This may be true of the mirror image and at least partly responsible for the lack of habituation. Future work considering the preference for M.I.S. over an extended period of time with a variety of species may give some idea as to the adaptive significance of this behavior.

I would like to thank Roger J. Raimist for his helpful suggestions during study. Cindy Banas made the graph. This research was partially funded by the Student Research Committee, Life Science Dept., Glassboro State College.—MICHAEL J. RYAN, *Life Science Dept., Glassboro State College, Glassboro, NJ 08028.* (Present Address: *Dept. of Zoology, Rutgers Univ., Newark, NJ 07102*). *Accepted 30 Mar. 1977.*

Wilson Bull., 90(2), 1978, p. 297

***Protocalliphora* infestation in Great Horned Owls.**—On 5 May 1977, 6.4 km southwest of Foley, Minnesota, I collected several dipteran larvae from the ear cavities of a nestling Great Horned Owl, *Bubo virginianus*. I raised the larvae to adult flies, which were identified by Dr. Curtis W. Sabrosky, Systematic Entomology Laboratory, U.S. National Museum as *Protocalliphora avium* Shannon and Dobroscky. The adult flies resemble blue-bottle flies, but belong to the family Calliphoridae; the blow flies. *Protocalliphora* have been found to parasitize a number of raptors, including Long-eared Owls, *Asio otus* (Shannon and Dobroscky, J. Washington Acad. Sci. 14:247–253, 1924), and Red-tailed Hawks, *Buteo jamaicensis*, Red-shouldered Hawks, *Buteo lineatus*, and Cooper's Hawks, *Accipiter cooperii* (Sargent, Auk 55:82–84, 1938). I found dipteran infestations to be quite common in Great Horned Owl and Red-tailed Hawk nestlings in central Minnesota. During the past 2 years, 41 of 73 (56%) Red-tailed Hawks, and 25 of 46 (54%) Great Horned Owls that I banded were infested. The larvae were located in the ear cavities of most nestlings although some were found in the nape area. Unfortunately, only from the one nest did I have the dipterans precisely identified. Other raptors may also be afflicted with this parasite, but there appear to be few documented cases. *Protocalliphora* eggs are apparently deposited in the nest debris; the larvae suck blood intermittently for 14–20 days and pupate for about 10 days before the adult flies emerge (Coutant, J. Parasitol. 1:135–150, 1915). The blood-sucking larvae usually do not seriously harm large species; however, they may weaken, kill, or force smaller passeriformes from their nests (Johnson, Ann. Entomol. Soc. Am. 22:131–135, 1929).—ROBERT T. BOHM, *520 7th Ave. North, Sauk Rapids, MN 56379.* *Accepted 21 Feb. 1978.*

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Territorial defense of a nectar source by a Palm Warbler.—Territorial defense of nectar has been documented in several species of wintering parulids, for example: Cape May Warbler, *Dendroica tigrina* (Kale, Auk 84:120–121, 1967; Emlen, Wilson Bull. 85:71–74, 1973), Palm Warbler, *D. palmarum* (Emlen, op. cit.), and Yellow-rumped Warbler, *D. coronata* (Woolfenden, Auk 79:713–714, 1962). It is the purpose of this note to document further the defense of a nectar source by a Palm Warbler and the disproportionate amount of time it spent chasing conspecifics from flowers as compared with the time spent chasing 2 other parulid species.

The following observations were made over a 5 h period (07:00–12:18) in Bayside Park, Miami, Florida on 9 March 1975. An unbanded Palm Warbler was observed

TABLE 1

SUMMARY OF THE TIME SPENT IN PURSUIT BY A PALM WARBLER DEFENDING FLOWERS OF A TIGER'S CLAW TREE

Species	Number of pursuits	Average time of pursuit (sec)	Standard error	Range (sec)
Northern Parula	24	39	1.4	25–61
Yellow-rumped Warbler	29	42	1.5	32–60
Palm Warbler	18	218	2.2	61–321

constantly as it defended the flowers of a Tiger's Claw Tree (*Erythrina* sp.). The leafless tree was 10–12 m tall with a crown diameter of approximately 10 m. The following species regularly visited the flowers on the tree but were not chased by the Palm Warbler: Common Flicker (*Colaptes auratus*), Red-bellied Woodpecker (*Melanerpes carolinus*), Fish Crow (*Corvus ossifragus*), Mockingbird (*Mimus polyglottos*), Starling (*Sturnus vulgaris*), and Spot-breasted Oriole (*Icterus pectoralis*). The Palm Warbler appeared to be actively defending the flower-covered tree from Northern Parulas (*Parula americana*), Yellow-rumped Warblers, and other Palm Warblers. Only parulids were chased from the tree. All chases were timed with a stop watch; only pursuits which I could see from start to finish are listed in Table 1.

