

# ON THE DISTRIBUTION AND HABITAT OF THE GURNEY'S BUZZARD *Buteo poecilochrous* IN COLOMBIA AND ECUADOR

## SOBRE LA DISTRIBUCIÓN Y HÁBITAT DEL BUSARDO DE GURNEY *Buteo poecilochrous* EN COLOMBIA Y ECUADOR

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**ABSTRACT.**— We present distribution records of the Gurney's Buzzard *Buteo poecilochrous* in the high Andean region of Colombia and Ecuador. We found a total of 32 localities where the species has been recorded, either as verified study skins, field observations by ourselves and other experienced observers and bibliographic citations. This buzzard is locally common in grassy paramos of the volcanoes of the western and eastern cordilleras of Ecuador above elevations of 3000 m and has so far been recorded north to 1°N in southern Nariño Department in Colombia. Further south in Ecuador the species becomes rare as the highlands remain mostly below 3000 m and the páramos are mainly bush páramos. All nest sites of *B. poecilochrous* in Ecuador were on cliffs between 3500 and 4600 m. The Gurney's Buzzard is sedentary and territorial, and polyandrous groups have been recorded at Antisana Mountain in Ecuador.

**RESUMEN.**— Presentamos registros de la distribución del busardo de Gurney *Buteo poecilochrous* en la región altoandina de Colombia y Ecuador. Encontramos un total de 32 localidades donde esta especie ha sido registrada, ya sea como pieles en museos, observaciones nuestras y de otros ornitólogos experimentados y referencias bibliográficas. *B. poecilochrous* es localmente común en el páramo pajonal de los altos volcanes de las cordilleras oriental y occidental del Ecuador por encima de los 3.000 m, y ha sido registrado hacia el norte hasta 1°N en el sur del Departamento de Nariño, en Colombia. En el sur del Ecuador la especie es escasa ya que hay pocas montañas con elevaciones de 3.000 m de altitud y los páramos son de tipo arbustivo. Todos los nidos registrados de *B. poecilochrous* en el Ecuador estaban sobre acantilados, a elevaciones entre 3.500 y 4.600 m. Esta especie es sedentaria y territorial, y grupos poliándricos han sido observados en el Antisana, en Ecuador.

## INTRODUCTION

Few published data exist on the status and distribution of the Gurney's *Buteo poecilochrous* Gurney 1879 in Ecuador (Ortiz-Crespo, 1986; Ortiz-Crespo *et al.*, 1990; Best *et al.*, 1996) and until recently, information from Colombia was

mostly erroneous (Cabot *et al.*, 2006). Chapman (1926) gave specific records for this species in Ecuador, but the wing-length values of some of his specimens coincide with the range for the Variable Buzzard *B. polyosoma* (cf. Cabot y de Vries, 2003). Farquhar (1998) considered these two buzzards conspecific,

as did Ridgely y Greenfield (2001). However, recent studies on plumage variation, altitudinal distribution and ecology have led us to conclude that *B. polyosoma* and *B. poecilochrous* are distinct species (Cabot, 1991; Cabot y de Vries, 2003, 2004, 2005a, 2005b, 2008), as they were considered by Fjelds  y Krabbe (1990), del Hoyo (1994), Ferguson-Lees y Christie (2001) and Rasmussen *et al.* (1994). We fully acknowledge that debate regarding the taxonomic status of these hawks continues (cf. Remsen *et al.*, 2009) but for the purposes of this paper we will treat them as separate species, based upon the criteria for distinguishing them developed by Cabot y de Vries (2003, 2004, 2005a, 2008), which provide clear-cut separations, sex for sex. Undoubtedly the two species have separated very recently, probably in postglacial times, as the low degree of molecular divergence (1.28 %) in the mitochondrial gene sequences *nd6* and  $\Psi$ CR shows (Riesing *et al.*, 2003). Lerner *et al.* (2008) treated *B. polyosoma* and *B. poecilochrous* as species derived independently from White-tailed Buzzard *B. albicaudatus*. The low genetic divergence between the two species does not automatically indicate conspecificity, as has been clearly shown for Gal pagos *B. galapagoensis* and Swainson's Hawks *B. swainsoni* (Hull *et al.*, 2008). In any case, we note that in *B. poecilochrous* the northern form is larger than the southern taxon, contrary to Bergmann's Rule (Cabot y de Vries, 2009), whereas in *B. polyosoma* the largest forms occur in southern South America and on islands such as the Juan Fern ndez (Cabot y de Vries, 2003; Jim nez, 1995). Therefore, the size differences between them are greatest in the northern Andes, such that the data reported here clearly apply to the former. An objective of this paper is therefore to straighten out previous confusion regarding the localities at which *B. poecilochrous* has been reliably recorded in the northern part of its range.

