

# Identification of *Henicorhina* Wood-Wrens in the San Lucas mountain range

*Identificación de cucaracheros del género Henicorhina en la Serranía de San Lucas*

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## Abstract

*Henicorhina leucophrys* is supposedly known from Serranía de San Lucas based on a single specimen collected in 1947. We studied the specimen and consider it more likely to be a juvenile of White-breasted Wood-Wren *H. leucosticta albilateralis*, based on biometrics and comparisons of plumages.

**Keywords:** taxonomy, subspecies, San Lucas, *Henicorhina*.

## Resumen

*Henicorhina leucophrys* se conoce de la Serranía de San Lucas con base en un espécimen colectado en 1947. Estudiamos el espécimen y lo consideramos un juvenil de *H. leucosticta albilateralis* basados en biometría y comparaciones de plumajes.

**Parábulas claves:** taxonomía, subespecie, San Lucas, *Henicorhina*

## Introduction

The genus *Henicorhina* is presently regarded as comprising four species. Two of these are widespread in both Central and South America: White-breasted Wood-Wren *H. leucosticta* (Cabanis, 1847) of lower elevations and Grey-breasted Wood-Wren *H. leucophrys* Tschudi, 1844 of higher elevations. These two species replace each other elevationally in many areas, with *H. leucophrys* locally higher. A multitude of subspecies are recognised (Brewer 2001, Dickinson & Christidis 2014).

Although morphological differentiation in the genus *Henicorhina* is relatively conservative and songs are highly variable, various plumage, vocal and biometric differences have been noted between many populations (Brewer 2001, Salaman *et al.* 2003). McMullan & Donegan (2014) cited two undescribed subspecies in Colombia: one in San Lucas and another in the southern East slope. Two other species, Bar-winged Wood-Wren *H. leucoptera* and Munchique Wood-Wren *H. negreti*, are both range-restricted, recently described and monotypic (Fitzpatrick *et al.* 1977, Salaman *et al.* 2003).

Salaman *et al.* (2003) found *H. l. leucophrys* and *H. l. brunneiceps* to replace one another on opposite slopes of the West Andes of Colombia (with *H. negreti* present above the *brunneiceps* in the same range) without intermediates between any of these taxa. Molecular studies (Dingle *et al.* 2006, Caro *et al.* 2013, Aguilar *et al.* 2014) have shown several allopatric populations of *Henicorhina* taxa to be mutually monophyletic and divergent from one another.

Among these, two elevationally parapatric and vocally distinct “subspecies” of *H. leucophrys* occur in the Santa Marta mountains (Caro *et al.* 2013). As a result, a taxonomic reassessment of the *leucophrys* group as a whole is needed.

The San Lucas mountain range rises to c.2,300 m, located entirely within southern dpto. Bolívar, to the north of Colombia’s Central Andes. The range is geographically isolated from the rest of the Andes, separated from the main range by a c.75 km foothill plateau with a mean elevation of 500 m (Salaman *et al.* 2001, 2002, Donegan 2012). Historical collections of birds were made in the lowlands surrounding the massif and in the foothills to premontane elevations in Santa Rosa del Sur municipality, most significantly by M. A. Carriker in April–May 1947 (Paynter 1997).

Hilty & Brown (1986) mapped 58 bird species above 1,000 m in Serranía de San Lucas. Salaman *et al.* (2002) and Donegan (2012) dismissed the significance of most of these records, noting that, with the exception of 13 species high elevation species collected by Carriker, most were assumed to occur based on their broad distribution (Salaman *et al.* 2002). However, among the highland species recorded by Carriker and mapped by Hilty & Brown (1986) was *Henicorhina leucophrys*. Fjeldså & Krabbe (1990) and McMullan *et al.* (2010) either overlooked or discounted the record but it was reinstated or referred to as *H. leucophrys* by McMullan *et al.* (2011), Donegan (2012) and McMullan & Donegan (2014) (as a new subspecies), based on BioMap Alliance Participants (2014) and an initial study of the

specimen, which was stored with *H. leucophrys* and shows a grey breast and distinctive plumage from other *H. leucophrys* specimens.

In light of geographical variation in the genus and the phylogenetic and phenotypic distinctiveness of some San Lucas populations (Gutierrez-Pinto *et al.* 2012, Donegan 2014), the status of a specimen supposedly of *H. leucophrys* from the range is of interest.

## Methods

During research undertaken in connection with the description of *Henicorhina negreti* (Salaman *et al.* 2003) and subsequently, we inspected specimens of all *Henicorhina leucophrys* in various South American, European and US collections: Instituto de Ciencias Naturales, Universidad Nacional, Bogotá, (ICN); Instituto Alexander von Humboldt, Villa de Leyva (IAvH); the Natural History Museum, Tring (NHM); University Museum of Zoology, Cambridge, UK (UMZC); Museu de Zoologia, Universidade São Paulo (MZUSP); Smithsonian Institution, Washington DC (USNM) and American Museum of Natural History (AMNH). Data on specimen numbers, locality, wing length, tail length, tarsus length, bill (to skull), bill width at nares and bill depth at nares were taken for Colombian and most Central American specimens. We sought to identify all Colombian specimens to subspecies level.

