

A blue throat out of the blue

Juan Freile

At Neotropical Birding we *have always taken pride in celebrating those who go off the beaten track in search of the novel. The managing editor of our sister journal Cotinga explains what it meant to him to be involved in unveiling a bird new to science – a stunning Ecuadorian hummingbird, no less.*

In my early years in ornithology, while studying the impossible antpittas, I fantasised about discovering a new species in the classical

way: seeing, capturing, photographing and tape-recording something undeniably unknown. Once, I even sketched one while listening to an



All photographs of Blue-throated Hillstar *Oreotrochilus cyanoaemus* were taken at Cerro de Arcos, Loja/El Oro, Ecuador.

1 Male Blue-throated Hillstar *Oreotrochilus cyanoaemus* showing its unique and very distinctive throat patch. March 2019 (Roger Ahlman; pbase.com/ahlman).

'inspiring' lecture on plant physiology. It was meant to have a black mask, chestnut crown and dull greyish underparts with faint barring. I was going to name it Black-masked Antpitta *Grallaria nigrocincta*. Afterwards, the dream expanded into leaf-tossers, piculets, spinetails, antwrens, pygmy-owls and other 'little brown jobs' that may have gone undetected due to their skulking nature and cryptic plumage.

I never did much to make this fantasy come true, I have to confess. Not many expeditions to remote areas in my country, Ecuador; no protracted field seasons at poorly known sites. I did not join any international expedition to unexplored places abroad. Admittedly, my fantasy was that of a youngster. Soon it vanished – along with other rather superfluous elements of my ornithological personality. Not long ago, however, it was resuscitated while I was revising

and updating the list of birds of Ecuador (Freile *et al.* 2018a). The resurgence started with the controversial and still-unresolved case of the 'San Isidro' Owl *Ciccaba* sp., when Mitch Lysinger found a freshly dead individual and invited me to lead a study to 'resolve' its taxonomic status. We are still strolling inside that black-and-white maze...

Meanwhile, regular information exchange and discussions with top experts such as Niels Krabbe, the late Paul Coopmans, Robert Ridgely, Tom Schulenberg, Elisa Bonaccorso, Paul Greenfield, Jonas Nilsson, Alejandro Solano, Mark Robbins, Dušan Brinkhuizen and José María Loaiza, along with a thorough study of volume 1 of the *Birds of Ecuador* (Ridgely & Greenfield 2001), plus Chapman's (1926) monograph on the birds of Ecuador and the superb *Birds of the high Andes* (Fjeldså & Krabbe 1991), resulted in a list of



Male Blue-throated Hillstar *Oreotrochilus cyanolaemus*, 2 October 2018 (Dušan M. Brinkhuizen/[📷] sapayoa.com).

Habitat at the type locality (Cerro de Arcos/El Oro, Loja, Ecuador) faces many threats, including overgrazing and exotic conifer plantations (3 May 2017, Francisco Sornoza-Molina; 4 October 2018, Dušan M. Brinkhuizen/[📷] sapayoa.com).

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unsolved taxonomic cases. In a well-explored country like Ecuador, brand new discoveries like those recently made in neighbouring Colombia or Peru (e.g. O'Neill *et al.* 2000, Lara *et al.* 2012) seemed to have ended with Jocotoco Antpitta *Grallaria ridgelyi* (Krabbe *et al.* 1999) and Foothill Elaenia *Myiopagis olallai* (Coopmans & Krabbe 2001). Following up taxa on the list of unsolved cases was likely the only way to put a name onto a new bird.

Our first attempt 'failed'. We made a brief expedition to Puná Island, off Guayas province, seeking Streaked Saltator *Saltator striatipectus*, which had been suggested as a potentially unnamed taxon (Chapman 1926, Ridgely & Greenfield 2001). We discovered, as expected, that saltators on this island belong to the same subspecies that occurs in the nearby mainland (Freile *et al.* 2018b). With one case solved, it was on to the next...

By mid-April 2017, Elisa Bonaccorso and I had planned a field expedition to a 'secret' spot where at least three controversial cases overlap (along with a fourth one that is already being handled bravely by Manuel Sánchez-Nivicela and Elisa). The budget was ready, research permits were arranged, dates were roughly defined and the field team was set. Nonetheless, a single WhatsApp message challenged these best-laid plans.

