might be stressed by lack of more typical food; the weather had been damp, with freezing temperatures at night, and insects were apparently scarce, as suggested by unusual behavior by other insectivorous birds (e.g., warblers sitting still probing into spruce cones, pers. obs.).

On 5 July 1975, and again the following day, I saw a Violet-green Swallow (*Tachycineta thalassina*) circling over and landing on patches of bare ground at the edge of a trailer park near Smithers, British Columbia (54°49'N, 127°11'W). While on the ground, the bird hopped around pecking at the substrate, looking all around between pecks. Two other Violet-green Swallows swooped low over the first bird on 6 July, and one of them also landed but was not seen to pick up anything. I inspected the ground where the swallow had been pecking; the only animals seen were several small spiders. Many other, more open locations nearby would have provided better opportunities for securing grit; Royama's (J. Anim. Ecol. 39: 619–668, 1970) observation that Great Tits (*Parus major*) regularly fed spiders to their young during the first week suggested that spiders may provide some important nutritional factor and thus be especially sought out.

Both Wolinski (1980) and Sealy (1982) attributed ground-foraging by Rough-winged Swallows to opportunistic use of a temporarily available, high-density food source, but neither the availability nor the density were obviously favorable in the other situations. Tyler's (*in* Bent 1942) observation of Tree Swallows picking up seeds from a frozen pond and mine of the same species foraging on a lakeshore, both occurred in early spring when flying insects were not readily available. This may have been true also of Wolinski's (1980) observation (on 22 May 1977), but Sealy (1982) explicitly noted flying insects nearby at the time of his sighting (31 May 1979). The other sightings quoted by Bent (1942) lack dates. Thus, ground-foraging may occur when aerial insects are scarce and grounded food is an easier food source.

Species which spend more of the year in cooler climates, whether by arriving early or remaining late in the breeding areas, or by wintering farther north, may be expected to benefit most by adapting to unusual food sources. The Tree and Violet-green swallows return earlier in spring than our other swallows, and these are also the only ones which winter regularly north of the Mexico-U.S. border, although Rough-winged Swallows do so to some extent. Observations of foraging by swallows in early spring or cold seasons would probably provide more records of ground-foraging, which may be more general than has been recognized.—ANTHONY J. ERSKINE, *Canadian Wildlife Service, P.O. Box 1590, Sackville, New Brunswick E0A 3C0, Canada.* *Accepted 7 June 1983.*

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Use of an interspecific communal roost by wintering Ferruginous Hawks.—Although much is known about the breeding biology of the Ferruginous Hawk (*Buteo regalis*), little is known about its habits during winter. The few individuals wintering in Utah's desert shrub habitats appear to be territorial and avoid the more gregarious Rough-legged Hawks (*B. lagopus*) and Bald Eagles (*Haliaeetus leucocephalus*) (Smith and Murphy, Sociobiology 3:79–98, 1978). This paper provides the first documentation of communal roosting by Ferruginous Hawks and also the first evidence that Ferruginous Hawks share roosts with other raptors.

Ferruginous Hawks were observed in Charles Mix County, South Dakota (43°04'N, 98°32'W), near the northeastern limit of the wintering range (A.O.U., Check-list Committee, Check-list of North American Birds, 5th ed., Lord Baltimore Press, Baltimore, Maryland, 1957). Roosting activity was recorded in the winter of 1975–76 during 25 early morning visits to a tree stand near Lake Andes. Between one and six Ferruginous Hawks used the roosting stand on 11 occasions, and between one and 33 Bald Eagles used it on 19. Hawks used the roost from 2 December–13 February, and eagles used it from 29 December–15 March. On the nine mornings that the roost was used by both species, between one and three hawks and five and 28 eagles were present. No interspecific aggression was noted in the roost, and distances between hawks and eagles appeared similar to distances between conspecifics. Hawks left the roost 57–15 min before sunrise ($\bar{x} = 30$, SD $\pm$ 15), approximately the same time eagles departed. Hawks also tended to leave in the same direction as most departing eagles. The 0.6-ha roost consisted of 77 mature cottonwoods (*Populus deltoides*) that grew between Lake Andes and a cultivated field. Roost trees had a mean diameter of 51 cm (SD $\pm$ 20 cm) and an estimated median height of 18 m.

It is unlikely that a shortage of suitable roosting sites forced communal roosting because similar stands within 1 km of the roost were not used by individuals of either species. Ward and Zahavi (Ibis 115:517–534, 1973) proposed that communal roosting facilitates food-finding, and several workers have suggested that this explanation is applicable to Bald Eagles (Steenhof M.S. thesis, Univ. Missouri, Columbia, Missouri, 1976; Knight, M.S. thesis, Western Washington Univ., Bellingham, Washington, 1981; Stalmaster, Ph.D. thesis, Utah State Univ., Logan, Utah, 1981). Both Ferruginous Hawks and Bald Eagles were commonly seen during the day near concentrations of feeding waterfowl in agricultural fields near Lake Andes. Individuals of one or both species may have learned of these potential food sources from interactions at the roost.

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Serum chemical levels in captive female House Sparrows.—Until recently, there were relatively few studies which were conducted to specifically characterize the chemical constituents of the blood of birds. Even the well-established blood chemical levels of the domestic chicken (*Gallus gallus*) are mostly a result of the compilation of the data from a wide variety of other blood-related physiological investigations (Sturkie, Avian Physiology, Cornell Univ. Press, Ithaca, New York, 1954:32; Avian Physiology, 3rd ed., Springer-Verlag, New York, 1976:246; Van Tienhoven, Reproductive Physiology of Vertebrates, 3rd ed., Cornell Univ. Press, Ithaca, New York, 1983:180). Earlier, hematological investigations of nondomestic birds consisted of measurements of erythrocyte numbers and blood hemoglobin levels (Nice et al., Wilson Bull. 47:120–125, 1935), while later, blood protein levels also were determined (Dabrowski, Acta Biol. Cracoviensio, Ser. Zool. 9:259–275, 1966; Balasch et al., Poultry Sci. 52:1531–1534, 1973). More recently, the levels of carbohydrates, lipids, and serum enzyme activities have been among some of the other hematological values examined in wild and captive birds (Kern and de Graw, Condor 80:230–234, 1978; de Graw et al., J. Comp. Physiol. 129B:151–162, 1979; Driver, J. Wildl. Dis. 17:413–421, 1981; Gee et al., J. Wildl. Manage. 45:463–483, 1981; Franson, J. Wildl. Dis. 18:481–485, 1982;