

## Novel song types among Mexican and Colombian populations of Strong-billed Woodcreeper *Xiphocolaptes promeropirhynchus*

Daniel F. Lane

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Presento datos de unos cantos de dos poblaciones (Oaxaca, Mexico, y la Cordillera Central de Colombia) del trepetronco *Xiphocolaptes promeropirhynchus* que son distintos de los mas 'típicos' de la especie. Espero que esta nueva información sea útil para promover una investigación de la sistimatica de la especie.

Strong-billed Woodcreeper *Xiphocolaptes promeropirhynchus* comprises c.25 presently recognised taxa ranging from the mountains of central Mexico south to the subtropical Andes and Amazonian tributaries of Bolivia<sup>7,9</sup>. The complex exhibits some vocal variation and several authorities have suggested that the species requires taxonomic reassessment<sup>7,10</sup> (P. Coopmans pers. comm.), although none has been conducted to date. The variation in songs that has concerned field ornithologists relates primarily to subtle differences between Andean and Amazonian populations<sup>6,10,13</sup>. However, two populations within Strong-billed Woodcreeper have very different song types from that 'typical' of the species, as outlined below.

Publications on Mexican birds have assumed that the voice of all populations of Strong-billed Woodcreeper in that country is similar to populations further south<sup>3,4</sup>. Birds south and east of the Isthmus of Tehuantepec (e.g., Chiapas, Fig. 1), subspecies *X. p. emigrans* (described from Vera Paz, Guatemala<sup>9</sup>), do sound similar to those from the Andes (e.g., Fig. 2). This 'typical' song type consists of an evenly paced series of note pairs given at a nearly even frequency. However, at least some birds from north and west of the isthmus sound very different. On 23 January and 26 February 2007, I recorded a strikingly distinct vocalisation from Strong-billed Woodcreepers at Cerro San Felipe, Oaxaca, Mexico (17°11'N 96°38'W; 2,900 m): a rapidly paced, slightly descending series with virtually no audible spaces between notes (Figs. 3–5; catalogue nos. XC65754, XC65755 at www.xeno-canto.org). Other field observers, including C. Benesh, J. Gordon and S. N. G. Howell (pers. comm.), successfully observed the species at this site using my recordings as playback.

On 18 March 2007, also on Cerro San Felipe, S. N. G. Howell observed a Strong-billed Woodcreeper that showed no interest in playback of vocalisations from Belize or Ecuador, yet responded strongly to playback of my recording, approaching closely and giving the same vocalisation. Conversely, in July 2010, Howell encountered several *X. p. promeropirhynchus* on the Tandayapa ridge, Pichincha province, Ecuador, which did not respond

to playback of the Oaxaca vocalisations, whereas recordings from Belize stimulated close approach and elicited comparable, 'typical' vocalisations.

Oaxaca birds are considered to represent *X. p. sclateri*, which was described from Pico Orizaba in Veracruz<sup>2,8,9,11,12</sup>. Cerro San Felipe is at the south-east end of the presumed distribution of this taxon, and recordings of *sclateri* from other locations closer to the type locality and elsewhere within its range would be of interest to document any geographic variation. The only other named population of Strong-billed Woodcreeper north-west of the Isthmus of Tehuantepec is *X. p. omiltemensis*, in the Sierra Madre del Sur of Guerrero, in south-west Mexico; its voice is apparently undescribed. Observers seeking *omiltemensis* should be aware that it may not sound like Strong-billed Woodcreepers from east of the Isthmus of Tehuantepec, and that it may, instead, sound similar to birds from Oaxaca. Any birds found in this region of Guerrero should therefore be presented with both vocalisation types, and a recording of any vocal response made.

Miller *et al.*<sup>8</sup> reported an intergrade between *X. p. sclateri* and *X. p. emigrans* from north-west Chiapas, a specimen housed at the Moore Laboratory of Zoology (MLZ 44313), Occidental College, Los Angeles, which is labeled '*Xiphocolaptes promeropirhynchus emigrans* × *sclateri*' (F. Gowen *in litt.* 2011 to S. N. G. Howell). However, the collector, M. del Toro Aviles, was known to provide erroneous date and location data, and his specimen localities have confounded the understanding of Mexican avian taxonomy and biogeography<sup>2</sup>. Thus, the label data of this specimen may not be accurate. Furthermore, the mountains of northern Oaxaca (home to *sclateri*) and north-west Chiapas (home to *emigrans*) are separated by extensive lowlands from where Strong-billed Woodcreeper is unknown, and a continuous distribution (and thus intergradation) seems unlikely (S. N. G. Howell *in litt.* 2011). Furthermore, morphological characters distinguishing the two taxa are not particularly obvious. Ridgway<sup>12</sup> stated that '*sclateri* is] similar to *X. [p.] emigrans* but larger; color of pileum darker (more blackish) with streaks slightly less buffy

