

Range extension for Marsh Tapaculo *Scytalopus iraiensis* to the highlands of Minas Gerais, Brazil, with an overview of the species' distribution

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Described as recently as 1998, Marsh Tapaculo *Scytalopus iraiensis* is a peculiar, marsh-dwelling Rhinocryptid, apparently unique within the genus in being restricted to such habitat (Bornschein *et al.* 1998, Krabbe & Schulenberg 2003). Part of the *S. speluncae* group, a taxonomically complex assemblage of tapaculos restricted to south-eastern South America, *S. iraiensis* is currently considered Endangered at global and national levels (Machado *et al.* 2005, BirdLife International 2006). Until recently, the species was known solely from a few localities in Paraná and Rio Grande do Sul, southern Brazil (Bornschein *et al.* 1998, 2001, BirdLife International 2000, 2004, Krabbe & Schulenberg 2003, Maurício 2005, Straube *et al.* 2005, Raposo *et al.* 2006). Here, we present the first records of *S. iraiensis* in the highlands of Minas Gerais and review its geographic distribution.

We conducted specific surveys for *S. iraiensis* in Minas Gerais. Vocalisations were tape-recorded using Sony TCM 5000EV, Marantz PMD201 and Panasonic RQ-L31 tape-recorders, and Sennheiser ME-66 and ME-88 microphones. Tape-recordings have been or will be deposited at the Arquivo Sonoro Prof. Elias Coelho (ASEC), Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Brazil. One specimen was collected and deposited in the ornithological collection of the Departamento de Zoologia da Universidade Federal de Minas Gerais (DZUFMG), Belo Horizonte. Voucher specimens of some plants present in marshes where *S. iraiensis* was recorded were deposited in the herbarium of the Departamento de Botânica da Universidade Federal de Minas Gerais (BHCB). We also checked specimens of *S. iraiensis* housed at the Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre (MCP), Museu Nacional do Rio de Janeiro, Rio de Janeiro (MNRJ), and Museu Paraense Emílio Goeldi, Belém (MPEG).

New records for *S. iraiensis* are presented below. All localities are listed from north to south and are mapped on Fig. 1.

Serra do Cipó (19°15'S, 43°31'W; elevation 1,345 m), Santana do Riacho municipality. On 14–15 September 2006, MFV observed and tape-recorded a single *S. iraiensis* in a marsh beside a stream near Portaria Palácio, in the highest part of Serra do Cipó National Park. Another was heard along the same stream. The marsh comprised predominantly tall grasses (Poaceae), shrubs of Melastomataceae and some Eriocaulaceae.

Sumidouro village, near Fazenda Bocaina (20°00'S, 43°28'W; 730 m), Santa Bárbara municipality. On 25 July 2005, MFV, Santos D'Angelo Neto and Vitor Torga Lombardi observed and tape-recorded one individual in a marsh on the left margin of the rio Caraça. The bird seemed all black and approached to playback several times, but attempts to collect it were fruitless. On 3 August 2005, MFV and José Cláudio Ferreira found another individual in the same marsh, c.800 m from the previous sighting. It was collected and prepared as a study skin (DZUFMG 5175). The marsh at Sumidouro comprises secondary vegetation, is subject to fires and disturbance by domestic livestock. Typical plants are: *Sticherus lanuginosus* (Gleicheniaceae), *Lycopodiella camporum* (Lycopodiaceae), *Anemia*

