components and complexity.—JAMES A. KUSHLAN, *Dept. of Biology, Univ. of Miami, Coral Gables, FL* (Present address: *U.S. National Park Service, Everglades National Park, Homestead, FL 33030*). *Accepted 14 Mar. 1976.*

Birds of five families feeding from spider webs.—Burtt et al. (Wilson Bull., 88: 157–158, 1976) observed a Cedar Waxwing (*Bombycilla cedrorum*) removing specks from 2 spider webs in the top of a dead tree. They suggested that the waxwing was removing insect prey that had become entangled in a possibly abandoned web. Since reports of web-feeding are scarce in the literature, Burtt et al. (1976) suggested that opportunities for web-feeding might be rare. Because of their hovering abilities, hummingbirds appear to be pre-adapted for web-feeding, and, indeed, the only literature reports we have found come from the family Trochilidae (Wolf, Condor 72:1–14, 1970; Bent, U.S. Natl. Mus. Bull. 176:377, 1940; Bullock, 1825, in Bent, op. cit., 431). Therefore, we thought it important to report our observations on web-feeding in species of 5 avian families, and in 1 species to compare web-feeding with gathering of web material, possibly for use in a nest. The first 4 species mentioned were observed by R.B.W. in Mexico, the last by J.P.H. in Madison, Wisconsin.

On 26 March 1973, a nesting Fawn-breasted Hummingbird (*Amazilia yucatanensis*: Trochilidae) pecked repeatedly at a vertically-oriented spider web in an area of dry deciduous forest 16 km south of Xpujil, Campeche. The bird hovered in front of the web and darted forward several times, touching the web with its bill on each occasion. Whether or not the bird removed insects from the web could not be determined because of poor light. The bird did not appear to be grasping web materials, nor did it begin nest-building after it left the spider web.

On 16 March 1974, a Blue Bunting (*Cyanocompsa parellina*:Fringillidae) pecked at an orb-weaver (Family Araneidae) web located about 50 cm off the ground. The bird flew up from a perch 10 cm above the ground and hovered near the spider web. The bird pecked several times at the web and then returned to its perch near the ground. The bird repeated its actions 3 times, the third time directing its pecks toward a second web adjacent to the first. Whether the bird was taking insect prey or small spiders could not be determined. This sequence occurred about 200 m from the first observation.

In December 1974, at the Chicanna Archaeological Zone, 8 km west of Xpujil, Campeche, another Blue Bunting was observed dismantling a spider web about 3 m from the ground. The bird approached the web along a twig, grasped a strand of the web and pulled. In pulling, the bird assumed an upright posture with the long axis of the body perpendicular to the perch and the head held perpendicular to the body axis. The bird struggled with the web for 15 sec and finally broke off the strand and flew away. The action of web-gathering appeared substantially different from the pecking motions described above.

Another instance of web-feeding occurred at Chicanna on 17 July 1975 while a White-bellied Wren (*Uropsila leucogastra*:Troglodytidae) was foraging in a tree 4 m above the ground. The bird was moving rapidly from twig to twig, actively foraging by pecking at twigs and hawking insects. At one point, the bird pecked twice at a twig, turned, and delivered 2 pecks to a spider web, and then moved away. The web which the bird pecked appeared abandoned and had a large amount of vegetable or animal matter entangled in it.

A Yellow-green Vireo (*Vireo flavoviridis*:Vireonidae) also pecked at a spider web while foraging at Xpujil on 5 July 1974. The bird was foraging 10 m up in a 13-m tree at the edge of a clearing. The bird grasped a speck in a spider web with its bill, pulled force-

fully for a moment, and then swallowed. The bird then wiped its bill twice and moved away.

On 11 May 1975, a Yellow-rumped Warbler (*Dendroica coronata*:Parulidae) hovered in front of a vertically-placed spider web attached to the tips of branches high in a tree, plucked one prey item from the web, and flew off. There were no perches convenient to the web as in the case of the Cedar Waxwing reported by Burtt et al. The web had 13 remaining prey items visible in it and despite many warblers of several species foraging in this tree and others nearby, no other bird fed from or even inspected the spider web in the 10 min after the feeding instance.

Our observations suggest that web-feeding is more widespread than the paucity of literature on the subject suggests. Perhaps observers have overlooked it or assumed that it was already so well known that it was not important to mention it. It may be significant that 3 of the 4 tropical species were observed web-feeding during the breeding season, when a need for higher protein intake may occur. Hummingbirds in particular are not well adapted for capturing insects, but their hovering abilities make it possible for them to secure protein by cleptoparasitism from spider webs.—ROBERT B. WAIDE AND JACK P. HAILMAN, *Dept. of Zoology, Univ. of Wisconsin, Madison 53706.* *Accepted 1 May 1976.*

Winter nest microclimate of Monk Parakeets.—Monk Parakeets (*Myiopsitta monachus*) have a broad distribution in South America where their range extends from tropical Bolivia and Brazil well into the temperate regions of Argentina (Bull, Wilson Bull. 85:501–505, 1973; Olrog, Las Aves Sudamericanas, Universidad Nacional de Tucuman, Argentina, 1968). While the species normally encounters a wide range of local climates, in North America it survives winters which are more severe than those of its native range (Bump, U.S. Fish and Wildl. Serv., Bureau of Sport Fisheries and Wildlife, Wildlife Leaflet No. 496, 1971). Among psittacids Monk Parakeets are unique in building large enclosed nests composed of interwoven twigs. (Forshaw, Parrots of the World, Doubleday and Co., Inc., New York, 1973). Unlike most birds Monk Parakeets occupy their nests throughout the year. The role of enclosed nests in contributing to the maintenance of a favorable microclimate has been demonstrated for several species (Ricklefs, *in* Avian Energetics, R. Paynter, ed., Publ. Nuttall Ornithol. Club 15:152–297, 1974). Tolerance of low winter temperatures in this species may be improved by the use of these stick nests for nighttime roosts. In this paper we investigate the possibility that during the winter the nest of the Monk Parakeet contributes to energy savings by creating a favorable microclimate.

Methods.—Measurements of air temperature (Ta) and nest temperature (Tn) were made at a nest which had been constructed by a breeding pair in the upper corner of a large ($4 \times 3 \times 2$ m) outdoor flight cage. The nest was situated approximately 10 cm below the cage roof, but otherwise exposed on all sides. The nest (Fig. 1) was 0.5 m long, 0.3 m deep and 0.3 m wide. At the time of study it was occupied by a mated pair.

Temperatures were measured with 20-gauge copper-constantan thermocouples and were recorded at intervals of 2 min with a Honeywell recording potentiometer (model 112). The uncertainty of measurement did not exceed 0.2°C. Ta was recorded from a thermocouple placed 5 cm from the back of the nest. Tn was recorded from thermocouples implanted at several locations within the nest, but concentrated around the inner nest chamber (Fig. 1). An additional thermocouple was positioned on the floor of the inner nest chamber such that it was in contact with the birds when they occupied the nest. This probe signaled when the birds entered or left the nest.

Measurements were made during 10 days in January and February usually from 16:00