Presence of Giant Hummingbird *Patagona gigas* and Ecuadorian Hillstar *Oreotrochilus chimborazo jamesoni* at the Ecuador–Colombia border

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Nuevos avistamientos de *Patagona gigas* y *Oreotrochilus chimborazo jamesoni* en la frontera entre Ecuador y Colombia confirman la extensión del límite distribucional norte de estos colibríes en Ecuador. *P. gigas* puede estar extendiéndose hacia el norte conforme las quemas de páramo proveen habitat apropiado para plantas de *Puya*, su principal fuente de néctar, mientras estas quemas podrían estar aumentando el aislamiento de *O. chimborazo jamesoni* al confinar su fuente de néctar, la planta *Chuquiraga jussieui*, a mayores altitudes. *O. chimborazo jamesoni* probablemente ha escapado detección en el pasado en los extremos de su distribución.

Introduction

The distribution of Andean birds continues to be a topic of interest, since vast mountain areas remain to be explored in detail and sight records by reliable observers have become increasingly important *in lieu* of specimens. The roughly linear north–south alignment of the Andes has created habitat corridors shaping bird distributions, where it is relatively easy to pinpoint latitudinal gaps and overlap areas. This report focuses on the range limits of two high Andean trochilids: Giant Hummingbird *Patagona gigas* and Ecuadorian or Chimborazo Hillstar *Oreotrochilus chimborazo jamesoni*—listed as *O. estella chimborazo* by some authors.

Known ranges

A distributional map based on museum specimens demonstrates that *P. gigas* ranges south along a narrow band from Hacienda Caspigasí at 00°01'N 78°29'W, c.110 km south-west of the Ecuador–Colombia border to Chile[3]. For *O. chimborazo jamesoni*, the northernmost museum specimens have been collected on Mount Pichincha (00°10'S 78°33'W, c.130 km south-west of Colombia, while other *Oreotrochilus* populations are documented by specimens from this locality south as far as south-central Chile, again along a narrow altitudinal belt[4]. Fig. 1 shows the northernmost specimen locality for each species in Ecuador.

Sight records expand the known range of both these species northwards. Thus, *P. gigas* has been sighted at Lake Cuicocha, 70 km south-west of the Ecuador–Colombia border at 00°18'N 78°22'W, while *O. chimborazo jamesoni* has been observed at Río Pantavi near Mount Cotacachi at 00°28'N 78°21'W, 75 km north-east of Mt. Pichincha. The distribution of these birds still further north, in extreme north Ecuador and south Colombia, has been sketchily substantiated and thus the precise northern limits of these hummingbirds' ranges remain undetermined, principally because few researchers have made detailed observations on the upper Andean slopes, where both species occur.

Both species tend to be found at higher elevations in the north of their ranges. The northern subspecies of Giant Hummingbird *P. g. peruviana* regularly reaches páramo and puna habitats in Ecuador and Peru at 3,500–4,000 m, while the southern *P. g. gigas* occurs seasonally to below 2,000 m in central Chile and adjacent Argentina. The various populations of *Oreotrochilus* hillstars show a similar pattern, being strictly restricted to the uppermost vegetational belt at 3,500–4,900 m in the Ecuadorian Andes, but occurring seasonally to 2,400 m in Peru or to sea-level in north Chile[2].

P. gigas was sighted in Colombia at Laguna Chingaza (3,250 m, 04°32'N 73°45'W) on 10 October 1981, and 10 km further north, at Chuza (3,050 m, 04°37'N 73°43'W) on 9–13 March 1981[1]. These records appear doubtful, however, in that the field marks of the birds seen were rather atypical and because the sightings occurred far away from the documented range of the species (J. Fjeldså pers. comm.). Sightings of *P. gigas* at Hosteria Mayasquer, Rumihaca (00°54'N 77°33'W), at 2,900 m, in 1991, 1994, 1996 and 1998 represent the first confirmed Colombian records and include one photographed in 1996 (see Salaman & Mazariegos, pages XX–XX this issue).

There have been very few reported sightings of Ecuadorian Hillstar in Colombia. Salaman[9] (see also *Cotinga* 2: 27) describes sightings, and the capture and photographing of a male and female in July 1991 at 3,550 m on the Colombian slopes of Volcán Chiles (0°52'N 77°58'W), a few km north of the Ecuadorian border. The species was recorded as "uncommon" with 2–10 records made over 108 man-days fieldwork at this site.

New records from the Ecuador–Colombia Border

Recent observations during a University of Plymouth ecological study of Volcán Chiles, on the Ecuador–Colombia border, assist in clarifying the distribution of these two hummingbirds. Research was

undertaken on the south-west (Ecuadorian) side of Volcán Chiles, 1 km south of the border at 00°57'N 77°48'W. This locality is so little-known ornithologically as not to be included in Ecuador's standard gazetteer[5], but access is now relatively easy from points along the Tulcán–Tufiño–Maldonado road. Localities on the Colombian side of the mountain have been visited by several collectors[6,9].

