



Taxonomy of “Mouse-colored Tapaculos”. I. On the application of the name *Malacorhynchus speluncae* Ménétriés, 1835 (Aves: Passeriformes: Rhinocryptidae)

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Abstract

The type specimen of *Malacorhynchus speluncae* was described and illustrated as being “mouse gray with a bluish luster” on the upperparts and as having a “lighter color on the lower side of the body” which “becomes whitish towards the middle of the throat and breast”. It represents a taxon presently placed in the genus *Scytalopus*. Since 1907, the name *Scytalopus speluncae* has been attributed to the predominantly dark-gray species from the southeastern coastal Brazilian mountains. Recently, it was suggested that the name *S. speluncae* should be applied to a species that is light-gray with whitish belly and extensive barring on the flanks and that occurs predominantly in the Espinhaço Range, Minas Gerais state, to the west of the range of the dark-gray taxon. As a consequence, the dark-gray species, presumably without any available name, was described as a new species, *S. notorius*. However, on the basis of a critical analysis of the available information on the type specimen of *S. speluncae*, including the original description and illustration (Ménétriés 1835), and our examination of large series of museum specimens, we demonstrate that the type of *S. speluncae* falls within the known plumage variation of the dark-gray species and that it does not show the diagnostic characters of the light-gray form. Thus, we propose that the name *S. speluncae* be applied only to the dark-gray species. Consequently, *S. notorius* must be regarded a junior-synonym of *S. speluncae*. Because of problems related to the exact collecting sites of Ménétriés, and taking into consideration the distribution of the dark-gray species, we suggest “Serra dos Órgãos”, in Rio de Janeiro state, as the type-locality of *S. speluncae*.

Key words: Taxonomy, *Scytalopus speluncae*, *Scytalopus notorius*, individual variation, synonymy, type-locality

Resumo

O espécime-tipo de *Malacorhynchus speluncae* foi descrito e ilustrado como tendo “a coloração cinza de um rato com um brilho azulado” na superfície dorsal, e superfície ventral mais clara, passando a brancacento no meio da garganta e peito. Esse espécime representa um táxon presentemente alocado no diversificado gênero *Scytalopus*. Desde 1907, o nome *Scytalopus speluncae* tem sido atribuído à espécie predominantemente cinza-escuro da região montanhosa do sudeste do Brasil. Recentemente, outros autores propuseram que o nome *S. speluncae* se aplicaria a uma população predominantemente cinza-claro, com ventre esbranquiçado e com extenso barramento nos flancos, distribuída

principalmente ao longo da Cadeia do Espinhaço, em Minas Gerais, a oeste da distribuição da forma cinza-escuro. Conseqüentemente, a espécie cinza-escuro, presumivelmente sem nome disponível, foi descrita como *S. notorius*. Entretanto, com base na análise do material disponível sobre o tipo de *S. speluncae*, incluindo descrição e prancha originais (Ménétriés 1835), e em nosso exame pormenorizado de grandes séries de museus, demonstramos objetivamente que o tipo se enquadra perfeitamente dentro da variação de coloração da plumagem da espécie cinza-escuro e que o mesmo não apresenta os caracteres diagnósticos da espécie cinza-claro. Assim, propomos que o nome *S. speluncae* seja usado apenas para a espécie cinza-escuro. Conseqüentemente, *S. notorius* deve ser considerado sinônimo júnior de *S. speluncae*. Por causa de inúmeros problemas de procedência do material de Ménétriés, e levando em consideração a distribuição geográfica da espécie cinza-escuro, sugerimos “Serra dos Órgãos”, Estado do Rio de Janeiro, como a localidade-tipo de *S. speluncae*.

Palavras-chave: Taxonomia, *Scytalopus speluncae*, *Scytalopus notorius*, variação individual, sinonímia, localidade-tipo

Introduction

The type specimen of *Malacorhynchus speluncae* Ménétriés was allegedly obtained in the surroundings of São João del Rei, southeastern Minas Gerais state, Brazil (Ménétriés 1835). It was described and illustrated as being “mouse gray with a bluish luster” on the upperparts and as having a “lighter color on the lower side of the body” which “becomes whitish towards the middle of the throat and breast” (Ménétriés 1835; free translation). It represents a taxon belonging to the diverse genus *Scytalopus*, where first placed by Bonaparte (1850).

The first applications of the name *S. speluncae* to birds beyond the type specimen were made by Hellmayr (1907) and Ihering and Ihering (1907) when identifying material from Serra do Itatiaia (within Serra da Mantiqueira, on the boundary of Rio de Janeiro and Minas Gerais states) and Alto da Serra (Serra do Mar, São Paulo state), respectively. Hellmayr (1907) compared a specimen from the Itatiaia massif with the type of *S. speluncae*, and stated that the former “... is a perfectly adult male agreeing in every respect with the type of the species kindly lent to me by Dr. Bianchi.”

A few years earlier, Miranda-Ribeiro (1905) had identified two birds collected in the Serra do Itatiaia as *S. sylvestris* Taczanowski. Hellmayr (1907) and Holt (1928) highlighted that this latter name – which was erected for birds from the Peruvian Andes and is currently regarded as a synonym of *S. femoralis* (Tschudi) – could not be applied to the Brazilian birds, the same being true for other names that Miranda-Ribeiro (1923, 1930) suspected to be applicable to the Brazilian populations (e.g. *S. magellanicus* [Gmelin] and *S. latrans* Hellmayr, both Andean taxa; see also Cory and Hellmayr 1924, Naumburg 1937). Subsequently, throughout most of the 20th century, all *Scytalopus* obtained in southeastern Brazil, as well as in the adjacent northeastern corner of Argentina (Misiones Province), and which were not attributable to *S. indigoticus* (Wied), were identified as *S. speluncae* (see Bertoni 1919, Cory and Hellmayr 1924, Holt 1928, Naumburg 1937, Gai 1951, Partridge 1954, Sick 1960, Camargo 1962, Belton 1985).

Beginning in the 1980s, other species of *Scytalopus* were reported from southeastern and southern Brazil. *Scytalopus novacapitalis* Sick, described on the basis of a series obtained in Distrito Federal, central Brazil (Sick 1958), was subsequently recorded in western Minas Gerais state (Collar *et al.* 1992, Silveira 1998). A similar form with light-gray underparts and black-barred buffy flanks was discovered in the southern Espinhaço Range of eastern Minas Gerais, and was attributed to *S. novacapitalis* by some (e.g. Willis and Oniki 1991) while identified as *Scytalopus* sp. – supposedly undescribed – by others (Collar *et al.* 1992, Vasconcelos *et al.* 1999, Melo Júnior *et al.* 2001, Vasconcelos and Melo-Júnior 2001; see also Bornschein *et al.* 2007, who treated it as *Scytalopus* sp. nov.). Populations occupying highland marshes in Paraná state, first thought to be *S. speluncae*, were later described as a new species, *S. iraiensis* Bornschein, Reinert and Pichorim (Bornschein *et al.* 1998), and some of the southernmost populations traditionally attributed to *S. speluncae* proved to represent another distinct taxon, *S. pachecoi* Maurício (Maurício 2005).

Although these contributions have substantially refined the knowledge of *Scytalopus* diversity in eastern South America, additional taxonomic problems have been highlighted. Among these problems are populations that apparently merit taxonomic recognition – e.g. those attributed to *S. speluncae* found in

isolated mountain ranges in southeastern Bahia state (Maurício 2005, Silveira *et al.* 2005, Bornschein *et al.* 2007; see also Bencke *et al.* 2006) – and doubts about the applicability of the name *S. speluncae* (J. F. Pacheco in BirdLife International 2000, Raposo *et al.* 2006, Raposo and Kirwan 2008).

This latter question, particularly, has important implications for the nomenclature of the *S. speluncae* group, which is composed of the recently described *S. diamantinensis* Bornschein, Maurício, Belmonte-Lopes, Mata and Bonatto (Bornschein *et al.* 2007) and all the above-mentioned Brazilian species of *Scytalopus*, except *indigoticus*, now placed in the newly described genus *Eleoscytalopus* (Maurício *et al.* 2008). Because almost all known localities of *S. speluncae* in the southeastern Brazilian states (São Paulo, Rio de Janeiro, Minas Gerais and Espírito Santo) are restricted to the Serra do Mar, Serra da Mantiqueira, and Serra do Caparaó mountain ranges, the somewhat inland location of the type locality of *S. speluncae*, São João del Rei, about 75 km northwest of the Serra da Mantiqueira, has been highlighted as unusual (Vielliard 1990).