The Palm Warbler seemed to be feeding on nectar during the observation period. For short periods of time (10–15 min) this individual stayed high in the tree calling and flicking its tail. From this location it often sighted and chased intruders.

From 09:00 to 09:30 this individual spent about 60% of the time sitting on a lookout perch, 30% chasing intruding parulids, and 10% feeding at flowers. This time budget is similar to that noted by Emlen (op. cit.) for a wintering Cape May Warbler defending a nectar source in the Bahamas.

My observations (Table 1) show that the Palm Warbler spent more time chasing conspecifics (average 218 sec per chase) from the tree than either species of parulid (average of 39 sec for parulas and 42 sec for Yellow-rumped Warblers). Comparisons of the average pursuit times for Palm with Northern Parulas and Palm with Yellow-rumped warblers both showed significant differences ($p < .05$) using a t-test. All 3 species fled from the territorial individual in the same manner and it is unlikely that the differences in pursuit times are due to differences in the behavior of the fleeing individuals.

Why more time and energy should be expended in the pursuit of conspecifics is not altogether clear. It is unlikely that a conspecific is more of a threat in nectar consumption than a parula or Yellow-rumped warbler. All 3 parulids appeared to feed in the same manner and presumably removed equal amounts of nectar. During 11 lengthy pursuits of conspecifics both Yellow-rumped and parula warblers flew into the unguarded tree and fed until chased by the returning territorial bird. The disproportionate amount of time spent in pursuit of conspecifics left the nectar source unguarded and thus available to other parulids. It appears that shorter pursuits of conspecifics would have been more efficient in guarding the tree from competing parulids.

The selective pressures for species recognition are probably quite strong and the appearance of a conspecific at a defended food source arouses a stronger aggressive

response than the appearance of other species. By responding more strongly to conspecifics, a territorial individual might leave the nectar source unguarded and thus available to other competitors. The rarity with which such nectar sources are encountered and the more unlikely condition that another larger species is not already defending it, give little time for selection to "finely-tune" this defense behavior. Nectar specialists, i.e. hummingbirds and sunbirds, tend to chase all competitors of the same size or smaller with equal vigor. The Palm Warbler which on rare occasions takes nectar might respond to a competitor with which it is most familiar. Aggression towards conspecifics is a common behavior found within the repertoire of possible responses and may account for the differential pursuit times.

Selection should favor defense of a feeding territory as long as the energy gained from exclusive use of that defended nectar source is greater than the energy expended in its defense (see Stiles and Wolf, Auk 87:467–491, 1970; Wolf, Condor 72:1–14, 1970). Generally interspecific dominance is based upon size, for larger species are either difficult or impossible to drive out of the territory. This territorial Palm Warbler ignored all intruding larger species and chased only parulid species of equal size.

I am grateful to K. W. Corbin, J. H. Rappole, P. J. Regal, and H. B. Tordoff for reviewing this manuscript.—JOSEPH M. WUNDERLE, JR., *Dept. of Ecology and Behavioral Biology, Bell Museum of Natural History, Univ. of Minnesota, Minneapolis 55455.* *Accepted 22 Feb. 1977.*

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Ring-billed Gull pair with 2 nests.—On 13 May 1975, I observed 2 nests of *Larus delawarensis* in the Calcite Colony (Rogers City, Presque Isle Co., Mich.) that were unusually close together. The nests had a common rim on one side and both contained eggs. Observations verified that only 2 gulls, apparently a pair, were attending the double nest. The nests were in a portion of the colony that has been used repeatedly since at least 1958.

The largest and most complete nest (i.e. that with the most nest material) contained 4 eggs while the other had 2 (Fig. 1). Two adult-plumaged gulls (i.e. lacked terminal tail bands and other characters normally indicative of birds less than 3-years old; see Ryder, Wilson Bull. 87:534, 1975) attended the nests. Each of the gulls consistently incubated the same clutch of eggs during my two 8-h observation periods before color-marking. Neither of the birds left the nest site while I was present on these 2 days. This represents unusually long incubation bouts for each bird as the mean duration of shifts for pair members at this colony is 1.8 h (Southern, pers. observ.).

The incubating birds were tolerant of one another and body contact was not unusual. Frequently the head of one bird touched the wing, tail, or back of the other. Occasionally their bodies were aligned parallel to one another facing in the same direction. The 2 gulls, either singly or in combination, threatened incubating neighbors and territory intruders. Both birds arranged nesting material, including that in the common wall between the nests.

Once the gull attending the 2-egg clutch left the nest and stood unchallenged near the adjoining nest. Before returning to the nest, it chased an intruding neighbor from the territory. While standing at the nest before settling, it again threatened the neighbor (with open-bill thrusts), this time in unison with its partner on the adjacent nest. During my observations no other gulls approached the double nest without being challenged by one or both attending gulls.