

Females of the available series from the Solomons forms differ from *beehleri* in being more uniform in color throughout, whereas an apparent adult female from New Ireland has a darker cap set off from the very dark olive-fuscous back, and a brownish patch on the upper abdomen, the feathers edged with paler brown.

From *papuensis* of adjacent mainland New Guinea, *beehleri* differs by smaller size, and lacking the broad concolorous, lighter brown sides of head, neck, and upper breast, found in both sexes of that form.

ETYMOLOGY: named for Bruce Beehler, now a graduate student at Princeton University, who collected material for the Smithsonian's National Museum of Natural History while working at the Wau Ecology Institute, Papua New Guinea.

COMMENTS: an isolated montane form known only from the type-locality but probably occurring in stunted mossy forest on the summits of the ridges of mountains on New Ireland, Papua-New Guinea. I am grateful to the authorities of the Bird Department of the American Museum of Natural History, New York, for permission to examine specimens in their care.—S. DILLON RIPLEY, *Smithsonian Institution, Washington D.C. 20560*. Accepted 30 Mar. 77. (This paper was subsidized by the author.)

**Copulation Observed in Maroon-tailed Parakeets in Meta, Colombia.**—To my knowledge copulation in the Maroon-tailed Parakeet (*Pyrrhura melanura*) has not been described in the literature. The following is a description of this behavior I watched on 25 January 1976 near Campamiento Chamusa on the Duda River, La Macarena National Park, Meta, Colombia (2°42'N, 74°10'W; alt. 250 m). The birds were observed at less than 30-m distance with the aid of 12× binoculars.

At 0723 two Maroon-tailed Parakeets landed 20 m above the ground in the dead branches of a living tree on the south bank of the Duda River. The birds were 1.5–2 m apart. At 0725 the male flew over to join the female. Mutual body grooming of the neck and back began immediately and continued for 1 min. At 0726 the female presented herself to the male by stretching out, on top of and parallel to the supporting branch, with her posterior toward the male. The male quickly mounted the female by stepping up onto her rump and lower back, placing his long pointed tail downward on the right side of the female's body. The female then moved her tail outward to the left side, facilitating the placement of the male's cloaca in contact with hers. During copulation the male's tail and lower back rotated slowly in a clockwise direction and he ruffled the female's neck feathers with his bill. The female responded to the male's behavior by remaining still and emitting approximately 12 low "cooing" calls. At 0728:30 the male dismounted to the rear after being on top of the female for 2.5 min. He immediately "pumped" his head and neck, with the feathers ruffed, up and down vigorously 7 or 8 times. Both birds returned to normal perching positions. The male initiated mutual grooming again, which lasted for about 30 sec. At 0729 both birds moved apart, began low raucous calling and flew away simultaneously across the river to the north. The female flew slightly ahead of the male.—THOMAS O. LEMKE, *Institute for the Development of Renewable Natural Resources (INDERENA), Smithsonian-Peace Corps Environmental Program, % American Embassy, Bogotá, Colombia*. Accepted 7 July 76.

**Nesting behavior of Pale-billed Woodpeckers in Guatemala.**—Between 22 January and 3 February 1976, while staying at Tikal, Guatemala, I observed late stages of the nesting behavior of 3 pairs of Pale-billed Woodpeckers (*Campephilus guatemalensis*). Table 1 gives details of the nests. Skutch (1969, *Pacific Coast Avifauna* 35: 440) has given a previous account of this species. The following, however, appear to be aspects of behavior not reported by others.

(1) *Feeding visits.*—My wife and I watched nest A in times divided between midmornings and late afternoons. The single nestling fledged 8 days after observations began. Of 35 feeding visits seen in 13 h, 18 were by the female and 17 by the male. Intervals between visits averaged 22 min, but varied between none in 1½ h to 6, all by the male, in 36 min.

(2) *Prey.*—The entrance to nest A, where the young one was fed, was low (Table 1) and favorable for observation. We could thus see that on 22 of the 35 visits the prey brought by parents consisted of a single white larva, approximately 0.6 cm in diameter and 3–4 cm long, sufficiently large to prevent the mandibles from closing. One thrust of the parent's bill was usually enough to transfer the prey to the nestling. Parents also carried large larvae to nest B.

(3) *Begging notes.*—The young in nest A peered frequently from the hole before fledging. It made "chittery" notes (apparently begging) on seeing a parent approaching, while being fed, and after a parent had left but was still in view. When alone at other times, the young one remained silent.