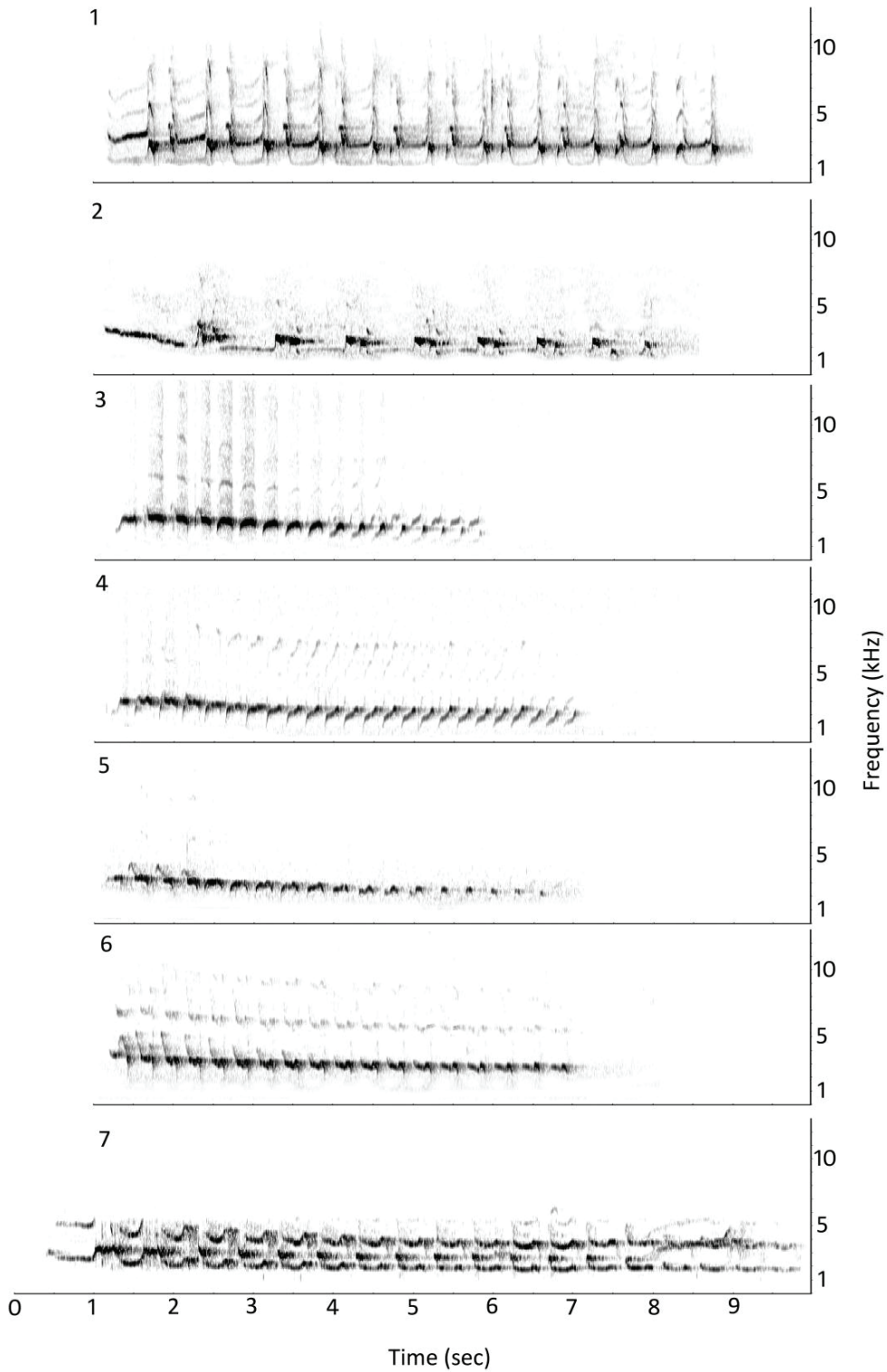
(more whitish); throat more extensively whitish; chest, etc., rather more distinctively streaked.' This was determined by Ridgway<sup>12</sup> from inspecting just ten specimens of *emigrans* and two specimens of *sclateri*. I examined specimens in the collection at the Louisiana State University Museum of Natural Science (LSUMZ), Baton Rouge, which houses 23 specimens of *emigrans*—from Chiapas, Guatemala and Honduras—and seven specimens of *sclateri*, all from San Luis Potosí, c.150 km north-west of the type locality. I found the main distinctions to be that *emigrans* exhibits less crown / nape contrast (*sclateri* exhibits a blacker crown contrasting more with the rufous-brown nape and mantle), a more pronounced dark malar, less extensive pale throat (albeit this is rather variable in *emigrans*) and narrower, well-defined streaks on a less rufescent background over the breast and belly than *sclateri*. Individual variation within the LSUMZ *emigrans* series suggests that many of these characters vary, and not wholly in concert, within the taxon. Thus, detecting a 'hybrid' using morphology would not be so straightforward.

