Wilson Bull., 105(4), 1993, pp. 688–691

A contact zone between Mountain and Carunculated Caracaras in Ecuador.—Parker et al. (1985) were first to report Mountain Caracaras (*Phalcoboenus megalopterus*) north of the Marañón depression at Cerro Chinguela in Peru. Fjeldså and Krabbe (1990) found them on the border of Ecuador and Peru. Ortiz et al. (1990) did not consider the species present in Ecuador, but R. Williams (pers. comm.) found Mountain Caracaras to be fairly common on the Cordillera de Cyabanilla (4°34′S, 79°22′W) 10–15 km east of Amaluza in 1990. However, he saw none in this area in 1991. Williams also recorded the species at 04°21′S, 79°45′W near Sozoranga in 1990. E. P. Toyne (pers. comm.) recorded two adult Mountain Caracaras flying together at Ingapirca (3°41′S, 79°13′W) on 11 April 1992 immediately east of Acacana. I recorded Mountain Caracaras several times during ornithological fieldwork at 2950 m on the east side of Cerro Acacana (Acanama) (3°41′S, 79°14′W; Fig. 1), Province of Loja, southern Ecuador, in May and June 1992 and report on those observations here.

The area is characterized by "islands" of temperate cloud forest in an "ocean" of pastures. Just below and on the top of Acacana (3420 m), páramo vegetation was prevalent. I recorded Mountain Caracaras on 15 occasions, but never more than two together at one time. Fifteen records were of adults and four of juveniles. The greatest number of sightings in any one day was four. Birds were seen at any time during the day from 06:25 h to 18:10 h. I was not able to determine how many different individuals were involved. The first identification of Mountain Caracara was 19 May 1992. A bird was perched in a tree at the edge of a forest fragment. It was observed for 30 min with Leica 10 × 42 binoculars and appeared as follows: inner two-thirds of bill orange, outer one-third light bluish, legs yellow, upperparts, head, throat and breast jet black, border between black breast and white belly sharp, undertail coverts, rump and upper tail coverts white, broad tail-band black but terminal part of tail white, narrow shoulder-patch white; and a white terminal spot on a few outer primaries.

The individual left and was joined by a conspecific adult bird from nearby. Both individuals had a thin white trailing edge along the secondaries and 3–5 outer primaries with terminal white spots.

The identification of juvenile Mountain Caracaras primarily was based upon an interaction between an adult and a juvenile bird. On 30 May an adult bird passed close by with food in its bill. It landed in a pasture but was soon joined by a juvenile bird. The latter seized the food from the adult bird which neither delivered it actively nor tried to prevent the loss of it. The juvenile flew a short distance with the food item, landed and swallowed the prey, while the adult was still on the ground. The interaction did not appear to be cleptoparasitism. Of the four records of juveniles, only this bird was seen close enough to notice a lack of barring on the rump.

The closely related Carunculated Caracara (*Phalcoboenus carunculatus*) was recorded at Acacana on 16, 18, and 20 April 1989 and farther south at Uritusinga (4°06′S, 79°14′W; Fig. 1) the same spring by Bloch et al. (1992, pers. comm.). All observations at Acacana by Bloch et al. were of pairs of flying adults. The single Uritusinga observation of a flying adult is the southernmost record of this species. The Carunculated Caracara was expected at Acacana but I did not find it there.

The literature contains conflicting views on the distribution and taxonomy of Mountain and Carunculated caracaras. The three Andean forms *megalopterus, carunculatus* and *albogularis* have been considered subspecies under *albogularis* (Hellmayr and Conover 1949) or *megalopterus* (Zimmer 1930, Vuilleumier 1970) or separate species, i.e., allospecies of a single superspecies (Brown and Amadon 1968, Parker et al. 1985, Fjeldså and Krabbe 1990). Hellmayr and Conover (1949) united the forms due to the remarkably similar juvenile plumages. Zimmer (1930) united the forms *carunculatus* and *megalopterus* due to the general

