

## FROM FIELD AND STUDY

**Mating Behavior of the Montezuma Oropendola.**—The Montezuma Oropendola (*Gymnostinops montezuma*) is abundant in tropical México and Central America, and its striking vocalizations, displays, and colonial nesting habits make it conspicuous throughout its range. Only Skutch (Pac. Coast Avif. No. 31, 1954), however, has described its life history in any detail. Although Skutch presented a wealth of observations recorded over many years in different areas, he did not describe mating behavior and apparently never observed it; he states (*op. cit.*:297) "after the basket work [first part of nest construction] was finished, the hens absented themselves for a day or two, during which courtship and mating probably took place off in the forest."

On March 30 and April 3, 1962, I observed pre-coital displays and copulation of Montezuma Oropendolas at five kilometers south of San Carlos, elevation about 15 meters, Department of Río San Juan, Nicaragua. There was a nesting colony of this species in a large *Ceiba* tree within two kilometers of this locality, and if there were others any closer they were not near enough to be audible to the human ear. Oropendolas of both sexes were seen frequently at five kilometers south of San Carlos, and observations were made from directly under a tree about 10 meters high. Mating displays were noted as follows: A single male approached one of several females perched in the top of the tree. The male bowed deeply, to an angle about 45° below horizontal, in front and to one side of the female, which remained motionless about one-half a meter away. The plumage of the male was not spread and there was no vocalization. Then he came around to the side of the female and pecked several times at about the mid-point of her yellow outer rectrices, which were held horizontal. The male then went to either the right or left front of the female and gave silently a display similar to that of many other icterids—the neck was extended upward and the head was depressed, with the bill pointing downward at an angle of about 30° below horizontal; the nape feathers were fluffed out, the wings were slightly drooped, and the tail was slightly spread and depressed. Immediately after this display the male mounted the female; there was no vocalization by either bird, and at least in the few instances observed, no invitational display was given by the female. In one instance during coition the female pointed her bill upward almost vertically and it was grasped by the downward-pointing bill of the male. There was no post-copulatory display or vocalization.

With respect to other oropendolas, Chapman (Bull. Amer. Mus. Nat. Hist., 58, 1928:135–138) described a courtship display in *Zarhynchus wagleri*, but this was evidently not followed by any attempt at copulation. Tashian (Zoologica, 42, 1957:96) described one copulatory act in *Psarocolius decumanus*, and Drury (Zoologica, 47, 1962:43) gave a generalized description based on several observations of the same species. Schäfer (Bonn. Zool. Beitr., 1957:94–97) gave accounts of mating behavior in both *P. decumanus* and *P. angustifrons*. The pre-coital display of *Gymnostinops* as described above resembles that of *P. decumanus* as described by Schäfer in that the male bows before the female and approaches to mount with the neck extended upward vertically. Drury's description, however, states only that the male approaches the female "with neck swollen" and does not mention any specific display. The mating behavior of *P. angustifrons* as described by Schäfer appears to be altogether different, and pre-coital behavior in *Zarhynchus* is as yet undescribed.

The observations on *Gymnostinops montezuma* support Skutch's suggestion that copulation in this species takes place most frequently or even invariably away from the nesting colony. In *Psarocolius*, copulation apparently takes place in the vicinity of the nesting tree although usually not in the nesting tree itself (Drury, *op. cit.*:51).

The behavior of these large icterids contrasts interestingly with that of some of the colonial weaverbirds (Ploceidae) that also build elaborately-woven nests. In many of these weaverbirds the male selects the site, constructs all or virtually all of the outer shell of the nest, and uses it as a focal point of courtship display and mating activity (Collias and Collias, Univ. Calif. Publ. Zool., 73, 1964:1–239). In the oropendolas, however, all of the nest construction is carried out by the female. In view of the lack of participation in nest construction by the male oropendola, it is not surprising that the nest is not involved or utilized in any of his displays and that copulatory activities may take place some distance away from the center of nesting activity.

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