

TABLE 1
COMPARISON OF PHYSICAL PARAMETERS OF THE THREE SPECIES

Species	Length (in)	Weight (g)	Bill (mm)	Food plant corolla (cm)
Bananaquit	5	12	20	2-4
Green-throated Carib	4.5	4	25	4
Antillean Crested Hummingbird	3.5	3	14	2

(Table 1). The Bananaquit's attacks were most vigorous and immediate with *Orthorhyncus*, with which it shared preferred *Euphorbia* flowers.

Intraspecific attacks of the Bananaquit were characteristically noisy, but brief. *Sericotes* attacks of its own species usually involved long and rapid chases of the supplanted individual. *Orthorhyncus* intraspecific encounters were frequent and quite aggressive; pursuit flights were vigorous.

The simple hierarchy of these three nectar-feeders is obviously based on aggression, much as has been noted with hummingbirds in other areas, both temperate (Pitelka, Condor, 44: 189, 1942) and tropical (Stiles and Wolf, Auk, 87: 467, 1970). Interestingly, territories were not evident although they are often reported at flowering plants. Perhaps the population density of the three species is too high for efficient territoriality in the small area (8 *Sericotes*, 9 *Orthorhyncus*, and 10 *Coereba*). With such population densities territories might require far too much time in defense of intruders to be energetically worthwhile (Wolf and Hainsworth, Ecology, 52: 980, 1971). The interactions might change considerably in other seasons with different patterns of nectar availability.

The dominance relationships reported here and noted with nectar-feeders in general are in sharp contrast to the inter- and intraspecific attractions of fruit-feeders at their food plants (Leck, Wilson Bull., 83: 278, 1971). That nectar-feeders exhibit competitive aggression while the fruit-feeders usually share mutual benefits of flocking at superabundant resources seems to be a fundamental difference of the two feeding ecologies.

I worked under a grant from the Research Council of Rutgers University while in residence at the West Indies Laboratory of Fairleigh-Dickinson University.—CHARLES F. LECK, *Department of Zoology, Rutgers University, New Brunswick, New Jersey 08903*. Accepted 28 Apr. 72.

Absence of "individual distance" in the Tree Swallow during adverse weather.—Hediger (Wildtiere in Gefangenschaft, 1942; English edition, Wild animals in captivity, London, Butterworth, 1950) first proposed separating animals into "contact" and "distance" species. In his scheme, contact species tolerate physical contact in nonmating situations, but distance species respond with aggression or retreat to incursions within some critical "individual distance." Swallows are generally considered distance species. For instance Emlen (Condor, 54: 177, 1952) found that perching Cliff Swallows (*Petrochelidon pyrrhonota*) were intolerant of conspecific approach within about 4 inches (10 cm). Conder (Ibis, 91: 649, 1949) reports similar spacing in Barn Swallows (*Hirundo rustica*). Perching Tree Swallows (*Iridoprocne bicolor*) also normally maintain an individual distance (pers. observ.), but the spatial relations within a roosting flock I watched in April 1972 indicate that the "distance" concept is not universally applicable for this species.

Warm weather and southerly winds accompanied a large contingent of migrating

Tree Swallows to northern New Jersey on 6 April. That night the weather deteriorated to freezing temperatures and sleet-bearing northeast winds of 15-20 mph. Late the following afternoon (17:45, 7 April) I noticed that 24 swallows had ceased foraging in the sleet and wind and were roosting at very close quarters in an alder shrub (*Alnus* sp.) overhanging a small pond. The birds' postures suggested an attempt to conserve heat; breast and back feathers were raised and bills were tucked under the scapulars. Also conspicuous was the absence of preening, an activity common in diurnal swallow roosts.

Of the 24 birds in the shrub, 14 perched on separate branches, but in two instances two swallows shared the same branch, and triplets shared each of two other branches. Within these four groups, I estimated the distance between adjacent individuals through 7×35 binoculars from a position about 5 m perpendicular to the roost branches. The six inter-individual distances were 2.0, 1.5, 0.5, 0.5, 0.0 and 0.0 cm. One 0.0 cm pair were tightly appressed and appeared to be leaning toward each other rather than sitting upright. Five minutes later when I returned with a camera, all the swallows were gone.

Emlen (ibid.) did not see such contact perching during his extensive study of swallows under benign summer conditions, nor has it been reported elsewhere. Its presence here suggests that normal spatial separation in distance species can be overridden by contrary activity of high survival value; in this case huddling together likely husbanded energy reserves in the face of low temperature, high wind, and apparent scarcity of prey.—THOMAS C. GRUBB, JR., *Department of Biology, Livingston College, Rutgers University, New Brunswick, New Jersey 08903*. Accepted 31 Apr. 72.

Snowy Owl predation on Lapland Longspur nestlings recorded on film.—

During the summer of 1971 I investigated the breeding biology of the Lapland Longspur, *Calcarius lapponicus*, near Barrow, Alaska. To obtain data on incubation and feeding patterns of nesting longspurs, time-lapse cameras (Minolta Autopak-8 D6 super-8 movie cameras equipped with an Intervalometer-^D time-lapse device) were positioned at several nests throughout the nesting season with an exposure interval of either 8 or 30 seconds. At 07:00 on 14 July a Snowy Owl, *Nyctea*

TABLE 1
EVENTS AT A LONGSPUR NEST RECORDED IN CONSECUTIVE FRAMES
BY TIME-LAPSE PHOTOGRAPHY

0657	Female on nest	—————	(Photograph 1)
0657½	Female off nest	Owl near nest	4 young in nest
0658	" " "	" " "	4 young
0658½	" " "	Owl predation	—————
0659	" " "	—————	2 (?3) young
0659½	" " "	—————	" "
0700	" " "	Owl near nest	" "
0700½	" " "	—————	" "
0701	" " "	—————	" "
0701½	" " "	—————	" "
0702	" " "	Owl predation	(Photograph 2)
0702½	" " "	—————	1 young
0703	" " "	—————	" "
0720	Female on nest	—————	—————