
Field identification of *Phylloscartes* and *Phyllomyias* tyrannulets in the Atlantic forest region

Robert P. Clay, Joe A. Tobias, James C. Lowen and David Beadle

Las mosquetas de los géneros *Phylloscartes* y *Phyllomyias* están consideradas entre las aves más difíciles de identificar en el Neotrópico. Discutimos aquí los caracteres diagnósticos de 15 especies encontradas en la región del bosque Atlántico de Brasil, Argentina y Paraguay. Una combinación de elementos del plumaje, comportamiento y vocalizaciones permiten identificar casi todas las mosquetas en el campo. Por lo menos 11 de las 15 especies poseen problemas de conservación. Una identificación certera es un requisito para evaluar efectivamente su estatus y distribución, y se espera que este artículo sea una herramienta benéfica en la colecta de datos sobre estas especies, muchas de las cuáles permanecen poco conocidas.

Os tiranídeos dos gêneros *Phylloscartes* e *Phyllomyias* são considerados como sendo algumas das aves mais difíceis de serem identificadas do Neotrópico. Nós discutimos as características diagnósticas de 15 espécies encontradas na região da Floresta Atlântica do Brasil, Argentina e Paraguai. Uma combinação de caracteres de plumagem, características comportamentais e vocalizações permitem que a maioria destes tiranídeos possam ser identificados no campo. Pelo menos 11 das 15 espécies são importantes desde o ponto de vista da sua conservação. A sua correta identificação é um pré-requisito para que os seus status e distribuições possam ser determinados de forma efetiva, e se espera que este artigo se torne uma útil ferramenta na coleta de novos dados sobre estas espécies, várias das quais continuam sendo muito pouco conhecidas.

There are quite a dozen species of these birds somewhat like one another and hard to separate in the dim lights and shades of the forest. Their habits differ but slightly, so there is very little to say about them...
Chubb (1910)⁶.

Introduction

The genera *Phylloscartes* and *Phyllomyias* comprise c.30 species of small tyrant-flycatchers distributed from Costa Rica to northern Argentina. Many are notoriously difficult to identify. We discuss the field identification of the 15 species occurring in the Atlantic forest region of eastern Brazil, eastern Paraguay and north-east Argentina. Whilst almost all these species have previously been treated (and several illustrated) by Ridgely & Tudor¹⁴, this article aims to add further information concerning the birds identification and distribution, and correct a few inaccurate details in published accounts.

Conservation

A huge area of the Atlantic forest has been destroyed during the course of the past century as a result of agricultural and industrial development in the region⁹. This reduction in the area of habitat available for regionally endemic birds increases the likelihood of their extinction^{3,4}. Of the 15 species considered here, at least 11 are of global conservation concern, although in several cases this probably results from a paucity of data rather than low population sizes. Seven species occupy ranges of less than 50,000 km² in five Endemic Bird Areas¹⁸, while four species are considered Threatened and six near-threatened by Collar *et al.*⁸. In addition, the recently described Bahia Tyrannulet *Phylloscartes beckeri* is presumably threatened by the massive destruction of humid forest in its restricted range¹⁰. The plight of several tyrannulet species dependent on the Atlantic forest and associated habitats is discussed in depth by Collar *et al.*⁷ while various sites important for their conservation are identified by Wege & Long²⁴.

Taxonomy

Until comparatively recently^{22,23}, *Phylloscartes* comprised three genera: true *Phylloscartes*, the monotypic *Leptotriccus* and the *Pogonotriccus* bristle-tyrants. A re-evaluation of morphological differences, in conjunction with an assessment of behavioural characteristics, will probably return *Phylloscartes* to smaller generic units¹⁴. Moreover, even the true *Phylloscartes* complex comprises a polyphyletic assemblage that exhibits considerable morphological and behavioural differences between individual species or groups of species¹⁰. In addition, there is an increasing tendency to incorporate Yellow Tyrannulet *Capsiempis flaveola* (see photo) into *Phylloscartes*, where it was placed by Taylor²² on morphological grounds. However, Lanyon¹² considered this taxon to be closer to *Phaeomyias*. We do not discuss it here because it is behaviourally and vocally highly distinct and easily identified by its all yellow face and underparts¹⁴.

The current genus *Phyllomyias* includes two obsolete genera: *Xanthomyias* and *Acrochordopus*. Da Silva¹⁶ highlights the possibility that further studies may lead to the resurrection of the genus *Xanthomyias* for Greenish Tyrannulet *Phyllomyias virescens* and Reiser's Tyrannulet *P. reiseri*, which may also include Urich's Tyrannulet *P. (virescens) urichi* of Venezuela (undoubtedly a valid species, though not yet formally described as such) and Sclater's Tyrannulet *P. sclateri* of the Andes. In general, current opinion indicates a reversal of the trend towards taxonomic homogeneity which assembled *Phylloscartes* and *Phyllomyias* earlier this century.

