

of energy gained from the item as compared to the energy expended searching for it (Emlen, 1966; MacArthur and Pianka, 1966). Much work remains to be done on this aspect.

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**Wilson's Phalaropes forming feeding association with Shovelers.**—A number of waterbirds are known to exploit the normal feeding behavior of other species. In so doing they increase the performance rate of certain of their own motor patterns for feeding. More specifically, Williams (Condor, 53: 158, 1953) has described Wilson's Phalarope (*Steganopus tricolor*) forming a commensal association with American Avocets (*Recurvirostra americana*).

In May 1971, while observing Wilson's Phalaropes and Shovelers (*Anas clypeata*) in a flooded meadow (mainly whitetop *Scolochloa festucacea*) at Delta, Manitoba, we noted an obvious and common feeding association between these birds. A group of some 25 Shovelers and a flock of some 60 phalaropes spent the whole of every day (sunrise to sunset) in the meadow. The depth of the water varied, but generally did not exceed 70 mm, permitting the phalaropes either to wade or swim for brief periods. The Shovelers fed mainly by alternately raising and submerging their heads while paddling steadily forward. It seemed obvious that the feeding actions of the Shovelers stirred up invertebrates, which the phalaropes nearest the ducks seized by quick thrusts of their beaks. Grebes (*Podiceps* spp.) have been reported as improving their feeding by associating with Shovelers (*A. clypeata* and *A. smithii*) (see Siegfried, *Ibis*, 113: 236, 1971).

The data presented in Table 1 suggest that, while attending a feeding Shoveler, an individual phalarope pecked at prey at a rate almost three times that measured for a phalarope feeding alone, and a little less than twice the rate obtained for a phalarope feeding as a member of a flock of conspecifics. The mean pecking rates are significantly different ( $P < 0.01$ ). As we could not distinguish between successful and unsuccessful

TABLE 1  
FEEDING RATES OF WILSON'S PHALAROPE

	Attending shoveler <sup>1</sup>	In group of non-attending birds <sup>2</sup>	Alone <sup>3</sup>
Mean pecks/min	38.96 (SE 0.70)	25.21 (SE 0.80)	14.59 (SE 0.64)
No. birds observed	13	10 <sup>4</sup>	14
No. seconds observed	942	526	1,100

<sup>1</sup> Within 50 cm of Shoveler.

<sup>2</sup> All birds within 50 cm of nearest neighbor, and group consisting of 10 or more birds.

<sup>3</sup> Minimum distance of 5 m from nearest bird.

<sup>4</sup> In 10 groups.

pecks, the number of pecks as stated in Table 1 does not necessarily represent the number of food items captured.

Usually small groups of phalaropes (average of five birds) attended single Shovelers. Although no complete quantitative data on daily activity cycles were obtained, the phalaropes seemed to feed most intensely when the Shovelers fed most actively, and that the number of feeding phalaropes decreased with the Shovelers' periods of least activity. The case described here is interesting in that phalaropes very obviously followed feeding ducks, and apparently competed for choice feeding positions closest to the duck; agonistic encounters were commonest between attending individuals closest to the duck. Female phalaropes seemingly more often than not dominated and occupied the choice lead positions. Lead birds were not observed to "spin," and indeed spinning was seldom seen (cf. Höhn, Auk, 84: 220, 1967).

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**Simultaneous migration of Sandhill Cranes in Florida.**—At 10:50 on 8 March 1968 at Blue Cypress Lake, 27 miles west of Vero Beach, we watched 19 Sandhill Cranes (*Grus canadensis*) circling in three distinct flocks so high up we could hear only the loudest components of their incessant calls. The wind was 12–15 mph from the southeast. Several more units of three or four cranes came from the south and west and joined those already circling. At 11:00 they formed a single line and headed northwest at an estimated altitude of 2,500 feet. At 11:09 two more single lines appeared flying northwestward, and between 11:20 and 11:30 we heard two more flocks pass overhead. We saw or heard about 75 cranes in all.

The Florida Sandhill Cranes (*G. c. pratensis*) start nesting from early February through mid-March (Thompson, Auk, 87: 500, 1970), so the birds we saw migrating were probably *G. c. tabida* that had wintered in central and southern Florida. As Williams (Auk, 87: 156, 1970) describes the departure of cranes from Gainesville, 165 miles northwest of Blue Cypress Lake, between 10:00 and 12:00 on the same day, evidently crane migration started simultaneously over a wide area in Florida that spring.—MARGARET COON BOWMAN, *Box 783, Wabasso, Florida 32970*, and STEWART L. WHITMAN, *R.R. 1, Upper Granville, Annapolis County, Nova Scotia, Canada*. Accepted 21 Sep. 71.