Recently, Raposo *et al.* (2006) reported obtaining at São João del Rei two specimens of the light-gray *Scytalopus* discovered in the southern Espinhaço Range. Following a re-analysis of the type specimen and the original description, they concluded that the name *Scytalopus speluncae* must be applied to that taxon instead of to the dark-gray birds typical of the coastal or nearly coastal mountain ranges (Serra do Mar, Serra da Mantiqueira, and Serra do Caparaó ranges to the south). Given that no name was available for the dark-gray taxon, Raposo *et al.* (2006) proposed the new name *Scytalopus notorius* Raposo, Stopiglia, Loskot and Kirwan for this taxon, which occurs from Espírito Santo and Minas Gerais states south to Rio Grande do Sul. This proposal has not been adopted by the South American Classification Committee to date (Remsen *et al.* 2010), although it has been accepted by the Brazilian Committee of Ornithological Records (Comitê Brasileiro de Registros Ornitológicos; CBRO 2007).

As part of a taxonomic revision of the “Mouse-colored Tapaculo” (*Scytalopus notorius* of Raposo *et al.* 2006), generally understood as a complex of conspecific populations inhabiting montane areas from southern Bahia to northern Rio Grande do Sul (see Krabbe and Schulenberg 2003, Maurício 2005), this paper addresses the identity of the type specimen of *S. speluncae*. Here, we demonstrate that the underlying argument of the proposal presented by Raposo *et al.* (2006), and further defended by Raposo and Kirwan (2008), failed in two respects: (1) the widely accepted hypothesis that the name *S. speluncae* is applicable to the dark-gray *Scytalopus* of the coastal belt of Brazil was not objectively rejected because the existence of individual variation in that taxon was not explored; and (2) the material provided by the authors (both pictures and descriptions) indicated that the type of *S. speluncae* does not show the clear-cut character combination that diagnoses the inland light-gray taxon from the montane, dark-gray birds.

Methods

We re-examined the identity of the type specimen of *S. speluncae* using a large series of museum specimens, the original description and illustration (Ménétriés 1835), the material provided by Raposo *et al.* (2006) and Raposo and Kirwan (2008), and information in the ornithological literature apparently overlooked by those authors. We examined skins of the *S. speluncae* group deposited at the following institutions: Museu de Zoologia da Universidade de São Paulo (MZUSP), São Paulo; Museu Nacional (MN), Rio de Janeiro; Coleção Ornitológica Marcelo Bagno (COMB), Universidade de Brasília, Brasília; Departamento de Zoologia, Universidade Federal de Minas Gerais (DZUFMG), Belo Horizonte; Museu de História Natural de Taubaté (MHNT), Taubaté; Museu de História Natural “Capão da Imbuia” (MHNCI), Curitiba; Museu de Ciências e Tecnologia of the Pontifícia Universidade Católica do Rio Grande do Sul (MCP), Porto Alegre; Museu de Ciências Naturais of the Fundação Zoobotânica do Rio Grande do Sul (MCN/FZB), Porto Alegre, Brazil; and the American Museum of Natural History (AMNH), New York, USA (see Appendix). Capitalized color names follow Smithe (1975).

As the definition of plumage/ages in the *Scytalopus speluncae* species-group is relevant to the analysis presented in this paper, we here explain our aging criteria. The definitive, adult plumage is characterized (at least in males) by plain-colored wings (without light marks), the remaining parts being gray or blackish, with

some species (e.g. *S. novacapitalis*, *S. pachecoi* and the light-gray taxon from southern Espinhaço Range) having extensive brown/buff flanks variably barred black. We identify as subadults those birds with mainly gray plumage (like adults), without wing bars, but having obvious light/dark marks on the tertials. In those species in which adults are plain or nearly plain gray (such as *S. notorius*) these birds always have a variable amount of buff/black barring on the rump, flanks, crissum, and undertail coverts, a feature that represents vestiges of younger plumages, the earliest of which (i.e., the juvenal) is completely brown/buff barred black (see Bornschein *et al.* 2007). The type specimen of *S. speluncae* is an adult male, as indicated by its plain-colored tertials. However, it is important to realize that even adult males of the plain gray taxa may retain some buff feathers, with or without blackish bars, from the previous plumage stage (see Maurício 2005).

To avoid confusion between the traditional treatment (e.g. Remsen *et al.* 2010) and that proposed by Raposo *et al.* (2006), the populations occupying the more coastal mountain belts, traditionally called *S. speluncae* but described as *S. notorius* by Raposo *et al.* (2006), are herein referred to as “dark-gray birds”, “dark-gray *Scytalopus*” or “dark-gray taxon”, whereas those populations from the southern Espinhaço Range and adjacent areas are here treated as “light-gray birds”, “light-gray *Scytalopus*” or “light-gray taxon” (Fig. 1).

Results

Individual variation of gray shading in the dark-gray taxon

Raposo *et al.* (2006) highlighted that *S. speluncae* was based on a specimen described as having “...the throat and the central breast evidently whitish (“devident [sic] blanchâtre vers lê milieu de la gorge et de la poitrine”, Ménétriés 1835: 527)” and that this description “could never be applied to the Blackish Neutral Gray (82–83) *Scytalopus* from the Serra do Mar”. However, despite Ménétriés’ (1835) reference to whitish on the middle of the throat and breast (features also depicted in the plate accompanying the type description), the examination of the type of *S. speluncae* using a color index (i.e. Smithe 1975) showed that these parts are “close to Medium Neutral Gray (84)” (Raposo *et al.* 2006: 50). We believe that both in Ménétriés’ (1835) description and the illustration the contrast between the blackish-gray of the upperparts and the lighter gray of the throat and breast of the type was overestimated. When seen in lateral view, *Scytalopus* species, including all species in the *S. speluncae* species group (pers. obs. all authors), typically display a silvery sheen over the ventral feathers (Whitney 1994) and seem much lighter gray on the outline of the body than they really are. This feature that may account for the passage “becomes whitish towards the middle of the throat and breast” in Ménétriés’ (1835) description. Regardless, as clearly demonstrated in the description and pictures presented by Raposo *et al.* (2006) and Raposo and Kirwan (2008), the type’s throat and upper breast are not whitish but instead are undoubtedly medium gray.

In describing the dark-gray taxon as *S. notorius*, Raposo *et al.* (2006) stated in the formal diagnosis of their new species “Male easily diagnosed from all other Brazilian *Scytalopus* by its homogeneous Blackish Neutral Gray (82) coloration, being slightly darker on the upperparts”. However, as in other Brazilian *Scytalopus*, there is a substantial amount of individual variation in the dark-gray taxon, of which only a fraction is more or less “homogeneous” Blackish Neutral Gray (82). The upperparts are slightly darker than the underparts in only six of 11 male specimens of the dark-gray taxon analyzed by Raposo *et al.* (2006) (MN 14202, 26267, 26281, 27035, 27036 and 36652, the latter being the holotype of *S. notorius*). The remaining males mentioned by the authors are more conspicuously lighter below. MZUSP 6121 has throat and breast between Dark (83) and Medium Neutral Gray (84), but nearest to the latter, and its belly is slightly lighter than Medium Neutral Gray (84); MZUSP 36347 and 34804 have underparts near Dark Neutral Gray (83). The other two male specimens are immature birds with dark gray or brownish-gray upperparts and gray underparts.

Our examination of large series of recent specimens of adult and subadult males of the dark-gray taxon (Table 1) confirmed the existence of individual variation with respect to the gray shading of the underparts, even within the Serra dos Órgãos massif, where the type locality of *S. notorius* lies. The darker-gray examples

(i.e. Dark Neutral Gray [83] or darker) are more common than the lighter ones, but our analysis reveals that the shading of gray of the underparts is far from constant within this species (Table 1).

TABLE 1. Summary of underparts colors of males of two *Scytalopus* species: the dark-gray taxon and the light-gray taxon. Only adults and subadults collected between 2000 and 2009 were considered.

Color ¹	Dark-gray taxon (entire underparts)	Light-gray taxon (throat and breast)
Between Blackish Neutral Gray (82) and Dark Neutral Gray (83)	n = 6 (all adults)	
Near Dark Neutral Gray (83)	n = 29 (23 adults)	
Between Dark Neutral Gray (83) and Medium Neutral Gray (84)	n = 10 (8 adults)	
Near Medium Neutral Gray (84)	n = 4 (3 adults)	n = 5
Between Medium Neutral Gray (84) and Light Neutral Gray (85)		n = 4
Near Light Neutral Gray (85)		n = 5
Between Light Neutral Gray (85) and Pale Neutral Gray (86)	n = 1 (adult)	n = 3
Near Pale Neutral Gray (86)		n = 4

¹Capitalized color names follow Smithe (1975).

Furthermore, pronounced individual variation can be found even within the same region or locality. Of three specimens from Serra da Vargem Grande, southeastern Minas Gerais (235 km northeast of São João del Rei), one adult male (DZUFMG 4924) is between Light (85) and Pale Neutral Gray (86) on the underparts, whereas two subadult males (MCP 1723 and DZUFMG 4925) are much darker (near Dark Neutral Gray [83]) below (Figs. 2, 3; see additional examples of plumage variation in Figs. 1 and 4). It is important to note that the examples mentioned or illustrated here were unequivocally identified as representatives of the dark-gray taxon on the basis of vocalizations, genetics, or plumage characters other than the gray shading. In sum, there is substantial individual variation along the entire range of the dark-gray taxon, even if considering only adult/subadult males. The gray shading of the type of *S. speluncae* falls well within the variation displayed by the dark-gray *Scytalopus* of the coastal mountains. A similar degree of individual variation has been observed in several Andean species of *Scytalopus* (Fjeldså and Krabbe 1990, Krabbe and Schulenberg 1997, Donegan and Avendaño-C 2008).