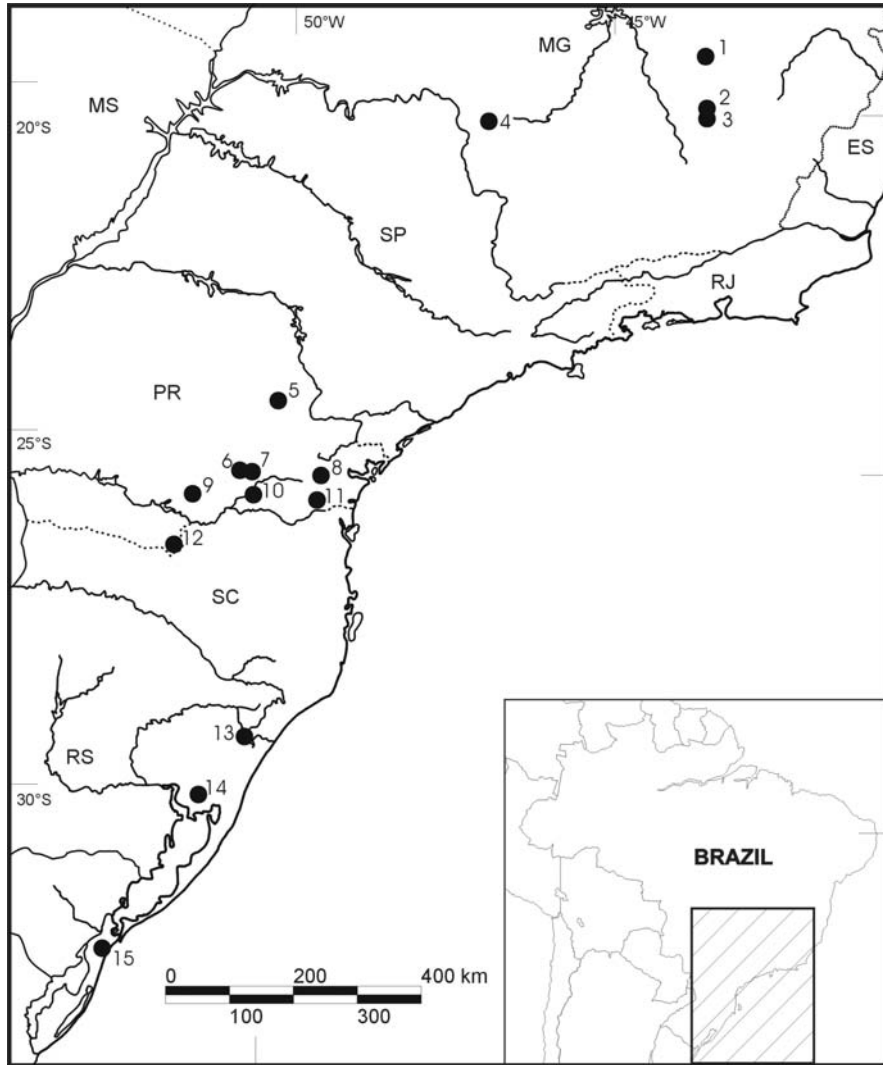


Figure 1. Known sites for *Scytalopus iraiensis*. Minas Gerais: 1 = Serra do Cipó; 2 = Sumidouro village; 3 = Serra do Caraça; 4 = Serra da Canastra. Paraná: 5 = rio Iapó, near Roseta village; 6 = rio das Almas, near Teixeira Soares; 7 = rio Guaraúna; 8 = upper Iguazu river basin (several nearby localities; see Bornschein *et al.* 2001); 9 = Cruz Machado (three nearby sites; see Straube *et al.* 2005); 10 = São João do Triunfo/Lapa (three nearby localities; see Bornschein *et al.* 2001); 11 = upper rio Várzea basin in Tijucas do Sul (several nearby localities; see Bornschein *et al.* 2001); 12 = Fazenda São Pedro. Rio Grande do Sul: 13 = Aparados da Serra National Park; 14 = Banhado dos Pachecos; 15 = Banhado do Maçarico. Brazilian states shown: Minas Gerais (MG), Mato Grosso do Sul (MS), Espírito Santo (ES), Rio de Janeiro (RJ), São Paulo (SP), Paraná (PR), Santa Catarina (SC) and Rio Grande do Sul (RS).

raddiana (Schizaeaceae), *Thelypteris rivularioides*, *T. serrata* (Thelypteridaceae), *Achyrocline satureioides*, *Baccharis calvescens*, *B. trimera*, *Cosmos sulphureus*, *Sonchus oleraceus*, *Symphiopappus* sp., *Tithonia diversifolia*, *Vernonia brasiliana* and *V. scorpioides* (Asteraceae), *Pyrostegia venusta* (Bignoniaceae), *Cordia* sp. (Boraginaceae), *Commelina obliqua* (Commelinaceae), *Ipomoea cairica*, *Jacquemontia* sp., *Merremia macrocalyx* (Convolvulaceae), *Rhynchospora* sp. (Cyperaceae), *Paepalanthus* sp. (Eriocaulaceae), *Chamissice* sp.

(Euphorbiaceae), *Mimosa* sp., *Stylosanthes* sp. (Fabaceae), *Casearia sylvestris* (Flacourtiaceae), *Hyptis* sp. (Lamiaceae), *Buddleja* sp. (Loganiaceae), *Miconia albicans*, *Miconia* sp., *Tibouchina* sp. (Melastomataceae), *Eugenia* sp. (Myrtaceae), three species of *Ludwigia* (Onagraceae), *Cyrtopera longifolia* (Orchidaceae), *Andropogon bicornis*, *Panicum* sp., *Paspalum* sp., *Saccharum* sp. (Poaceae), *Pontederia* sp. (Pontederiaceae), *Borreria* cf. *capitata* (Rubiaceae), *Solanum granuloso-leprosum* (Solanaceae) and *Lippia elegans* (Verbenaceae). GMK *et al.* searched the same locality for the species using playback but without success on 6–7 August 2005, as well as at another ostensibly similar, but at this season rather dry, wetland area c.2 km away, south of Sumidouro. However, on 16 October 2005, GMK *et al.* heard at least one *S. iraiensis* singing in the early morning at the marsh adjacent to Fazenda Bocaina.