What on earth is that?

In late April, Francisco ('Pancho') Sornoza shared a photo of an immature male hillstar that he had taken in páramo at the summit of Cerro de Arcos (3,680 m elevation) in El Oro province (albeit adjacent to the Loja border), southwest Ecuador. Pancho tentatively identified the bird as Ecuadorian Hillstar *Oreotrochilus chimborazo*, which is understandable given that the nearest population

(subspecies *jamesoni*) occurs only 40 km north in the Cajas massif. However, its plumage did not fit this near-endemic hummingbird, at least not in the view of several of us.

Pancho was strong-willed enough to go back to the chilly and distant páramo to try and relocate the bird. And he succeeded! A week later, images of a stunning adult male agitated our Ecuador Birders' chat. It certainly wasn't Ecuadorian Hillstar. But what on earth was it? Perhaps it was an isolated population of Andean (Green-headed) Hillstar *O. (estella) stolzmanni*, which occurs just c.115 km south of Cerro de Arcos? A hybrid or an intermediate between Ecuadorian and Andean (Green-headed) hillstars? No... this was a new, undescribed and utterly beautiful hummingbird. Our plans simply had to change.

Believe it or not, the stars gathered in alignment for us. We already had logistics, budget and research permits arranged for an expedition. Second, our planned destination was only about 40 km west of Cerro de Arcos, in the Andean foothills. It wouldn't take much to shift direction. Third, we had relevant expertise as Elisa had been studying *Oreotrochilus* hillstars for a while (see, e.g., Rodríguez-Saltos & Bonaccorso 2016). Fourth, the field team for the foothill expedition already included Pancho, Elisa, a couple of others and me. So, it was straightforward to switch tack. Those foothill novelties would have to be postponed. By 20 May, Pancho, Jonas Nilsson and I were heading to Cerro de Arcos after the purported new hummingbird.

Realising the dream

Can there have been an easier way to discover a new species? On 22 May, barely one hour after arriving at Cerro de Arcos, Pancho and I were gazing at a superb male – possibly the same



individual that he had photographed earlier. Next day, we set up mist-nets and wandered around trying to observe as much of the hummingbird's behaviour as possible.

Jonas was feeling sick, but was not going to give up, at least not without a glimpse of the new hummingbird. Nets were up, the wind was light and the temperature mild (unusual in the chilly Andean *páramo*). Pancho descended

to a creek where he saw the first female. Jonas was stubbornly lying down, stomach aching, in front of a *Chuquiraga* shrub – a genus of aster, with spindly stems culminating in a fiery orange inflorescence, known to be the favourite plant of existing *Oreotrochilus*. His audio recorder was on, his sharp eyes were inspecting the *Chuquiraga* and surroundings, and he was gathering the first behavioural data for the hummingbird.

About 10h00, I checked our six mist-nets. They contained six birds: two Streak-backed Canastero *Asthenes wyatti*, and single Black Flowerpiercer *Diglossa humeralis*, Plumbeous Sierra-Finch *Phrygilus unicolor*, Brown-backed Chat-Tyrant *Ochthoeca fumicolor* and Viridian Metaltail *Metallura williami*. So far, so good. Jonas peered at me inquisitively. Pancho was out of sight. I was heading back to our ringing station when a male hillstar dashed a few metres in front of me, hit the net once, bounced back, hit it again and, this time, got tangled. I carefully extracted it. I was staring at a new species for science – in my hand!



5 *Chuquiraga* scrub favoured by Blue-throated Hillstar *Oreotrochilus cyanolaemus* (Dušan M. Brinkhuizen/🐦 sapayoa.com).

6 Male Blue-throated Hillstar *Oreotrochilus cyanolaemus*, May 2017 (Francisco Sornoza-Molina). The upperparts are bluer-green than other *Oreotrochilus* taxa.

A couple more days in the field enabled us to gather much information on the putative new species's natural history, habitat, feeding plants and ecological interactions, and to get the first recordings of its voice. We knew nearly nothing about the hillstar's population size, detailed habitat requirements and current status, so exploring the area further was essential. Pancho and Jonas went back to the field in June and July 2017. They found four new localities for the hillstar and made further natural-history observations. Two months after our initial exploration, we had learned as much as we could about the new hummingbird and had collected the species so it could be described in accordance with scientific protocol (Collar 2000).