Lack of the diagnostic characters of the light-gray taxon in the type of *S. speluncae*

The light-gray taxon is characterized by dark-gray upperparts, light-gray underparts with a weakly contrasting whitish central belly, and extensive buff over the flanks, with the crissum and undertail coverts bearing conspicuous black or blackish bars (Raposo *et al.* 2006, Bornschein *et al.* 2007; Fig. 1). This characterization has been confirmed by us through the examination of a large series (n = 28 specimens, 21 males, six females, and one unsexed) from the entire known range of this form (from central to southern Minas Gerais, mainly along the Espinhaço Range). To be regarded a representative of this form, the type of *S. speluncae* must display the clear-cut character combination mentioned above, including the extensively buff flanks with black bars that characterize all ages/plumages of the four taxa in the well corroborated clade composed of *S. novacapitalis*, *S. pachecoi*, *S. diamantinensis* and the light-gray taxon discussed here (Bornschein *et al.* 2007). The type of *S. speluncae*, however, clearly does not show that character combination. In order to support their hypothesis, aside from the comments about the gray of throat and breast mentioned above, Raposo *et al.* (2006) submitted that “Unfortunately, the belly feathers are severely damaged, and almost all of the vent and thigh feathers are in such poor condition that it is almost impossible to discern their original color, except that of the blackish base (ground) color to these tracts (Fig. 4). However, this is not the case with the rump feathers, which are buff with dark bars (Fig. 5). A careful analysis of the holotype by VL [V. Loskot] further

revealed some tiny remnants of buff color on one feather on the left thigh, and on three feathers on the right flank.”

The argument that the “belly feathers” (presumably including the flanks) are severely damaged, precluding an appreciation of the original color pattern, is not consistent with the text (see below) and the excellent photographs (including the type in lateral view), which show the right flank partially covered by complete or nearly complete gray feathers and several feathers on the undertail coverts. Adult males of the dark-gray taxon (n = 40 specimens, collected between 2001 and 2009) frequently exhibit traces of buff color on several mainly gray flank feathers (n = 19) or show buff feathers with a variable degree of black barring (from vestigial to conspicuous barring) on the flanks and over the rump (n = 11). Only a small number of specimens (n = 10) are plain gray on the flanks, although Raposo and Kirwan (2008: 78) assume that this taxon “lacks any trace of brown in the rump and flanks in adult males”.



FIGURE 1. Two adult males of the dark-gray *Scytalopus* (MCP 2162, left, and MCP 2037, center) from east-central Paraná state, and an adult male of the light-gray *Scytalopus* (MCP 1560, right) from the Espinhaço Range of south-central Minas Gerais state. Note the individual variation of the gray shading in the dark-gray taxon and the extensive buff flanks with conspicuous black barring in the light-gray taxon. A, ventral view; B, lateral view; C, dorsal view.



FIGURE 2. Adult (DZUFMG 4924, left) and subadult (DZUFMG 4925, right) males of the dark-gray *Scytalopus* from southeastern Minas Gerais state. Note that DZUFMG 4924, although in adult plumage, is appreciably lighter than the other specimen.

Examples of adult males with some barring and buff color on the flanks and rump include specimens from Minas Gerais and adjacent Rio de Janeiro. Although the lighter gray example mentioned earlier (DZUFMG 4924) is an adult male, having no marks on the tertials, it has a slight and very limited wash of brown/buff over the dark-gray flanks (Fig. 3) and rump and has a narrow indistinct dark bar on the tip of some feathers. A virtually plain gray, very old specimen – judging from the degree of cranial pneumatization – (MCP 2047), has some tiny buff marks over the flanks and a buff/black barred feather on the rump (Fig. 4). Other examples (MCP 1997, 2067 and 2170), although in adult plumage, have a limited area over the upper tail coverts/rump and posterior flanks barred buff and black (Fig. 4). This may also be seen in older specimens of the dark-gray taxon already mentioned in the literature (Maurício 2005); two birds at MZUSP (6121 and 34804) and one at MHNCI (5491), although regarded adult males because of their almost unmarked wing feathers, have obvious barring on the flanks. On the other hand, a specimen at MZUSP (36347), despite having some light marks on the tertials, has only vestigial barring over the dark-gray flanks.

In sum, in confirming that the type of *S. speluncae* has some tiny remnants of buff color on three feathers of the right flank, Raposo *et al.* (2006) also confirm that there are feathers sufficiently well preserved to fully appreciate its true plumage pattern: mainly gray flanks with some buff marks, or, more precisely, with “tiny remnants of buff color on one feather on the left thigh, and on three feathers on the right flank” (Raposo *et al.*, 2006: 41). This pattern is completely consistent with that of the coastal dark-gray taxon (see also Cory and Hellmayr 1924: 13), but not with that of the light-gray taxon of São João del Rei and Espinhaço Range, the flanks of which are extensively buff with very conspicuous blackish bars. The pattern of buff with dark bars

that diagnoses the light-gray taxon is so extensive and contrasting that it would remain clearly observable even in very damaged specimens (e.g. by a shot in the bird's flank and vent, as is the case of one specimen of the light-gray taxon at DZUFMG [5336]). If a "careful analysis of the holotype" of *S. speluncae* by Raposo *et al.* (2006) failed to detect such pattern, the best interpretation is that it never possessed it.



FIGURE 3. Adult male of the dark-gray *Scytalopus* (DZUFMG 4924). Note the light-gray underparts and the presence of some buff marks on the rather contrasting dark-gray flanks.

Additionally, in most males of the light-gray taxon, including the adult male "topotype" (see Figs. 7 and 8 in Raposo *et al.* 2006) and another specimen obtained by us at São João del Rei (MZUSP 78821), the throat and breast are lighter than the Medium Neutral Gray (84) on the throat and breast of the type of *S. speluncae* (see Table 1). It is important to note that the male "topotype" obtained by Raposo *et al.* (2006) was the only adult male of the light-gray taxon examined by these authors, since the other two males (from the Chapada Diamantina, Bahia) analyzed by them represent a distinct species, *S. diamantinensis*, whose underparts are invariably nearest to Medium Neutral Gray (84) (Bornschein *et al.* 2007).

Taxonomic conclusions

In addition to our own data, we wish to draw attention to the early contribution of Hellmayr (1907) – not cited by Raposo *et al.* (2006) and Raposo and Kirwan (2008) – in which he justified the use of the name *S. speluncae* for the dark-gray taxon. Hellmayr examined the holotype and compared it directly with a typical representative of the dark-gray taxon from the Itatiaia massif (AMNH 492362; Fig. 5) more than a century ago. This specimen has two labels, the original one from the "Museu Paulista" (= Museu de Zoologia da Universidade de São Paulo; former catalogue number 6122) and another from the Rothschild Collection; the

latter reads “Compared with the type in St. Petersburg Museum”. This specimen, collected on 23 April 1906, was donated by the Museu Paulista to the Rothschild Collection. Its underparts are between Dark Neutral Gray (83) and Medium Neutral Gray (84), with some buff areas on the mainly gray posterior flanks and crissum and feathers with a faint brownish wash on the rump, where at least one buff feather is barred black. The relevant point here is the statement of Hellmayr (1907: 76) about this specimen: “The birds figured by Mr. [Miranda-] Ribeiro were both immature, while the one I exhibit to-night is a perfectly adult male agreeing in every respect with the type of the species kindly lent to me by Dr. Bianchi.” (Valentin L. Bianchi was a former curator of the ornithological department of the Russian Academy of Sciences, St. Petersburg, Russia).



FIGURE 4. Adult males of the dark-gray *Scytalopus* (from left to right: MCP 2047, from southern Minas Gerais state; MCP 1997, from Rio de Janeiro state; MCP 2170, from southern São Paulo state; and MCP 2067, from east-central Paraná state). Note the variable degree of buff and black barring on the flanks, crissum and uppertail coverts/rump of these four examples. A, ventral view; B, lateral view; C, dorsal view.

Our results demonstrate that the type of *S. speluncae* falls within the individual variation of the dark-gray taxon and that it lacks the diagnostic characters of the light-gray birds. The consistency of these findings with the earlier conclusion of Hellmayr (1907) demonstrates that the name *S. speluncae* must apply only to the dark-gray taxon. As a consequence, the name *S. notorius* must be regarded a junior-synonym of *S. speluncae*.