Serra do Caraça (20°07'–20°08'S, 43°27'–43°31'W; 1,450–1,850 m), Catas Altas and Santa Bárbara municipalities. On 4–6 February 2003, MFV and GNM observed and tape-recorded a single bird in a high-altitude marsh (1,850 m) at the base of Pico do Inficionado, in the Caraça private reserve. Plant species present in this marsh include many native grasses (Poaceae), bamboos such as *Chusquea pinifolia* (Poaceae), tussock grasses *Cortaderia* sp. (Cyperaceae) and many shrubs, including *Tibouchina* sp. (Melastomataceae). On 20 January 2006, the song of another individual was tape-recorded by Luiz Pedreira Gonzaga and Gloria Castiglioni in wet grassland beside a stream flowing into the córrego do Retiro at Campo de Fora (1,450 m).

Serra da Canastra (20°14'–20°28'S, 45°58'–46°26'W; 750–1,415 m), Piumhí and São Roque de Minas municipalities. On 14 August 2005, GMK tape-recorded at least one bird in wet grassland bordering a heavily reed-fringed freshwater lake with much emergent and floating vegetation north of the town of Piumhí (see Vasconcelos *et al.* 2006). None was heard at the same locality on 21 October 2004, 13 October 2005 or 9 October 2006 (GMK pers. obs.). However, on 3 August 2006, LFS and Robson Silva e Silva located at least two birds, one close to the source of the rio São Francisco and another in a marsh near a locality known as 'Curral de Pedras', c.3 km distant.

Given the long distance from the previous known range of *S. iraiensis* in southern Brazil, we originally suspected that the population in Minas Gerais might represent a new species. Nevertheless, comparison of the new specimen with the type series corroborated the plumage diagnosis of the original description (Bornschein *et al.* 1998): the combination of blackish upperparts, grey underparts and dark grey flanks distinguish the species from all congeners. Measurements of the Minas Gerais specimen are within (wing chord: 45.0 mm; tail: 39.4 mm; weight: 13.9 g), or only slightly below (tarsus: 17.4 mm), the range known for *S. iraiensis* (see Maurício 2005). Furthermore, a preliminary analysis of vocalisations made by GNM did not reveal any consistent differences between the populations from southern Brazil and those found in Minas Gerais, though only the song (not calls) is available for the latter. L. P. Gonzaga (*in litt.* 2007) independently concluded the same based on his recordings from the Serra do Caraça. Therefore, we identify the Minas Gerais population as *S. iraiensis* without hesitation, though we recognise that calls may represent a very useful character to address species limits in the *S. speluncae* group (see Maurício 2005).

Given this unusual distribution it seems natural that Marsh Tapaculo should be found in São Paulo state. However, intensive playback searches conducted by LFS and Érika Machado, between late 2005 and March 2007, in the marshes of Mogi das Cruzes, Biritiba Mirim, Salesópolis (including the road to Estação Biológica de Boracéia; c.23°39'S, 45°54'W), Estação Ecológica de Itirapina (22°15'S, 47°49'W) and Franca (20°32'S, 47°27'W) were fruitless. Based on personal data from Bianca L. Reinert and Marcos Ricardo Bornschein, who

indicated to us the more suitable habitats for Marsh Tapaculo, we searched more than 30 sites without any positive response. Nonetheless, occurrence in São Paulo state can still be expected and areas that still possess large natural fields and marshes, such as Parque Estadual da Serra do Mar, núcleo Curucutu (23°59'S, 46°44'W), on the outskirts of São Paulo city, are candidates to harbour the species.