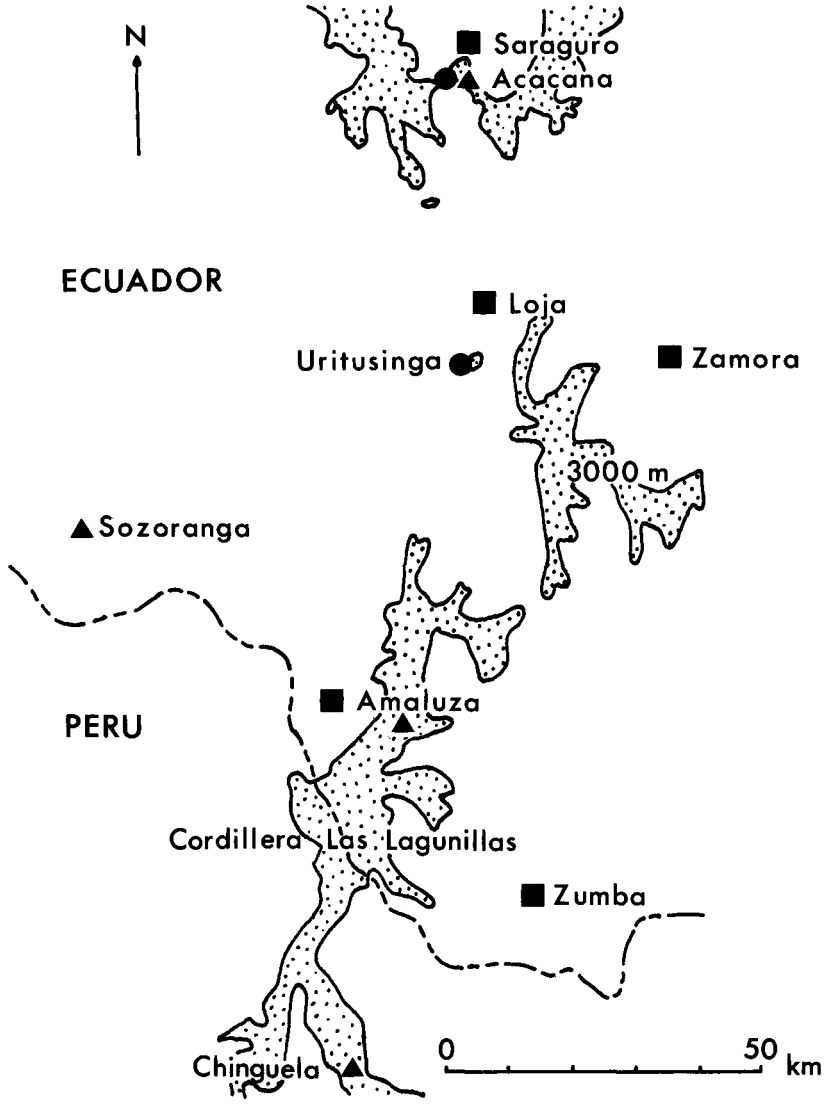

FIG. 1. Southern Ecuador and northern Peru. Stippled areas are above 3000 m. Symbols: triangles—sites where Mountain Caracaras have been recorded, dots—sites where Carunculated Caracaras have been recorded. Squares—principal cities.

characteristics found in both forms and faint white spots on the lower breast of two *megalopterus* specimens from central Peru. He interpreted these spots as evidence of hybridization, despite the apparent allopatry of the forms. Zimmer also considered *albogularis* part of this group, but he had no specimens from which to form a clear judgement. In his paper on

Caracaras, Vuilleumier (1970) adopted the view of Zimmer, emphasizing the *carunculatus*-traits in the two Mountain Caracara specimens from central Peru. His view was also based upon signs of hybridization between *megalopterus* and *albogularis* in Río Negro and Chubut, Argentina, and an observation of a possible mixed pair the same place.

An analysis of adult and juvenile specimens of Mountain Carunculated caracaras was done to support my identifications and one of the taxonomic views in the literature. Descriptions were made by J. Fjeldså of *megalopterus* (16 adults, 14 juveniles, 3 immatures) and *carunculatus* (13 adults, 5 juveniles, 2 immatures), in the Field Museum of Natural History, Chicago, and by myself of material in the Zoological Museum, Copenhagen (*megalopterus* 1 adult, 1 juvenile; *carunculatus* 3 adults, 1 immature, 5 juveniles). An analysis of plumages did not show any consistent pattern to separate the two juvenile forms. However, there was a tendency for uniform creamy rump (11 of 15 specimens), a darker non-contrasting head and neck (11 out of 15 specimens), and unbarred retrices (13 of 15 specimens) in first plumage *megalopterus*. In first plumage *carunculatus* there was a tendency for barred rump (7 of 10 specimens) as suggested by Fjeldså and Krabbe (1990), a light buffy head and neck contrasting against a warm brownish body (10 of 10 specimens), and barred retrices, at least distally on the outer feathers (7 of 10 specimens). Thus the juvenile caracara observed by me seemed most like the Mountain Caracara.

The adult specimens fully confirmed my identifications of adult Mountain Caracaras. The two specimens on which Zimmer (1930) based his view showed very faint buffy-white (not white) subapical spots on the feathers that form the lower edge of the black breast, as was found also in some specimens from Bolivia. All such specimens had a few remiges or handcoverts of immature colors or the corresponding feathers were fresh-molted, which demonstrated that the pale spots on the breast were characteristic of the initial adult plumage rather than a hybrid character.

It has been suggested that *megalopterus* has fewer white-tipped primaries and less extensive white on tips than *carunculatus* (Zimmer 1930, Vuilleumier 1970). Hybridization could therefore be expressed as a clinal variation in these characters towards more white-tipped primaries and greater extension of white on tips in *megalopterus* specimens from the areas closest to *carunculatus*. However, an analysis of *megalopterus* specimens revealed no clonal variation in number and extension of white on tip of primaries within the area of distribution, which suggests an efficient gene flow within *megalopterus*.