Identification issues

All 15 species are small, relatively long-tailed flycatchers with green upperparts and yellow or grey underparts. They are most frequently observed accompanying mixed-species flocks and can be divided broadly into species with wing-bars (five *Phyllomyias* taxa and four closely related *Phylloscartes*, hereafter referred to as the Mottle-cheeked Tyrannulet *Phylloscartes ventralis* group) and a heterogeneous assortment of species lacking, or almost lacking wing-bars (the remaining *Phylloscartes* taxa). Major identification problems arise within the former group. The following species sections frequently refer to differences in structure and plumage such as tail-length, wing-length, primary projection, face pattern and tertial fringes. It is important to bear in mind that moult and wear can impinge on these differences and care should thus be taken to assess the state of plumage in each case.

Despite morphological differences, wing-barred *Phylloscartes* and *Phyllomyias* tyrannulets are often confused in the field. The Mottle-cheeked Tyrannulet group comprises four similar species in the Atlantic forest region (*Phylloscartes ventralis*, Restinga Tyrannulet *Phylloscartes kronei*, Bahia Tyrannulet *Phylloscartes beckeri* and Alagoas Tyrannulet *Phylloscartes ceciliae*), with only a single representative at any given site. Fortunately, all these species can be distinguished from *Phyllomyias* tyrannulets by the broad pale spot on the outer web of each tertial tip (see Fig. 1). In contrast, *Phyllomyias* tyrannulets of the Atlantic forest region have tertials with yellowish fringes that are either uniform in width or taper towards the tip. Another useful indication is the pinched-in tail-base of *Phylloscartes*, the tail being more uniform in width in *Phyllomyias*, although slightly narrower at the base in *Phyllomyias virescens*. Furthermore, the four members of the Mottled-cheeked Tyrannulet group generally give a more lightly built, dainty impression than do *Phyllomyias* tyrannulets. With practice, *Phyllomyias* tyrannulets can always be safely distinguished from wing-barred *Phylloscartes* by a combination of jizz and tertial pattern.

One species regularly mistaken for a *Phyllomyias* or *Phylloscartes* tyrannulet is the Grey Elaenia *Myiopagis caniceps*, particularly young birds or females high in the canopy. The almost constant tyrannulet-like posture and foraging behaviour of this bird (at least the nominate Atlantic forest subspecies) is not referred to in the available literature and creates a trap for the unwary. In general this species is more compact and shorter-tailed than other species dealt with in this article and it is often found in pairs, at which time the distinctively pallid, grey-mantled male is easily identified.

The Mottle-cheeked Tyrannulet group

Mottle-cheeked Tyrannulet *Phylloscartes ventralis* Conservation status: Low risk

This slender and distinctly long-tailed species is the most commonly observed tyrannulet in the region and should form the basis of comparison with other species. The English name of this species is perhaps misleading as the dusky mottling on whitish cheeks is usually inconspicuous. It has a whitish supraloral line and eye-ring, and a fine dusky eyestripe extending to the ear-coverts. The upperparts are generally olive-green, with duskier wings and tail, their blackish brown basal colour contrasting with yellow-olive fringes to the outer webs of remiges and rectrices. Two conspicuous pale wing-bars, on the median and greater coverts, contrast markedly with their blackish brown bases and the uniform blackish brown primary coverts. Median coverts have complete whitish tips whereas greater coverts are tipped on the outer web only so that the upper wing-bar appears more solid. All three tertials are brownish-black, each marked with a contrasting whitish yellow fringe on the outer web which widens abruptly to a broad terminal spot while the inner webs are unmarked. The innermost two secondaries (especially the innermost) also have a small, less conspicuous terminal spot. The underparts of *P. ventralis* are mostly pale yellow, washed olive across the breast, contrasting with the paler greyish-white throat. The tarsi and feet are dark grey, and the bill is blackish with a pale pink base to the lower mandible. Mean tarsus length of *P. ventralis* is 18.9 mm (range 18.4–19.5 mm, N = 5), while that of *Phyllomyias virescens* is 16.1 mm (range 15.9–16.6 mm, N = 4), providing a measurement for instant in-the-hand identification.

This species usually forages actively in the sub-canopy of forest, or quite low in secondary vegetation. The tail is often partially cocked, though never quivered from side-to-side (cf. *Phylloscartes oustaleti*). Foraging birds tend to give a quiet contact call: a dry *pit* or *chit* and occasionally *pitip*. In addition, a brief whirring noise is often audible during short flights between perches. The song is variable but based on a fairly loud, brief twitter, generally with one or two introductory notes: *chip-chip-chitititititip*.