Overview of the distribution of *Scytalopus iraiensis*

S. iraiensis was described from three wetland localities in the metropolitan area of Curitiba, Paraná (Bornschein *et al.* 1998), and was found subsequently at several new sites in the eastern third of the same state (Bornschein *et al.* 2001). A tapaculo population thought to represent this species was found, in 1998, by Rafael A. Dias and GNM in a coastal marsh in southern Rio Grande do Sul (Fig. 1, no. 15), and was referred to as *Scytalopus* sp. in Bencke (2001) and Maurício & Dias (2001). Based on vocal and specimen data, this population was subsequently confirmed to be *S. iraiensis*, and a new locality for the species in the same state (Fig. 1, no. 14) was also found (Maurício 2005; see also Accordi *et al.* 2003). *S. iraiensis* has also been found in south-central Paraná and north-east Rio Grande do Sul (Straube *et al.* 2005, Bencke *et al.* 2006; Fig. 1). With the exception of sites 14 and 15, which are near sea level, the remaining areas are in the highlands (the Planalto Meridional), at 750–1,100 m.

The new records of *S. iraiensis* reported here are the first for Minas Gerais and extend its known range more than 450 km north. Moreover, the Serra do Cipó lies c.850 km north-east of the nearest records in Paraná state. Given this much wider range than previously imagined, it is clearly of value to search for the species elsewhere, not only at intervening localities, e.g. highland marshes and wetlands in São Paulo and Rio de Janeiro states, but also in similar areas of habitat in western Espírito Santo state and even as far afield as north-east Argentina. The very recent discovery of *S. iraiensis* at comparatively well-studied localities in Minas Gerais, e.g. the Serra do Cipó (Melo Júnior *et al.* 2001, Rodrigues *et al.* 2005), Serra do Caraça (Vasconcelos 2001, Vasconcelos & Melo Júnior 2001, Vasconcelos *et al.* 2003, Faria *et al.* 2006) and Serra da Canastra (Silveira 1998), underlines the importance of species-specific searches which initially seek to locate prime habitat and thereafter use rigorous playback trials in such areas, to locate this (and other) birds easily overlooked by more general avifaunal surveys, even when conducted by highly competent observers. Furthermore, notwithstanding that the species appears to share with *S. pachecoi* a (primarily naturally rather than man-influenced) disjunct distribution, *S. iraiensis* is also likely to be present at more sites within the amplified range described here.

It is important to note that most of the range of *S. iraiensis* is adequately documented by physical evidence, including the records from the northernmost localities in Minas Gerais, as reported here (tape-recordings from all four sites and a specimen from one of them), and the southernmost records obtained in Rio Grande do Sul (several tape-recordings from two lowland localities and two specimens from one of these; Appendix) (Maurício 2005; see also Bornschein *et al.* 1998).

Despite having a much wider range than previously admitted (e.g. Krabbe & Schulenberg 2003), we do not propose any change to the current IUCN threat category Endangered for *S. iraiensis*, for the following reasons. The wetlands of the southernmost Brazilian states, especially those of the Planalto highlands, as well as those where the species has been found in Minas Gerais are being constantly altered by a dangerous, non-natural fire regime, and in southern Brazil several new projects are draining small and medium-sized marshes. The range of *S. iraiensis*, at least in part, is naturally patchy and several of its populations are probably effectively isolated (i.e. lack gene flow). For example, the

two populations of coastal Rio Grande do Sul are separated by more than 200 km; no marsh in the intervening region appears to support a habitat structure, i.e. tall marsh vegetation with extremely dense undergrowth of grasses and other plants, capable of harbouring *S. iraiensis*. This is particularly significant considering that *Scytalopus* are poor dispersers (Krabbe & Schulenberg 2003).

Finally, we highlight that the records from three protected areas (Caraça private reserve, Serra do Cipó National Park and Serra da Canastra National Park) are very important for this threatened species, as so few sites are within such areas (BirdLife International 2000, 2004, 2006, Bencke *et al.* 2006).

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APPENDIX

Material examined—skins:

Brazil. Minas Gerais: Sumidouro, Santa Bárbara ($n=1$) (DZUFMG 5175 [male]). Paraná: right bank of the rio Iraí, Quatro Barras ($n=5$) (MNRJ 43378—holotype [female], MNRJ 43379—paratype [male], MNRJ 43380—paratype [male], MPEG 52944—paratype [female], MPEG 52945—paratype [male]). Rio Grande do Sul: Banhado do Maçarico, Rio Grande ($n=2$) (MCP 957 [male], MCP 958 [male]).

Material examined—tape-recordings:

Brazil. Minas Gerais: Pico do Inficionado, Serra do Caraça, Catas Altas, song ($n=3$, from the same individual); Sumidouro, Santa Bárbara, song ($n=1$); Portaria Palácio, Serra do Cipó, Santana do Riacho, song ($n=1$). Rio Grande do Sul: Banhado do Maçarico, Rio Grande, song ($n=6$, representing four individuals [including MCP 958]), and call (several samples from the same individual); Banhado dos Pachecos, Viamão, song ($n=2$, from two birds).

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