"Since in birds the female is the heterogametic sex, it is among the females that sex-linked varieties are first likely to become apparent. The ratio of sixteen females to three males in the sexed skins of fawn birds, while too small a sample to be very significant, suggests additional confirmation." This Wisconsin specimen is also a female.

Although 4,260 wings is not an overwhelming sample, the fact that only one fawn and no gray variants were found would indicate the comparative rarity of schizochroism in this partridge in North America.

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Active anting in the Puerto Rican Tanager.—Anting, a bird's intentional exposure of its body surface to chemical substances secreted by ants or other agents, has been recorded in over 210 species of birds of 40 families, mostly within the order Passeriformes. Our observations of anting in the Puerto Rican Tanager (*Nesospingus speculiferus*) extend the phenomenon to a new genus and the 14th species of the Thraupidae.

Simmons (J. Zool., London, 1949: 145, 1966) describes the typical, remarkably stereotyped behavior patterns connected with the two general forms of anting: active anting in which the bird applies the ant or its secretion to the plumage, and passive anting in which ants are permitted to climb into the plumage and anoint it unprovoked. The function of anting is still open to speculation, although recent thinking (Simmons, op. cit., and especially the work of Dubinin *in* Kelso and Nice, Wilson Bull., 75: 23, 1963) suggests in part that it aids in controlling ectoparasites and that in some cases the secretions may augment the birds' preen oil in dressing the plumage.

On 22 January 1969 between 09:00 and 10:00 we watched a Puerto Rican Tanager engage in a 37-minute bout of active anting. The anting took place at a height of 6 m in a sapling in La Mina Recreation Area, Luquillo Experimental Forest, Puerto Rico, at 670 m elevation in high-rainfall mixed swamp cyrilla (*Cyrilla racemiflora*)-Sierra palm (*Euterpe globosa*) forest. Although the sky was clear, the moss covering the tree on which the anting took place was saturated with rain from the previous night. The tanager perched on a small limb adjacent to the main trunk of the tree, plucked rapidly at the moss, and thrust its bill, often with a small piece of moss in it, into either its rectrices or remiges. On each thrust it extended partially either the right or left wing, elevating the anterior edge so that the ventral surface met the thrust

straight on. The rectrices were twisted to the vertical and swung to the side on which the wing was spread, sometimes directly behind the distal tips of the remiges, but frequently lower, so that the tail was well below the outstretched wing. This behavior is typical of anting behavior in other species.

The tree trunk, the moss covering it, and the base of an attached bromeliad (*Guzmania berteroniana*) were covered with ants, identified as *Iridomyrmex melleus* Wheeler, one of the commonest arboreal species in Puerto Rico. It is a member of the nonstinging subfamily Dolichoderinae, one of the two ant subfamilies reportedly used by anting birds (Simmons, op. cit.). These ants are very small (2–3 mm) and we could not see them in the bird's bill, but we inferred that the bird was anting from the stereotyped, somewhat frantic behavior. During the bout the bird remained oblivious to our presence directly below it. Moss particles that it carried into its plumage, presumably along with the ants, were released after each thrust. After a few minutes its plumage was dripping wet, probably a result more of water in the moss than of secretions by the ants.

The tanager did not ant continuously. It interspersed periods of anting up to 2 minutes 20 seconds with hops to other branches, and, after flying out of sight for 5 minutes, it returned and ate two Sierra palm fruits before ending the bout with a few last thrusts. It also scratched indirectly, i.e. over the wing, swallowed, and bill-wiped during the last few minutes.

The elapsed time between thrusts, including the evident release of the "used" ant and the securing of a new one, varied from 1.5 to 3.3 seconds per thrust with a mean of 2.1 seconds over 11 timed periods totalling 12½ minutes. Although up to 11 thrusts in a row were made to the same side, the total number of thrusts to each side during the timed periods was 192 to the right and 164 to the left, a ratio of 1.17 to 1.

Weisbrod (pers. comm.) used high-speed motion pictures to show that Blue Jays (*Cyanocitta cristata*) may not direct anting activity to their rectrices or tail coverts, and he raises the question of whether or not any species actually directs ants to areas other than the remiges. In contrast, Whitaker (Wilson Bull., 69: 195, 1957) states that "undertail coverts and bases of the rectrices received the most attention" during active anting of a captive Orchard Oriole (*Icterus spurius*). The rectrices of the Puerto Rican Tanager were noticeably frayed. Frequently, the tanager did not swing its tail around to the height of the extended remiges, but rather brought it back nearly straight underneath. Anting thrusts appeared to be directed solely to the rectrices on these occasions. At least 20 thrusts to the left and 15 to the right seemed to be directed to the rectrices; in addition, at least 3 were directed to the flanks and 3 to the lower belly or crissum.