A second population of Strong-billed Woodcreeper, from the río Cauca slope of the Central Andes of Colombia, has a voice type very similar to that I recorded in Oaxaca. On 11 July 2001, C. D. Cadena recorded a Strong-billed Woodcreeper at Parque Regional Ucumarí, Pereira, Risaralda, Colombia (04°43'N 75°28'W; elevation unknown) that gave a vocalisation with pace and frequency remarkably similar to those of Oaxacan birds (Fig 6; IAvH-BSA 6774<sup>1</sup>). Another recording, made by D. Calderón-Franco in Reserva Río Blanco, Manizales, Caldas, also on the río Cauca slope of the Central Andes, although not visually confirmed, was similar (xeno-canto mystery 290; [www.xeno-canto.org/america/discussion.php?snd\\_nr=290](http://www.xeno-canto.org/america/discussion.php?snd_nr=290)). A potential 'twist' is that A. M. Cuervo (pers. comm.) has heard 'typical' Strong-billed Woodcreeper song from Antioquia, at the north end of the Central Andes, and a recording (XC44767) from the headwaters of the río Magdalena in dpto. Huila, well to the south, is of the 'typical' song type. The subspecific name usually given to Central Andean birds is *X. p. virgatus*<sup>9,14</sup>, but its holotype had no type locality<sup>11</sup>. Assignment of this name to Central Andean populations from Colombia was initially suggested by Zimmer<sup>14</sup> based on comparisons of the holotype to a series of specimens available from the Cauca slope in Quindío and the south-west slopes of the Nevado del Tolima in westernmost dpto. Tolima. Hilty & Brown<sup>4</sup> restricted *virgatus* to the Cauca slope of the Central Andes. The two vocal types present within the Central Andes may well separate geographically by Cauca and Magdalena slopes; perhaps the novel voice type is even further restricted to the upper Cauca Valley. Of interest is another recording (XC51434) from the río Toche

area of western Tolima, very close to one of the sites from where Zimmer<sup>14</sup> examined a specimen he identified as *virgatus*, and a site that may link the middle Magdalena and Cauca slope populations of *X. promeropirhynchus*. This recording has intermediate characteristics between the upper Cauca slope song type and the more 'typical' song of the species, including the Magdalena Valley slope (Fig. 7). Clearly, more research is needed to clarify the biogeography, taxonomy and vocal variability of Strong-billed Woodcreeper populations in the Central Andes of Colombia!

Whereas the playback trials conducted by Howell in Oaxaca and Ecuador are suggestive of voice acting as a barrier to 'intraspecific recognition', the situation in Tolima may suggest that the novel and typical Colombian song types may not be sufficiently different to prevent introgression. Efforts with larger samples and more populations are needed to determine the role voice plays in isolating the various populations of Strong-billed Woodcreeper from one another as genetic and evolutionary units. Two characters of the vocalisations of *Xiphocolaptes* must be considered when investigating geographic variation in voice. The first is the apparent difference in pace between males and females, suggested by the fact that birds duetting at dawn and dusk, presumably pair members, often differ in the pace at which they deliver notes, an observation also made independently by B. M. Whitney (pers. comm.). The second issue is the effect of motivation on song pace and details of note structure. Figs. 3–4 illustrate variation within the same individual between highly agitated and more relaxed states following playback and they suggest that motivational variation in song delivery must be acknowledged before note shape and pace are used as definitive characters for comparing populations<sup>7</sup>.