## METHODS

To determine the localities where *B. poecilochrous* has been recorded, we considered data in the following order: 1) from study skins we have examined, 2) from field observations by the authors and other experienced observers, and 3) from bibliographic citations (between parentheses). Skins are in the following museums: Museo Ecuatoriano de Ciencias Naturales (MECN); Museo Instituto Tecnol gico Bol var de Ambato (MITB); Museo Colegio Mej a de Quito (MCM); Museo de Ciencias Naturales de Madrid (MCNM); Zoological Museum, Univ. of Copenhagen (ZMUC); Museum of Natural History, Stockholm (NRM); the Natural History Museum, Tring (BMNH) and Instituto de Ciencias Naturales, Universidad Nacional de Colombia (ICN). From the records given by Chapman (1926) for Ecuador, we only considered those specimens whose wing-lengths fall within the range given by Cabot y de Vries (2003) for *B. poecilochrous*.

## RESULTS AND DISCUSSION

Overall, the range of the Gurney's Buzzard extends from southernmost Colombia to extreme northern Argentina and Chile (Fjelds  y Krabbe, 1990; Cabot *et al.*, 2006). We found 32 localities at which we consider *B. poecilochrous* to have been reliably recorded in Colombia and Ecuador (see Appendix 1, Fig. 1). North of southern Ecuador it is patchily distributed above 3000 m on the discontinuous line of volcanoes along both of the main Andean ranges. From north to south, these volcanos are: Cumbal, Chiles, Cotacachi, Mojanda, Pichincha, Atacazo, Coraz n, Iliniza and Chimborazo in the Western Cordillera, and Cayambe, Antisana, Cotopaxi, Tungurahua, Altar and Sangay in the Eastern Cordillera. Although the three isolated easternmost volcanoes, Reventador, Sumaco and Cerro Hermoso, reach 3562 m, 3820 m and 4571 m respectively and include open grassy areas

at their upper elevations, there are no records of *B. poecilochrous* from any of them, thus the species is probably restricted to the two main cordilleras. *B. poecilochrous* becomes rarer in the south (Loja province), where altitudes over 3000 m are much scarcer and the terrain is hillier with fewer rocky ridges. The species does not occur in the xerophytic inter-Andean valleys, usually below 3000 m, where it is replaced by *B. polyosoma* and the Bay-winged Hawk *Parabuteo unicinctus* (Coello, 1997).

We have found *B. poecilochrous* to be locally common in open grassy páramos and rocky ridges between the tree and snowlines (the latter in Ecuador is at c.4800 m); it is also present in the páramos of El Ángel (Volcán Chiles) and Volcán Cumbal, where the grasslands are dominated by "frailejones", *Espeletia pycnophylla*. In the central páramos *B. poecilochrous* frequents areas dominated by grasses (*Festuca*, *Calamagrostis* and *Cortaderia* spp.), cushion plants (*Plantago*, *Azorella*, *Distichia* and *Werneria* spp.) and other herbaceous plants (Balslev y de Vries, 1982, 1991; Muñoz *et al.*, 1985; de Vries y Jaramillo, 2004), and avoids shrubby or forested areas (subpáramo, elfin forest). On the mountain of Antisana we have observed birds flying above the glaciers at over 5000 m. On Chimborazo volcano we have observed immature Gurney's Buzzards hunting over the undulating plains with few relief features, whereas adult birds frequent both the rocky sectors of their territories and the nearby rolling plains. The located nest sites (n=12) were all on cliffs, frequently with scattered relict stands of *Polylepis* sp. at their bases. Of five nests found on Antisana volcano, the highest was at 4600 m. These buzzards do not frequent areas reforested with the introduced *Pinus radiata*, which on certain páramos such as Cotopaxi reach above 3500 m. South of Chimborazo province the vegetation changes, for example in the higher parts of Podocarpus National Park (Loja province), where the páramo is dominated by terrestrial bromeliads (*Pitcairnia* sp. and *Tillandsia* sp.) and *B. poecilochrous* is much scarcer.

In Ecuador (and presumably Colombia) *B. poecilochrous* is generally sedentary, forming clearly defined and well-defended territories where conspecific intruders are attacked and driven away. However, juveniles are tolerated and birds over one year old are sometimes fed, even when the yearling is not fully fledged. Cabot (1988) and Coello (1997) mention territorial fidelity for Bolivia and Ecuador, respectively; de Vries and his students have monitored territories at Antisana for several years and have also tracked birds throughout the year. However, at the southern extreme of its range in northern Chile, altitudinal movements occur that are linked to seasonal climatic changes (Jaksic *et al.*, 1991).

Breeding in Ecuador takes place in all months of the year with peaks in June/July, apparently related to fluctuations in populations of Cottontail Rabbits *Sylvilagus brasiliensis*, the most important prey species (Solís y Black, 1985). In 1987-88 on Antisana volcano, when an epidemic disease affected rabbit populations, eight pairs of Gurney's Buzzards did not breed, though they remained on their territories (Coello, 1997). During five years of observations on this volcano, Coello (1997) found that these rabbits comprised 83% of the prey biomass (37% in abundance) brought to four nests. These authors found the species breeding in polyandrous groups (up to three males with one female). In páramo the density of breeders appears to be related to the availability of suitable cliff nest sites, which might be a limiting factor that could lead to the formation of such polyandrous groups.

