

Aves, Thraupidae, Indigo Flowerpiercer *Diglossa indigotica* (Sclater, 1856): New country records, natural history notes, and occurrence in northwest Ecuador

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ABSTRACT: Only old records of the Indigo Flowerpiercer *Diglossa indigotica* are known from Pichincha province, Ecuador. Here we report 26 sight records of this rare species at a new locality, the Bosque Protector Mashpi. These novel records confirm that the species is resident, and represent the first evidence of breeding in the country. The species seems to have a habitat preference for patches of short Ericaceous growth, but occurs locally in mossy cloud forest, typically found in low densities. Adults sang throughout the year, usually from canopy but also from inside short Ericaceous growth. The discovery of this site poses a great opportunity to further studies of this little known Choco endemic species.

The Indigo Flowerpiercer *Diglossa indigotica* (Sclater, 1856) is found locally along the Pacific slope of the Andes from Central Colombia south to Northwest Ecuador. Its altitudinal range is reported from 700 to 2200 m (Hilty and Brown 1986), but it is mostly found along a narrow belt from 1000 to 1600 m (Ridgely and Tudor 2009). The species is endemic to the Chocó bioregion with a restricted range within the Chocó Endemic Bird Area (hereafter EBA) (Stattersfield *et al.* 1998).

Globally, the species is not considered at risk as it has been evaluated as Least Concern on the IUCN Red List (BirdLife International 2010). In Ecuador, *D. indigotica* is considered very rare to rare, but locally common in canopy and borders of subtropical forests, especially in very wet forests with high loads of moss and epiphytic growth (Ridgely and Greenfield 2001; 2006).

There are very few records of this species in Ecuador, with the most recent being from the far northwest region of the country, in the provinces of Carchi and Esmeraldas (Ridgely and Greenfield 2001; Jahn and Mena Valenzuela 2006). Old records in the mid-1800s and early 1900s are known from the province of Pichincha near Nanegal and Canzacota (Chapman 1926). A sighting of a single bird at Buenaventura in the province of El Oro in southern Ecuador requires further confirmation (Ridgely and Greenfield 2001; 2006). Given the paucity of records, it was evaluated at a national scale as Vulnerable (Granizo 2002). Here we provide new records of *D. indigotica* in the province of Pichincha with notes on its natural history and occurrence.

Observations were made opportunistically at the edge of Bosque Protector Mashpi (hereafter Mashpi) in lower subtropical forest along the La Delicia-Guayabillas road (ca.1400 m above sea level, 00°09'15" N, 78°50'21" W), parroquia Pacto, Pichincha province, Ecuador. We obtained a total of 26 sight records (Table 1), collected

from December 2008 to May 2011 while conducting bird surveys and leading birding groups to the area.

The species was first recorded on 03 December 2008 by AS-U who observed one individual along La Delicia-Guayabillas road near the entrance road to Mashpi at ca. 6 km west of La Delicia village. The observation time lasted for near 5 min, and the bird was seen taking a berry from a *Disterigma* sp. (Ericaceae) epiphyte growing in the mid-story of cloud forest, while loosely associated with a flocking group of Dusky Bush-Tanagers *Chlorospingus semifuscus* (Sclater and Salvin, 1873) and a pair of the Three-striped Warbler *Basileuterus tristriatus* (Tschudi, 1844). After the discovery of the species at this locality we have made a series of subsequent observations during different months throughout the years of 2008 to 2011, confirming the species' residence in the area (see Table 1 for a summary of all records).



FIGURE 1. Juvenile *Diglossa indigotica*, with subdue coloration and gray-brown iris at Mashpi forest, Pichincha province, Ecuador. Photo by Dušan M. Brinkhuizen.

TABLE 1. New records of *Diglossa indigotica* in Ecuador, with information on date, locality, habitat, number and age of individuals, observers, and additional notes. Observers: A = Alejandro Solano-Ugalde; D = Dušan M. Brinkhuizen. Location: A = Quarry at turn-off to Mashpi along the La Delicia-Guayabillas road; B = ca. 1 km before quarry along the La Delicia-Guayabillas road; C = ca. 2 km beyond quarry along the La Delicia-Guayabillas road; D = ca. 2 km from quarry towards the Mashpi reserve. Habitat: seg = short Ericaceous growth; tcf = taller cloud forest. Number and age: ad = adult; juv = juvenile.