Ecological studies concerned the interactions between páramo hummingbirds and their food plants beside the Quebrada Piedra Negra at c.3,600 m (Fig. 2). The study area consisted of a steep-sided valley containing a high density of *Puya hamata*, a terrestrial bromeliad and important hummingbird foodplant. Co-dominant with the giant rosettes of *Puya* were grass tussocks of *Calamagrostis intermedia*, with shrubs and climbing plants of various species including nectar-yielding species such as *Brachyotum alpinum* (Melastomataceae) and *Bomarea caldasii* (Amaryllidaceae). There were also occasional stem rosettes of *Espeletia pycnophylla angelensis*, another giant rosette plant, which dominated the surrounding hillsides' vegetation.

During this study, observations were made from 26 July–13 August 1997. Hummingbird identifications were made with reference to published field marks and calls. Eight species of hummingbird were seen in the study area: Shining Sunbeam *Aglaectis cupripennis*, Glowing Puffleg *Eriocnemis vestitus*, Golden-breasted Puffleg *Eriocnemis mosquera*, Great Saphirewing *Pterophanes cyanopterus*, Rainbow-bearded Thornbill *Chalcostigma herrani*, Black-tailed Trainbearer *Lesbia victoriae* and, most interestingly, *P. gigas* and *O. chimborazo jamesoni*.

P. gigas was sighted on 18 occasions, some at very close quarters (less than 2 m away). The birds displayed some territorial activity: perching, calling and chasing—with up to three birds involved in some chases. Their feeding activity was restricted by *Aglaectis cupripennis*, the dominant hummingbird in the study area, which, despite its relatively small size, did not tolerate *P. gigas* near its own favoured *Puya* inflorescences.

O. chimborazo jamesoni was observed in the study area on three occasions (26 July, 1 and 9 August 1997), with one sighting at a distance of less than 2 m. Each time, the birds perched briefly on *Puya* inflorescences and the branches of *Brachyotum alpinum*. The species' only known nectar source—*Chuquiraga jussieui*—was not present in the study area, but was found in several isolated locations less than 300 m away. That each of the sightings was brief and that the birds were never observed feeding in the study area suggests that they were moving between feeding areas containing *Chuquiraga*. This may also explain the small number of sightings during the 19-day period.

Discussion

These records represent a north-eastwards range extension of c.70 km for *P. gigas*, underpins Salaman's[9] range extension of c.60 km for *O. chimborazo jamesoni*, and indicates that the northernmost limits of these hummingbirds' ranges had not been well established until recently. Alternatively, their ranges could be expanding north.

Such expansions could be linked to páramo burning, which is becoming more frequent in Ecuador as farmers set fires to encourage the regrowth of young nutritious grass shoots. Such fires tend to increase the extent of páramo habitat, especially at altitudes below 3,600 m. Burning is also known to alter the community composition of existing páramo vegetation, in a manner related in part to the growth form of the plants[7]. For example, as burning becomes more frequent, the abundance of tussock grasses would be expected to increase at the expense of shrubs, such as *Chuquiraga jussieui*. In contrast, basal rosettes, such as *Puya hamata* (where the outer leaves insulate inner buds from fire temperatures), are destroyed much less frequently than shrubs by low- intensity fires[8], which are common in the páramos around Volcán Chiles.

Since *P. gigas* is known to be especially fond of *Puya* flowers throughout its latitudinal range, increased fire frequency should increase the extent of suitable habitat for *Puya* without destroying existing plants. However, this would not explain a range expansion without the appearance of significant patches of new páramo habitat in places where it was previously unavailable—either as habitats in their own right, or as "stepping stones" to larger páramos further north. There is no direct evidence that burning has produced such patches in recent times, although it is possible that the downslope extension of páramo may have facilitated hummingbird movements. An expansion of the range of *P. gigas* in this way may have been helped by the introduction of the Century Plant *Agave americana* (Agavaceae), a Mexican giant rosette species with a single nectar-producing inflorescence akin to *Puya*. It grows at lower altitudes, associated with agricultural field boundaries, and may provide an additional nectar source for birds outside their usual páramo habitat[3].

On the other hand, it seems unlikely that agricultural burning has increased the range of *O. chimborazo jamesoni*. Burning would be expected to decrease the abundance of its principal, perhaps only, food plant: *Chuquiraga jussieui*. Certainly *Chuquiraga* is most abundant where burning is less common and thus an increased frequency of burning would tend to increase isolation for *O. chimborazo jamesoni*, and make migration between páramos more difficult. A more likely explanation for the new record is that the low density of its foodplant on Volcán Chiles limits the number of Ecuadorian Hillstar, and such a small population might easily have been overlooked in the past.

O. chimborazo jamesoni has now been confirmed in Colombia[9], and it seems likely that *P. gigas* is also part

of that country's avifauna. These observations mirror the recent acquisition by the Museo Ecuatoriano de Ciencias Naturales of an Andean Hillstar (*Oreotrochilus estella* aff. *stolzmanni*) from near the Ecuador–Peru border (F. Sornoza pers. comm.), well beyond its previous northern limit in Cajamarca and Huanuco in the Peruvian Andes. Distributional gaps in bird distributions near political borders are more likely to reflect ornithological effort than the real distributions of birds.

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