The following day, on 24 May, a male Rusty Blackbird was seen feeding on a White-crowned Sparrow near the feeding station. When finished, all that remained of the sparrow was the wings and tail. On the same day, Mew Gulls were twice seen feeding on White-crowned Sparrows. In the first case a dead sparrow was picked up by the head and shaken vigorously for a second or two. The carcass was dropped and then picked up and shaken again. This action was repeated twenty-two times before the gull finally swallowed the sparrow. In the second instance, involving a sparrow killed by a passing truck, the gull picked up the dead bird and swallowed its head first on a single try.

The only other observation of possible predation was recorded at Norman Wells on 25 May, where an adult male Rusty Blackbird was flushed from a carcass of a male Lapland Longspur on which it was feeding. The carcass had been opened entirely from the midback to the throat. The neck had been eaten as well as the brain.

In summary, Rusty Blackbirds attacked White-crowned and Tree Sparrows during a three day cold snap, successfully killing two White-crowns. A blackbird was also seen feeding on a Lapland Longspur and Mew Gulls on White-crowned Sparrows, but by what these birds were killed was not determined.

This paper arises from field research undertaken on behalf of the Environment Protection Board for Canadian Arctic Gas Study Limited during the summer of 1972.—R. WAYNE CAMPBELL, *British Columbia Provincial Museum, Victoria, British Columbia, Canada. Accepted 4 March 1974.*

Variation in the Olive Sparrow in the Yucatan Peninsula.—The Yucatan Peninsula of Mexico, British Honduras and northernmost Guatemala is well known as a major center of endemism in Middle American birds. Many species are also represented by endemic races on one or more of the islands adjacent to the peninsula. Only about a score of species show geographic variation at the subspecies level within the peninsular mainland (Paynter, Peabody Mus. Nat. Hist., Bull. 9, 1955). Most of these are represented by an endemic Yucatan race, plus another that ranges from elsewhere in Middle America into the more humid base of the peninsula, i.e., southern Campeche, southern Quintana Roo, the Petén of Guatemala, and British Honduras. In one species, the Black-throated Bobwhite (*Colinus nigrogularis*), two endemic peninsular races are recognized: a pale one confined to Paynter's (op. cit.:14–15) "Scrub" zone of the extreme north, and a dark one in the adjacent "Deciduous Forest" zone to the south.

Study of some fifty Yucatan Peninsula specimens of the Olive Sparrow (*Arremonops rufivirgatus*), virtually all in fresh plumage, has shown that this species exhibits a pattern of differentiation like that of the *Colinus*. The type locality of the presently recognized Yucatan endemic subspecies, *A. r. verticalis* (Ridgway), is Mérida, in the Deciduous Forest zone. The undescribed race of the Scrub zone may be called:

Arremonops rufivirgatus rhyptothorax, ssp. nov.

Holotype.—Carnegie Museum of Natural History (CM) No. 141994, adult ♂, collected 12 January 1965 by R. W. Dickerman, 5 to 6 km. E of Chicxulub Puerto, Yucatan, Mexico. Original number K. C. Parkes 2056.

Diagnosis.—This new race differs from *A. r. verticalis* (Ridgway) in its generally paler coloration. The underparts in *rhyptothorax* are much whiter, relieved only by a pale gray breast band, which is scarcely visible in some birds. In *verticalis* only the mid-

abdominal region is pure white; the breast band is ashy or even slightly brownish gray, and the throat, although whiter than the breast band, is usually somewhat grayish. In *verticalis* the gray color of the breast band continues along the flanks, becoming mixed posteriorly with dull green. In *rhyptothorax* the pigmented area of the flanks is narrower, paler, and mixed posteriorly with ashy brown rather than green. The under tail coverts of *verticalis* are of a somewhat variable pinkish buff; in *rhyptothorax* they vary from a paler version of the same color to virtually pure white. The upperparts of *rhyptothorax* are also paler and grayer than those of *verticalis*; the dorsum and tail are less richly green, and in some fresh-plumaged specimens there is a distinct gray wash on the green on the back. The gray of the face and mid-crown of *rhyptothorax* is paler and purer (less brownish) than in *verticalis*. The brown of the crown stripes averages brighter and more rufous, although this is individually variable; in general, less contrast exists between the stripes and the mid-crown in *verticalis* than in *rhyptothorax*. Wing and bill length do not differ, but the bill of *verticalis* gives the distinct impression of being somewhat more swollen or inflated than that of *rhyptothorax*.

Etymology.—From the Greek *rhypto*, to wash or remove dirt, and *thorax*, chest, in reference to the "cleaner" look of the underparts.

Range.—Confined to the narrow belt of coastal scrub of the northernmost Yucatan Peninsula, Mexico (see below for remarks on intergradation with *verticalis*).