On 5 March 1969 one of us (CBK) saw another Puerto Rican Tanager anting in the Icacos Valley, approximately 1 kilometer from the first location. The characteristics of the bout were similar in all respects: it occurred in the morning (08:53) in mixed Colorado-Sierra palm forest at an elevation of 750 meters, and the tanager was perched on a mossy sapling branch. The bird anted for only 10 seconds before flying from view; in that time it jabbed 6 times at the remiges (5 left, 1 right) with moss, discarding the moss after each thrust. The movements of the wings and tail were the same as those noted in the 22 January sighting.

The ant genus *Iridomyrmex* is known to be used by some anting species, and the anal fluids produced by members of the genus may serve two important functions for anting birds. An insecticide named iridomyrmecin has been isolated from *I. humilis*, and is very effective in killing insects and mites. The anal fluids secreted by

dolichoderine ants are essential oils (terpenoids) that may also help in oiling the plumage (Simmons, op. cit.). There may thus be a correlation between the ragged appearance of the tanager's rectrices and its 35 thrusts at them, especially if these oils aid in dressing the plumage.

We would like to thank George Drewry, Puerto Rico Nuclear Center, for identifying the ants, and A. Richard Weisbrod, Division of Biological Sciences, Cornell University, for reading the manuscript critically and offering many helpful suggestions.—WARREN B. KING, *Department of Conservation, Cornell University, Ithaca, New York 14850,* and CAMERON B. KEPLER, *Patuxent Wildlife Research Center, Laurel, Maryland 20810.*

The eastern race of Evening Grosbeak in south-central Texas.—During the winter of 1968–69 south-central Texas experienced an invasion of Evening Grosbeaks (*Hesperiphona vespertina*). Numerous sight records were reported in many localities. As many as 150 were reported at Austin, and others as far south as San Antonio. In the last week of December a flock of 30 or more appeared in Kerrville and remained around the city until last seen on 4 April 1969; 15 or 20 birds could be found almost daily at a feeding station offering sunflower seeds. Two specimens were obtained in Kerrville; unfortunately both later proved to be young females in first winter plumage. The first, taken on 2 February 1969, was sent to the U. S. National Museum where Richard C. Banks identified it as *H. v. vespertina.* Later this specimen and one taken on 25 February 1969 were sent to Harrison Tordoff at the Museum of Zoology, University of Michigan, who confirmed their identity as being the northeastern race, *H. v. vespertina.* Presumably those reported at Austin, San Antonio, and intervening localities were birds of this race.

This is a new subspecies record for Texas, as well as an extension of their winter distribution southwestward. The A.O.U. Check-list (Check-list of North American birds, fifth Ed., Baltimore, Amer. Ornithol. Union, 1957, p. 557) gives the winter range of the eastern race as "sporadically and locally, south to . . . central Missouri (Mexico) and northwestern Arkansas." Therefore their occurrence in Austin, Kerrville, and San Antonio constitutes a considerable extension of their previously known range. The two previous records of the Evening Grosbeak in Texas both relate to the western race, *H. v. brooksi* (Burleigh and Lowery, Occ. Pap., Mus. Zool., Louisiana State Univ., no. 8: 139, 1940; Buechner, Trans. Kansas Acad. Sci., 40: 362, 1942). Both these records were reported under the name of *H. v. montana*, but they are now considered as relating to the race *brooksi* (A.O.U. Check-list, 1957, p. 557). The two specimens noted above have been donated to the Welder Wildlife collection at Sinton, Texas.—L. R. WOLFE, *P. O. Box 11, Kerrville, Texas 78028.*

A recent occurrence of the Blackburnian Warbler (*Dendroica fusca*) at Carmel, Monterey County, California.—On 16 October 1968, while walking up the almost dry bed of the Carmel River, possibly 2 miles inland from the ocean, my attention was attracted to a concentration of small birds in the larger trees just ahead of me. They proved to be warblers of several species, the one of most interest (and to me entirely unexpected) being a Blackburnian Warbler. It was collected and found to be a female in immature plumage with the skull as yet incompletely ossified. This species was first recorded in California in October 1962 (McCaskie and Banks, Auk, 81: 357, 1964), and on at least six other occasions since 1962 (Raitt, in litt.), so apparently is at least at the present time a not uncommon transient in the state.—THOMAS D. BURLEIGH, *451 Dela Vina Avenue, Monterey, California 93940.*