Making it real

By October 2017, we had placed the new hummingbird into a phylogenetic tree with most *Oreotrochilus* taxa and had drafted the type description. To the honour of our team, Niels

Krabbe joined our efforts, obtained a good audio recording in April 2018, and compared the new hummingbird's voice with that of other hillstars. It took us a few additional months to analyse all the information, write a proper description, and manage the publication process. But 15 months after the first photographs were taken – not long compared to many type descriptions! – the Blue-throated Hillstar *O. cyanolaemus* was formally described (Sornoza-Molina *et al.* 2018).

So what of this lovely new species? Blue-throated Hillstar occurs along a very narrow and short Andean ridge, namely the Chilla–Tioloma–Fierro Urcu range, which lies directly south and west of the Jubones drainage basin and north of the Catamayo equivalent. This isolated mountain range lies just a few kilometres north of the North Peru Low, the lowest depression of the Andes, which is a well-known distribution/speciation barrier for Andean birds (Winger & Bates 2015).

To date, Blue-throated Hillstar has been recorded from five localities at 3,325–3,680 m elevation. Ecologically, it is apparently very similar



7 7 Male Blue-throated Hillstar *Oreotrochilus cyanolaemus*, May 2017 (Francisco Sornoza-Molina) – at its favourite feeding plant, *Chuquiraga jussieui*.

VISITING CERRO DE ARCOS

Cerro de Arcos is about four hours' drive from Cuenca, and three from Loja and Santa Rosa (the three nearest airports). From Saraguro (84.5 km south of Cuenca, 45 km north of Loja), take the road west that passes through Celén after 29 km. From Celén, drive 39 km further west; a signpost on the right indicates the dirt road (accessible by 4WD only) to Cerro de Arcos. Alternatively, if travelling from Santa Rosa and Piñas, take the road east to Saracay and Sabadel. The same signpost, but on the left side, is located 1 km beyond (east of) Sabadel. Three km along the dirt track, you reach a small cottage. Park here.

From the cottage, the best site for Blue-throated Hillstar is only a 15-minute walk uphill. Either walk 200 m uphill from a signpost marked 'Refugio Cerro de Arcos' or take the road that climbs up to the summit of Cerro de Arcos for 100–200 m. This road runs parallel to a small ridge; walk five minutes up to the ridge and continue down the next valley to a shrubby patch and small pockets of *Chuquiraga*. Another good spot is right at the entrance to the summit – locally known as the 'geological area'. There is little *Chuquiraga* here, but the hillstar might be seen flying up and down to *Macleania* shrubs adjacent to rocky outcrops.

As an alternative to day-tripping Cerro de Arcos, one option is to stay at the cottage, which can house up to 12 guests (\$15–20 per day, including food). The cottage is owned by Asociación Matto Grosso (contact Franzo Teruzzi ☎ +593 980701679 or Bernardino Loja ☎ +593 980349678; ✉ refugiodearcos@gmail.com).

to most *Oreotrochilus* hillstars, being highly associated with stands and pockets of *Chuquiraga* shrubs. Even though we observed the species feeding on two additional plants – indeed, the initial immature male was clinging to a cluster of *Macleania rupestris* flowers – most feeding visits were to *Chuquiraga*. The close link between *Oreotrochilus* hillstars and the fiery orange flowers of this aster has long intrigued ornithologists (e.g. Corley-Smith 1969, Carpenter 1976, Ortiz-Crespo & Bleiweiss 1982), who have failed to provide conclusive explanations.