DATE	OBSERVERS	LOCATION	HABITAT	NUMBER AND AGE	NOTES
08 Dec 2008	A	A	seg	1 ad	Partly joining mixed-species flock
24 Feb 2009	A	A	seg	2 ad	Singing vigorously
07 Mar 2009	A	A	seg	1 ad	Heard only
15 Apr 2009	A	C	seg	1 ad	Robbing flowers, hunting insects
17 Jun 2009	A	C	seg	2 ad	Robbing flowers, hunting insects
26 Jul 2009	D	C	seg	2 ad, 1 juv	Singing, robbing flowers, photographed
27 Jul 2009	A	B	seg	2 ad	Silent, briefly observed
09 Aug 2009	D	A	seg	1 ad	Singing, robbing flowers, photographed
11 Nov 2009	A	A	seg	2 ad	Singing, chasing each other
10 Dec 2009	D	A, D	seg, tcf	2 ad	One singing and robbing flowers in A. Other in D, in mixed-species flock in mid-story
23 Dec 2009	A	B	seg	1 ad	Very shy, carrying nesting material
26 Jan 2010	D	A	seg	2 ad	Singing, robbing flowers, sound recorded
22 Mar 2010	D	A	seg	1 ad	Robbing flowers
14 Jun 2010	D	A	seg	1 ad	Secretive behavior, possibly nesting
03 Jul 2010	D	A	seg	1 ad	Robbing flowers
18 Jul 2010	A	C	seg	2 ad	Vocalizing spontaneously in Ericaceous growth
12 Aug 2010	D	A	seg	2 ad	Singing from canopy
13 Sep 2010	A	A	seg	1 ad	Robbing flowers
29 Oct 2010	D	A	seg	1 ad	Singing from canopy
13 Nov 2010	A	A	seg	2 ad	Counter singing
11 Dec 2010	A	A	seg	1 ad	Singing vigorously
26 Jan 2011	D	A	seg	1 ad	Singing from canopy
21 Feb 2011	D	A	seg, tcf	1 ad, 2 ad	Carrying food item, pair moving through forest canopy, photographed
06 Mar 2011	D	A	seg	2 ad	Singing from canopy, secretive behavior in Ericaceous growth, possibly nesting
15 Apr 2011	A	A	seg	1 ad	Robbing flowers
21 May 2011	A	A	seg	2 ad	Counter singing from short Ericaceous growth

Noteworthy observations regarding the natural history of the species include: (1) on 26 July 2009 an immature bird was seen and photographed (Figure 1). Its plumage showed rather dull, being grayish rather than deep blue on breast and flanks, and showing brownish irises instead of bright red ones like in adults (Hilty and Brown 1986; Ridgely and Greenfield 2001), (2) on 23 December 2009 an adult bird was observed carrying nesting material (green colored moss) in dense short Ericaceous growth and (3) on 21 February 2011 an adult was seen carrying an insect larvae in its beak (Figure 2). The latter moved steadily through the short-growth with the food item and disappeared out of view into dense vegetation.

Additionally, on 06 March 2011, a pair of adults was seen at a presumed nest site. The birds were moving low above the ground inside a very dense bush for ca. 10 min. The bush was located on a steep hillside surrounded by short Ericaceous growth. Giving the nature of the area a nest could not be detected. To our knowledge these observations represent the first evidence of breeding for the species in Ecuador (Ridgely and Tudor 2009; Greeney *et al.* 2010). Apart from nest building reported in June in the upper Anchicayá valley, Colombia, very little is known regarding the breeding biology of this species (Hilty and Brown 1986).

Singing birds, presumably only males, were recorded a number of times throughout the year (see Table 1). Song was usually carried out from the canopy of taller forest near short Ericaceous growth and often lasted for prolonged periods of time. One individual was seen using the same song post in a tree top (> 12 m) on several visits. Song was also recorded from individuals perched in short-growth but usually did not extended for long. Birds moving through short-growth habitat typically produced very fine, high pitched contact calls. In terms of habitat use, the bulk of our observations show that *D. indigotica* seems to be noticeably associated with short Ericaceous growth found on steep hillsides where natural or man-made landslides have occurred. Additional observations done by AS-U at Alto Galápagos, Department of Chocó, Colombia (1900 m, 04°49' N, 76°12' W) in May 2009 and March 2010 support this finding. At the latter site, individuals of *D. indigotica* were commonly seen robbing nectar from flowering plants in this high species-rich habitat. Based on our observations herein summarized, the species appears to occur locally at low densities, with groups having three or less birds.

The species was not known to occur in any of Ecuador's governmental protected areas (Granizo 2002). However, it was recently found in parts of the Cotacachi-Cayapas Ecological Reserve (Jahn and Mena-Valenzuela 2006). The

species remains to be found in the Awá Reserve and as far as we know has not been reported from other protected areas. *Diglossa indigotica* is probably overlooked to some extent but might be a habitat specialist (at least during part of its life cycle), favoring short Ericaceous growth in borders of very wet and mossy cloud-forest throughout the year. Certainly, more data is needed for a better understanding of its status, natural history, ecology, population dynamics and conservation.

Giving the proximity of Bosque Protector Mashpi to Quito, and the fact that Mashpi probably is the most easily accessible area where the species is found year round, we suggest that further studies should be carried at this new locality, especially to determine to what extent the species is a habitat specialist. The results of such work could further improve our view of its current conservation status and if truly a habitat specialist its area of occupancy should be re-evaluated and consequently its status of threatened species. The same holds for many other poorly known bird species from the Chocó EBA found in the area. The Choco EBA has a critical conservation priority (Freile and Santander 2005). Local conservation groups and members of the nearby communities have suggested that Mashpi be the core area or part of a new Important Bird Area in Ecuador, that with the aim of providing and supporting the conservation and appropriate land management of the region.



FIGURE 2. Adult *Diglossa indigotica* found singing and robbing flowers in the immediate surroundings of Mashpi forest, Pichincha province, Ecuador. Photo by Dušan M. Brinkhuizen.

ACKNOWLEDGMENTS: We would like to thank the continuing support of the Yanayacu Natural History Research Group, the Fundación Imaymana staff, and all of those involved in logistics as well as the participants of the many tours led by us. AS-U is in debt to AAT for companionship and support. Thank you to Dárius P. Tubelis, Juan Freile, and the editorial board of Check List for providing helpful comments which greatly improved the final version of this manuscript.

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RECEIVED: July 2011

ACCEPTED: December 2011

PUBLISHED ONLINE: May 2012

EDITORIAL RESPONSIBILITY: Dárius P. Tubelis