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EDWIN O. WILLIS, *Departamento de Zoologia, Universidade Estadual Paulista, 13500-Rio Claro, São Paulo, Brazil. Received 3 Nov. 1987, accepted 31 Mar. 1988.*

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Post-breeding migration of Oilbirds.—There are few indications in the literature suggesting that Oilbirds (*Steatornis caripensis*) perform a post-reproductive migration, leaving their breeding caves at the end of the breeding season. Indirect evidence comes from the observations of Tannenbaum and Wrege (1978) and Snow (1979). The former two authors visited Cueva de Coy-Coy in western Venezuela in January 1977 and found only two birds from a colony that previously had a breeding population of several hundred birds. During a second visit in March 1977, they found at least 50 birds in the same cave. Tannenbaum and Wrege suspected that birds were beginning to return to the cave in March for their annual breeding. In the Los Tayos Cave in Ecuador, Snow (1979) estimated a population of 170 Oilbirds in July 1976, which declined by August to approximately 13 birds. Snow visited the cave near the end of the breeding season and estimated from the number of chicks harvested by the local Indians, in April of the same year, that the Los Tayos population could have been at least 1500 birds.

The postbreeding exodus from Los Tayos, and possibly Coy-Coy, was in sharp contrast to the behavior of these birds in Trinidad where Snow (1961, 1962) carried out a long-term study of a small colony. There, Oilbirds occupied their nesting ledges throughout the year. Snow (1979) indicated that many birds also are always present at the Caripe Cave in eastern Venezuela. The purpose of the present note is to document a massive postbreeding migration of Oilbirds from their breeding site at the Caripe Cave.

The Caripe Cave or Cueva del Guácharo, the site of Humboldt's (1833) description of the species, hosts one of the largest known Oilbird populations. Although there are no reliable censuses of this colony, estimates of its numbers have been as high as 20,000 birds (De Bellard Pietri 1979). Since May 1985, we have visited the cave at monthly or bimonthly intervals. During the last three breeding seasons, the bulk of egg laying occurred in late April and May, but eggs occasionally were laid as early as mid-March and as late as mid-July. Most nests had nestlings by July and August and fledging occurs from mid-August through early September. Few birds fledged as late as the end of September. This breeding schedule is roughly similar to that observed by Tannenbaum and Wrege (1978) during 1976 in the same cave.

Population density at the Caripe Cave is highest during the breeding period, probably reaching 10,000 birds or more, but we have not found a reliable way to count them at these times. However, we counted the birds at times when their numbers were lower, and observed dramatic declines in density during the nonbreeding season. Birds start leaving the cave at sunset for their nightly foraging and return to it before sunrise. Our population estimates, using hand counters, have been made by counting the birds that leave the cave during the first hour of their departure. Since not all birds left the cave, a walk through the initial 700-m

chamber, where birds are, was made at the end of the counting period, when possible, and the number of birds remaining was estimated.

By November 1985, a dramatic decline in birds was evident, and we estimated a population of 200 birds on 12 November. Birds were counted on the nights of 15, 18, and 20 December when 80, 192, and 150 birds, respectively, departed from the cave during the first hour. Population size remained low during early 1986 as evidenced by a count made on the night of 4 January. Two observers counted 94 and 96 birds each during the first hour of departure and estimated that 25 and 30 birds remained inside the cave, indicating a total population of around 125 birds. By February, large numbers of birds had returned to the cave. On the night of 17 February, two observers counted 3198 and 2902 individuals during the first hour of the birds' departure. A walk through the main chamber indicated that at least several hundred birds remained inside. By March the number of birds in the cave was again so high that it was not possible to count them.

During 1986, the postbreeding exodus occurred later than in the previous year. On the night of 16 November we counted 976 individuals during the first 7 min of the birds' departure. We then stopped because we were unable to count the large number of birds coming out of the cave. Several thousand birds remained inside. A large population decline was evident on the night of 21 December when we counted 279 birds during the first half hour of the departure, before it became too dark and misty for seeing the birds. At that time the echolocation clicking of a few departing birds could still be heard. Probably another 200 or 300 birds remained in the cave. We were not able to count the birds in January or February 1987, but their numbers were high again in March, prior to their annual breeding.

Those observations indicate that a large post-breeding exodus occurs from the Caripe Cave similar to that suspected to occur at Cueva Coy-Coy, Los Tayos, and possibly Cueva de los Guácharos in Colombia's Cordillera Oriental (Kyshekevych 1983). We have not been able to assess if this migration is an occasional phenomenon or if it is a recurrent event in the birds' life. Questioning of the cave guides that have worked there for decades has provided contradictory information. Tannenbaum and Wrege (1978) did a detailed study of Oilbirds from early May through November 1976, with a second study period in January 1977, in the Caripe Cave and made no reference to a large exodus from the cave. It is possible, then, that postbreeding migration is a more recent event, or that it does not occur every year.

Where Oilbirds migrate, or the causes of their movement are not precisely known. The Caripe Cave is located within an extensive karst area that extends for tens of kilometers along northern Monagas State, where 20 other caves with Oilbirds have been explored so far (Bosque 1978, 1986). Some of those caves also contain colonies of several thousand birds. Thus, it is likely that extensive migrations occur between caves in that region. Lack of adequate food supply has been suspected to be an important factor in determining the birds' movement. Tannenbaum and Wrege (1978) speculated that food supply was insufficient to support the Coy-Coy colony throughout the year and Snow (1979) considered that changes in the birds' diet at Los Tayos suggested a food shortage within an energetically economic foraging distance from the cave.

In the Caripe Cave, the fruits of *Lauraceae*, *Burceraceae* and *Palmae* are the main food supply during the breeding season, but during the nonbreeding season birds rely mostly on palms (Tannenbaum and Wrege 1978, unpubl. data). Tannenbaum and Wrege concluded that the enormous Guácharo colony could coexist with agricultural activities in the surroundings. In the Caripe area, agriculturists selectively spared certain lauraceous trees to shade their coffee plants, and those trees support the birds during the breeding season. In contrast, palms have been cleared from the area; the number of palms remaining near the cave at the time of Tannenbaum and Wrege's (1978) study was very low. Agricultural activities have been intensified since then. If postbreeding migration is a recent event, it

suggests rapidly deteriorating foraging conditions that could eventually threaten the Caripe colony. The existence of local movements of Oilbirds has important consequences on the design of conservation strategies for this species as refuge areas created around caves might prove to be insufficient for its proper conservation.

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The shoulder spot in Gray Partridge.—The shoulder-spot display has been described in all grouse species (Tetraoninae), except several species of ptarmigan (*Lagopus* spp.) and the Hazelhen (*Tetrastes bonasia*) (Hjorth 1970, Lumsden 1970, Garbutt 1981, Jamieson 1983). However, the shoulder-spot display has not been described for other species within the family Phasianidae.

In grouse, the shoulder spot consists of a small light-colored patch of feathers on the