Discussion.—The narrow coastal scrub belt of Yucatan is highly distinctive (see photographs in Paynter, op. cit.:pl. 1). Except for coconut (*Cocos nucifera*) plantations, the maximum height of the woody vegetation is about three meters, and in much of the area the cover is thin and sparse. This coastal belt is exceedingly arid, with 428 mm mean annual rainfall at Progreso, compared to 901 mm at Mérida (Paynter, op. cit.: 10), which is only about 36 km inland and in the northern portion of the Deciduous Forest zone. The coastal zone coincides approximately with a sandy barrier beach, usually separated from what I shall call the "mainland" by (depending on locality) open water, marshes, mangrove swamps, savannah, and salt flats; in some places there is more or less continuous scrub. The resident avifauna of the coastal scrub is depauperate but distinctive. The wren *Campylorhynchus yucatanicus* is endemic to this zone, and the peninsular populations of several other species (*Zenaida aurita*, *Doricha eliza*, *Polioptila albiloris*) are almost completely confined to it.

Although the coastal strip is separated from the mainland by unsuitable habitat along most of its length, some gene flow appears to occur between coastal and mainland populations of both *Colinus nigrogularis* (Paynter, op. cit.:81) and *Arremonops rufivirgatus*. In the latter species, a series of 10 specimens taken at localities along the Progreso-Mérida highway, between 3.2 and 14.6 km south of Progreso (the last locality being about 21 km north of Mérida, type locality of *verticalis*), shows a rather rapid shift in color. Three of the four specimens from the southernmost of these localities are indistinguishable from *verticalis*; the fourth (RWD 11611) is noticeably paler and grayer. Specimens from between 3.2 and 5 km south of Progreso are nearest *rhyptothorax*, although taken on the mainland, and those from 10 to 10.5 km south of Progreso are variably intermediate.

Paynter (op. cit.:294) stated that *verticalis* is "apparently isolated from other populations [of the species] by a barrier of high, wet forest." There *are no* populations of *A. rufivirgatus* directly south or southeast of the range of *verticalis*. In the southern and southeastern parts of its range, *verticalis* is sympatric with *A. chloronotus*, the more typically rain forest inhabiting species of the genus. Within the rain forest zone, *A. r.*

verticalis appears to be confined to cleared and second-growth areas. Most of a good series of fresh-plumaged specimens that I examined from the vicinities of Chetumal and Felipe Carrillo Puerto, Quintana Roo, do not differ from topotypical *verticalis*. At least three specimens (RWD 12670, 12671; CM 142182), however, taken on 31 January 1965, 6.5 km south of Felipe Carrillo Puerto, appear to represent *A. rufivirgatus* × *A. chloronotus* hybrids. I have seen one of the two British Honduras specimens listed by Russell (Ornith. Monogr. 1:182, 1964). This specimen (CU 29215) is badly worn, but appears to be typical of *A. r. verticalis*.

To the southwest, the range of *verticalis* is widely separated from that of *A. r. chiapensis* Nelson of central Chiapas. To the west, the range of *verticalis* approaches, without any obvious habitat barrier, that of *A. r. crassirostris* (Ridgway), which extends southeastward to southern Veracruz. The latter race is distinguished from the Yucatan races by, among other things, paler, redder brown crown stripes with black shaft-stripes reduced or absent; mid-crown green rather than gray; and the throat, breast and flanks washed with rich buffy brown rather than gray. In spite of the alleged isolation of *verticalis*, evidence of intergradation between that race and *crassirostris* does exist. Four specimens (3 CM, 1 UMMZ) from Ciudad Campeche and Champotón, Campeche, from the southwestern corner of the range of *verticalis* (and west of the westernmost locality from which Paynter had specimens), are rather variable. The gray of their mid-crowns is variably washed with green. One specimen (CM 143254) has bright rufous crown stripes, virtually lacking black shaft-stripes except on the forehead portion. In the other three, the crown stripes are browner than in any of the series of Yucatan *verticalis*. Although the anterior underparts are like those of *verticalis*, the flanks of all four are mixed posteriorly with a browner, less green color than in true *verticalis*.

The best evidence of intergradation between *verticalis* and *crassirostris* is afforded by the one known specimen from Tabasco (LSU 24197). The intermediacy of this specimen, from ca. 18 km north of Balancán, easternmost Tabasco, has already been mentioned by Monroe (Occ. Pap. Mus. Zool. Louisiana State Univ., 28:7, 1963). In addition to "having the gray crown stripes more olive than in any other *verticalis* specimen," the only character cited by Monroe, the gray of the face, underparts and flanks of the Tabasco specimen shows a noticeably brown tinge, and the crown stripes are brighter and more reddish than in typical *verticalis*. Careful searching in other areas of Tabasco may well reveal populations of *A. rufivirgatus* narrowing the remainder of the apparent gap between *crassirostris* and *verticalis*.

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