Similarly intriguing is the fact that Blue-throated Hillstar remained undetected in a broad area that was visited by both early expeditioners (e.g. to neighbouring localities like Chilla or Taraguacochoa; Chapman 1926, Paynter 1993) and recent researchers (Garzón *et al.* 2015). Our best guesstimate puts the species's total population in the range of 250–750 mature individuals, though we might be underestimating it (Collar 2000). A



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For comparison with male Blue-throated Hillstar *Oreotrochilus cyanolaemus*: **8** Male Andean (Green-headed) Hillstar *O. (estella) stolzmanni*, Parque Nacional Yacuri, Loja, Ecuador, June 2018 (Roger Ahlman; ☞ pbase.com/ahlman); and **9** male Ecuadorian Hillstar *O. chimborazo jamesoni*, Antisanilla, Napo, Ecuador, March 2016 (Francisco Sornoza-Molina). The latter subspecies's range approaches to within 40 km of Cerro de Arcos.

small population with a very limited distributional range might partially explain its late discovery, but the overall paucity of ornithological attention given to this general area plays a role too.

Conservation

As expected, and to everyone's regret, such a tiny and wholly unprotected population in an area of increasingly degraded habitat, is likely approaching the edge of extinction. As suggested in the species description (Sornoza-Molina *et al.* 2018), it might be regarded as Critically Endangered. Intentional burning of *páramo* vegetation is a major threat, along with agricultural expansion, cattle raising, conifer plantations, and prospective mining for metals (mostly gold). Given the size of the species's range, the small amount of suitable habitat left – which is likely fragmented as well – any major transformation to its preferred habitat is a major threat. A single strong fire might obliterate an entire population. Overexploitation of *Chuquiraga*

EDITOR'S NOTE

For South American birds, *Neotropical Birding* follows the taxonomy and nomenclature of the South American Classification Committee (SACC). As we go to press, SACC has not reached a decision on whether to afford Blue-throated Hillstar *Oreotrochilus cyanolaemus* the status of a full species – but that in no way detracts from the thrill of the encounter, as related by Juan Freile.

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conservation needs of Blue-throated Hillstar, its habitat and, indeed, the entire mountain range. Currently, a proposal to create a 28,300 ha Water Protection Area is underway, with the World Land Trust having raised £70,000 (\$93,000) in just two weeks to help Ecuadorian charity Naturaleza y Cultura Internacional in this initiative. Happily, this proposal has been well received by local authorities, landholders and communities, who favour such protection because water is the region's most valued resource.

One-and-a-half years after discovering a new hummingbird, things have settled down a bit. Even media attention has faded away. Conservation initiatives are emerging: birders, conservationists and the like are increasingly visiting Cerro de Arcos; a nest has been discovered by Ecuadorian birders Agustín Carrasco and Paúl Molina (and is currently being studied); and further research on the species's ecology is planned.

Meanwhile, we are getting things sorted to go back into the field. This year we will turn our attention to the expedition we were about to undertake until Pancho's face-to-face encounter changed our plans so comprehensively. So please stay in the loop. We might have some more exciting news soon...

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might deplete the species's major food source in any of the five currently known localities, which could result in local extinctions in the short term at least. If proposals for open-pit mining in Chilla–Tioloma–Fierro Urcu are enacted, this might erase more than one locality in the 'blink of an eye'.

Fortunately, conservation efforts are starting to emerge to resist the frontier of extinction. A local organisation bearing the curious name of Asociación Matto Grosso and associated to Catholic Church was already doing some conservation work at Cerro de Arcos at the time of our discovery, without even knowing that Blue-throated Hillstar existed. The Asociación has built a comfy cottage where we rested after getting our first glimpses of the hummingbird. It has a small-scale restoration project and a nature-oriented, community-based tourism offering.

Subsequently, some national and local conservation agencies and local government authorities have started to address the urgent

It's not just the males that look different. **10** Female Blue-throated Hillstar *Oreotrochilus cyanolaemus*, Cerro de Arcos, Loja/El Oro, Ecuador, May 2017 (Francisco Sornoza-Molina). **11** Female Andean (Green-headed) Hillstar *O. (estella) stolzmanni*, Parque Nacional Yacuri, Loja, Ecuador, October 2018 (Francisco Sornoza-Molina). Note Blue-throated's dusky chin compared to the whitish chin of Andean (Green-headed).



12 Illustration of Blue-throated Hillstar *Oreotrochilus cyanolaemus* that accompanied the type description on page 1152 of Sornoza-Molina *et al.* (2018) in the *The Auk: Ornithological Advances* 135: 1146–71 (by Paul Greenfield, reproduced with kind permission of the American Ornithological Society and Oxford Academic).

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