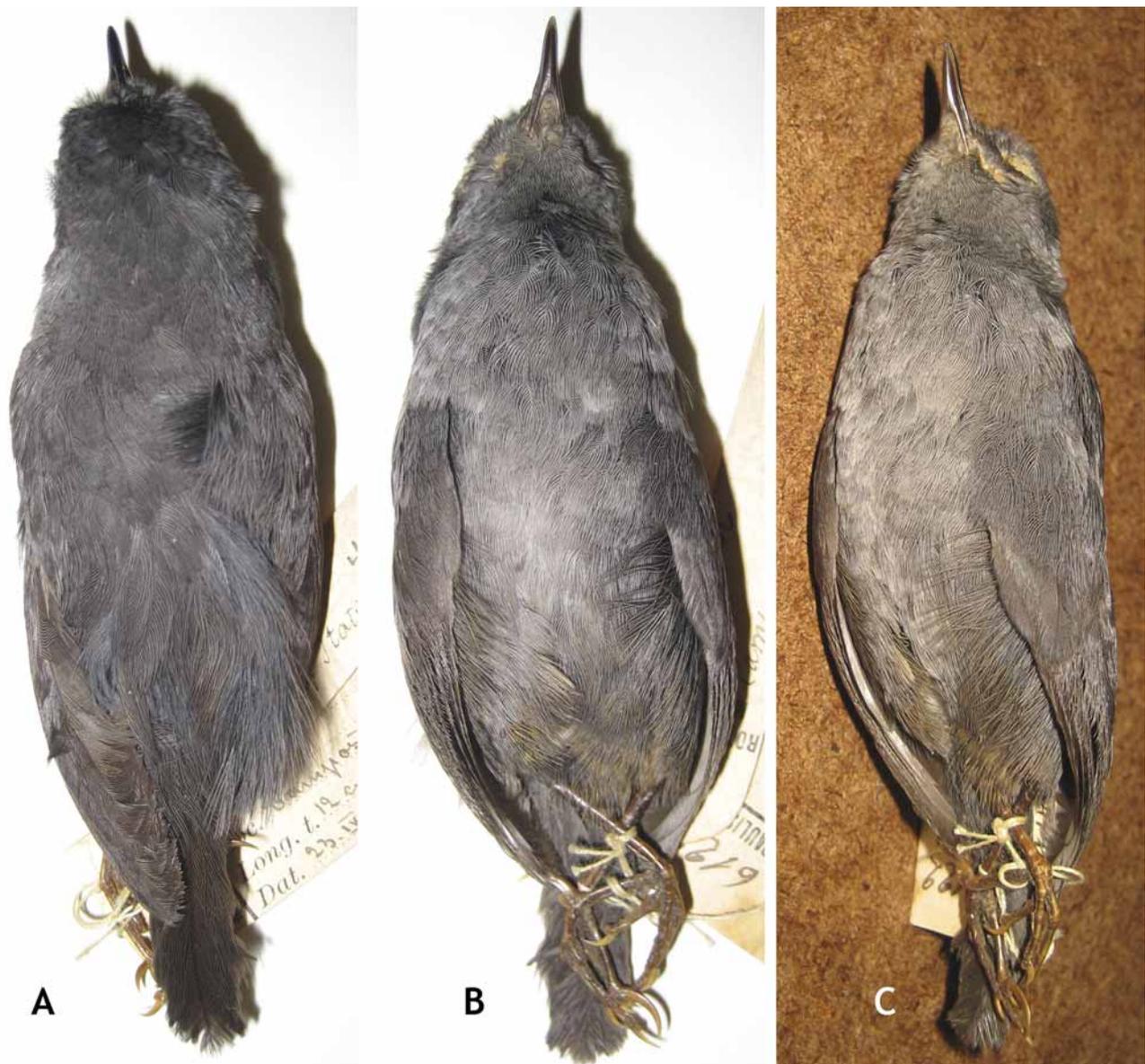


FIGURE 5. Adult male (AMNH 492362) of the dark-gray *Scytalopus* from Serra do Itatiaia (within Serra da Mantiqueira), on the boundary of Rio de Janeiro and Minas Gerais states. This specimen was compared with the type of *Scytalopus speluncae* by Hellmayr (see text and Hellmayr 1907). Note the presence of limited buff areas on the flanks and crissum (a buff feather barred black present on the rump is not visible here). A, dorsal view; B, ventral view; C, ventrolateral view.

One of the main criticisms in the recent paper by Raposo and Kirwan (2008) was that they and the other co-authors of Raposo *et al.* (2006) based their conclusions on personal examination of the holotype of *S. speluncae*, whereas Bornschein *et al.* (2007), even after the publication of the latter paper, continued to treat the dark-gray taxon under the name *S. speluncae* (and the light-gray one as an undescribed species) without having performed an in-hand analysis of that holotype. However, considering the availability of detailed data on the holotype (i.e., the original description and plate [Fig. 6] plus recent high-resolution photographs and detailed descriptions), the personal examination of the type of *S. speluncae* is not strictly necessary to make a decision about the applicability of this name to a given population, especially if one considers that such a decision is based on the examination of large series that were not available to Raposo *et al.* (2006) or Raposo and Kirwan (2008) (see Appendix). Furthermore, the decision to apply the name *S. speluncae* to a taxon other than the dark-gray species and introduce a new name for the latter relied upon the examination of the holotype by only one author of that paper (V. Loskot), whereas the other three worked with second-hand information.



FIGURE 6. Reproduction of the original plate of the type of *Scytalopus speluncae* (from Ménétriés 1835). Note the plain gray flanks and undertail coverts, features that are consistent only with the dark-gray *Scytalopus* from the coastal mountains. Although this picture shows a feature that is not typical of this taxon (and which is darker in the type specimen of *S. speluncae*), namely the light-gray throat and upper breast, a strong contrast between the dark-gray of flanks and the gray of throat/breast is observed in several individuals of the dark-gray taxon, as can be seen in Figs 1 and 3 above.

In presenting high-resolution photographs and detailed descriptions of the holotype, the study of Raposo *et al.* (2006) was a valid and important contribution, which was also consistent with the earlier remarks on this specimen by Chrostowski (1921). Additionally, given recent knowledge of the occurrence of the light-gray taxon in the Mantiqueira range (Bornschein *et al.* 2007) and São João del Rei areas (MZUSP 78821, collected by M. F. V. and Vítor T. Lombardi on January 2005), it was a valid and perhaps necessary scientific exercise to question the applicability of the name *S. speluncae*. However, if not combined with a thorough consideration of individual variation, a detailed study of any type specimen is not placed in appropriate context and, as a consequence, may produce misleading results or interpretations. The series of skins examined for this study was both extensive and geographically representative (see Appendix and Fig. 7).

The type-locality of *S. speluncae*

There is no doubt that Ménétriés was in São João del Rei, as was well demonstrated by Raposo *et al.* (2006), but no information ensures that the type of *S. speluncae* was collected there. The only place of origin mentioned on the original labels of Ménétriés' type specimens (including that of *S. speluncae*) is "Brasil" or "S. Brasil" (Chrostowski 1921). Pacheco (2004) noted, "It is significant that eight of the fourteen taxa (57%) considered new or renamed by Ménétriés [1835] present clear problems in the attribution of origin. Three forms from Mato Grosso were indicated as being from Minas Gerais (*Cercomacra melanaria*, *Pyriglena leuconota maura*, *Myrmeciza atrothorax melanura*). The Mato Grosso capital, Cuiabá, was designated for one species typical of bamboo tracts in the mountains of eastern Brazil (*Psilorhamphus guttatus*) and for a species more appropriately from the upper Tapajós (*Conopophaga melanogaster*). The province or capital of Bahia was cited for an Amazonian form (*Myrmornis torquata*). The well-known Serra dos Órgãos was mentioned as the origin of a northern taxon (*Formicivora grisea*). No locality was indicated for a taxon of montane foothills in eastern Brazil (*Myrmotherula unicolor*). ... Given this foundation of errors, it is quite admissible that any and all localities mentioned by Ménétriés [1835] might carry the same degree of impropriety. Even some that would appear to be correct (because they fall within the known distribution of the taxon) may not, in fact, be the actual localities of collection" (Pacheco 2004). In this context, the fact that Ménétriés' specimen of the dark-gray taxon is the only one known from near São João del Rei suggests that Ménétriés erred in designating the locality for *S. speluncae*. The closest known locality for the dark-gray taxon is approximately 75 km southeastward (Serra do Ibitipoca, where both dark and light-gray taxa occur in sympatry – Pacheco *et al.* 2008). Thus, we discard the possibility that the dark-gray taxon occurs or occurred in the region of São João del Rei. In light of the itinerary of Ménétriés and the geographic distribution of the dark-gray taxon, it seems probable that the type of *S. speluncae* was collected, in fact, in the interior of Rio de Janeiro state,

where Ménétriés surveyed in 1822 and 1823 (Pacheco 2004). Accordingly, we suggest that the type locality be considered “Serra dos Órgãos, Rio de Janeiro”.