(4) *Fledging.*—The nestling of nest C leaned out from the nest hole on the day before fledging, making loud "kuk-kuk-kwirra" notes. It called at 0704 on the following morning when it flew from the hole to a tree 5 m

TABLE 1  
DATA ON 3 PALE-BILLED WOODPECKER NESTS AND 1 LINEATED WOODPECKER NEST AT  
TIKAL IN JANUARY AND FEBRUARY 1976

Parameters	Nesting pairs			Comparisons with 1 nest of <i>D. lineatus</i>
	A	B	C	
Location of nest	Dead stub in forest	Dead stub edge of forest	Bole of living tree, edge of forest	Dead stub; part of living tree. In open.
Height above ground	3 m	9.5 m	10 m	9 m
Nestlings	1 Nestling	Not seen	1 Nestling	Nest excavation completed and copulations begun.
Date fledged	25 January	—	2 February	

away and again on the morning after, when I located it 50 m from the nest tree. The male made "kwirra" notes as if in response. When the male flew the young one followed, and when the young one approached, the parent moved away. These performances, kept up for 20 min, appeared to be a successful effort of the male to lead the fledgling into the forest.

*Comparisons with Lineated Woodpecker.*—Like the Crimson-crested (*C. melanoleucos*) (Kilham 1972, Wilson Bull. 84: 28) the closely related Pale-billed Woodpecker is sympatric with the Lineated Woodpecker (*Dryocopus lineatus*) of similar size. It would seem possible that the *Campephilus* species might compete with the latter for nesting sites. Although my data were limited, it did seem that competition was avoided in Panama by Lineateds breeding later than the Crimson-crested Woodpeckers and choosing different types of nest sites. I found much the same situation at Tikal. In the last of January and the first day of February, when young from three nests of Pale-billed Woodpeckers were well developed or fledged, a pair of Lineateds (Table 1) was excavating a nest hole and copulating. The copulation on 1 February lasted 7 sec and took place on a tree 60 m from the excavation. While the excavation was in a stub similar to those used by the Pale-bills it stood more in the open being surrounded, in part, by lawns and open roadways.—LAWRENCE KILHAM, *Department of Microbiology, Dartmouth Medical School, Hanover, New Hampshire 03755*. Accepted 9 July 76.

**Pale-billed Woodpeckers robbed of nest hole by Collared Araçaris.**—On 14 January 1976, while staying at LaSelva, a station run by the Organization for Tropical Studies, Inc., in Costa Rica, I found a male Pale-billed Woodpecker (*Campephilus guatemalensis*) excavating a nest in a stub 10 m tall and 45 cm dbh. The stub had fungal brackets and appeared to be well rotted, for the male threw many billfuls of sawdust from a hole 7 m above the ground. I watched the male excavating for 115 min in the morning and the female for 57 min in the afternoon. Although able to get completely within the hole, the male flew off at dusk and did not roost there. On the next day, heavy rains fell, and I watched the male excavate for 73 min in the middle of the day. On 16 January, at 0755, the pair of woodpeckers had an abortive copulation, followed in 3 min by a full copulation lasting 7 sec on a tree 50 m from the nest.

The nest stub rose above small trees in second growth forest at the edge of a field. A group of 4 Collared Araçari Toucans (*Pteroglossus torquatus*) came by frequently and on 14 January I noticed that one paused 6 m away, as if watching the male woodpecker excavating. My wife found an araçari looking from the nest hole at 0945 two days later. At 1000 I was watching as 4 araçaris came to a branch 7 m from the hole. First one, then a second flew to the hole and entered, remaining inside for several minutes. I did not see the woodpeckers by their nest stub during the morning.

Both the male and female woodpeckers excavated briefly in the afternoon. The tapping and exchanges of intimate notes accompanying their meetings were similar to those described (Kilham 1972, Wilson Bull. 84: 28) for the Crimson-crested Woodpecker (*C. melanoleucos*), a closely related species. I returned in the late afternoon to see what bird, araçari or woodpecker, might roost in the hole. On arrival at 1710 I found an araçari looking from the entrance. When the male Pale-billed Woodpecker flew to a tree 6 m away, the araçari withdrew inside. The woodpecker slowly ascended the tree, occasionally rapping (a displacement activity). It flew away as dusk came on 10 min later. This was the last that I saw of the woodpeckers by the nest stub. The araçari had taken possession of the hole, it seemed, at the time of its completion, a situation previously witnessed for Crimson-crested Woodpeckers and Collared Araçari in Panama (Kilham, *ibid.*).

Skutch (1958, Condor 60: 201) noted that the Pale-billed and Lineated (*Dryocopus lineatus*) are the only