## Results

Based on the data in BioMap Alliance Participants (2014), we located and studied Carriker’s San Lucas *Henicorhina* specimen at the Smithsonian Institute, U.S. National Museum (USNM) no. 398715 (old no. 10969). It is illustrated in Figs. 1(i) and 2. The specimen bears the following data: Colombia, 2600 ft., Volador, D. Bolivar, 17 May 1947, M.A. Carriker Jr. The reverse of the label specifies “Boca del Monte, 25 miles west of Simiti” and W.L. Abbott Fund. The specimen label originally stated an identification in pencil “*Henicorhina leucostictos* A.W.” but the letters after “l” were erased and replaced with “??”, also in pencil, at some point, presumably resulting in its transfer to the *leucophrys* drawer. The label also bears the annotation “juvenile male”.

Inspection of this San Lucas specimen and a detailed comparison with other materials at USNM reveals it most likely to be a juvenile White-breasted Wood-Wren *H.*

**Figure 1.** left to right. (i) *Henicorhina* San Lucas specimen USNM 398715; (ii) *H. leucosticta albilateralis*. USNM 427180 (Antioquia, 3600 ft.); (iii) adult *H. leucophrys leucophrys* USNM 412378 (Hacienda Las Vegas, Santander, 6,000 ft.), (iv) juvenile *H. leucophrys* USNM 436749 (Hacienda La Ilusión, Antioquia, 8,950 ft.).





**Figure 2.** Close up of bird shown in Figure 1(i) showing head detail and gape of the San Lucas specimen.

*leucosticta albilateralis*. A yellow gape is clearly visible on the specimen (Fig. 2). It also has a decolorised lower mandible, reduced feathering in the throat, dark base coloration to the tertials and contrasting barring on the tail more typical of juvenile *leucosticta*. Juvenile *Henicorhina* specimens are rare in collections, reflecting rapid attainment of adult plumage in wood-wrens. The San Lucas specimen is more similar in plumage shade and barring patterns to a juvenile *H. leucosticta* specimen collected at Antioquia (Fig. 1). It also clearly differs from adult specimens of nominate *H. l. leucophrys* of the proximate Central Andes in Antioquia in having a marginally paler shade of brown on the upperparts (mantle, crown and base coloration of the tail and wings) and more contrastingly barred flight feathers and tail (with darker and broader bars) and is most different from the very dark juveniles of *H. leucophrys* (Fig. 1) which we know better from our own fieldwork as well as museum collections.

Biometrics are also distinct from Colombian *H. leucophrys* (wing 61.0 mm, tarsus 23.4 mm, bill 15.6 mm; cf. Appendix). Although the tarsus is a little longer than average, these measurements are typical of the Magdalena

medio population of *H. leucosticta* (which is usually assigned to subspecies *albilateralis*). Tail length, usually the best measure for distinguishing *leucophrys* from *leucosticta* was here (c.25mm) found to be consistent also. None of these biometric data are entirely reliable because the specimen is a juvenile and our data set relates to adults. Because available comparative specimens of juvenile *Henicorhina* are few, our identification is preliminary and could be further verified with molecular studies, photometry or bionmetric data based only on juveniles.

## Discussion

The collecting locality, Volador, was mapped to 07°58'N, 74°15'W by Paynter (1997), referring a cafetal on the eastern slope of Serranía de San Lucas c. 10 km west of Santa Rosa del Sur, with habitats at the time of study including cultivation, second-growth and some forest. The elevation specified on the label (=c.800 m) is typical for *H. leucosticta* not *H. leucophrys*. In Colombia, *H. leucophrys* replaces *H. leucosticta* typically at around 1,000-1,400 m at the foothill forest / cloud forest ecotone (Salaman *et al.* 1999, Donegan *et al.* 2010). Salaman *et al.* (2002) and Donegan (2012) both reported a considerable number of elevational extensions for Colombia from the East slope of the San Lucas mountains, mostly of "typically lowland" species at unusually high elevations. Salaman *et al.* (2002) and reported *H. leucosticta* up to 1,400 m elevation, some 400 m higher than previous Colombian records, based on a specimen (ICN 34172) and various mist-net captures. Donegan (2012) studied habitats at Santa Cecilia, in remaining forest of higher elevation immediately above Carriker's study site of Volador (07°58'33"N, 74°12'55"W, 1,550 m), capturing further individuals of *H. leucosticta* (e.g. Fig. 1) and making sound recordings of this species (e.g. XC99279, 99281). This was a further new elevational record nationally, although there are supposedly records of *H. leucosticta* up to 1,800 m elsewhere in northern South America (Restall *et al.* 2006).

