

Ending fifty years of confusion: the anomalous record of the Pale-legged Warbler (*Basileuterus signatus*) in Colombia

El fin de cincuenta años de confusión: el registro anómalo de la Reinita Patipálida (*Basileuterus signatus*) en Colombia

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Abstract

I present evidence that the supposed Colombian record of the Pale-legged Warbler (*Basileuterus signatus*) is based upon a specimen of the Citrine Warbler (*B. l. luteoviridis*) that was incorrectly sexed and aged by the collector or preparator and identified in the absence of adequate comparative material. Examination and measurements of museum specimens of both species permitted definitive identification of the problematical specimen. I conclude that *B. signatus* should be removed from the list of the Colombian avifauna.

Key words: *Basileuterus signatus*, Colombia, distribution, misidentification, Pale-legged Warbler.

Resumen

Presento evidencia de que el supuesto registro para Colombia de la Reinita Patipálida (*Basileuterus signatus*) se basa en un espécimen de la Reinita Citrina (*B. l. luteoviridis*) cuya edad y sexo fueron incorrectamente determinados por el coleccionador o preparador en ausencia de material adecuado para su comparación. El examen y mediciones de ejemplares de museo de ambas especies permitieron una identificación definitiva del espécimen en cuestión. Concluyo que se debe eliminar a *B. signatus* de la lista de la avifauna colombiana.

Palabras clave: *Basileuterus signatus*, Colombia, distribución, identificación equivocada, Reinita Patipálida.

The Colombian record of the Pale-legged Warbler (*Basileuterus signatus*), a species otherwise restricted to the southern Andes from central Peru to northern Argentina, has long perplexed ornithologists. The record is based upon a specimen deposited at the Instituto de Ciencias Naturales (ICN 5603), collected by José I. Borrero on 30 September 1953 in high Andean forests adjacent to the Páramo de Guasca, Cundinamarca (ca. 20 km NNE of Bogotá). The specimen, labeled as an adult male with testes not enlarged, was originally identified as a Citrine Warbler (*B. luteoviridis*) and was the first specimen identified as such to enter the still-young collection of the ICN. The confusion with "*signatus*" began with the second specimen of *luteoviridis* for the collection, an adult male with enlarged testes, taken nearly a year later (ICN

5599 from San Miguel, Cundinamarca). This second specimen was considerably larger (measurements of wing and tail) than the first, and was much duller in overall coloration. This led Borrero & Hernández-Camacho (1957) to question the original identification of the first specimen, because the second agreed with the measurements and description given by Sharpe (1885) for *luteoviridis*. They noted the similarity in size and coloration of the first specimen to Sharpe's description of *signatus*, but the lack of records of the latter north of central Peru prompted them to revive the name *xanthophrys* for it, based on the description of "*Chlorospingus xanthophrys*" by Sclater (1856), from a trade skin from "Bogotá". Following its description, *xanthophrys* had been transferred to *Basileuterus* and synonymized with

luteoviridis (Sharpe 1885). However, Borrero and Hernández-Camacho (1957) suggested that based upon the locality (suggesting sympatry with *luteoviridis*) and differences in size and color from the second specimen, this first specimen represented the rediscovery of *Basileuterus xanthophrys* and speculated upon the apparent sympatry of this species and *luteoviridis*, similar to that recorded between the latter and *signatus* (which they considered to be the nearest relative of *xanthophrys*) in Peru.

Borrero then sent the specimen to R. Meyer de Schauensee, who had recently published his monumental "Birds of the Republic of Colombia" (1948-1952), for confirmation. In correspondence with the curator of the British Museum, Meyer de Schauensee (1959) confirmed that the name *xanthophrys* was indeed a synonym of *luteoviridis* and therefore was not available for the specimen, and felt that there was no alternative but to assign it to *signatus*, with which he stated that the specimen "agreed in all respects", although possibly representing an undescribed subspecies, and duly added *signatus* to the Colombian list. He even prepared a short key to distinguish *B. signatus* from *B. flaveolus* and *B. luteoviridis* (cited in the key as "*B. flavovirens*", undoubtedly an error as the characters cited agree with the former and not the latter, the more southern race of *signatus*) based upon its brighter coloration and relatively shorter ninth primary. I note in passing that Meyer de Schauensee (1959) also cited the date of collection for the supposed Colombian *signatus* incorrectly as 1958, not 1953.

