

VARIATION IN SOUTH AMERICAN GREAT HORNED OWLS

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SINCE Oberholser (1904, pp. 178-179) there has been published no critical study of the Great Horned Owls (*Bubo virginianus*) of South America. In the recent lists of South American owls, Cory (1918), Kelso (1934) and Peters (1940), subspecies described since Oberholser have been accepted, apparently uncritically, and usually noted as "known only from the type locality." Peters accepted five South American subspecies. A study of eighty-one specimens from almost the whole of South America shows that the arrangement of subspecies followed by these authors does not reflect the actual pattern of variation and distribution within this species. I would recognize three subspecies, plus a fourth tentatively. The subspecies *nacurutu* of most recent authors consists of two races, of which the southern should be called *magellanicus*.

I would like to express my appreciation to the authorities of the American Museum of Natural History and the U. S. National Museum for the opportunity to study the specimens in their care, particularly unworked material from Peru and Colombia respectively; and to the authorities of the Carnegie Museum for the loan of comparative material, including the type of *elutus*.

DISTRIBUTION

In the tropical zone of South America, the Great Horned Owl is confined to more open country, particularly deciduous forests or wooded savannas, and has not been taken in the heavy rain forest. Consequently, its range is peripheral to the Amazon basin, and in the north it is much fragmented, as can be seen from the map. The species has been collected in the arid coastal strip and deciduous forests of northern Colombia, the llanos of interior Venezuela, the arid coast and interior grass-lands of British Guiana, sporadically in the vast semi-arid regions of eastern Brazil, in the lowland plains of northern Bolivia (Gyldenstolpe, 1945: 95), and in the Paraguayan Chaco and adjacent Matto Grosso. From the latter region it ranges through the whole of the temperate regions to Tierra del Fuego. In the Andean region, it has an apparently continuous range in the arid temperate and Puno zones, but is lacking in the humid sub-tropical and temperate forests.

The ranges of subspecies as outlined on the accompanying map have been determined by the examination of specimens, or, in the case of Gyldenstolpe's northern Bolivia records, where sufficient information has been provided to make identification certain. Great Horned Owls have been collected in practically every state in Argentina except