Restinga Tyrannulet *Phylloscartes kronei*

Conservation status: Vulnerable

This species is very similar to *P. ventralis*. In good light, the face is noticeably more yellow, the post-auricular crescent usually appears darker, and the crown and mantle are brighter green. The bill averages slightly longer than in Mottle-cheeked Tyrannulet and the tail slightly shorter²⁶, but structural differences are not apparent in the field.

In general, *P. kronei* is identifiable by habitat, range and voice. It is restricted to sandy woodlands at sea-level from São Paulo south to Santa Catarina, Brazil, and adjacent riverine forest of the Ribeira valley, São Paulo^{13,26}, where it usually forages actively in the crowns of low trees. Renold & Ramos Neto¹³ report that *P. kronei* appears, at least during the breeding season, to prefer swampy areas with standing pools of water. *P. ventralis* is absent from the area. In addition, the distinctive call is very different from any vocalisation of *P. ventralis*: a frequent loud disyllabic *chuwup*, or *psirip*. The song is a rapid twittering, more prolonged than *P. ventralis*²⁶.

Bahia Tyrannulet *Phylloscartes beckeri*

Conservation status: Not evaluated

Gonzaga & Pacheco¹⁰ present the following details. *P. beckeri* differs from other tyrannulets in the Mottle-cheeked Tyrannulet group in having a buff supraloral stripe and eye-ring rather than a whitish or yellow supercilium. It has a distinctly darker, greyish green crown blending into a brighter green back, whereas *P. ventralis* and *P. kronei* have crowns concolorous with upperparts. The wing markings of *P. beckeri* are more pronounced than *P. ventralis* as a result of darker bases to the remiges and coverts. *P. beckeri* is further distinguished by its less olivaceous breast, paler yellow belly, and paler grey tarsi and feet. In the field it appears smaller and more lightly built than *P. ventralis* (B. Whitney *in litt.* 1997).

Again, range and voice are the most useful clues to the identification of this species. It occurs in humid hill forest in Bahia, Brazil, where it is usually encountered associating with mixed-species flocks, foraging in the canopy or subcanopy (though descending to lower strata along ridge-tops). It is currently known from only three sites—the Serra do Ouricana near Boa Nova, Chapada Diamantina and Itatingui—all well outside the range of *P. ventralis*. The main feature of the song of *P. beckeri* is its variety of relatively weak notes, in contrast to the songs of *P. ventralis* and *P. ceciliae* which are simpler, more level-pitched series of louder, repeated notes. The species also has a quiet contact call, transcribed as *tik*, probably similar to *P. ventralis*.

Alagoas Tyrannulet *Phylloscartes ceciliae*

Conservation status: Endangered

The identification of this species is straightforward as it is the only *Phylloscartes* known from Alagoas, where it survives at two localities: Pedra Branca, near Murici, and Pedra Talhada Biological Reserve⁸. In any case, it is easily distinguished from other tyrannulets in the *P. ventralis* group by its prominent facial markings and largely whitish underparts²⁰. The face pattern is particularly intricate with an ashy black eye-stripe from the lores forming a complete border around the ear-coverts. A narrow black oblique stripe joins the eyestripe to a line bordering the cheeks. On average, *P. ceciliae* is slightly longer winged, longer tailed, shorter billed and shorter legged than other members of the *P. ventralis* group²⁰. Furthermore, the vocalisations of *P. ceciliae* are distinct from other members of the genus. Teixeira²⁰ describes a peeping sequence *djü, djü...* sometimes sharper and faster *ürürüt, ürürüt...* and a single inconspicuous *thüp*.

Assorted *Phylloscartes* without wing-bars**Minas Gerais Tyrannulet *Phylloscartes roquettei*** Conservation status: Endangered

This species is known from the type-locality (Brejo Januária in northern Minas Gerais)²⁵ and a probable recent report 40 km north-east of there¹⁸. It is the only *Phylloscartes* within this limited range. Ridgely & Tudor¹⁴ consider that *P. roquettei* closely resembles the geographically remote Rufous-lored Tyrannulet *P. flaviventris* from north-west South America, but lacks that species' pale yellowish supercilium and has a yellower rump. *P. roquettei* can be distinguished from other *Phylloscartes* by its combination of reddish ochre forehead, lores and ocular area, fairly bright yellow underparts and two clear greenish yellow wing-bars^{17,20}. Willis & Oniki²⁵ comment that in the field *P. roquettei* appears golden rather than reddish on the head. They add that the species hops constantly, often cocking its tail above the horizontal or raising its wings slightly as it forages, sallying short distances for insects. The contact call of *P. roquettei* is a sharp *peep* and its song is a fast, twittering *pr'r'r'it tit-tit-tit* (-t)²⁵.

