first account of such behavior in a passerine.

I observed a somewhat similar incident involving an adult male Prairie Warbler (*Dendroica discolor*) in Everglades National Park, Monroe Co., Florida, on the afternoon of 3 July 1971. The bird was perched low in mangroves about 20 cm from the vertically-oriented web of a golden silk spider (*Nephila clavipes*). Three times during a 30-sec period he flew briefly to the web and each time picked an insect from it with his bill. Upon alighting on his perch, he swallowed each insect and then wiped his bill against a branch as if cleaning silk from it. No spider was seen on the web.

Prairie Warblers are known to eat spiders and to use spider silk in nest-construction (Wetmore, U. S. Dept. Agr. Bull. 326:1–133, 1916; Bent, U. S. Natl. Mus. Bull. 203:1–734, 1953). Webs of *Nephila clavipes* often persist for relatively long periods of time

(Comstock, *The spider book*, Cornell Univ. Press, Ithaca, 1948), and abandoned ones might serve as effective insect traps for birds detecting them.—JOHN F. DOUGLASS, *Archbold Biological Station of The American Museum of Natural History, Route 2, Box 180, Lake Placid, FL 33852* (Present address: *Dept. of Ecology and Evolutionary Biology, Univ. of Michigan, Ann Arbor 48109*). Accepted 27 Sept. 1976.

Notes on the hummingbirds of Monteverde, Cordillera de Tilarán, Costa Rica.—Monteverde, a lower montane site on the Pacific slope of northwest Costa Rica's Cordillera de Tilarán, supports a strikingly rich avifauna. During the periods October 1971–May 1973 and June–July 1975, I recorded 20 species of hummingbirds—over a third of Costa Rica's total—at Monteverde. Many species were well outside ranges previously described by Slud (Bull. Am. Mus. Nat. Hist. 128, 1964) and others. I present here information on avifaunal affinities of this diverse assemblage as well as data on local distribution, breeding, plumages, and behavior of species seldom studied in the field.

Monteverde lies upon a bench, elevation 1320–1540 m, just below the continental divide, which reaches 1600–1700 m. The approximately 3 km wide belt bounded by the lower edge of the bench and the divide contains a steep gradient of biotic communities, corresponding to the steep moisture gradient produced by trade winds which carry mist over the divide during the November–May “dry season.” These communities range from a constantly wet, wind-sculptured elfin forest on the divide proper to a partly deciduous moist forest, subjected to severe dry-season moisture stress, on the lower edge of the bench. One may subjectively divide this gradient into “life zones,” though no obvious boundaries exist and elevations are only approximate. Life zones were determined with the aid of Tosi (Mapa ecológico de Costa Rica, Centro Científico Tropical, San José, 1969) and Holdridge (Life zone ecology, Tropical Science Center, San José, 1967; pers. comm. to G. V. N. Powell). They are abbreviated below as follows: MF-WF = Lower Montane Moist Forest-Wet Forest Transition, elevation 1200–1400 m; WF = Lower Montane Wet Forest, elevation 1400–1480 m or higher; WF-RF = Lower Montane Wet Forest-Rain Forest Transition, elevation 1480–1540 m or higher; RF = Lower Montane Rain Forest, elevation over 1540 m; EF = Elfin Forest, crest of divide.

Many of Monteverde's bird species, especially those inhabiting the lower habitats, are characteristic of the dry Pacific northwest or the subtropical belt (*sensu* Slud 1964). Many species of the Caribbean slope stray over the divide, however, and the wetter forests of the higher elevations contain many characteristic highland birds. At these elevations hummingbirds typical of the forests also exploit flowers in the limited second-growth areas. The extensive pasture and scrub habitats of the lower life zones contain a distinct group of species, however, though forest populations contribute scattered individuals (Feinsinger, Organization of a tropical guild of nectivorous birds, Ph.D. thesis, Cornell Univ., 1974).

Though I made observations in all life zones, most studies, mist-netting, and color-marking of hummingbirds—following the method of Stiles and Wolf (Condor 75:244–245, 1973)—took place in MF-WF successional habitats. Within these habitats, hummingbirds fed at flowers of 15 plant species, particularly the herb *Lobelia laxiflora* (Campanulaceae) and the tree *Inga breneisii* (Leguminosae). Aggression was most pronounced during flowering peaks of these species. Territorial species directed most aggression toward flying or feeding birds; only *Philodice bryantae* consistently displaced perched conspe-