Ortiz-Crespo (1986) considered that agricultural practices and hunting are major threats to Ecuadorian raptors, including *B. poecilochrous*, and evidence exists of these buzzards being killed by rabbit hunters. Local people persecute buzzards, which prey on the chicks of their domestic poultry. Fortunately, many volcanoes such as Cotacachi, Cayambe, Antisana, Cotopaxi and Sangay lie within national parks and therefore *B. poecilochrous* is here protected by law and hunting is not

allowed. Urbanization may also affect the distribution of this buzzard, as the city of Quito has in recent years extended into Cumbayá and Cotacallao, from which we have no recent records.

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- Appendix 1.** A list of the sites where we consider *Buteo poeilo-chrous* to have been recorded on the basis of museum specimens examined, sightings by reliable observers and/or published records in the literature. Latitude and longitude, as well as the nature of the record(s), are given for each site; see also Fig. 1.
- Sites in Colombia:** vic. Túquerres, Nariño 00°59'N, 77°35'W, 1 spec. ICN 12502, Dec. 1961. Volcán Cumbal, Nariño 00°57'N, 77°52'W, field obs. Jul. 1991. Volcán Chiles, Nariño 00°52' N, 77°58'W, field obs. Jun. 1992.
- Sites in Ecuador:** Páramo de El Angel, Carchi 00°46'N, 77°56'W, field obs. May 2003, 2 specs. Tabacundo, near Laguna Mojanda 00°07'N, 78°16'W, field obs. Feb. 2003, 2 specs. Cayambe 00°01'N, 77°59'W, field obs. Feb. 2003, 3 specs. Cotacallao 00°06'S, 78°30'W (Lönnberg y Rendahl 1922), NRM 568644. Pichincha volcano 00°08'S, 78°36'W (Lönnberg y Rendahl 1922). Pichincha 00°09'S, 77°59'W, NMR 568643; 568648, 568651; 568602. Chaupicruz, Quito 00°11'S, 78°29'W (Lönnberg y Rendahl 1922). Chillogallo 00°15'S, 78°33'W (Lönnberg y Rendahl 1922). Paso de Papallacta, Sector la Virgen 00°16'S, 78°15'W, MECN-3517. Tumbaco 00°17'S, 78°27'W (Lönnberg y Rendahl 1922). Oyacachi-Cayambe, Reserva Cayambe-Coca 00°20'S, 78°12'W (Best *et al.* 1996), field obs. Feb 2003, 2 specs. Paschoa, Pichincha volcano 00°28'S, 78°29'W, field obs. Feb 2003, 1 spec. Antisana 00°29'S, 78°08'W, MCNM 091-092; ZMUC 23456, 23457, 23460, 23461, 23670; MCM 088 (Solis y Black 1985, Coello 1997). Corazón 00°31'S, 79°36'W (Chapman 1926). Cotopaxi, Peñas Blancas 00°36'S, 78°23'W, field obs. Mar. 2006, 2 specs. Cotopaxi 00°40'S, 78°25'W (Best *et al.* 1996); BMNH 1929.6.8; field obs. mar 2006, 3 specs. Pisayambo, Poalo 01°11'S, 78°41'W. MITB 193.A8; 193.A33; 193.A32. Yanayacu 01°25'S, 78°38'W type-locality (Gurney 1879, Cabot y de Vries 2005b). Chimborazo 01°27'S, 78°26'W (Chapman 1926); MCM 1129-1130. Tungurahua 01°28'S, 78°26'W (MITB): 199.A1, 193.A24.

*Mus. Cathedral Baños de Agua Santa* (1 mounted spec.). *Guamaní* 00°29'S, 78°15'W (BMNH 1938.12.20.158). *El Altar* 01°40'S, 78°25'W, field obs. May 2003, 1 spec. *Sangay* 01°57'S, 78°21'W, field obs. May 2003, 1 spec. *Parque Nacional Cajas* 02°48'S, 79°07'S, field obs. Mar 2006, 1 spec. *5 km E Paguancay Gualaceo–Limón road* 02°51'S, 78°33'W (Best *et al.* 1996). *Bestión* 03°01'S,

79°18'W (Chapman 1926). *Loja–Zamora* 03°59'S, 78°56'W (Rasmussen *et al.* 1994, Best *et al.* 1996). *Cajanuma* 04°06'S, 79°09'W (Rasmussen *et al.* 1994, Best *et al.* 1996). *Angashcola, Cordillera de Sabanillas* 04°21'S, 79°45'W (Best *et al.* 1996). *Cordillera Las Lagunillas* 04°47'S, 79°24'W (Best *et al.* 1996). *8 km E Amaluza* 04°36'S, 79°20'W, field obs. Mar 2006, 3 specs.



**Figure 1.** Sites in Ecuador where *Buteo poecilochrous* has been reliably recorded (map taken from Google Earth). Squares : specimen records ; circles : field observations ; diamonds : records from the literature (see text).