Oustalet's Tyrannulet *Phylloscartes oustaleti*

Conservation status: Near-Threatened

This is a distinctive tyrannulet, immediately recognisable by jizz and voice. It has a conspicuous yellowish lower mandible and a strong face pattern (a conspicuous wide yellow eye-ring and rear border to a dusky green auricular patch). Although this is superficially similar to the pattern of *P. paulistus*, the latter species has a

very different jizz, is much smaller overall, virtually lacks an eye-ring and has a weak yellow supercilium wrapping around a dark green auricular patch. Furthermore, where *P. oustaleti* and *P. paulistus* overlap, the first-named tends to be more abundant at higher elevations where *paulistus* is absent¹.

P. oustaleti perches with a horizontal posture, its long tail cocked at 45–60° (sometimes vertically, especially when excited) and constantly quivered. This quivering motion is laterally oriented (i.e. side-to-side) and immediately distinctive (B. Whitney *in litt.* 1997). Both *P. ventralis* and *P. oustaleti* are rarely stationary when foraging. Several individuals often forage together in mixed-species flocks in the mid-storey or subcanopy, drawing attention with a sharp insistent *twik*, frequently expanded to *twidik* or *twididik*. These calls can sometimes be delivered quietly and softly, but with the same distinctive intonation.

São Paulo Tyrannulet *Phylloscartes paulistus*

Conservation status: Vulnerable

The only obvious feature of this relatively unpatterned species is a dark auricular patch (reminiscent of Southern Bristle-tyrant *P.*

eximius or Sepia-capped Flycatcher *Leptopogon amaurocephalus* but noticeably greenish in tone) with a broad lemon-yellow rear border which is the continuation of a narrow yellowish supercilium. Nevertheless, the face pattern often appears relatively indistinct. The remiges (including the tertials) have prominent but diffuse yellowish fringes. Birds in fresh plumage have paler (more yellow) tips to the wing-coverts, occasionally producing a slightly wing-barred effect. The legs and basal lower mandible of this species are conspicuously pale pinkish. The tail is slightly forked with a pinched-in base.

Importantly, *P. paulistus* is the smallest *Phylloscartes*, usually appearing tiny in the field. Behaviourally, it appears closest to *Pogonotriccus* bristle-tyrants and should probably be included within that genus (B. Whitney *in litt.* 1997). Like *Pogonotriccus* it usually perches with an upright posture in the mid-storey, almost never cocking its tail or drooping its wings but frequently performing stylised wing-lifts. Its foraging behaviour is also typical of *Pogonotriccus* as it tends to sally for insects and dart rapidly between perches rather than make constant gleaning movements. *P. paulistus* pauses motionless far more frequently than *P. oustaleti* or the *P. ventralis* group. Its quiet but distinctive call, once learnt, usually reveals the species' presence: a soft rolling *tsí-di-dip* or *swé-eet* with emphasis on the first syllable. Occasionally a shorter *swip* or *sweit* is given.

Serra do Mar Tyrannulet *Phylloscartes difficilis* Conservation status: Near-Threatened

Another distinctive tyrannulet, easily separated from other species treated here by its combination of bright olive upperparts, ash-grey underparts, prominent white eye-ring and white supraloral line. *P. difficilis* has no wing-bars, but its remiges have relatively prominent yellowish fringes. It is closer in plumage to Eye-ringed Tody-tyrant *Hemitriccus orbitatus* than to other *Phylloscartes*. However, these two species are very different in other respects (i.e. voice, jizz, behaviour) and never occur together, *H. orbitatus* being confined to lower altitudes.

P. difficilis is endemic to the mountains of south-east Brazil where it occurs generally above 1,000 m. Unlike its congeners it tends not to follow mixed-species flocks and forages primarily in the undergrowth, rarely being found more than 4 m from the ground. The vocalisations of *P. difficilis* are also unusual. It is usually detected in dense vegetation by a brief grating *krrrrr*, and a distinctive snapping noise which is apparently made by the wings (B. Whitney *in litt.* 1997 *contra* Ridgely & Tudor¹⁴).

Bay-ringed Tyrannulet *Phylloscartes sylviolus*

Conservation status: Near-Threatened

Until recently this species was placed in the monotypic genus *Leptotriccus* but both morphologically and behaviourally it is close to true *Phylloscartes*²². *P. sylviolus* is smaller and more slender than *P. ventralis* with bright olive upperparts contrasting with whitish (often appearing clean white) underparts. The lores and ocular area are a distinctive rufous-chestnut though this is difficult to discern in poor light. This face pattern is not shared by any other sympatric tyrannulet and is further emphasised by a whitish iris. The wings are duller than the upperparts, with prominent yellowish olive fringing to the remiges, but no wing-bars. The throat and vent are often tinged pale buffy yellow. The buffy vent is visible at long range and is a useful identification feature for this canopy tyrannid, although Grey Elaenia often shows a similar yellowish vent.

