The Condor 92:254–255

ON COMMUNAL ROOSTING AND ASSOCIATED WINTER SOCIAL BEHAVIOR OF GRAY-BREASTED WOODPECKERS[1]

PAUL HENDRICKS
Department of Zoology, Washington State University, Pullman, WA 99164

JOSEPH R. MCAULIFFE
Department of Biological Sciences, University of Nevada, Las Vegas, 4505 Maryland Parkway, Las Vegas, NV 89154

ALFONSO VALIENTE-BANUET
Centro de Ecología, Universidad Nacional Autónoma de Mexico, Apartado Postal 70-275, Mexico, Coyoacán, D.F. C.P. 04510

Key words: Behavior; communal roosting; Gray-breasted Woodpecker; Melanerpes hypopolius; *Mexico.*

The Gray-breasted Woodpecker (*Melanerpes hypopolius*) is a relatively common species in southwestern Mexico (Guerrero, Mexico, Morelos, Puebla), especially where large columnar cacti are found. However, almost nothing is known about the behavior of this woodpecker species (Short 1982). Here, we describe Gray-breasted Woodpecker communal roosting and winter social behavior and speculate on the possibility of cooperative breeding by this species.

Our observations were made between 27 December 1988 and 12 January 1989. The primary study site was approximately 25 km S of Tehuacan, near Calipan, Puebla, Mexico (18°20′N, 97°10′W) at 1,100 m elevation. Daytime ambient temperatures reached about 26°C, overnight lows were a mild 12–14°C, suggesting that thermoregulation was not the primary function of the roosting behavior described below. The vegetation is notable for the abundance of large columnar cacti, predominantly *Stenocereus weberi* and *Neobuxbaumia tetezo*; the former is especially favored by the woodpeckers for cavity excavation, and large *Stenocereus* often had more than half a dozen cavities in them.

The plumage of juvenile Gray-breasted Woodpeckers is similar to that of adult males (Short 1982). Thus, we were able to distinguish only two morphs of Gray-breasted Woodpeckers in the field: a red-crowned (RC) and a plain-crowned (PC); the former (RC) includes adult males and all juveniles, and the latter (PC) are adult females. We tried to classify all individuals encountered to one of these two morphs.

OBSERVATIONS

The largest aggregation of Gray-breasted Woodpeckers we found centered their activities on a group of eight large (7–9 m tall) *S. weberi*; these cacti were spread over a linear distance of about 50 m. Hereafter, this group of cacti is referred to as the roost. Maximum count of roost membership was 26 woodpeckers (including 16 RC, six PC, and four unidentified individuals) seen perched on these cacti during the evening of 4 January. More than 20 woodpeckers were counted (including four adult females) at the roost on each of six evenings it was checked. Upon arriving at the roost in the evening, woodpeckers typically perched at the apex of cactus branches, often one bird per branch. However, we occasionally saw two to four woodpeckers perched at the tip of a single branch, with each bird facing toward the center of the branch. Most of the time, birds perched this close to each other (i.e., up to four birds < 1 m apart) displayed no agonistic behavior. When perched atop roost cacti the woodpeckers usually sat quietly and scanned or preened. Vocalizing (*ke-hek′, ke-hek′, ke-hek′* calls) was most prevalent when many birds were flying to the roost (usually in early morning or evening). The roost was rarely used for foraging (only twice were woodpeckers seen to peck extensively on cactus branches in the roost for more than 30 sec duration).

Each of the roost cacti contained numerous woodpecker holes; some cavities were used by individual woodpeckers, but up to four birds roosted in a single cavity. On three consecutive nights (9–11 January) we flushed four RC birds (age and sex unknown, except none was an adult female) from one hole, and at 07:12 CST on 12 January we again flushed four RC birds from the same cavity. For at least six other cavities more than one woodpecker was flushed when checked at one time or another. Dimensions ($\bar{x} \pm$ SD) from cavity boots (see McAuliffe and Hendricks 1988) and cavities in branches found on the ground were: vertical length—25.2 ± 5.2 cm; horizontal chamber depth—9.9 ± 1.0 cm ($n = 21$).

Woodpeckers began to aggregate at the roost well before sunset, and some birds entered cavities shortly after they arrived. On 11 January 20 birds were at the eight roost cacti by 17:00 (they began arriving in numbers at 16:45). At least three woodpeckers entered cavities by 17:10. At 17:45 there were 20 woodpeckers visible on six roost cacti (including four PC birds on

[1] Received 12 June 1989. Final acceptance 18 October 1989.

four different cacti), four of which were birds peering out of cavities. The sun set behind the horizon at 17:51. We suspect that many woodpeckers delayed entering cavities due to our presence. Some birds entered and abandoned cavities while we were present, others entered cavities but remained looking out of the entrances, and several birds in cavities abandoned them when we departed from the roost; all birds were wary. The following morning (12 January) at least 12 woodpeckers were perched atop cacti when we visited the roost at 07:10. At this time at least seven woodpeckers exited from cavities, including the four RC birds roosting together in one cavity. Direct sunlight first fell on the roost at 07:35.

