EL HORNERO
REVISTA DE ORNITOLOGÍA NEOTROPICAL
Establecida en 1917
ISSN 0073-3407
Publicada por Aves Argentinas/Asociación Ornitológica del Plata
Buenos Aires, Argentina

Interspecific competition as a possible factor in limiting the range of some trans-Andean forest birds

Haffer, J.

1967

Cita: Haffer, J. (1967) Interspecific competition as a possible factor in limiting the range of some trans-Andean forest birds. *Hornero* 010 (04) : 438-440

proached those of their Subtropical home. After the return of warmer and less humid conditions, such as today, these species became again restricted to the higher mountain level of the present Subtropical Zone. Because of the extended vertical range of many montane species during the glacial periods I assume their horizontal range was more or less continuous across the gaps in the Subtropical temperature zone mentioned above (cf. Griscom, op. cit.).

3. A number of highland birds, particularly those of the Temperate and Páramo Zone, probably reached isolated mountain massifs by *"hopping" across the intervening tropical lowlands* (Stresemann, J. Orn. 87: 380 ff., 1939; Mayr & Phelps, Jr., Acta XI Congr. Int. Orn., p. 399, 1955), using available low mountains as stepping stones. On the other hand many species were unable to cross the gaps in their respective life zone. Due to the greater distances between mountains sufficiently high to carry faunas of the Temperate and Páramo Zone, even during the glacial periods of the Pleistocene, dispersal by hopping across the lowlands and/or lower mountains was more difficult and occurred less frequently. Consequently, endemism is more common among birds of the higher life zones of isolated mountains.

It is concluded that the dispersal of highland bird species in tropical South and Central America probably took place under presently existing orographic conditions. There is no ornithological need and much less geological evidence for continuous mountain bridges connecting isolated Andean mountain massifs of these regions during past geological periods. — JÜRGEN HAFFER, *Colombian Petroleum Co., Apartado Aéreo 3434, Bogotá, Colombia, 15 July 1966. Present address: Mobil Oil Corporation, Field Research Laboratory, P.O. Box 900, Dallas, Texas 75221, U.S.A.*

INTERSPECIFIC COMPETITION AS A POSSIBLE FACTOR IN LIMITING THE RANGE OF SOME TRANS-ANDEAN FOREST BIRDS

Speciation is fully completed if reproductive isolation *and* ecologic compatibility have been attained by two populations during geographic separation. In case such isolated populations come in secondary contact *after* reproductive isolation was completed but *before* sufficient ecologic differences were developed, both will compete and may inhabit mutually exclusive areas in which each form presumably is at a competitive advantage over its ally. The following cases among birds inhabiting the forests west of the Andes may belong here:

Tangara gyrola - T. lavinia: Tangara gyrola inhabits tropical South America north to Costa Rica. It is widespread in the Amazonian lowlands. However, in the northwestern part of its range this species is confined to the

upper tropical and subtropical zones of the Andean and Central American mountains, except in southwestern Costa Rica (Slud, Bull. Amer. Mus. Nat. Hist., 128 : 352, 1964) and in western Ecuador (Chapman, *ibid.*, 55 : 659, 1926) where it ranges downward from the mountain slopes to the lowlands. *Tangara lavinia* represents *T. gyrola* in the trans-Andean lowlands and probably originated in the Chocó Refuge (Haffer, Amer. Mus. Novitates 2294 : 1 - 57, 1967). It later extended its range northward to Guatemala. This species prefers extremely humid areas and is not uncommon in the Pacific lowlands of western Colombia but is quite rare in Panamá. In Costa Rica "it inhabits a very humid, narrow zone following the upper tropical and lower subtropical belts" of the Caribbean slope of the mountains (Slud, op. cit.: 353).

The ranges of these two species are complementary in several areas: where one is common the other is missing and vice versa. *T. gyrola nupera* is rather abundant in the Pacific lowlands of western Ecuador but to the north, where it meets the lowland form *T. lavinia*, *Tangara gyrola nupera* retreats up into the upper tropical and subtropical zones on the Pacific slope of the Western Andes. A similar situation exists in southwestern Costa Rica where *Tangara gyrola*, in the absence of *T. lavinia*, ranges downward to the coastal lowlands. Along the northwestern divide of this country "*gyrola* is lacking and *lavinia* is at its greatest abundance. The two meet and are partially sympatric along the Cordillera Central, but here *lavinia* is centered at least 1000 feet lower than *gyrola*" (Slud, op. cit.: 353).

