

of Conservation and Cultural Affairs, St. Thomas, USVI and in particular Pittman-Robertson Wildlife Restoration Federal Aid, FW-3 Grant-in-aid support from U.S. Fish and Wildlife Service, Atlanta, Georgia.—**Robert L. Norton**, P.O. Box 243, Cruz Bay, St. John, USVI 00830 (former address—Div. of Fish and Wildlife, 101 Estate Nazareth, St. Thomas, USVI 00830).

Florida Field Naturalist 14: 97-98, 1986.

Occurrence of a double brood in Red-headed Woodpeckers in south central Florida.—Double broods in North American woodpeckers are known only in the genus *Melanerpes*. The species for which second, and occasionally third, broods have been recorded or suspected include the Red-headed Woodpecker (*M. erythrocephalus*), Red-bellied Woodpecker (*M. carolinus*), Gila Woodpecker (*M. uropygialis*), Golden-fronted Woodpecker (*M. aurifrons*), and Acorn Woodpecker (*M. formicivorus*) (Bent 1939, Breitwisch 1977, MacRoberts and MacRoberts 1976, Reller 1972, Skutch 1969). Well-documented cases of double broods are rare. We here present evidence of a double brood in the Red-headed Woodpecker in south central Florida. Although Breitwisch (1977) reported double broods in Red-bellied Woodpeckers in extreme south Florida, there appear to be no previous recorded cases of double brooding in Florida Red-headed Woodpeckers.

A pair of Red-headed Woodpeckers nesting on the Archbold Biological Station, 12 km S of Lake Placid, Highlands Co., Florida, fledged two broods of young in 1985. The nesting territory was a 4-ha old field with widely scattered live slash pines (*Pinus elliottii*) and dead pine stubs surrounded by slash pine-turkey oak (*Quercus laevis*) woodland. The male of the pair was color-banded and is known to have nested in the same area for the previous three years. In 1985, the pair was first observed on the territory on 20 April, at which time the male was excavating a cavity in a dead pine stub. During the week of 27 May only one adult was seen, suggesting that incubation was in progress. On 11 June the adults were feeding young in the nest cavity, and on 25 June one recent fledgling was observed with the adults near the nest tree. The young was still present in the territory on 25 July. On 6 September the adults were feeding two young of a second brood in a dead pine approximately 150 m from the first nest stub. An older immature bird, presumably the young of the first brood, was also in the territory. One of the second brood fledged between 19 and 20 September, and both were observed with the adults in the vicinity of the nest stub four days later. Assuming average incubation and nestling periods of 14 days each (Bent 1939), the second clutch was probably laid sometime during the third week of August. Both adults, the recent fledglings, and the older juvenile remained in the territory through 7 October. On that date, the adults were still feeding the young of the second brood. The older immature was pursued by both adults but persisted in remaining in the territory. One adult and the two second-brood young, still giving food-begging calls, were observed on 14 October. On 16 October only an adult and the old immature were present. No adults were seen after this date, but the old immature remained until 29 October. By this date, it was beginning to show red feathers on the back of the head, indicating that the prebasic molt had begun.

The male of the pair was color-banded as an adult by Lilian Saul in May 1982 in the same territory and is known to have had a minimum of two mates since that time. The female in 1982 was also banded, whereas those in 1983, 1984, and 1985 were unbanded. No observations on nesting were made in 1982, but the pair was present in the territory from 11 May to 20 September. In 1983, the adults arrived about 9 May (copulation was also observed on this date), fledged two young, and departed between 20 September and 4 October. In 1984, a pair was first seen on the territory on 11 April and fledged two young

during the period 11-19 June. An immature was still present on 8 October. In comparison with earlier years, the pair arrived later in 1985 than 1984, but the timing of the first brood was similar. The fall departure was later than the previous three years, presumably as a result of rearing the second brood. As in 1984, an immature remained on the territory after the adults had left. The major factor contributing to the production of the second brood in 1985 may have been an unusually good food supply in late summer and early fall, with the result that the adults were in a better nutritional state and better able to feed a second brood than in a typical year. Myrtle oak (*Quercus myrtifolia*), the dominant oak in the surrounding woodlands, produced an unusually heavy acorn crop in 1985 (126% and 280% above 1983 and 1984 levels, respectively; unpubl. data), and the adults fed heavily on acorns from the shrubs bordering the field from early September on. August and September 1985 were relatively dry (monthly rainfall 36% and 19% below average, respectively) and it is also possible that insects were more abundant or active during this period than in wetter years. The reduced energetic cost to the adults of raising only a single young in the first brood may also have contributed to the successful production of the second brood.

Apparently the only previous specific records of double-broods in Red-headed Woodpeckers are those of Potter (in Bent 1939) and Reller (1972). The former observed a pair in New Jersey that fledged young on 25 June and again had young in the nest on 30 July, at least a month earlier than the second set of young appeared in our study. As in the Florida case, Potter also observed adults chasing the young of the first brood. Reller (1972) found that at least 3 of 15 pairs of red-heads studied in Illinois nested a second time, some while still feeding fledglings from the first brood.

The apparent restriction of multiple broods in North American woodpeckers to members of the genus *Melanerpes* may reflect the more omnivorous diet of this group compared with other woodpeckers. The ability to utilize fruits or acorns in addition to insects increases the potential energy sources that can be allocated to reproduction. It thus may be more than coincidence that both multiple broods and cooperative breeding occur in melanerpine woodpeckers, as the ability to utilize acorns as food was a key factor in the evolution of cooperative breeding in the Acorn Woodpecker (MacRoberts and MacRoberts 1976).

ACKNOWLEDGMENTS

We thank Lilian Saul for supplying information on the color-banded male and Fred E. Lohrer for helpful comments on the manuscript.

LITERATURE CITED

- BENT, A. C. 1939. Life histories of North American woodpeckers. U.S. Natl. Mus. Bull. 174: 1-334.
- BREITWISCH, R. J. 1977. The ecology and behavior of the Red-bellied Woodpecker in South Florida. M.S. Thesis, Coral Gables, Florida: University of Miami.
- MACROBERTS, M. H. AND B. R. MACROBERTS. 1976. Social organization and behavior of the Acorn Woodpecker in central coastal California. Ornith. Monogr. 21: 1-115.
- RELLER, A. W. 1972. Aspects of behavioral ecology of Red-headed and Red-bellied Woodpeckers. Amer. Midl. Nat. 88: 270-290.
- SHORT, L. L. 1982. Woodpeckers of the world. Delaware Mus. Nat. Hist. Monogr. 4: 1-676.
- SKUTCH, A. F. 1969. Life histories of Central American birds. III. Pacific Coast Avifauna 35: 1-580.

David Raleigh Smith and James N. Layne, Archbold Biological Station, P. O. Box 2057, Lake Placid, Florida 33852.