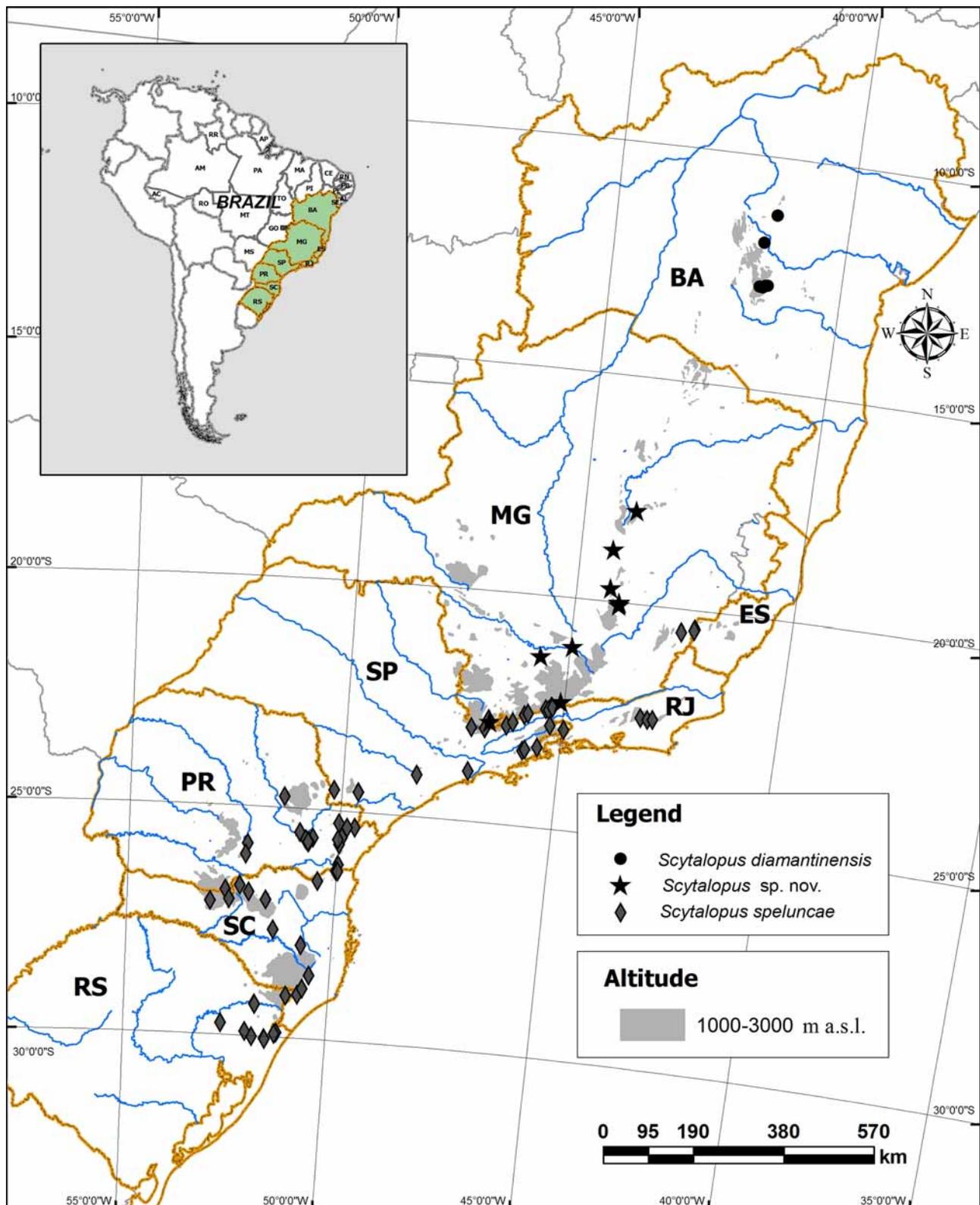


FIGURE 7. Map showing the distribution of the dark-gray taxon *Scytalopus speluncae* (= *S. notorius sensu* Raposo *et al.* [2006]), light-gray taxon *Scytalopus sp. nov.* (= *S. speluncae sensu* Raposo *et al.* [2006], in part) and Diamantina Tapaculo *S. diamantinensis* (= *S. speluncae sensu* Raposo *et al.* [2006], in part), based on the specimens examined in this study.

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References

- Belton, W. (1985) Birds of Rio Grande do Sul, Brazil. Part 2. Formicariidae though Corvidae. *Bulletin of the American Museum of Natural History*, 180, 1–242.
- Bencke, G.A., Maurício, G.N., Develey, P.F. & Goerck, J.M. (orgs.) (2006) *Áreas importantes para a conservação das aves no Brasil. Parte I – Estados do Domínio da Mata Atlântica*. SAVE Brasil, São Paulo. 494 pp.
- Bertoni, A.W. (1919) Especies de aves nuevas para el Paraguay. *Hornero*, 1, 255–258.
- BirdLife International (2000) *Threatened Birds of the World*. Lynx Edicions and BirdLife International, Barcelona and Cambridge. 852 pp.
- Bonaparte, C.L. (1850) *Conspectus generum avium*. Lugduni Batavorum. 543 pp.
- Bornschein, M.R., Maurício, G.N., Belmonte-Lopes, R., Mata, H. & Bonatto, S.L. (2007) Diamantina Tapaculo, a new *Scytalopus* endemic to the Chapada Diamantina, northeastern Brazil (Passeriformes: Rhinocryptidae). *Revista Brasileira de Ornitologia*, 15 (2), 151–174.
- Bornschein, M.R., Reinert, B.L. & Pichorim, M. (1998) Descrição, ecologia e conservação de um novo *Scytalopus* (Rhinocryptidae) do sul do Brasil, com comentários sobre a morfologia da família. *Ararajuba*, 6 (1), 3–36.
- Camargo, O.R. (1962) Aves sul-riograndenses do Museu de Caça e Pesca. *Pesquisas, Série Zoologia*, 14, 1–67.
- CBRO [Comitê Brasileiro de Registros Ornitológicos] (2007) Listas das aves do Brasil. Versão 16/8/2007. Available from: <http://www.cbro.org.br/> (accessed on 28 July 2008).
- Chrostowski, T. (1921) Sur les types d’oiseaux néotropicaux du Musée Zoologique de l’Académie des Sciences de Pétersbourg. *Annales Zoologici Musei Polonici, Historiae Naturalis*, 1 (1), 9–30.
- Collar, N., Gonzaga, L.P., Krabbe, N., Madronõ Nieto, A., Naranjo, L.G., Parker III, T.A. & Wege, D.C. (1992) *Threatened Birds of the Americas*. International Council for Bird Preservation, Cambridge. 1150 pp.
- Cory, C.B. & Hellmayr, C.E. (1924) Catalogue of birds of the Americas and the adjacent islands. *Field Museum of Natural History, Zoological Series*, 13 (3), 1–369.
- Donegan, T.M. & Avendaño-C, J.E. (2008) Notes on tapaculos (Passeriformes: Rhinocryptidae) of the Eastern Andes of Colombia and the Venezuelan Andes, with a new subspecies of *Scytalopus griseicollis* from Colombia. *Ornitología Colombiana*, 6, 24–65.
- Fjeldså, J. & Krabbe, N. (1990) *Birds of the High Andes*. Zoological Museum, University of Copenhagen and Apollo Books, Svendborg. 876 pp.
- Giai, A.G. (1951) Notas sobre la avifauna de Salta y Misiones. *Hornero*, 9, 247–276.
- Hellmayr, C.E. (1907) [Mr. Hellmayr also exhibited some birds from Mount Itatiaya, the highest point in Brazil, and, with reference to a note in the last issue of ‘The Ibis,’ p. 360, made the following remarks:–] [Remarks on: “1.