P. sylviolus is a very lively bird, frequently encountered in small groups at the forest edge. Its long, slender, constantly half-cocked tail produces a distinctive silhouette, the overall impression being surprisingly reminiscent of a gnatcatcher *Poliophtila*.

It appears to favour forest edge more than its congeners, more often being encountered in nearby palms or dead trees outside the forest. Aleixo & Galetti¹ noted that it was “recorded only in edges, secondary and logged forest”. It usually gives a rapid trisyllabic call similar in tempo to *P. paulistus*, but with emphasis on the downwardly inflected final syllable: *tsi-di-diu* or *si-si-sut*. The song is a rapid twittering series of similar notes: *swit-swi-swi-swi-swi-swe,de,de,de,-swi-swi*.

Southern Bristle-tyrant *Phylloscartes eximius* Conservation status: Near-Threatened

This is the most distinctive species treated here, and deserves recognition in the separate genus *Pogonotriccus* (along with the other, mainly Andean, bristle-tyrants). *P. eximius* has a prominent white supercilium (variably grizzled with grey), contrasting with the prominent blackish lores and auricular patch. This contrast is further enhanced by the greyer crown, yellow face and yellow rear border to the auricular patch. The conspicuous white coloration in its bright and complex face pattern separates *P. eximius* from the smaller and considerably more active *P. paulistus*. A word of caution: juvenile *P. eximius* have duller, more uniform plumage and more closely resemble *P. paulistus*. The upperparts of *P. eximius* are very bright olive, with duller wings and tail, and the underparts are very bright yellow. The yellowish fringing prominent on the remiges occasionally extends to the wing-coverts, creating an indistinct wing-barred effect.

It can be readily distinguished from all but *P. difficilis* and *P. paulistus* by its habit of perching vertically and remaining still for long periods. It also regularly performs a characteristic wing-raising in a manner similar to *Mionectes* and *Leptopogon* flycatchers. *P. eximius* is found in the lower or middle growth of forest, sometimes following mixed-species flocks (*contra* Ridgely & Tudor¹⁴) at least within their territory. It is frequently detected by a short dry trill, slightly accelerating and rising in pitch: *chchchchchchichi*. Although, once learnt, this vocalisation is relatively distinctive, it can be matched quite closely by *Phyllomyias virescens*.

Phyllomyias tyrannulets

Given good views, *Phyllomyias* tyrannulets can be separated from *Phylloscartes* tyrannulets by their shorter, stubbier bills and in many cases by the tertial pattern differences depicted in Fig. 1. With the notable exception of *Phyllomyias virescens*, they tend to perch in a more vertical posture than the *Phylloscartes ventralis* group, usually without cocking their tails or drooping their wings. Their tails are, however, sometimes cocked to around 45°, especially when agitated after tape-playback (B. Whitney *in litt.* 1997). Members of this genus frequently forage on mistletoe berries and can be observed wiping seeds on branches after regurgitation (B. Whitney *in litt.* 1997).

Greenish Tyrannulet *Phyllomyias (Xanthomyias) virescens* Conservation status: Low risk

This is the species most likely to be confused with *Phylloscartes ventralis* (and its close relatives). At first glance, *Phyllomyias virescens* and *Phylloscartes ventralis* appear to have almost identical plumage. In addition, unlike other *Phyllomyias* tyrannulets treated here, *virescens* frequently perches horizontally, its tail half-cocked and its wings slightly drooped (see photo), thus superficially resembling *Phylloscartes ventralis*. *Phyllomyias virescens* is, however, a distinctly larger, bulkier, thicker-set bird whose jizz and tail angle are somewhat reminiscent of *Tolmomyias* flycatchers: viewed laterally the body and tail are usually held in a shallow V-shape (the accompanying field photographs demonstrate this posture). The most reliable differentiating plumage feature is the tertial pattern. *Phyllomyias virescens* has fringing to the outer webs of the tertials which, if anything, narrows towards the tip and extends slightly onto the inner web. This fringing is broadest and palest on the innermost tertial, but narrower and more yellow-green (with a paler tip) on the outermost tertial. In contrast, *Phylloscartes ventralis* has prominent terminal spots on the outer webs of all tertials and the innermost two secondaries. Furthermore, the ground colour of these feathers is less blackish than on *Phylloscartes ventralis* and thus the fringes are less conspicuous overall (B. Whitney *in litt.* 1997). Though subtle, these differences are surprisingly easy to see in the field, especially when birds are viewed from behind.

