

This leads us to propose the following hypothesis as a basis for future research: promiscuity declines as the season advances. This could be true if, for example, food was increasingly available at the nest-site as the season progressed, reducing daily female travel distances and hence the opportunities for mating with other males.

This additional evidence for promiscuity argues against the use of male chemosterilants in blackbird population control, an idea explored by several authors (Davis, *Trans. N. Am. Wildl. Nat. Res. Conf.* 26:160–167, 1961; Vandenberg and Davis, *J. Wildl. Manage.* 26:366–371, 1962; Messersmith, *Pest Control* 38:35, 40–41, 1971). On a theoretical level, the existence of promiscuity and its possible relationship to an environmental variable raises some questions regarding the reproductive strategies of females. How does optimal mate choice of a female change over the season? Is it a function of change in male behavior, female behavior or some ecological factor such as territory quality? Further research may elucidate some of these options in the behavioral repertoire of this much studied species.

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Notes on parasitism by Bronzed Cowbirds in El Salvador.—Bronzed Cowbirds (*Molothrus aeneus*) are abundant in El Salvador (Dickey and van Rossem, *Field Mus. Nat. Hist., Zool. Series* 23, 1938; pers. obs.), but there is a notable lack of records of nest parasitism by this species. None was found by van Rossem (loc. cit.) during his sojourn there; his only reference to possible hosts was an undocumented comment that the natives claim the 3 common orioles—Altamira (*Icterus gularis*), Streak-backed (*I. sclateri*) and Spot-breasted (*I. pectoralis*)—are the species most often victimized. During 11 years in El Salvador we have only 3 verified instances of nest parasitism, all within a month's time, and all close together in the narrow canyon of Los Chorros, La Libertad. We have other observations that strongly suggest nest parasitism of other species.

Orange-billed Nightingale-Thrush (*Catharus aurantiirostris*).—A nest found 30 July 1971, at Los Chorros, contained 3 thrush eggs and 1 cowbird egg. On 7 August the nest contained 1 thrush nestling, 1 cowbird nestling and 1 thrush egg. On 10 August the last thrush egg had disappeared. Initially the nestlings closely resembled each other; both were covered with mouse-gray down and were nearly equal in size. However, the cowbird was slightly larger, could stretch its neck a few mm higher and its redder mouth lining contrasted more vividly with its gape.

On 12 August the nest was watched all day from a blind at 6 m; the nestlings received approximately an equal number of feedings. Commonly, after a feeding, a nestling of either species excreted a fecal sac which an adult seized and drew from the cloaca. Occasionally, a sac burst and the adults thoroughly removed the excrement from the nest. Of the few instances when we identified the nestling involved, we noted that 3 burst sacs came from the cowbird and intact sacs were excreted by the thrush.

During the 13 h of continuous observation, and other short observational periods, the nestlings did not vocalize, or if they did, their voices were not audible at 6 m. Both nestlings remained low in the nest throughout the nestling period, crouching when closely approached and, if touched, contracting their bodies.

Both nestlings were in the nest at 15:00 on 17 August. At 06:00 the following morning, after a heavy rain, the nestlings were gone but the nest was dry inside, suggesting that the birds left after the rain. The adults were heard nearby. For the first time feces were seen on the rim of the nest.

Another nest was found at Los Chorros on 17 August 1971. It contained 1 thrush egg and 1 cowbird egg. On 18 August it contained another thrush egg. On 19 August the nest was empty.

Red-crowned Ant-Tanager (*Habia rubica*).—A nest found 17 August 1971, at Los Chorros, contained 1 well-feathered nestling cowbird. We were attracted to the vicinity by the loud vocalizations of the tanagers bringing food, and to the nest by the vocalizations of the cowbird. An egg of unknown origin and not identifiable was found below the nest. The nest was watched for some 4 h over 3 days. The adults usually departed and returned together, calling loudly. The cowbird remained quiet for 5–10 min after being fed, then began to call softly. As the adults approached the nestling stood up, sometimes on the rim of the nest, and called loudly enough to be heard at 20 m. This nestling crouched as we approached, but when touched adopted an upright, “threatening” pose, erecting whitish supraorbital feathers resembling small horns; the cowbird in the successful *Catharus* nest was not seen to erect these feathers.

The nestling cowbird in the *H. rubica* nest defecated semiliquid material over the nest’s rim during our observations. No nest sanitation was noted and the interior and rim of the nest and the leaves below were soiled. On 19 August, as we approached, the young cowbird fluttered away and was taken. E. Eisenmann kindly identified the specimen, which is now in the American Museum of Natural History.

The contrast in behavior of the 2 cowbird nestlings described here is notable. Such variability in nestling behavior might have developed to parallel the behavior patterns of different host species.

Streak-backed Oriole (*Icterus sclateri*).—Villeda saw a pair of these orioles drive a female cowbird from a nest at Hacienda Los Pinos, Usulután, on 18 May 1974. At Las Minas de San Cristóbal, Morazán, on 30 May 1976, Thurber saw a female oriole leave an unfinished nest to attack a passing female cowbird, driving her toward a nearby nest from which a second oriole joined the chase, and as the cowbird passed another nest a third pursuer also joined the chase.

At Hacienda Los Pinos, Usulután, we watched the construction of a Streak-backed Oriole nest for several days in early May 1975. At 07:00 on 4 May Villeda saw a female cowbird examine the nest while the female was inside. Between 09:00 and 11:00 on 5 May, we saw a female cowbird near the nest several times, seemingly observing it, and at 10:00, a cowbird flew to the nest during the absence of the orioles and peered inside without entering. At 17:00 on 6 May Thurber saw a female cowbird enter the nest, remaining less than 1 min.

Altamira Oriole (*Icterus gularis*).—At about 07:00 on 12 April 1977, at Las Minas de San Cristóbal, Morazán, Michael Airey, manager of the mines, saw a black bird enter an Altamira Oriole nest where it remained about 30 sec. Mr. Airey, who knows the nest of *I. gularis* but not the cowbird, thought the black bird might be a Melodius Blackbird (*Dives dives*), but it was probably *M. aeneus*.

Yellow-olive Flycatcher (*Tolmomyias sulphureus*).—While watching a nest of this species on 14 May 1976, at Las Minas de San Cristóbal, Morazán, Thurber noted a female cowbird approaching it stealthily. At about 3 m she launched herself on a course that would have taken her into the vertical tube-like entrance of the nest, but as she neared it, the male, who had been singing nearby, attacked and drove her away.

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