- Synallaxis moreirae*, Ribeiro. 2. *Scytalopus speluncae* (Ménétries). 3. *Musciphaga obsoleta*, Ribeiro.”]. *Bulletin of the British Ornithologists' Club*, 19, 76.
- Holt, E.G. (1928) An ornithological survey of the Serra do Itatiaya, Brazil. *Bulletin of the American Museum of Natural History*, 57, 251–326.
- Ihering, H. von & Ihering, R. von (1907) As aves do Brazil. Museu Paulista, São Paulo (Catálogos da Fauna Brasileira, Vol. I). 483 pp.
- Krabbe, N. & Schulenberg, T.S. (1997) Species limits and natural history of *Scytalopus tapaculos* (Rhinocryptidae), with descriptions of the Ecuadorian taxa, including three new species. *Ornithological Monographs*, 48, 47–88.
- Krabbe, N. & Schulenberg, T.S. (2003) Family Rhinocryptidae (Tapaculos), pp. 748–787. In: J. del Hoyo, A. Elliott and D. A. Christie (eds.) *Handbook of the birds of the world. Volume 8: Broadbills to tapaculos*. Barcelona: Lynx Edicions.
- Maurício, G.N. (2005) Taxonomy of southern populations in the *Scytalopus speluncae* group, with description of a new species and remarks on the systematics and biogeography of the complex (Passeriformes: Rhinocryptidae). *Ararajuba*, 13 (1), 7–28.
- Maurício, G.N., Mata, H., Bornschein, M.R., Cadena, C.D., Alvarenga, H. & Bonatto, S.L. (2008) Hidden generic diversity in Neotropical birds: molecular and anatomical data support a new genus for the "*Scytalopus*" *indigoticus* species-group (Aves: Rhinocryptidae). *Mol. Phylogenet Evol.*, 49, 125–135.
- Melo-Júnior, T.A., Vasconcelos, M.F., Fernandes, G.W. & Marini, M.Â. (2001) Bird species distribution and conservation in Serra do Cipó, Minas Gerais, Brazil. *Bird Conservation International*, 11, 189–204.
- Ménétries, E. (1835) Monographie de la famille des Myiotherinae. *Mémoires de L'Académie Imperiale des Sciences de St. Pétersbourg*, 6th serie, 3, part 2, 443–543.
- Miranda-Ribeiro, A. de (1905) Vertebrados do Itatiaya (Peixes, Serpentes, Saurios, Aves e Mammiferos) Resultados de excursões do Sr. Carlos Moreira, assistente da Secção de Zoologia do Museu Nacional. *Archivos do Museu Nacional*, 13, 165–190.
- Miranda-Ribeiro, A. de (1923) Nota critica sobre a ornis do Itatiaya. *Archivos do Museu Nacional*, 24, 239–255.
- Miranda-Ribeiro, A. de (1930) Notas ornithologicas X Ainda *Scytalopus speluncae*. *Boletim do Museu Nacional*, 6 (1), 11–15.
- Naumburg, E.M.B. (1937) Studies of birds from eastern Brazil and Paraguay, based on a collection made by Emil Kaempfer. Conopophagidae, Rhinocryptidae, Formicariidae (part). *Bulletin American Museum of Natural History*, 74, 139–205.
- Pacheco, J.F. (2004) Pílulas históricas VI Sabará ou Cuiabá? O problema das localidades de Ménétries. *Atualidades Ornitológicas*, 117, 4–5.
- Pacheco, J.F., Parrini, R., Lopes, L.E. & Vasconcelos, M.F. (2008) A avifauna do Parque Estadual do Ibitipoca e áreas adjacentes, Minas Gerais, Brasil, com uma revisão crítica dos registros prévios e comentários sobre biogeografia e conservação. *Cotinga*, 30, 16–32.
- Partridge, W.H. (1954) Estudio preliminar sobre una coleccion de aves de Misiones. *Revista del Instituto Nacional de Investigacion de las Ciencias Naturales y Museo Argentino de Ciencias Naturales "Bernardino Rivadavia"*, 3, 87–153.
- Raposo, M.A. & Kirwan, G.M. (2008) The Brazilian species complex *Scytalopus speluncae*: how many times can a holotype be overlooked? *Revista Brasileira de Ornitologia*, 16 (1), 78–81.
- Raposo, M.A., Stopiglia, R., Loskot, V. & Kirwan, G.M. (2006) The correct use of the name *Scytalopus speluncae* (Ménétries, 1835), and the description of a new species of Brazilian tapaculo (Aves: Passeriformes: Rhinocryptidae). *Zootaxa*, 1271, 37–56.
- Remsen, J.V., Jr., Cadena, C.D., Jaramillo, A., Nores, M., Pacheco, J.F., Robbins, M.B., Schulenberg, T.S., Stiles, F.G., Stotz, D.F. & Zimmer, K.J. (2010) A classification of the bird species of South America. American Ornithologists' Union, version 22 March 2010. <http://www.museum.lsu.edu/~Remsen/SACCBaseline.html>
- Sick, H. (1958) Resultados de uma excursão ornitológica do Museu Nacional a Brasília, novo Distrito Federal, Goiás, com a descrição de um novo representante de *Scytalopus* (Rhinocryptidae, Aves). *Boletim do Museu Nacional, Zoologia*, 185, 1–41.
- Sick, H. (1960) Zur systematik und biologie der Bürzelstelzer (Rhinocryptidae), speziell Brasiliens. *Journal für Ornithologie*, 101, 141–174.
- Silveira, L.F. (1998) The birds of Serra da Canastra National Park and adjacent areas, Minas Gerais, Brazil. *Cotinga*, 10, 55–63.
- Silveira, L.F., Develey P.F., Pacheco, J.F. & Whitney, B.M. (2005) Avifauna of the Serra das Lontras-Javi montane complex, Bahia, Brazil. *Cotinga*, 24, 45–54.
- Smithe, F.B. (1975) *Naturalist's color guide*. American Museum of Natural History, New York.
- Vasconcelos, M.F., Maldonado-Coelho, M. & Durães, R. (1999) Notas sobre algumas espécies de aves ameaçadas e pouco conhecidas da porção meridional da Cadeia do Espinhaço, Minas Gerais. *Melopsittacus*, 2, 44–50.
- Vasconcelos, M.F. & Melo-Júnior, T.A. (2001) An ornithological survey of Serra do Caraça, Minas Gerais, Brazil.

Cotinga, 15, 21–31.

- Vielliard, J.M.E. (1990) Estudo bioacústico das aves do Brasil: o gênero *Scytalopus*. *Ararajuba*, 1, 5–18.
- Whitney, B.M. (1994) A new *Scytalopus* tapaculo (Rhinocryptidae) from Bolivia, with notes on other Bolivian members of the genus and the *magellanicus* complex. *Wilson Bulletin*, 106, 585–614.
- Willis, E.O. & Oniki, Y. (1991) Avifaunal transects across the open zones of northern Minas Gerais, Brazil. *Ararajuba*, 2, 41–58.

APPENDIX. Specimens examined (only *S. speluncae* species-group).

Scytalopus sp. nov. (n = 28) [This is the light-gray taxon discussed in the text]. Brazil. Minas Gerais: Brumas do Espinhaço (19°02'S, 43°42'W), Lapinha de Cima, municipality of Santana do Riacho (3) (MZUSP 78823 [m]; MZUSP 78824 [m], DZUFMG 5336 [m]); Gruta de Lourdes (20°06'S, 43°27'W), Serra do Caraça, municipality of Catas Altas (1) (MZUSP 78815 [f]); near the village of Palmital (22°11'55"S, 44°26'59"W and 22°12'25"S, 44°27'02"W), Serra do Palmital, municipality of Bocaina de Minas (2) (MCP 1509 [m], MCP 1510 [m]); Pico do Inficionado (20°08'22"S, 43°27'36"W), Serra do Caraça, municipality of Catas Altas (12) (MCP 1560 [m], MCP 1561 [m], MCP 1562 [m], MZUSP 78811 [m], MZUSP 78812 [m], MZUSP 78813 [m], MZUSP 78816 [m], MZUSP 78817 [m], MZUSP 78814 [f], MZUSP 78818 [?], DZUFMG 5335 [m], DZUFMG 4169 [m]); Pico Dois Irmãos (18°12'26"S, 43°18'37"W), Parque Estadual do Rio Preto, municipality of São Gonçalo do Rio Preto (3) (DZUFMG 4167 [m], DZUFMG 4168 [f], MZUSP 78825 [f]); Serra da Piedade (19°49'S, 43°40'W), municipality of Caeté (2) (MZUSP 78822 [m], DZUFMG 5333 [f]); Serra do Caraça (20°05'02"S, 43°27'29"W), municipality of Catas Altas (2) (MZUSP 78819 [f], MZUSP 78820 [f]); base of Serra do Juncal (22°44'52"S, 45°56'00"W), municipality of Camanducaia (1) (DZUFMG 5719 [m]); Serrinha (21°19'S, 44°59'W), municipality of Lavras (1) (DZUFMG 5334 [m]); Sítio Ponte Velha (21°04'S, 44°20'W), municipality of São João del Rei (1) (MZUSP 78821 [m]).

Scytalopus diamantinensis (n = 12). Brazil. Bahia: Campo Redondo (13°24'09"S, 41°14'09"W), Serra do Sincorá, municipality of Ibicoara (1) (MCP 1900, paratype [m]); Capão do Vale (13°26'24"S, 41°23'54"W), municipality of Ibicoara (3) (MCP 1896, holotype [m by plumage], MCP 2472 [m], MCP 2473 [f]); Ibicoara (13°24'44"S, 41°16'53"W) (2) (MN 42741 [m], MN 42472 [f]); Rio Paraguaçuzinho (13°26'56"S, 41°19'51"W), Bairro dos Aguiar, municipality of Ibicoara (1) (MCP 2471 [m]); Rodovia Bonito/Utinga, km 6 (11°59'52"S, 41°13'37"W), municipality of Bonito (2) (MN 43053 [m], MN 43054 [f]); Serra do Ribeirão (12°34'S, 41°25'W), municipality of Lençóis (3) (MCP 1898, paratype [m], MCP 1897, paratype [f], MZUSP 77827, paratype [m]).