Bangsia edwardsi - B. rothschildi: Both species are confined to the heavily forested Pacific slope of the Western Andes of Colombia and northwestern Ecuador. *Bangsia rothschildi* inhabits the foothill zone while *B. edwardsi* is mainly found higher up the slope between elevations of 1000 and 2000 meters (although their altitudinal ranges probably overlap somewhat for both species have been recorded from La Guayacana at 450 meters above sea level; de Schauensee, Caldasia, 5 (25): 1042, 1951, and Blake, Lozania, 11: 8, 1959). *B. rothschildi* barely reaches northwestern Ecuador. On the other hand *B. edwardsi* ranges farther south and —in the absence of *B. rothschildi*— possibly also occupies the forested lowlands of northwestern Ecuador, as it is reported from Esmeraldas (Hellmayr, Field Mus. Nat. Hist. Zool. Ser., 13 (9), 1936).

Formicarius analis - F. nigricapillus: F. analis ranges throughout tropical South America north to southern Mexico. Its trans-Andean representative is *F. nigricapillus* which inhabits the Pacific lowlands of western Colombia to northwestern Ecuador and reoccurs in the foothill zone of the Caribbean slope of the mountains of Costa Rica and Panamá. The contact zone of both forms in the lower Atrato valley of northwestern Colombia is not yet known (Haffer,

op. cit., 1967)*. In Costa Rica *F. analis* is mainly confined to the tropical lowlands on the Caribbean side. However, on the Pacific slope of this country (where *F. nigricapillus* is missing) *F. analis* ranges up to at least 4500 feet (Slud, op. cit.: 219).

Discussion: Tangara lavinia, Bangsia rothschildi and *Formicarius nigricapillus* are typical Chocó elements which are adapted to the extremely humid climatic conditions of the Pacific lowlands of Colombia and parts of Caribbean Central America. Their range limits may be ecologically determined by a conspicuous decrease in the amount of annual rainfall in the marginal parts of the area inhabited. However, there are no indications that *T. gyrola, B. edwardsi* and *F. analis* also reach their limits of tolerance for environmental conditions at the zone of contact. Possibly ecologic competition with the respective ally is the determining factor in limiting their range. No field study has as yet been undertaken to determine the interrelationship of the above allies. It seems possible that a similar situation exists in these cases as that found in two other pairs of northwestern Colombia, *Pipra erythrocephala - P. mentalis* and *Crax rubra - C. alberti*, which represent allopatric, noninterbreeding and presumably competing species (Haffer, Auk 84 : 343-365, 1967). — JÜRGEN HAFFER *c/o Instituto de Ciencias Naturales, Sección de Ornitología, Universidad Nacional de Bogotá, Colombia, 15 July 1966. Present address: Mobil Oil Corporation, Field Research Laboratory, P.O. Box 900, Dallas, Texas 75221, U.S.A.*

NOTAS SOBRE PROCELLARIIFORMES EN EL URUGUAY

En artículos publicados anteriormente (Escalante, Condor, 61: 158, 1959; 64: 510, 1962) me he ocupado sobre la presencia de algunos Procellariiformes en la costa uruguaya. La presente comunicación pone especial énfasis en la inusitada concentración del Albatros de ceja negra *(Diomedea melanophrys)* frente a Punta del Este (Depto. de Maldonado, Uruguay) durante el día 6 de julio del corriente año. La localidad mencionada ha sido objeto de vigilancia, por parte del autor, año a año durante el mes de julio desde 1959. En la fecha arriba citada registré cientos de Albatros de ceja negra en el extremo de la península que enfrenta a la isla de Lobos. La mayor parte evolucionaban en pleno vuelo hasta donde alcanzaba la potencia de mis binoculares (Zeiss, 8 x 40), mostrando alternativamente sus lomos y alas oscuros y sus partes inferiores blancas con las alas marginadas de negro. Pero también era notable el número de los posados sobre el mar: 80 fueron contados

* Recent fieldwork indicates that both species may be separated by a distributional gap in this area (Haffer, Veröff. Zool. Staatss. München, 1967, in press).