An additional problem is that of homology of vocalisations. I assume that the novel song type I have described from Mexico and that from the Central Andes of Colombia is homologous with the 'typical' song type from elsewhere in the species' range based on my personal experience at several localities in Mexico and South America, as well as with its congeners White-throated Woodcreeper *X. albicollis* and Great Rufous Woodcreeper *X. major*. All three species vocalise infrequently, and most predictably at dawn and dusk. All three also possess a quiet rattle and a whiny 'bark' call, but I have not heard more than one 'song type' from any population of *Xiphocolaptes* (which contrasts with the wider repertoires of song-like vocalisations regularly heard from other large woodcreepers such as members of *Xiphorhynchus* and *Dendrocolaptes*). In addition, when playing back songs to *Xiphocolaptes*, any song-like vocalisations they give are very similar to their



Legends to figures on opposite page

Figure 1. *Xiphocolaptes promeropirhynchus emigrans* (after playback), Chiapas, Mexico, 25 March 2002 (C. A. Marantz; LNS 127270). Note extended introductory note and the rapid couplets interspersed with longer whistles, resulting in a 'pumping' quality to the song. In all figures, identification to taxon is based entirely on geography, not morphology.

Figure 2. *Xiphocolaptes promeropirhynchus promeropirhynchus* (unsolicited), Pichincha, Ecuador, 19 July 1997 (D. F. Lane; XC71349). Note extended introductory note and the 'pumping' pattern to the song.

Figure 3. *Xiphocolaptes promeropirhynchus sclateri* (immediately after playback), Oaxaca, Mexico, 26 February 2007 (D. F. Lane; XC65754). Birds in Oaxaca lack the long introductory note and are much faster paced without the 'pumping' quality to the notes.

Figure 4. *Xiphocolaptes promeropirhynchus sclateri* (several minutes after playback), Oaxaca, Mexico, 26 February 2007 (D. F. Lane; XC65754). A longer song from the same individual represented in Fig. 3. Note subtly different note shape early in song compared with that in Fig. 3, and the faster paced, longer 'tail' to the song.

Figure 5. *Xiphocolaptes promeropirhynchus sclateri* (unsolicited), Oaxaca, Mexico, 23 January 2007 (D. F. Lane; XC65755). A different individual, showing the subtle variation in note shape within the Oaxaca population. Compare particularly to the Colombian song shown in Fig. 6.

Figure 6. *Xiphocolaptes promeropirhynchus virgatus?* (unknown whether this was solicited by playback), Risaralda, Colombia, 11 July 2001 (C. D. Cadena; IAvH-BSA 6774). There seems to be no extended introductory note in this song, and although note shape is not identical to that of the Oaxaca birds, the pace and overall 'sound' is remarkably similar in that it lacks the 'pumping' quality heard in the 'typical' song type of most populations of Strong-billed Woodcreeper, e.g., Fig. 1.

Figure 7. *Xiphocolaptes promeropirhynchus virgatus?* (unknown whether this was solicited by playback), Tolima, Colombia, 20 June 1998 (B. López-Lanús; XC51434). A song (given among several calls by at least two birds) that seems intermediate between the 'typical' and 'novel' song types of Fig. 6. Note the long introductory note, the slower pace and the longer 'slurred' elements between the more punctuated notes in comparison to Fig. 6. Given the proximity to other localities of 'virgatus' song type', yet the fact that this drainage is in the Magdalena watershed, could this recording suggest that there is introgression between the 'novel' song type and more 'typical' song?



Figure 8. Strong-billed Woodcreeper *Xiphocolaptes promeropirhynchus*, Cerro San Felipe, Oaxaca, Mexico, 2 January 2009 (Jeff Gordon)

crepuscular songs. Any variation in songs in response to playback involves minor changes in note shape and adding more notes to the tail of the song (Figs. 3–4). Thus, I am confident that the unique song types from Mexico and the Central Andes of Colombia are not likely to represent rare

(and previously unrecognised) vocalisations within the repertoire of all populations of Strong-billed Woodcreeper, but rather true geographic variation within homologous vocalisations among the species' populations. These conclusions are supported by a review of 100+ recordings available online at



the sound libraries of Cornell's Macaulay Library and [www.xeno-canto.org](http://www.xeno-canto.org). I hope the information provided here will offer a useful starting point for researchers eager to 'attack' the thorny problem of a taxonomic reassessment of *X. promeropirhynchus*.

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### Daniel F. Lane

LSU Museum of Natural Science, 119 Foster Hall, Baton Rouge, LA 70803-3216, USA. E-mail: [dlane@lsu.edu](mailto:dlane@lsu.edu).