Scytalopus novacapitalis (n = 7). Brazil. Distrito Federal: Brasília (15°47'07"S, 47°55'17"W) (3) (MN 27906, holotype [m], MN 27905, paratype [?]; also an unsexed paratype in alcohol); Fazenda Água Limpa (15°57'17"S, 47°56'31"W), Brasília (1) (COMB 2628 [?]); Reserva Ecológica do IBGE (15°56'17"S, 47°53'00"W), Brasília (1) (MZUSP 71007 [f]); Ribeirão do Gama (15°55'37"S, 47°57'07"W), near the village of Vargem Bonita, Brasília (1) (MCP 1481 [m]). One additional specimen was examined by M.R.B. in the bird collection of the Reserva Ecológica do IBGE (or Reserva Ecológica do Roncador) in the 1990's; this specimen was not located later by G.N.M.

Scytalopus pachecoi (n = 34). Brazil. Paraná: Fazenda Tunas (26°24'S, 52°15'W), municipality of Clevelândia (1) (MHNCI 5491 [m by plumage]). Santa Catarina: edge of Bom Jardim da Serra town (28°20'S, 49°37'W) (2) (MCP 1188 [m], MCP 1190 [m]); Fazenda Rocinha (28°18'S, 49°35'W), municipality of Bom Jardim da Serra (1) (MCP 1183 [m]); rio Lageado do Posto (25°34'28"S, 50°59'01"W), Fazenda Mangueira de Pedra, municipality of Abelardo Luz (1) (MCP 2052 [m]); Serra do Rio do Rastro (28°23'S, 49°32'W), at the *Planalto* edge, on the border of Bom Jardim da Serra and Lauro Müller municipalities (1) (MCP 1189 [m]). Rio Grande do Sul: arroio Andrade headwaters (31°27'S, 52°28'W), on the border of Pelotas and Arroio do Padre municipalities (1) (MCP 962, paratype [m]); Arroio Cadeia (31°35'S, 52°33'W), municipality of Morro Redondo (1) (MCP 959, paratype [m]); upper Arroio Moinho (31°19'S, 52°30'W), municipality of Canguçu (1) (MCP 961, paratype [m]); northern edge of Cambará do Sul town (29°02'S, 50°08'W) (1) (MCP 1075 [m]); Cerro das Almas (31°46'S, 52°35'W), municipality of Capão do Leão (4) (MCP 1179, holotype [m], MZUSP 75761, paratype [m], MZUSP 75762, paratype [m], MCP 1082, paratype [m]); Colônia Solidez (31°18'S, 52°32'W), municipality of Canguçu (1) (MZUSP 75764, paratype [m]); upper reaches of das Contas creek, municipality of São José dos Ausentes (1) (MCP 1016 [m by plumage]); Harmonia (31°18'S, 52°25'W), municipality of São Lourenço do Sul (1) (MCP 1009, paratype [m]); Monte Bonito, at highway BR 392 (31°39'S, 52°27'W), municipality of Pelotas (1) (MCP 1022, paratype [f]); Morro da Antena (31°36'S, 52°31'W), municipality of Pelotas (1) (MCP 960, paratype [m]); Parque Estadual do Turvo (27°14'S, 53°57'W), municipality of Derrubadas (1) (MCP 994 [m]); upper Rio das Antas (28°47'S, 49°58'W), municipality of São José dos Ausentes (3) (MCP 1015 [m], MCP 1040 [m], MCP 1039 [f]); Santo Amor (31°40'S, 52°35'W), municipality of Morro Redondo (2) (MZUSP 75763, paratype [m], MCP 977, paratype [m]); São Gonçalo creek (28°53'S, 50°01'W), municipality of Cambará do Sul (1) (MCP 1043 [m]); near Terra Indígena de Nonoai/Rio da

Várzea (27°21'S, 52°57'W), municipality of Nonoai (1) (MCP 1174 [m]). Argentina. Misiones: Arroyo Urugua-í, km 10 (25°54'S, 54°36'W) (2) (AMNH 795288 [m], AMNH 771240 [f]); Arroyo Urugua-í, km 30 (25°54'S, 54°36'W) (5) (AMNH 771238 [m], AMNH 795289 [m], AMNH 771239 [f], AMNH 771241 [f], AMNH 771242 [f]).

Scytalopus iraiensis (n = 12). Brazil. Paraná: propriety of R. Venske (25°23'28"S, 49°05'49"W), right margin of rio Iraí, municipality of Quatro Barras (8) (MN 43378 holotype [f], MN 43379 paratype [m], MN 43380 paratype [m], MHNCI 5176 [m], MHNCI 5175 [f], MHNCI 5177 [f]); two additional paratypes were examined before deposition at the Museu Paraense Emílio Goeldi, Belém, state of Pará (MPEG 52945 [m], MPEG 52944 [f]). Santa Catarina: Fazenda Cerro Verde (27°17'08"S, 50°17'59"W), municipality of São Cristovão do Sul (1) (MHNCI 5958 [m]); Fazenda Rio das Pedras (27°07'38"S, 50°22'52"W), municipality of Ponte Alta do Norte (1) (MHNCI 6197 [f]). Rio Grande do Sul: Banhado do Maçarico (32°16'11"S, 52°24'06"W), Rio Grande (2) (MCP 957 [m], MCP 958 [m]).

Scytalopus speluncae (n = 152) [This is the dark-gray taxon discussed in the text]. Brazil. Minas Gerais: road to Marmelópolis (22°32'40"S, 45°12'12"W), municipality of Delfim Moreira (2) (MCP 1172 [m], MCP 1173 [f]); Pedra de São Domingos (22°41'34"S, 45°57'33"W), on the border of Camanducaia, Córrego do Bom Jesus and Paraisópolis municipalities (1) (DZUFMG 5321 [m]; Pico do Selado (22°53'08"S, 46°01'43"W), Monte Verde, municipality of Camanducaia (2) (MCP 2047 [m], MCP 2048 [m]); Serra da Vargem Grande (20°31'16"S, 42°04'17"W), municipality of Divino (3) (DZUFMG 4924 [m], DZUFMG 4925 [m], MCP 1723 [m]); Serra do Caparaó (20°26'06"S, 41°47'46"W), municipality of Alto Caparaó (6) (MN 26267 [m], MN 27035 [m], MN 27036 [m], MN 26281 [m], AMNH 785876 [m], AMNH 785877 [?]); Serra do Caparaó, Casa Queimada (20°27'28"S, 41°48'33"W), municipality of Alto Caparaó (1) (MN 14202 [m]); Serra do Itatiaia, Macieiras (22°19'08"S, 44°38'35"W), municipality of Bocaina de Minas (6) (MZUSP 34380 [f] – the label reads “Serra do Itatiaia, Maromba, km 7” –, MZUSP 34805 [f], MZUSP 34807 [f], MZUSP 34806 [?], AMNH 188969 [f], AMNH 188970 [f]); Serra do Itatiaia, Maromba, km 6 (22°19'25"S, 44°38'08"W), municipality of Bocaina de Minas (1) (MZUSP 34808 [?]); base of Serra do Juncal (22°44'56"S, 45°56'00"W), municipality of Camanducaia (1) (DZUFMG 5718 [m]); Serra do Lopo (22°53'17"S, 46°19'03"W), municipality of Extrema (3) (MCP 2049 [m], MCP 2474 [m], MCP 2050 [f]). Rio de Janeiro: Fazenda Toledo (22°20'10"S, 42°42'44"W; now Três Picos, within Parque Estadual dos Três Picos), municipality of Nova Friburgo (4) (MN 36652, holotype of *S. notorius* [m], MN 36655, paratype of *S. notorius* [f], MN 36653, paratype of *S. notorius* [f], MN 36656, paratype of *S. notorius* [f]); Morro da Caledônia (22°21'18"S, 42°33'49"W), municipality of Nova Friburgo (2) (MCP 1995 [m], MCP 1996 [f]); Registro (22°22'34"S, 44°45'44"W), municipality of Resende (3) (MCP 1997 [m], MCP 1998 [f], MCP 1999 [f]); Serra do Itatiaia (22°22'49"S, 44°39'40"W), municipality of Resende (18) (MZUSP 6121 [m], MZUSP 34804 [m], MZUSP 36347 [m] – as Serra do Itatiaia, km 12, MZUSP 36349 [f] – as Serra do Itatiaia, km 11, MZUSP 6123 [?], MZUSP 36348 [?] – as Serra do Itatiaia, km 11, MN 14203 [f] – as Serra do Itatiaia, Caminho do Moreira, MN 14205 [?], AMNH 188960 [m], AMNH 188961 [m], AMNH 188964 [m], AMNH 188967 [m], AMNH 188968 [m], AMNH 492362 [m], AMNH 188962 [f], AMNH 188963 [f], AMNH 188965 [f], AMNH 188966 [f]); Serra do Itatiaia, Caminho do Couto (22°23'04"S, 44°41'37"W), municipality of Resende (1) (MN 14206 [?]); Serra do Itatiaia, Maromba (22°19'52"S, 44°37'09"W), municipality of Itatiaia (1) (MZUSP 34381 [m]); Serra São Bernardo (22°20'32"S, 42°27'05"W), municipality of Nova Friburgo (1) (MCP 1994 [m]). São Paulo: Catuçaba (23°15'20"S, 45°10'14"W), municipality of São Luiz do Paraitinga (3) (MHNT 3057 [m], MHNT 3732 [m], MHNT 3529 [m], MHNT 3733 [m]); Córrego Preto (24°23'50"S, 48°38'10"W), Bairro Banhado Grande, municipality of Apiaí (4) (MCP 2174 [m], MCP 2176 [m], MCP 2177 [m], MCP 2175 [f]); Mato Limpo (23°09'42"S, 44°51'43"W), municipality of Cunha (1) (MCP 2051 [?]); Paranapiacaba (= Alto da Serra; 23°46'40"S, 46°18'08"W), municipality of Santo André (1) (MZUSP 4836 [f]); Pico do Diamante (22°47'27"S, 45°34'14"W), municipality of Pindamonhangaba (1) (MHNT 4356 [f]); Pico dos Marins (22°30'01"S, 45°07'56"W), municipality of Piquete (4) (MHNT 4268 [m], MHNT 4330 [f], MHNT 4327 [?]; MCP 1177 [m]); Ribeirão do Barreiro headwaters (22°41'40"S, 44°37'57"W), near Fazenda São Miguel, Serra da Bocaina, municipality of São José do Barreiro (4) (MCP 1990 [m], MCP 1992 [m], MCP 1989 [f], MCP 1991 [?]); Ribeirão Vermelho (23°56'48"S, 47°24'06"W), near Jurupará dam, municipality of Piedade (1) (MCP 2261 [m]); near São José dos Alpes (22°42'30"S, 45°25'56"W), municipality of Guaratinguetá (1) (MHNT 3036 [f]); Serra do Macaco (24°23'03"S, 49°10'22"W), municipality of Barra do Chapéu (8) (MCP 2040 [m], MCP 2041 [m], MCP 2169 [m], MCP 2170 [m], MCP 2171 [m], MCP 2172 [m by plumage], MCP 2168 [f], MCP 2173 [f]); Serra do Sertão Grande (23°13'42"S, 45°07'37"W), municipality of Cunha (1) (MCP 1988 [f]); Sertão das Cobras (22°45'S, 44°20'W), municipality of Bananal (1) (MN 25845 [m]). Paraná: highway BR 153 (26°32'S, 51°25'W), municipality of General Carneiro (1) (MCP 1106 [m]); highway BR 277 – Serra de São Luís do Purunã (25°27'25"S, 49°38'34"W), municipality of Campo Largo (1) (MCP 2042 [f]); Bugre (25°29'06"S, 49°39'08"W), municipality of Balsa Nova (1) (MHNCI 5984 [m]); Cerro do Leão (25°34'28"S, 50°59'01"W), Serra da Boa Esperança, municipality of Irati (1) (MCP 2065 [m]); Coqueiro (25°07'02"S, 48°39'12"W), municipality of Campina Grande do Sul (2) (MCP 1175 [m], MCP 1176 [m]); Corvo (25°20'21"S, 48°55'03"W), Serra da Graciosa, municipality of Quatro Barras (3) (MHNCI 3193 [f],