Other helpful plumage characteristics include the slightly stronger face pattern of *Phyllomyias virescens* which often shows a more prominent greyish grizzling to the lores and cheeks and a more obvious whitish eye-ring and supraloral area. The pale supercilium ends abruptly just after the eye. In *Phylloscartes ventralis* the supraloral spot is smaller, while the supercilium usually tapers to a point further behind the eye. Additionally, *Phyllomyias virescens* tends to show a slightly paler throat than *Phylloscartes ventralis*. In the field this emphasises the contrast between the throat and the darker yellow-green breast. On some *Phyllomyias virescens* the breast is patchily infused with olive so that the breast sides can appear almost streaked.

Two structural differences are particularly diagnostic. The first is the shorter, stubbier bill of *Phyllomyias virescens* with a more extensive pale base to the lower mandible. Note there is a transcription error in Ridgely & Tudor's¹⁴ text for *Phyllomyias virescens*. They state that "Mottle-cheeked is shorter-billed and lacks the grizzled effect." In this case "Mottle-cheeked" should read "Greenish" (R. S. Ridgely *in litt.* 1994), but, ironically, the latter point does not hold for most *Phyllomyias virescens*. The second important structural difference is tail shape which partially derives from differences in the shape of individual rectrices (those of *Phylloscartes ventralis* are considerably more pointed than the relatively truncate feathers of *Phyllomyias virescens*). Although individual feather shape is of little use in the field, the overall effect is quite distinctive (i.e. *Phyllomyias virescens* shows a slightly more broad-based, square-ended tail). The primary projection of *Phyllomyias virescens* is longer than that of *Phylloscartes ventralis*, although this is not a particularly useful

character in the field (B. Whitney *in litt.* 1997).

Phyllomyias virescens occurs in the mid-storey and subcanopy of forest, appearing especially fond of secondary vegetation and edge habitat. The commonest vocalisation is a distinctive hurried series of *chi* or *ch* notes, rapidly delivered for one second at an even pace but dropping in pitch midway. Two apparent variants involve the call series being given at uniform pitch and pace, or initially rising in pitch prior to falling and slowing at the end. The song elaborates on the same theme, starting with a rapid series of staccato *chk* notes, then rising in pitch and slowing into longer notes before dropping in pitch again at the end. Belton² transcribed this as *chk-chk-chk-chk-chk-che-eeee-eeee-eeee-eeee-chu-choo*.

Reiser's Tyrannulet *Phyllomyias (Xanthomyias) reiseri* Conservation status: Near-Threatened

Until recently this species was very poorly known, having been considered either a valid species or merely a subspecies of *Phyllomyias virescens*. Having found four specimens previously identified as *Phyllomyias virescens*, Stotz¹⁹ reviewed the status and identification features of *Phyllomyias reiseri* and concluded that the taxon should be considered a separate species. However, Teixeira *et al.*²¹ examined some of the same specimens and suggested that Traylor's^{22,23} previous treatment of *reiseri* as a subspecies of *Phyllomyias virescens* was perhaps correct. A more recent re-assessment of the taxonomic status of *reiseri* is based on an analysis of nearly all specimens used by previous authors plus new specimens and ecological information from central Brazil¹⁶. It was concluded that *P. reiseri* differs in plumage, voice and habitat requirements from *P. virescens* and should be regarded as a distinct species.

Da Silva¹⁶ found the following characters, also documented by Stotz¹⁹, to be important in distinguishing *P. reiseri* from *P. virescens*: pale yellow underparts with only a vague olive wash across the breast; bright yellow-green upperparts; crown feathers tipped grey, and lores and cheek yellowish white. However, the other features suggested by Stotz¹⁹ (whiter wing-bars, ear-coverts not tipped olive, shorter wings and tail of *reiseri*) are not consistent across the set of 19 specimens¹⁶. There is an almost complete overlap in wing and tail measurements between *P. reiseri* and *P. virescens*. Most examined specimens of *reiseri* have greenish yellow wing-bars similar in colour to *P. virescens*, and three *reiseri* specimens had ear-coverts tipped as extensively with olive. In addition, a few *Phyllomyias virescens* mist-netted or observed in Paraguay in 1992–1995 showed restricted greyish tips to the crown feathers, but all other features were typical of *Phyllomyias virescens*.

It is most frequently found in gallery forest in the cerrado region, where it habitually perches low down, often just 1–2 m above the ground. Willis & Oniki²⁵ recorded the song as a rough downscale *briu-briu-briu-briu-briu-briu-briu*, quite unlike that of *Phyllomyias virescens*.

