

strip transects for birds were censused six times both before and after the cordgrass burns at the ANWR. The burn site and an adjacent control were surveyed and White-tailed Hawks were not recorded during any transect count. The hawks at the fire came from outside the immediate area of the burn.

In contrast to the WWR burns, the hawks at ANWR were not seen on subsequent days. Instead, numerous Turkey Vultures (*Cathartes aura*) and Caracaras (*Caracara cheriway*) fed on small carrion in the Aransas postburn site for at least 5 days. The Aransas headfire was a rapid conflagration and probably killed many cotton rats and snakes (Tewes, M.S. thesis, Texas A&M Univ., College Station, Texas, 1982). A fast, destructive burn leaving few possible prey could explain the failure of hawks to remain on this postburn.

Finally, on 22 February 1981, four more 2-ha Welder burns were conducted near the previously mentioned locations (two adjacent burns separated by 4 km from the other two adjacent burns); all failed to attract White-tailed Hawks. I have no explanation for this observation.

Although hawks may feed on rodents during and immediately following a fire, this may be only a short-lived advantage. An extensive and complete burn removes much of the vegetative cover and subsequently is poor habitat for most rodent species (Tewes 1982). This situation continues until regrowth provides adequate cover for small mammal re-establishment.

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Swallows foraging on the ground.—Wolinski (*Wilson Bull.* 92:121–122, 1980) and Sealy (*Wilson Bull.* 94:368–369, 1982) reported Rough-winged Swallows (*Stelgidopteryx ruficollis*) obtaining food by landing on the ground. Both examples involved beaches, the swallows in one case apparently taking fly larvae from dead fish and in the other dead midges washed up on the beach. Although Sealy (1982) had not seen such actions by other swallows, Bent (*U.S. Natl. Mus. Bull.* No. 179, 1942 [Dover reprint, 1963]) included references to ground foraging by Tree Swallows (*Tachycineta bicolor*) and Purple Martins (*Progne subis*). Tree Swallows were reported picking up seeds from the ice of a frozen pond on 19 March 1939 and landing on a marshy shore apparently to feed on minute insects, and wintering swallows had taken crustacea that could hardly have been obtained on the wing (Bent 1942). In this note I report two more instances of apparent ground foraging by swallows, and integrate these with previous information to explain possible benefits of such unusual behavior.

On 28 May 1971, at Lac Hébécourt, Abitibi Co., Québec (48°31'N, 79°24'W), I watched about 15 Tree Swallows apparently foraging among decaying vegetation at the strand line on the lakeshore. The birds were hopping around, pecking at the debris, perhaps picking up fly larvae or other invertebrates, during 5 min that I watched from my cabin 30 m away. Their activity was focussed on the vegetation rather than on the much more extensive gravel areas of the beach, which suggested that they were obtaining food rather than grit. I did not approach them to identify possible food organisms, as I did not want to disturb birds which

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