

## GENERAL NOTES

**Opportunistic feeding of the Gila Woodpecker.**—On 25 November 1973 we observed a female Gila Woodpecker (*Centurus uropygialis*) foraging in fremont cottonwood trees (*Populus fremontii*) along the Santa Cruz River at Kino Springs, northeast of Nogales, Santa Cruz Co., Arizona. Starting about 15:00 we observed the bird for approximately 15 min. The bird flew to the top branches of 12 m tall trees, and there picked leaves, one at a time, which it carried to the trunk of a nearby 10 m cottonwood tree and wedged into cracks in the bark with the petiole protruding. This activity was observed 5 times. In a sixth sequence the bird carried a leaf to a point about 7 m above ground and 10 m from the former deposit site. There it wedged the leaf into the crack of a broken off limb with the petiole again protruding. The bird picked, held, and manipulated each leaf with its bill, never using the feet. Each leaf was picked, held, and manipulated by its petiole.

The purpose of this leaf-picking was revealed by examining the first leaf placed on the tree. On its petiole and those of the other leaves picked by the bird was a gall, the brood chamber of the Homopteran, *Pemphigus populitransversus*. After the bird positioned the leaf on the tree it broke open the gall and removed insects. On one occasion we saw the bird pick a leaf, discard it, and pick another that it kept. The discarded leaf lacked a gall. A careful search in the small cottonwood grove revealed only 6 additional woodpecker-placed leaves, all having opened galls. These additional leaves were on the trunks of 2 trees adjacent the original tree. A search of the area on 3 February 1974 revealed only 1 more leaf wedged in the original tree trunk. By this late date all the leaves had fallen from the branches.

We collected 725 fallen leaves and found that 35.7% of these possessed galls. We assume this accurately reflected the percentage of afflicted leaves then on the tree. Thus, a woodpecker should have had little difficulty locating and picking a leaf with an afflicted petiole. Altogether 11 woodpecker-manipulated leaves were collected on 25 November, and the remaining contents of the galls were examined. Eight relatively fresh leaves with obviously unopened galls were selected from the ground leaf sample, and their gall contents also examined. The unopened galls held an average of 47.6 larvae and 46.5 imagines of *P. populitransversus*, whereas the opened galls held an average of 19.0 larvae and 2.3 imagines each. Thus, presumably an average of 28.6 (58.9%) larvae and 44.2 (95.1%) imagines were missing from each of the opened galls. This represents a maximum average number that might have been eaten by the woodpecker, as it is possible for imagines to escape. Nevertheless, this number appears to be representative for woodpecker predation. From the opened galls on the 5 fresh leaves that we observed picked by the bird only 25 imagines, an average of 5, were left by the woodpecker in each gall. In this case an average of 41.5 imagines were taken from each gall, and this is close to the 44.2 imagines thought removed from each gall. Also, the day of collection was cold and the imagines were not flying, nor were they crawling out of the galls until after the leaves and galls were placed in plastic bags and kept in our pockets. Furthermore, when we first opened the galls, we thought the larvae were dead. Of the 209 larvae 44% were still alive and in their open galls after 1 week in a plastic bag in a heated laboratory. We feel confident that our estimate of the numbers of imagines and larvae removed from the galls by the birds is fairly accurate.

While making the original observation on the Gila Woodpecker we also observed 2 Ladder-backed Woodpeckers (*Dendrocopos scalaris*; male and female) hanging up-side-

down from the upper-most small twigs hammering at the galls and seemingly obtaining food from them, all without removing the leaves. This process continued uninterrupted for the half hour we were in the area. A question arises as to the commonness of the behavior exhibited by the Gila Woodpecker. Inquiries to several colleagues yielded only one similar observation. On 17 April 1973 Russell P. Balda (pers. comm.) and several students on a field trip to Montezuma Castle National Monument, Yavapai Co., observed 2 Gila Woodpeckers picking gall-infected cottonwood leaves and placing them in the forks of the upper branches where the galls were opened and their contents eaten. Cottonwoods occur in only a small part of the Gila Woodpecker's range—in riparian areas in the desert and in adjacent higher areas. *P. populitranversus* was common in 2 of the 5 groves we inspected in Santa Cruz and Pima Cos. Thus the leaf-picking-stuffing-opening behavior is probably, at best, uncommon in the Gila Woodpecker.

The behavior we observed is similar to that employed by this species to use food resources as reported by Phillips et al. (The Birds of Arizona, Univ. Ariz. Press, Tucson, 1964). Apparently only the European Great Spotted Woodpecker (*Dendrocopos major*) is also known to gather, place, and open galls in the manner reported here (Pflutzeureiter, Vogelwelt 78:120-123, 1957; H. Winkler, pers. comm.).

We thank G. A. Clark, Jr. and H. Winkler for their comments on an earlier version of this note, and the latter for sharing his interest in woodpeckers.—STEVEN SPEICH AND WILLIAM J. RADKE, Dept. of Biological Sciences, Univ. of Arizona, Tucson 85721. Accepted 24 Oct. 1974.

**Bahama Duck exploiting feeding habits of yellowlegs.**—At 17:00 on 11 April 1971, while investigating the birdlife of Prickly Pear Island, north of Virgin Gorda in the British Virgin Islands, I came upon several groups of shorebirds and one Bahama Duck (*Anas bahamensis*) in a partially dried up salt pond at the southeast corner of the Island. The shorebirds included about 50 Lesser Yellowlegs (*Tringa flavipes*), 1 or 2 Greater Yellowlegs (*Tringa melanoleuca*), and 30 dowitchers (*Limnodromus* sp.). The yellowlegs were searching for food in an erratic manner while making slashing lateral bill movements.

*Anas bahamensis* feeds primarily on algae (Wetmore, Birds of Porto Rico, U.S.D.A. Bull., Bull. 326:29, 1916). The normal feeding posture is to submerge the head while paddling forward. This particular bird, however, would also rapidly swing its head and neck from side to side in a more exaggerated style than the yellowlegs pausing only periodically to breathe. For several minutes the duck fed directly behind an actively foraging yellowlegs and every movement of the shorebird was simulated by the duck.

The following morning I revisited the pond and again noted the Bahama Duck feeding in this manner and at times doing so behind a yellowlegs. At one point the Bahama Duck lost track of the yellowlegs whereupon the duck withdrew its head from the water, relocated the shorebird and paddled off hurriedly to follow it again.

There are various instances of anatids being involved in feeding associations. Bailey and Batt (Auk 91:488-493, 1974) mention various works that discuss ducks exploiting the wasteful feeding habits of swans. Siegfried and Batt (Auk 89:667-668, 1972) discuss feeding associations of Wilson's Phalarope (*Steganopus tricolor*) and Shovelers (*Anas clypeata*) in which the phalaropes fed trailing Shovelers; a reverse of the interaction presented in this paper. Christman (Condor 59:343, 1957), Parks and Bressler (Auk