Rough-legged Tyrannulet *Phyllomyias (Acrochordopus) burmeisteri* Conservation status: Low risk

This is another species often considered very difficult to identify in the field when not vocalising. Structurally, however, *Phyllomyias burmeisteri* is the most distinctive member of its genus in the region, being comparatively short-tailed and long-winged. Both features are noticeable in the field, making the species appear chunky, especially in comparison to the *Phylloscartes ventralis* group. If good views are obtained, it is possible to detect the relatively long projection of primary tips beyond the tertials (two-thirds the length of the exposed tertials for *P. burmeisteri* compared to a third to a half for other *Phyllomyias* and *Phylloscartes* tyrannulets). It is also separated from this group by the tertial pattern and tail shape differences outlined under Greenish Tyrannulet (Fig. 1 and plate). *P. burmeisteri* also shows fine pale tips and fringing to the outer webs of the rectrices. This is especially apparent from below, and under some light conditions a fine pale fringe to the tail tip can be surprisingly obvious. This feature is not exhibited by *Phyllomyias virescens* or *Phylloscartes ventralis*.

One of the most diagnostic features of *Phyllomyias burmeisteri* is the almost completely pale pinkish lower mandible, occasionally and variably tipped darker. It is worth bearing in mind, however, that the lower mandible of *Phyllomyias virescens* can show an extensive pale base. The face pattern of *P. burmeisteri* is somewhat similar to *P. virescens*: a prominent pale ocular area and short broad supercilium terminating above the eye contrasts weakly with the dusky lores. It has a relatively upright stance, with the tail held below the line of the wings. Occasionally, however, birds perch horizontally with the wings drooped and the tail partially cocked.

P. burmeisteri has duller wing-bars than either *Phylloscartes ventralis* or *Phyllomyias virescens*, best appreciated by comparing the wing-bar and scapular coloration. In *Phyllomyias burmeisteri* this contrast is weak because the yellow-olive tips to the median and greater coverts are only slightly brighter than the upperparts. In *Phylloscartes ventralis* and *Phyllomyias virescens*, however, the bright yellow-green tips to the coverts contrast strongly with the duller olive scapulars and mantle. The mantle and scapulars of *P. burmeisteri* are similar in colour and tone to *P. virescens*, but the former's crown tends to be slightly duller. *P. burmeisteri* shows little, if any, contrast between the throat and the breast. Occasional birds have a paler chin, or even throat, thus exhibiting a contrast more similar to that shown by *P. virescens*. Additionally, the underparts of *P. burmeisteri* are a slightly duller, dirtier yellow, with the breast and throat faintly streaked olive, giving a less clean appearance than *P. virescens*. In the hand, or with exceptionally close field views, the rough legs are

obvious.

P. burmeisteri is found in the canopy of forest interior and edge, usually revealing its presence (and confirming its identity) with a high-pitched series of thin *see* notes, sometimes up to 30 and slightly descending in pitch.

Planalto Tyrannulet *Phyllomyias fasciatus*

Conservation status: Low risk

Paradoxically, this species' drabness renders it one of the more distinctive Atlantic forest *Phyllomyias* tyrannulets. Structurally and behaviourally it resembles a shorter winged, longer tailed version of *P. burmeisteri*. It has a very short stubby bill, with the lower mandible appearing all dark, although there is a restricted pale basal area occasionally visible in the field. On some birds there are quite strong grey tones on the crown, especially the forecrown.

The wings of *P. fasciatus* are relatively uniform with dull olive wing-bars and fringing when compared with the brighter, more contrasting patterns of *Phylloscartes ventralis*, *Phyllomyias virescens* and *P. burmeisteri*. The greater and median coverts have dull olive tips which do not contrast with the scapulars. This weak contrast is further reduced because the basal wing colour of *P. fasciatus* is dark brown, whereas that of other *Phyllomyias* tyrannulets and the *Phylloscartes ventralis* group is more blackish brown. The primary fringes are narrow and inconspicuous, and the secondary fringes lack the relatively strong yellow tones shown by *Phylloscartes ventralis*, *Phyllomyias virescens* and *P. burmeisteri*. The tertial pattern is much the same as that shown by other *Phyllomyias*, albeit with slightly broader, duller fringing. Fresh plumaged birds may have brighter yellow fringes to the remiges and coverts, but most individuals have wing-bars with a slight buffy tone, especially when plumage is worn.