Gray-breasted Woodpeckers also formed groups away from the roost during the day. At 08:00 on 4 January, 10 woodpeckers were perched in the crown of a mesquite tree (crown diameter = 6 m) about 150 m from the roost. These birds continued to move from tree to tree in groups of three to four birds for the next 30 min. At 07:50 on 10 January there were four woodpeckers (three RC and one PC) perched <1 m apart atop a large platyopuntia cactus about 80 m from the roost; one RC bird had just landed opposite a second RC bird, and was carrying a hard, acorn-like fruit (*Ziziphus pedunculata*) in its bill. The second bird grabbed the fruit in the bill of the first, and both tugged on the fruit for about 5 sec before the fruit fell to the ground. These birds remained together for about 5 min before the group disbanded.

DISCUSSION

Individuals or pairs of woodpeckers generally maintain territories throughout the year (Short 1982), but larger woodpecker aggregations are uncommon. Several species of melanerpine woodpeckers have unusual social behaviors, including communal winter roosting (Short 1970, 1982). Several (as many as 12) Acorn Woodpeckers (*M. formicivorus*) may occupy a single roost cavity (MacRoberts and MacRoberts 1976, Skutch 1987), and as many as five Red-fronted Woodpeckers (*M. cruentatus*) have been reported roosting together in one cavity (Short 1982). Both of these woodpecker species are cooperative breeders as well (Short 1970, Koenig and Mumme 1987, Skutch 1987). The frequency with which we encountered groups of Gray-breasted Woodpeckers at and away from roosts emphasizes the unusual winter sociality of this species.

We also have some evidence that Gray-breasted Woodpeckers may be social during the breeding season. Beneath a sample of 13 *S. weberi* we found 21 cavity boots or intact cavities in fallen branches that had been cut open with machetes. (Farmers in the area told us that woodpecker nests are raided in May and June for the nestlings, which are then eaten by the local populace.) Beneath several of these cacti we found at least two nest cavities in close proximity that had apparently been cut open during the same breeding season (based on the comparable states of decay of the severed branches). Although this could represent renesting attempts following loss of first broods, it could also be indicative of different nests being active at the same time. We assume that nest cavities cut open were active at the time of their destruction.

Lastly, it is worth noting that the tendency for juvenile *Melanerpes* woodpeckers of both sexes to resemble adult males in crown color is apparently best expressed for species with complex social systems, or for species where there is evidence that such may be the case (Spray and MacRoberts 1975, Short 1982). Juvenile Gray-breasted Woodpeckers closely resemble adult males, and the species is very social in winter. We predict that a study of the breeding activities will disclose that Gray-breasted Woodpeckers are social year-round, perhaps nesting colonially similar to Hispaniolan Woodpeckers (*M. striatus*) (Selander 1966, Ashmole 1967, Skutch 1987), and may prove to be another species of cooperatively breeding woodpecker.

We thank the personnel of the Jardin Botanico Y Vivero de Cactaceas near Zapotitlan Salinas, Puebla for providing temporary residence during our stay in the Tehuacan Valley. Our fieldwork was made possible by a grant from the Roger Tory Peterson Institute. Comments by D. J. Ingold and an anonymous reviewer greatly improved the manuscript.

LITERATURE CITED

ASHMOLE, N. P. 1967. Sexual dimorphism and colonial breeding in the woodpecker *Centurus striatus*. Am. Nat. 101:353–356.

KOENIG, W. D., AND R. L. MUMME. 1987. Population ecology of the cooperatively breeding Acorn Woodpecker. Monogr. Popul. Biol. 24.

MACROBERTS, M. H., AND B. R. MACROBERTS. 1976. Social organization and behavior of the Acorn Woodpecker in central coastal California. Ornithol. Monogr. No. 21. American Ornithologists' Union, Washington, DC.

MCAULIFFE, J. R., AND P. HENDRICKS. 1988. Determinants of the vertical distributions of woodpecker nest cavities in the sahuaro cactus. Condor 90:791–801.

SELANDER, R. K. 1966. Sexual dimorphism and differential niche utilization in birds. Condor 68:113–151.

SHORT, L. L. 1970. Notes on habits of some Argentine and Peruvian woodpeckers (Aves, Picidae). Am. Mus. Novit. No. 2413.

SHORT, L. L. 1982. Woodpeckers of the world. Delaware Mus. Nat. Hist. Monogr. Ser. No. 4. Greenville, DE.

SKUTCH, A. F. 1987. Helpers at birds' nests: a worldwide survey of cooperative breeding and related behavior. Univ. Iowa Press, Iowa City.

SPRAY, C., AND M. H. MACROBERTS. 1975. Notes on molt and juvenal plumage in the Acorn Woodpecker. Condor 77:342–344.