During the following half century, no further records of *signatus* have been obtained north of central Peru, and the occurrence of this species in Colombia has been viewed with increasing suspicion by numerous ornithologists, although no evidence has been provided to discredit it. I therefore decided to reexamine the original specimen

as well as series of both *B. l. luteoviridis* and *B. s. signatus* to determine the validity of this anomalous record.

I found the plumage characters for distinguishing *luteoviridis* from *signatus* given by Curson *et al.* (1994) and Ridgely & Tudor (2010) most helpful. In brief, the most trenchant features of *signatus* are its distinct yellow crescent below the eye formed by the eyelid and adjacent feathers (lacking in *luteoviridis*), the brighter and shorter superciliary (the latter feature reversed in Restall *et al.* 2006), and underparts with much less olive-green wash over the sides and flanks than in *luteoviridis*. I confirmed these characters in a visit to the American Museum of Natural History (AMNH) and upon reexamining the specimen of "*signatus*", I found that it agreed in all respects with *luteoviridis*. In spite of its name, *signatus* shows considerable variation in leg color and the specimens of *luteoviridis* in the ICN collection have leg colors given on specimen labels ranging from yellow to olive brown and blackish; I concur with Ridgely & Tudor (2010) that leg color is not trustworthy for distinguishing these species. I also found that the difference in length of the two outer primaries cited by Meyer de Schauensee in his key is not a reliable character for separating *signatus* from *luteoviridis*: this difference ranges from 1.6 to 2.7 mm in *signatus* and from 0.8 to 2.3 mm in *luteoviridis* (n=5 for each species). Thus, appreciable overlap exists; the difference in length of the two outer primaries of the specimen of "*signatus*" is ca. 1.8 mm, in the zone of overlap.

Combining the measurements of wings, tails and tarsi of a series of nominate *signatus* (the northernmost subspecies) and *luteoviridis* (the subspecies of the Eastern Andes of Colombia) at the AMNH and the now more extensive series of the latter in the ICN collection, I confirmed the smaller wing and tail of *signatus*, sex for sex, but also found that *signatus* has decidedly longer tarsi than

does *luteoviridis* (Table 1), apparently a hitherto unnoticed difference (and *contra* Restall *et al.* 2006). I omitted bill lengths because the bill of the specimen of "*signatus*" had been destroyed by shot. I also compared my measurements of the Colombian "*signatus*" with those reported by Borrero and Hernández-Camacho (1957) as given on the specimen label itself and those reported by Meyer de Schauensee (1959). My measurements (made with dial calipers to the nearest 0.1 mm) were in reasonably close agreement with those of Meyer de Schauensee, but the wing measurement on the specimen's label was much smaller (Table 1). However, I found that in preparation the wrist joint had been very strongly "tucked in" making it rather difficult to locate the wrist itself, which probably explains the discrepancy and might be part of the reason why Borrero and Hernández-Camacho did not consider the specimen to represent *luteoviridis*. I found that the wing of the specimen was actually rather long for a male *signatus* (but short for a male *luteoviridis*), although the tail length agreed fairly well with *signatus* (although considerable overlap exists in this measurement); the tarsus length placed the specimen unequivocally with *luteoviridis*. However, I also found that all three measurements agreed very closely with those for female *luteoviridis* (see Table

1). I then conducted a principal components analysis of the measurements of Table 1, which indicated that the specimen of "*signatus*" from Colombia clearly agreed with female *luteoviridis* rather than with either sex of *signatus* (Fig. 1). Could the specimen simply have been mis-sexed?