The subspecies which occurs in the Atlantic forest region (*P. f. brevirostris*) has duller upperparts than other *Phyllomyias* tyrannulets, this being most noticeable on the crown. In *brevirostris* the olive tone of the upperparts is strongest on the lower back and rump, becoming progressively grey-brown towards the crown. The nominate race and *cearae* (northern part of range south to Goiás and southern Mato Grosso, Brazil) are slightly smaller and duller than *brevirostris*, with somewhat greyer crowns. The underparts of *P. fasciatus* are also the dullest of all the region's *Phyllomyias* tyrannulets. One fairly obvious feature, visible in good light conditions, is the contrast between the grey throat and the yellow underparts which are heavily washed olive (but not faintly streaked), especially on the breast and flanks.

This species inhabits the canopy of primary, secondary and gallery forest and is most often detected and identified by its call: a clear mellow *wee..hoo..huit* with emphasis on the final note. Sometimes only single or double notes are given.

Grey-capped Tyrannulet *Phyllomyias griseocapilla* Conservation status: Near-Threatened

This usually well-marked, distinctive tyrannulet is smaller and less chunky than other *Phyllomyias* treated here. Its very short, stubby bill is entirely black. The crown, nape and sides of head are dark grey, contrasting with the bright olive-green mantle and scapulars. Bright yellowish olive breast sides, and flanks contrast with the rest of the underparts which are largely clean greyish white, becoming whiter on the vent, undertail-coverts and centre of belly. The head pattern is fairly prominent with greyish white eye-ring and supercilium contrasting with the dark grey eyestripe and crown.

The wing feathers are generally crisply fringed bright yellowish. Fringes to the secondaries are more olive, forming a wing panel. Fringes on the tertials are a brighter yellow-olive than other *Phyllomyias* tyrannulets treated here, becoming even brighter on the greater- and median-coverts. Unlike the discrete bars formed by pale covert tips in other wing-barred tyrannulets of the Atlantic forest, the fringing extends toward the base of feathers on *P. griseocapilla*, forming yellow covert panels. There are also prominent bright olive fringes to the rectrices. On fresh individuals, the overall effect is very attractive and distinctive, with whitish underparts, bright green upperparts, a grey head and dark wings broadly fringed yellow. However, some individuals have little fringing on the wings and a much weaker head pattern with the eye-ring and supercilium washed grey, and eyestripe faint.

The species is found in small numbers throughout the forested hills of the Serra do Mar in south-east Brazil and numerous other ranges northward into Espírito Santo and Minas Gerais. Although sometimes found in the canopy of primary forest, it is most frequently encountered in mixed-species flocks in secondary forest and at forest edges¹, often foraging relatively low down in shrubs. It appears to call less frequently than other *Phyllomyias* of the region, but this is perhaps merely because the song, a series of 2–5 sweet *wee* or *weeup* notes, is more easily overlooked.

Conclusion

Although tyrannulets in the genera *Phylloscartes* and *Phyllomyias* provide some of the most difficult

identification challenges to observers in the Atlantic forest, they are not as bewildering as they first appeared to Charles Chubb 90 years ago⁶. Careful consideration of plumage pattern, structure, behaviour and vocalisations allow most individuals to be accurately recognised given sufficient experience. A combination of patient observation and familiarity with the commoner species is the most important step towards confident identification. It is hoped that, with the recent increase of fieldwork in the region and improved knowledge of identification criteria, a more accurate picture of the distribution and status of these fascinating species will be compiled.

Acknowledgements

We are very grateful to the following for contributing information, or commenting on earlier drafts of this article: Juan Mazar Barnett, Guy Kirwan, Mark Pearman, Bret Whitney and Rob Williams. David Butler, Tim Morrissey and David Wege helped to compile the maps and provided invaluable encouragement. David Beadle wishes to thank Glen Murphy at the Biodiversity Department, Royal Ontario Museum; David Agro for providing essential biometric data and photographic material, mostly from the bird collection at the Academy of Natural Sciences, Philadelphia; Scott Connop for useful discussion and comments on the plate; and Neil Bostock, Jon Hornbuckle, Guy Kirwan, Rod McCann and Rob Williams for their company in search of the tyrant flycatchers of south-east Brazil.

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Robert P. Clay

Guyra Paraguay: Conservación de Aves, Bélgica 165, C.C.714, Asunción, Paraguay.
E-mail: guyra@highway.com.py

Joe A. Tobias

BirdLife International, Wellbrook Court, Girton Road, Cambridge, CB3 0NA, UK. E-mail:
joe.tobias@birdlife.org.uk

James C. Lowen

Department of the Environment, Transport and the Regions, c/o Health and Safety Executive, Rose Court, 2 Southwark Bridge, London, SE1 9HS, UK. E-mail: james.lowen@hse.gov.uk

David Beadle

74 Chestnut Park Road, Toronto, Ontario M4W 1W9, Canada.