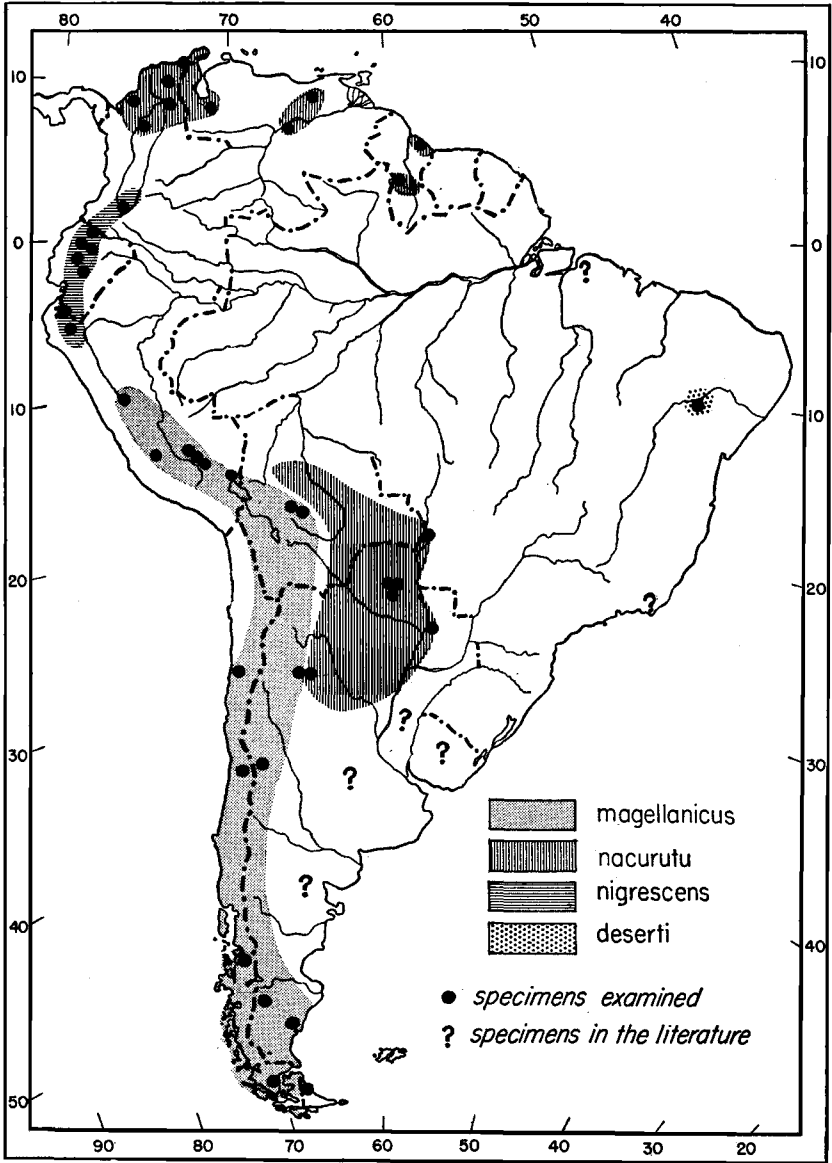


FIGURE 1. Distribution of Great Horned Owls (*Bubo virginianus*) in South America. The author has not determined the subspecific identity of birds from the areas designated with a question mark.

Misiones (Steullet and Deautier, 1945: 809), but it is not possible to make racial identifications without examination of the specimens. There are large areas of suitable habitat in eastern Brazil from which the species has not been recorded, but these apparent lacunae may indicate merely insufficient collecting.

VARIATION

The Great Horned Owls of South America separate into three clearly defined groups of populations, which show some geographical variation within themselves.

In the temperate regions from Tierra del Fuego, through the lowlands of southern Argentina, the whole of Chile, and the highlands of northern Argentina to the temperate and Puno zones of Bolivia and central Peru lives a form which is easily distinguished from other populations by its much smaller culmen. This form is further distinguished by having the dusky barring of the underparts narrower, and more closely spaced.

The populations from the whole of the tropical lowlands of South America, from Tucuman, Argentina, north to Colombia and east to Bahia, Brazil, are characterized by their much larger culmen, and more widely spaced ventral barring.

The third clear cut population is found in the temperate and Puno zones of the Andes from extreme northwestern Peru to southern Colombia. It is characterized by being much darker, more fuscous, than other populations, and with the dark splotching on the breast more extensive, in extreme individuals forming almost a solid fuscous band below the white throat patch. In wing length this form is large, but bill length, while large, does not reach the extreme of tropical lowland birds. The ventral barring is spaced widely as in the latter form.

NOMENCLATURE

Before discussing the subspecies of this owl, certain purely nomenclatural problems must be cleared up. Until the present study the Great Horned Owls of central and southern South America have been considered as belonging to a single race, which for a hundred years was called *magellanicus* Gmelin (1788). In 1908 Oberholser showed that Gmelin used the name in a varietal or descriptive sense, and that the earliest valid name was *nacurutu* Vieillot (1817). As the birds included under this name prove to belong to two subspecies, the question arises to which Vieillot's name should be applied.

Vieillot's name was based partly on Buffon's (1770, pl. 385) "*hibou de terres magellaniques*", and partly on Azara's (1809: 113) "*Ñacurutú*" from Paraguay. Vieillot expressly states "The name under which I describe this bird is that which it bears in Paraguay". Although Buffon is cited first and Azara is not mentioned until somewhat later, the name

nacurutu is drawn, and the description is taken, almost word for word, from Azara. Oberholser did not discuss the type locality of *nacurutu*, but since his study it has been restricted to three different localities. Chapman (1921: 60) recognized that the Paraguayan and Magellanic birds represented two races, and stated that Vieillot's name was available for the northern form, giving the type locality as Paraguay. Peters (1940: 113), who did not recognize two races, designated "Magellanic Lands," because of the Buffon reference; and more recently Steullet and Deautier (1945: 809) have restricted the name to the region of Buenos Aires, since the only specific locality mentioned in Azara is Rio de la Plata (Buenos Aires). Azara mentions Rio de la Plata only as the locality at which he saw a nest of the species, without restricting the range of this "not very rare" bird to that region; moreover he indicates that "ñacurutú" is the Guaraní name. Consequently there is no reason for not accepting Chapman's action as that of the first reviser, and the restricted type locality of *nacurutu* Vieillot would thus be Paraguay.

This leaves the birds of the Magellanic lands (Tierra del Fuego) without a name. The earliest available name appears to be Lesson's (1828: 116) validation of Gmelin's *magellanicus* with a reference to Buffon and a description. Therefore *magellanicus* again becomes the name of the Great Horned Owls of the southern tip of South America, but dating from Lesson (1828) rather than Gmelin (1788).