A detailed examination of the specimen revealed that its rectrices are more narrow and pointed than those of adult specimens of *luteoviridis*, a sign of immaturity in parulids (and indeed, most oscines, where they represent retained juvenile feathering, cf. Pyle *et al.* 1987). Thus, it clearly was not an "adult" (the label included no information on skull ossification or bursa, which would have confirmed its age). In young females, it is not uncommon for the ovary to be very poorly developed and inconspicuous, especially if there has been some delay between collection and preparation. In such cases, a preparator might easily overlook the ovary entirely and mistake the adrenals for undeveloped testes. It seems highly likely that this is what occurred with the supposed Colombian "*signatus*". To complete the confusion, the second specimen of *luteoviridis*, the only one available to Borrero & Hernández-Camacho (1957) for direct comparison when they wrote their manuscript, is a male in very worn, dingy

Table 1. Summary of measurements (to the nearest 0.1 mm) of the nominate races of *Basileuterus l. luteoviridis* and *B. s. signatus* in the collections of the AMNH and ICN. Although labeled as an adult male, the measurements of the supposed "*signatus*" specimen from Colombia agree best with those of female *Basileuterus l. luteoviridis*. Means, standard errors and ranges are given. NT = not taken.

Species and sex	N	Length of closed wing	Tail length	Tarsus length
<i>Basileuterus l. luteoviridis</i> ♂♂	15	70.77±0.53 66.5-73.7	59.71±0.58 56.3-62.7	21.82±0.13 20.7-22.3
<i>Basileuterus l. luteoviridis</i> ♀♀	14	65.75±0.60 59.9-68.1	55.37±0.56 52.4-59.0	21.19±0.17 19.9-22.2
<i>Basileuterus s. signatus</i> ♂♂	8	61.31±0.60 58.0-63.1	57.39±0.38 56.0-58.8	22.80±0.33 21.3-24.2
<i>Basileuterus s. signatus</i> ♀♀	7	56.87±0.40 55.3-58.4	54.01±0.61 52.0-56.1	22.91±0.0.17 22.3-23.6
<i>Basileuterus "signatus"</i> ICN 5603				
Borrero & Hernández (1957)		60.5	55.5	20.5
Meyer de Schauensee (1959)		65.5	57	NT
This study		64.8	56.2	20.8

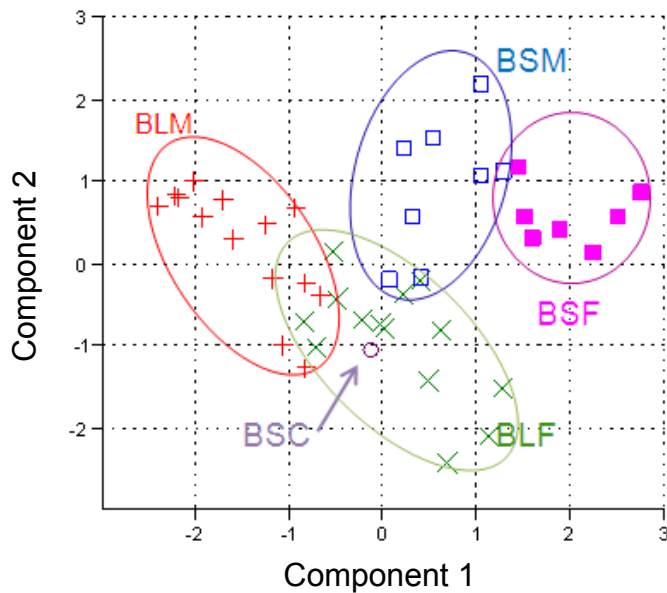


Figure 1. Correlation-based principal components analysis of the measurements in Table 1. The first two components include 94.5% of the total variance in measurements. BLM = *B. l. luteoviridis* males; BLF = *B. l. luteoviridis* females; BSM = *B. s. signatus* males; BSF = *B. s. signatus* females; BSC = the *B. "signatus"* specimen from Colombia, which clearly falls within the oval for females of *B. luteoviridis*.

plumage, whereas the specimen of "*signatus*" is in fresh plumage, which makes the contrast in coloration between the two quite striking. However, there are now in the ICN collection several specimens of *luteoviridis* in fresh plumage that match the coloration of the "*signatus*" quite closely.

In conclusion, I believe that the supposed record of *Basileuterus signatus* for Colombia is based on an incorrectly sexed and aged (and hastily measured) young female of *B. l. luteoviridis*, and that the former species should be removed from the list of the Colombian avifauna. The series of errors and confusions involved in its inclusion should leave some lessons for all of us: we should take special care when sexing young birds and examine both the internal organs and the plumage closely; such birds should be prepared and sexed as soon

after collection as possible; and we should not make definitive identifications (much less publish them!) without having consulted adequate comparative material, especially when significant range extensions might be involved.

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