The black of *megalopterus* reach the lower breast while the black white-streaked foreparts of *carunculatus* continue to or below the mid-belly. Therefore hybridization signs in the *megalopterus* population could be comprised of white streaks in the black breast but equally likely intrusion of black on the belly. No *megalopterus* specimen showed signs of black on the belly.

I conclude that the two hybrid specimens of Zimmer (1930) are young adults within the variation of *megalopterus*. My observations and morphological analysis thus extend the range of Mountain Caracara 100–150 km to the north into southern Ecuador, suggest a possible contact zone between the two forms *carunculatus* and *megalopterus*, and question the hitherto accepted existence of hybrids between the two forms.

Acknowledgments.—The Danish National Science Research Council, Copenhagen (grant 11-9116) and The Zoological Museum, Univ. of Copenhagen provided financial support to this study. I thank A. Frølander, P. Andrade Cueva, and R. Tapia, for help during the fieldwork, and N. and J. Krabbe for their hospitality in Quito. The Ministerio de Agricultura y Ganaderia provided permission to do research in Ecuador. I thank Rob Williams, Elliott Paul Toyne, and Bloch et al. for letting me use their observations of the Mountain Caracara and the Carunculated Caracara. I also thank my advisor, J. Fjeldså for taking notes on and

photographs of the Chicago specimens and for valuable comments on drafts of this paper. T. Schulenberg and an anonymous referee contributed valuable suggestions as well.

LITERATURE CITED

BLOCH, H., M. K. POULSEN, C. RAHBEK, AND J. F. RASMUSSEN. 1992. A survey of the montane forest avifauna of the Loja Province, southern Ecuador. ICBP study report no. 49.

BROWN, L. AND D. AMADON. 1968. Eagles, hawks and falcons of the world. Vol. 2. The Hamlyn Publishing Group Limited.

FJELDSÅ, J. AND N. KRABBE. 1990. Birds of the high Andes. The Zoological Museum, Univ. of Copenhagen and Apollo Books, Svendborg, Denmark.

HELLMAYR, C. E. AND B. CONOVER. 1949. Catalogue of birds of the Americas. Field Museum of Natural History, Chicago, Illinois.

ORTIZ, F., P. GREENFIELD, AND J. C. MATHEUS. 1990. Aves del Ecuador. La Fundación Ecuatoriana de Promoción Turistica (FEBROTUR).

PARKER, T. A., III, T. S. SCHULENBERG, G. R. GRAVES, AND M. V. BROWN. 1985. The Avifauna of the Huancabamba region, northern Peru. Pp. 169–197 *in* Neotropical ornithology. Ornithological Monographs no. 36. (P. A. Buckley, M. S. Foster, E. S. Morton, R. S. Ridgely, and F. G. Buckley, eds.). Amer. Ornithol. Union, Washington, D.C.

VUILLEUMIER, F. 1970. Generic relations and speciation patterns in the caracaras (Aves: Falconidae). Breviora No. 355.

ZIMMER, J. T. 1930. Birds of the Marshall Field Peruvian expedition, 1922–1923. Field. Mus. Nat. Hist. Pub. 282.

BENT OTTO POULSEN, *The Zoological Museum, Dept. of Vertebrate Zoology, Univ. of Copenhagen, Universitetsparken 15, 2100 Copenhagen Ø, Denmark.* *Received 23 Sept. 1992, accepted 1 April 1993.*

Wilson Bull., 105(4), 1993, pp. 691–694

Cavity nesting by Harlequin Ducks in the Pacific Northwest.—The Holarctic Harlequin Duck (*Histrionicus histrionicus*) winters along northern coasts and breeds along swiftly flowing mountain streams. Disjunct populations occur in association with Atlantic and Pacific coastlines (AOU 1983). Most published nest records are from the Atlantic (Iceland), where 90% of nests described were on the ground in dense vegetation and 10% were in rocky hollows or lava cavities. Ninety-three percent were within 5 m of streams (Bengtson 1972). The lack of adequate data from areas outside Iceland, and conflicts in old records, have led to disagreement as to whether Harlequin Ducks are cavity nesters (Merriam 1883, Bent 1925, Johnsgard 1960, Bengtson 1966) or whether they primarily are ground nesters, nesting occasionally in areas sheltered by rocks or woody debris (Burleigh 1972). Several authors have dismissed reports of cavity nesting, particularly in trees (Gudmundsson 1971, Palmer 1976).

We are aware of only eight published nest site descriptions from the Pacific population of Harlequin Ducks. Three nests were on rocks, two were on the ground, one was in a cliff face (Bent 1925, Campbell et al. 1990), and two were in piles of woody debris adjacent to streams (Jewett 1931, Thompson 1985). We found no documentation of nesting in tree