SUBSPECIES

***Bubo virginianus magellanicus* (Lesson)**

Strix magellanicus Lesson, 1828, Man. d'Orn., 1, p. 116 (Terres Magellaniques, ex Buffon. pl. 385 = Tierra del Fuego)

Bubo virginianus andicolus Kelso, Biol. Leaf. no. 13, 1941, p. 1 (Ollantaytambo, Peru)

Diagnosis: small culmen and closely spaced ventral barring; culmen from base less than 43 mm.

Range: From Tierra del Fuego north through southern and western Argentina, the whole of Chile and highland Bolivia to the temperate zone of central Peru in Huanuco.

Measurements: Wing (Chile and Argentina) 9 ♂♂ 318-339 (329.0), 10 ♀♀ 330-358 (342.9); (Bolivia and Peru) 4 ♂♂ 352-356 (354.0), 3 ♀♀ 351, 368, 380. Culmen 13 ♂♂ 37-41 (38.0), 13 ♀♀ 37-42 (39.3).

Remarks: In color characters this form shows a great deal of individual variation, but none that can be correlated geographically. The ground color of the under parts varies from strongly buffy to almost clear white, and the upper parts are equally variable. The type of *andicolus* has been examined, and in color and pattern it matches almost exactly a topotypical specimen from Magellanes.

Bill size is also constant throughout the range of this race. However, in wing length, specimens from highland Peru and Bolivia (*andicolus*) average larger than those from Argentina and Chile, the

measurements being listed separately above. The spread in measurements is probably not as great as shown, since an unsexed specimen from Tica-tica, Peru, has a wing of only 340. This increase in size appears to be an altitudinal effect, since a female from the highlands of Aconquija, Tucuman, has a wing of 358, while two females from Ramadillo, Atacama, in the lowlands of northern Chile measure only 337 and 347. Although this size difference is significant, recognition of an altitudinal race would obscure the essential unity of this form, which evidently originated in the southern temperate region, and followed this zone northward through the Andes to central Peru.

***Bubo virginianus nacurutu* (Vieillot)**

Strix nacurutu Vieillot, 1817, *Nouv. Dict. Hist. Nat.*, 7, p. 44 (ex Azara No. 42—Paraguay)

Bubo virginianus scotinus Oberholser, *Mus. Brooklyn Inst. Arts Sci., Sci. Bull.*, 1, 1908, p. 371 (Caicara, Rio Orinoco, Venezuela)

Bubo virginianus elutus Todd, *Proc. Biol. Soc., Wash.*, 30, 1917, p. 6 (Lorica, Bolivar, Colombia)

Diagnosis: culmen much longer, and ventral barring more widely spaced than in *magellanicus*; more brownish, less fuscous, than *nigrescens* or *deserti*; culmen greater than 42 mm.

Range: tropical lowlands outside the heavy forest from Tucuman, Argentina, through Paraguay, Bolivia, Matto Grosso, British Guiana, Venezuela, and Colombia. Material is lacking to determine the limits of this race in eastern Argentina, Uruguay and eastern Brazil.

Measurements: Wing 15 ♂♂ 330–354 (341.4); 21 ♀♀ 340–376 (363.1). Culmen 14 ♂♂ 43–49 (45.6); 20 ♀♀ 43–52 (48.8).

Remarks: Although the range of this form covers a vast area and embraces several isolated populations, there are no characters that show geographical variation by which it could be further subdivided. Although there is individual variation within each population, the range of variation is the same at each locality, and individuals can be matched by specimens from any other locality. The only exception is a female from the Paraguayan Chaco 45 km. west of Pto. Rosaria. This bird lacks buffy or tawny bases to the feathers of the underparts, which gives the appearance of a buffy wash to these areas, and is clear white below with narrow fuscous barring. On the upper parts the tawny color is also much reduced, particularly on the light vermiculations of the crown. This may represent a gray phase; if so, it is certainly rare.

The type and three topotypes of *elutus* have been examined. They are paler and duller on the upper parts than specimens from inland Bolivar and adjoining states, but the plumage is worn and abraded. A female from Rio Nechi, Antioquia, is just completing her molt and still retains a few old scapulars. These feathers are badly worn and distinctly paler than the fresh plumage. The alleged differences between *elutus* and *scotinus* (= *nacurutu*) are evidently due to wear, and *elutus* becomes

a synonym of *nacurutu*. The type of *scozinus* has also been examined. It is typical of *nacurutu* from Paraguay, although showing, of course, the stated differences from *magellanicus*, with which it was originally compared.

[***Bubo virginianus deserti* Reiser]**

Bubo magellanicus deserti Reiser, Anz. K. Akad. Wiss. Wien, Math.-Naturwiss. Kl., 52, 1905, no. 18, p. 324 (Salitres, near Joazeiro, Bahia)

Diagnosis: "separated from *magellanicus* and *nigrescens* by the exclusively gray and white banding and flecking without any admixture of brown or reddish. The upper tail coverts appear banded with clear white, and the ear tufts are edged with pure white."

