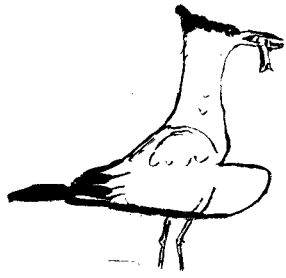

FIG. 1. Male Royal Tern in pose for courtship feeding.

maintain balance. The body of the female sank slightly, as her bill pointed upward. Periodically (2–3 times in longer copulations) the male worked himself near the rear of the female, coming to rest on his tarsi. He fell slightly to the right, beat his wings and maneuvered his tail under the elevated tail of the female. Cloacal contacts lasted only a few seconds. Many copulations ended with the female walking ahead, thus dumping the male. Three males and 1 female displayed briefly following copulations.

A third form of behavior was the courtship flight, similar to the "Gleitflug" described by Dircksen (J. Ornith. 80:427–521, 1932) for the Sandwich Tern. Seen only once, a pair of Royal Terns flew close together, circled high over beach and dunes and then flew out to sea where one of them floated down on the other 3 times with its wings held in a "V." Aerial displays of other terns are described by Cullen (Ardea 48:1–39, 1960).

In discussion of these observations, Buckley and Buckley (1972) distinguished drinking-skimming and feeding-skimming. Dipping of bills in the waves following courtship feedings was observed; however, this behavior appeared to be a washing of the bill to get rid of mucous left from the fish. There were, curiously, 2 points of resemblance between Royal Terns and the Swallow-Tailed Kites (*Elanoides forficatus*) whose pre-nesting behavior I watched in a preceding month (Kilham, Raptor Res. 14:29–31, 1980). Both species have unusually long copulations, the kites up to 40 sec. This may be related to both species having long wings and bodies plus relatively short legs. In both species, the male stands on the back of the female prior to holding on while sliding his forked tail under hers. Another similarity relates to courtship feeding. The females of both species demanded an offering of a definite type. With the terns this was a fish about 7 cm long and with the kites an anole (*Anolis carolinensis*) of slightly smaller size. Females of both species refused, sometimes repeatedly, other offerings. The refusals of female terns are interesting in relation to the speculations of Nesbit (Nature 241:141–142, 1973) that 1 function of courtship feeding may be to give females a chance to assess potential mates as future providers for chicks.—LAWRENCE KILHAM, *Dept. Microbiology, Dartmouth Medical School, Hanover, New Hampshire 03755.* *Accepted 10 June 1980.*

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Two cases of commensal feeding between passerines.—Observations of birds exploiting the feeding behavior of other organisms are not uncommon. Birds may use other types of animals, such as monkeys (*Macaca* sp.) (Stott, Auk 64:130, 1947) and army ants

(*Eciton* sp.) (Willis and Oniki, Ann. Rev. Ecol. Syst. 9:243–263, 1978). Numerous instances of interspecific feeding commensalism have been noted among many non-passerine birds. For instance, several cases have been documented of Snowy Egrets (*Egretta thula*) benefiting from the foraging behavior of other ardeids, mergansers (*Mergus* sp.) and terns (*Sterna* spp.) (Christman, Condor 59:343, 1957; Emlen and Abrose, Auk 87:164–165, 1970; Lamm, Condor 77:207, 1975; Bertin, Auk 94:390–391, 1977). Although the literature concerning mixed species bird flocks is extensive, the degree to which species use one another to expose or flush prey in such flocks is poorly known and controversial (Rand, Fieldiana Zool. [Chicago] 36:1–71, 1954; Partridge and Ashcroft, Condor 78:449–453, 1976).

An extensive literature search yielded only 1 observation of single or paired non-flocking passerine species exploiting one another. Willis (Ornithol. Monogr. 10, 1972) observed a commensal feeding association between Spotted Antbirds (*Hylophylax naevioides*) and Scaly-throated Leafscrapers (*Sclerurus guatemalensis*). I report 2 similar cases of this type.

On the morning of 16 March 1976, at Puerto Los Mazos near Autlán de Navarro, Jalisco, Mexico, Kenn Kaufman and I observed a pair of Rose-breasted Thrush-Tanagers (*Rhodinocichla rosea*) foraging 1–4 m apart on a sloping dry oak-forest floor at about 1385 m. They were exposing food items by flipping over leaves and other litter with sweeping motions of their bills. Accompanying them was a Fan-tailed Warbler (*Euthlypis lachrymosa*) that remained within 0.5 m of one or the other of the pair and usually perched on a branch or log above the tanagers. The warbler appeared to be using these elevated perches to see prey items exposed by the tanagers. It darted in, captured and swallowed insects exposed by 1 tanager, and then returned to the same elevated perches or others nearby. When no vantage post existed near the tanagers, the warbler observed from the ground nearby. It appeared to be successful in capturing prey uncovered by the tanagers. We were unable to determine what type of prey the tanagers and the warbler were taking; however, in over 25 min of observation we observed no conflicts between the birds. This appears to indicate that the warbler was taking prey not used by the tanagers. This warbler has also been noted following army ants in Mexico (Sutton, Condor 53:16–18, 1951; E. O. Willis, pers. comm.). As these birds moved up slope, they passed within 8 m of a Blue Mockingbird (*Melanotis caerulescens*) foraging in the same leaf-flipping manner as *Rhodinocichla*. The warbler, however, showed no interest in the mockingbird and remained with the tanagers.

While at Gedi Historical Monument (Gedi Ruins, Gedi Forest), Malindi, Kenya, on 1 July 1977, Dale, Allan and Marian Zimmerman and I observed a Red-capped Robin-Chat (*Cossypha natalensis*) closely following a Spotted Ground-Thrush (*Turdus fisheri*) foraging in dry leaf litter on the forest floor in dense understory. The thrush was uncovering food items by scratching with its feet and occasionally using the bill to toss dead foliage aside. The manner in which the chat exploited food revealed by the thrush was similar to that described above. The chat perched from 0.5–1 m above the thrush in the understory. When a food item was detected the chat flitted to the ground after the prey and then returned to its perch. This was repeated several times, but due to the dense foliage we were unable to determine the success of *Cossypha* in capturing prey. This species has also been observed exploiting the feeding behavior of elephant-shrews (Macroscelididae) in much the same manner (Rathburn, Ph.D. thesis, Univ. Nairobi, Nairobi, Kenya, 1976).

My observations are similar to those of Willis (1972) for *Hylophylax* and *Sclerurus*. In all 3 cases, the species that were exploited foraged on the ground, exposing prey by flipping leaves and other litter with their bills and/or feet. The extent to which such associations are rare or transitory vs a regular foraging strategy on the part of the follower remains to be documented.

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