ripple on the water surface whereas leg-dipping swallows appeared to plop their legs and perhaps tail in and out of the water in a quick motion.

Frost and Siegfried (1975) found that two species of swallow (*Hirundo cucullata* and *H. albigularis*) in South Africa extended their legs in 90–100% of the cases at a mean ambient temperature of 38°C. Those results compare closely with mine for the Cliff Swallow. However, unlike my findings, the same authors found no leg extension response in either species at mean temperatures of 27°C or 33°C. Possibly South African swallows are adapted to breed in warmer climates than the Cliff Swallow population at Creston and, therefore, have a higher tolerance to high temperatures.

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Active anting by the Yellow-shouldered Blackbird.—Many temperate species (Potter, Auk 87:692–713, 1970), including Red-winged Blackbirds (*Agelaius phoeniceus*), display anting behavior (Nero, Auk 68:108, 1951). Other than records for the Puerto Rican Tanager (*Nesospingus speculiferus*) (King and Kepler, Auk 87:376–378, 1970), there are no reported cases of anting by West Indian birds. Reports of this behavior in the widespread genus *Agelaius* are rare. For these reasons, the following observations of active anting by the Yellow-shouldered Blackbird (*A. xanthomus*) are of interest. An actively anting individual applies ants to its body, as opposed to merely allowing ants to invade the body surface.

We saw Yellow-shouldered Blackbirds ant once on 6 March 1974, at 08:20 (1 h 33 min after sunrise) near La Parguera, Puerto Rico. A group, varying from 15–20 birds, gathered on bare ground at the edge of a scrubby pasture. The birds were within 10–15 cm of each other. At least 19 different Yellow-shouldered Blackbirds actively anted during the 8-min period that the flock continued this activity. Also in the flock were three Shiny Cowbirds (*Molothrus bonariensis*) and a Greater Antillean Grackle (*Quiscalus niger*), none of which actively anted. The anting behavior resembled that described for other passerines (Simmons, Zool. Soc. London 149:145–162, 1966). The Yellow-shouldered Blackbirds applied the ants mainly to the remiges, but also to the rectrices, breasts and upper tail coverts. Their tails were often under the body while the birds anted their remiges, the tips possibly in contact with the tails. Five times individuals fell on their sides while applying ants to their wings. Whitaker (Wilson Bull. 69:195–262, 1957) noted such tumbling by an anting Orchard Oriole (*Icterus spurius*). The plumages of the anting yellow-shoulders were fluffed and wings were drooped, while the remiges were spread.

Ant density at the site was about 100 per 0.1 m^2, and we could only find the workers of a harvest ant (*Pheidole* sp., Myrmicinae). The night before it had rained 23 mm, the first heavy rain in several months. Potter (1970) suggested a relationship between rainfall and anting. She also pointed out that anting is most likely during periods of molt, but in this instance it is doubtful if any of the blackbirds were molting, as most, if not all, of the birds were adults, and the Yellow-shouldered Blackbird's postnuptial molt takes place during August–December. There is no prenuptial molt in adults.

Anting could reduce infestation by Mallophaga and Acarina. In 1974–1975 at La Parguera, 69% of 265 blackbirds had Mallophaga (Post, J. Field Ornith. 52:16–22, 1981). The chemical constituents of ants which are of value to anting birds vary between ant subfamilies. Harvest ants do not secrete formic acid, as do members of Formicinae, which are commonly used by anting birds (Simmons 1966). Myrmicinae are usually avoided because of their stings. How-

ever, these ants do secrete anal fluids that are potentially insecticidal.—WILLIAM POST, *Box 582, Aiken, South Carolina 29801* AND MICOU M. BROWNE, *Dept. Entomology, North Carolina State Univ., Raleigh, North Carolina 27607.* *Accepted 5 Mar. 1981.*

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Competition between Red-winged Blackbirds and Common Grackles.—Interspecific competition is often difficult to document in natural situations because species pairs or groups are commonly studied after they have long been in contact (see for example, Cody, Competition and the Structure of Bird Communities, Princeton Univ. Press, Princeton, New Jersey, 1974). It is therefore difficult to know what effect each species had on the reproductive success of the other at the time of initial contact when competition was presumably most intense. Although Red-winged Blackbirds (*Agelaius phoeniceus*) and Common Grackles (*Quiscalus quiscula*) have long been sympatric, they frequently do not nest in the same habitat. Despite the fact that cattail marshes may have been an original nesting habitat for grackles (Stepney, Ph.D. thesis, Univ. Toronto, Toronto, Ontario, 1979), they are generally considered now to be prime nesting habitat for red-wings and, in many areas, rather unusual nesting substrate for grackles (Wiens, Auk 82:356–374, 1965). Occasionally, however, grackles do nest in such areas. The present study documents a possible effect of the arrival of grackles on red-wing reproductive success in a cattail marsh. For a comparison of red-wing and grackle nesting behavior, as well as for a description of the interaction between the two species, see Wiens (1965).

In 1974 the senior author studied red-wings on four marshes (Redwing Slough, Crawdad Slough, 87th Street Slough and Long John Slough) located in Palos Park Forest Preserve about 45 km outside Chicago, Illinois. In 1978 both authors worked on two of the four marshes (Redwing Slough and the south end of 87th St. Slough). In 1974 no grackles nested on any of the four marshes. In 1978 grackles nested on Redwing Slough although none nested on the other three marshes. The present study compares reproductive success of red-wings nesting on Redwing Slough before and after the arrival of grackles. In addition, reproductive success of red-wings on this marsh in 1978 is compared with that on 87th St. Slough where no grackles nested.

The two marshes emphasized in this study were located 1.5 km apart. Both Redwing Slough and the southern end of 87th St. Slough contained six red-wing territories each year. The principal emergent vegetation on the marshes was cattails (*Typha* spp.). Redwing Slough also contained substantial amounts of buttonbush (*Cephalanthus occidentalis*). A detailed description of the marshes and the methods used in making various measurements is presented in Lenington (Anim. Behav. 28:347–361, 1980). Harem sizes were estimated by determining the minimum number of females required to account for the number of nests on a territory (Holm, Ecology 54:356–365, 1973). Because females renest readily if a nest is destroyed, there were usually more nests on a territory than there were females.

In both marshes in 1974 and 1978 I measured the size of each male's territory, the density of cattails on the territory and the number of females nesting on the territory. In addition, in 1978 I noted the date on which females settled on territories. Nests were checked every 2–5 days to determine fledging success.

In 1978, four pairs of grackles nested on Redwing Slough. The grackles occupied small nest-centered territories within the area of the larger red-wing territories. Grackles nested exclusively within the cattail portion of the marsh; none nested in buttonbush. It is possible that grackles selected Redwing Slough for nesting while not nesting on the other three marshes because Redwing Slough appeared to be the highest quality marsh (when studied