Range: north central Bahia, extent unknown.

Measurements: 1 ♂ wing 341; culmen 45.

Remarks: Recognition of this form is tentative, since only one specimen from eastern Brazil was examined, a male from Barra, Bahia, in the American Museum. This specimen does not agree with Reiser's description of the type of *deserti*, but it is darker and grayer, less buffy brown, than *nacurutu*. It agrees most closely with a male from Corumba, Matto Grosso. Reiser's description agrees most closely with the gray phase female from Pto. Rosaria, described in the discussion of *nacurutu*, but that bird lacks the white banding on the upper tail coverts and the white edging to the ear tufts. Without further material it is not possible to determine definitely if *deserti* is a valid form. In any event, its relations are with *nacurutu* and not *magellanicus*, since it has the large culmen and widely spaced ventral barring of the former.

***Bubo virginianus nigrescens* Berlepsch**

Bubo nigrescens Berlepsch, Proc. Zool. Soc., 1884, p. 309 (Cechce, 10,000', western Ecuador)

Bubo virginianus colombianus Lehmann, *Auk*, 63, 1946, p. 218 (Penablanca, east of Popayan, Cauca, Colombia)

Diagnosis: much darker, more fuscous, than either *nacurutu* or *magellanicus*. The breast more heavily blotched with fuscous, and on the upper parts the dusky mottling much more extensive, almost obscuring the pale barrings and vermiculations. Size as in *nacurutu*, but bill length somewhat less.

Range: Arid temperate and puno zones of the Andes from Piura, northwestern Peru, to Ecuador and Colombia.

Measurements: Wing 5 ♂♂ 345-365 (353.2); 9 ♀♀ 351-381 (367.5). Culmen 5 ♂♂ 40-45 (43.0); 9 ♀♀ 42-50 (45.8).

Remarks: In Ecuador and southern Colombia, Prov. Nariño, this race is constant in its characters. In the central Andes of Colombia, however, it becomes more brownish, less fuscous, in an approach to the lowland form *nacurutu*. This is the population named *colombianus*, represented by a female from Paletara, Cauca. However, a female from Piura, Peru, matches this specimen closely in color and pattern and they are both representatives of intermediate populations, the one with

magellanicus, the other with *nacurutu*. Both, however, are closer to *nigrescens* than to the adjoining forms, and the recognition of intermediate races would obscure the basically simple pattern of variation.

Judging from the presence of the two most distinct forms, *magellanicus* and *nigrescens*, in central Peru and Ecuador respectively, it is probable that there were two distinct invasions of the high Andes. *Nigrescens* represents an extension of *nacurutu* from the lowlands of Colombia; *magellanicus* evidently differentiated in the Patagonian region, and then spread northward through the temperate zones of the Andes. That they have come into contact secondarily is evidenced by the intermediate specimen from Piura.

MATERIAL EXAMINED

B. v. magellanicus: Argentina: Tierra del Fuego 4 ♂ 1 ♀; Santa Cruz 1 ♂ 2 ♀ 1 unsexed; Mendoza 1 ♂ 1 ♀; Tucuman, Aconquija 1 ♀. Chile: Magellanes 1 ♂; Llanquihue 1 ♂; Santiago 1 ♂ 2 ♀; Atacama 2 ♀. Bolivia: Cochabamba 1 ♂ 1 ♀. Peru: Puno 1 ♀; Cuzco 1 ♂ 1 ♀ 1 unsexed; Huancavelica 1 ♀; Huanuco 1 ♀.

B. v. nacurutu: Argentina: Tucuman, Concepcion 2 ♀. Paraguay: Chaco 2 ♂ 5 ♀. Brazil: Matto Grosso, Corumba 1 ♂. British Guiana: Buxton 2 ♂ 3 ♀; Annai 1 ♂ 2 ♀ 1 unsexed. Venezuela: Bolivar 1 ♂; Anzoategui 1 ♂ 2 ♀; Merida 1 ♀. Colombia: Antioquia 1 ♂ 1 ♀; Bolivar 1 ♂ 4 ♀; Magdalena 3 ♂; Guajira 1 ♂.

B. v. deserti Brazil: Bahia, Barra 1 ♂.

B. v. nigrescens Peru: Piura 1 ♀. Ecuador: 5 ♂ 5 ♀ 2 unsexed; Colombia: Narino 2 ♀; Cauca 1 ♀.

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