MCP 1739 [?], MN 43382 [?]; Faxina road (25°26'23"S, 49°41'29"W), São Luis do Purunã, municipality of Balsa Nova (1) (MCP 2068 [?]); Fazenda Galpão das Almas (25°17'23"S, 49°50'50"W), near Rio Tibagi headwaters, municipality of Palmeira (2) (MCP 2038 [m], MCP 2039 [f]); Mananciais da Serra (25°28'55"S, 48°58'21"W), municipality of Piraquara (3) (MN 38757 [m], MN 43434 [m], MN 43433 [f]); Morro Anhangava (25°23'18"S, 49°00'06"W), Borda do Campo, municipality of Quatro Barras (2) (MN 38751 [f], MN 43381 [f]); Morro do Cal (25°23'13"S, 49°33'10"W), municipality of Campo Largo (1) (MCP uncatolog [m]); Morro do Cristo (25°28'24"S, 49°38'20"W), municipality of Balsa Nova (1) (MCP 2067 [m]); Morro dos Perdidos (25°53'27"S, 48°57'25"W), municipality of Guaratuba (6) (MCP 1735 [m], MCP 1736 [m], MCP 2000 [m], MCP 2032 [m], MCP 2031 [f], MCP 2033 [f]); near Rio Claro headwaters (25°47'49"S, 51°00'28"W), municipality of Mallet (2) (MCP uncatolog [m], MCP uncatolog [m by plumage]); 5 km north of São Luis do Purunã (25°25'36"S, 49°42'59"W), municipality of Campo Largo (1) (MCP 2163 [m]); Serra da Bocaina (25°03'20"S, 49°00'25"W), municipality of Bocaiúva do Sul (2) (MCP uncatolog [m], MCP uncatolog [f]); Serra do Capivari (25°07'57"S, 48°49'15"W), municipality of Campina Grande do Sul (1) (MCP 2211 [f]); Sítio Curucaca (24°35'17"S, 50°14'29"W), municipality of Tibagi (2) (MCP 1738 [m], MCP 2037 [m]); Viaduto da Santa (25°28'21"S, 49°39'18"W), BR 277, near Fazenda Thalia, municipality of Balsa Nova (1) (MCP 2162 [m]). Santa Catarina: Cerro do Galo (26°26'06"S, 51°05'51"W), municipality of São Miguel da Serra (2) (MCP 2429 [m], MCP 2431 [m]); Córrego Saltinho (26°43'06"S, 51°19'13"W), Fazenda Serraria Grande, municipality of Caçador (1) (MCP 2430 [m]); Fazenda Cerro Verde (27°17'08"S, 50°17'59"W), municipality of São Cristovão do Sul (1) (MHNCI 5957 [m by plumage]); Fazenda Naderer (26°15'S, 49°23'W), municipality of São Bento do Sul (1) (MN 13400 [?]); Fazenda Papagaio (28°34'07"S, 49°39'17"W), municipality of Bom Jardim da Serra (2) (MCP 2166 [m], MCP 2167 [m]); Fazenda São Pedro (26°33'32"S, 50°53'37"W), municipality of Calmon (1) (MCP 2433 [m]); Fazenda São Roque (26°41'45"S, 50°30'33"W), municipality of Santa Cecília (1) (MCP 2432 [f]); Limoeiro (26°46'12"S, 51°44'21"W), municipality of Água Doce (1) (MHNCI 3452 [m]); Morro do Funil (27°34'07"S, 49°39'17"W), Serra Geral, municipality of Mirim Doce (1) (MCP 2066 [?]); propriety of Nicoladeli (28°09'56"S, 49°25'14"W), near Parque Estadual da Serra Furada, municipality of Orleans (1) (MCP uncatolog [?]); Ronda do Congonhas (28°26'34"S, 49°33'08"W), Fazenda Curral Falso, municipality of Bom Jardim da Serra (2) (MCP 2164 [m], MCP 2165 [f]); Serra do Quiriri (26°01'15"S, 48°59'44"W), municipality of Campo Alegre (2) (MCP 1737 [m], MCP 2035 [m]); Serra do Quiriri (26°01'32"S, 48°57'14"W), municipality of Garuva (1) (MCP 2034 [m]). Rio Grande do Sul: Colinas de São Francisco (29°27'48"S, 50°37'30"W), municipality of São Francisco de Paula (1) (MCP 1169 [m]); Farroupilha (29°13'32"S, 51°21'00"W) (2) (MCN/FZB 2093 [m], MCN/FZB 2112 [m]); Josafaz (29°21'20"S, 50°04'16"W), municipality of São Francisco de Paula (1) (MCP 1076 [m]); Lajeado (28°36'S, 49°55'W), municipality of São José dos Ausentes (1) (MCN/FZB 2082 [m]); Morro Pelado (29°22'S, 50°47'W), municipality of Canela (1) (MCN/FZB 1413 [m]); Passo do Meio (28°48'24"S, 50°36'37"W), municipality of Bom Jesus (1) (MCP 1083 [m]); Passo do Meio (28°48'40"S, 50°36'17"W), municipality of São Francisco de Paula (1) (MCP 1213 [m]); Santo Antônio (29°29'16"S, 50°20'21"W), municipality of São Francisco de Paula (3) (MCP 983 [m], MCP 984 [m], MCP 985 [m]); Serra da Boa União (29°23'16"S, 50°06'57"W), Três Forquilhas/São Francisco de Paula (1) (MCP 1170 [m]); Serra do Umbu (29°30'18"S, 50°19'26"W), municipality of Maquiné (2) (MCP 987 [f], MCP 988 [m]); locality? (1) (MCN/FZB 2535 [?]).