Donegan (2012) studied Carriker's full inventory of specimens from San Lucas, and comparing the results of recent fieldwork, found only *H. leucophrys* and Chestnut-collared Swift *Streptoprocne rutila* to be exceptions of species that had not been recorded in modern fieldwork. This statement can now be restricted to the swift. There is no strong basis for considering *H. leucophrys* to occur in San Lucas.

## Acknowledgements

F. G. Stiles (ICN), J. Avendaño & G. Moreno (UIS), M. Álvarez (IAVH), C. Milensky, H. James and B. Schmidt (USNM), L. Garetano, T. Trombone & P. Sweet (AMNH), R. Prÿs-Jones, M. Adams & H. van Grouw (BMNH) and L. F. Silveira (MZUSP) permitted access to specimens. TD is grateful for advice and assistance from 2010 team members

B. Huertas, J. J. Arias and J. Pinto and to Fundación ProAves for supporting this research. Corporación Autónoma Regional del Sur de Bolívar provided permits (auto no. 231 del 10 de diciembre del 2008) for field work in San Lucas. The mayor (J. M. Cendales Moreno) and army garrison in Santa Rosa del Sur also supported our field work and gave local permissions. Original San Lucas expedition team members C. González, X. Bustos, J. M. Ochoa, A. Cuervo are also acknowledged for their support. The Mayors and UMATAMs (Farmers' and Miners' Municipal Unions) of San Pablo, Puerto López, El Bagre and Santa Rosa del Sur supported fieldwork. The people of Serranía de San Lucas, especially of El Bagre, Puerto López, Puerto Wilches, San Pablo, Bajo Taracue, Cañabral, Canaletal, Vallecito, Patio Bonito, Santa Rosa, La Punta, Santa Cecilia and San Pedro Frio assisted with the projects. The EBA expeditions were only made possible by generous financial support by British Ornithologists' Union, Royal Geographic Society, Cambridge Expeditions Fund, Percy Sladen Memorial Fund, Kilverstone Wildlife Trust, World Pheasant Association and others, accredited in or co-authors of Salaman *et al.* (2001, 2002). Other data from Antioquia and data from Serranía de los Yariguíes used in the Appendix are based on research for which we acknowledge the same persons acknowledged in Donegan *et al.* (2009, 2010) and their co-authors.



**Figure 3.** An individual of White-breasted Wood-Wren *Henicorhina leucosticta albilateralis* captured at Santa Cecilia (above Carriker's 'Volador') at 1,550 m.

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### Appendix: biometric data

Data are presented as follows: mean  $\pm$  standard deviation (lowest value-highest recorded value) ( $n$  = no. of specimens or individuals).

#### Museum data

Taxon	Wing-chord from skins (mm)	Tail (mm)	Tarsus (mm)	Culmen to skull (mm)
<i>H. l. mexicana</i> Mexico	52.27 $\pm$ 2.12 (49.0-56.6) ( $n=15$ )	26.27 $\pm$ 1.53 (23.8-29.0) ( $n=15$ )	21.93 $\pm$ 0.69 (20.4-22.8) ( $n=15$ )	14.96 $\pm$ 0.79 (13.7-16.5) ( $n=15$ )
Males	53.42 $\pm$ 1.02 (52.0-55.0) ( $n=6$ )	26.57 $\pm$ 1.94 (24.0-29.0) ( $n=6$ )	22.12 $\pm$ 0.47 (21.6-22.7) ( $n=6$ )	15.62 $\pm$ 0.71 (14.8-16.5) ( $n=5$ )
<i>H. l. festiva</i> Guerrero, Mexico	50.0 ( $n=1$ )	25.2 ( $n=1$ )	20.0 ( $n=1$ )	13.9 ( $n=1$ )
<i>H. l. capitalis</i> S Mexico to Guatemala	55.39 $\pm$ 2.47 (50.0-60.0) ( $n=38$ )	29.05 $\pm$ 1.84 (24.2-32.1) ( $n=36$ )	23.03 $\pm$ 0.74 (21.3-24.3) ( $n=38$ )	16.45 $\pm$ 0.54 (15.5-17.5) ( $n=32$ )
Males	55.64 $\pm$ 2.28 (51.0-60.0) ( $n=29$ )	29.09 $\pm$ 1.89 (24.2-32.1) ( $n=27$ )	23.04 $\pm$ 0.79 (21.3-24.3) ( $n=29$ )	16.52 $\pm$ 0.60 (15.5-17.5) ( $n=24$ )
<i>H. l. composita</i> Honduras	53.00 $\pm$ 1.41 (52.0-54.0) ( $n=2$ )	28.00 $\pm$ 1.41 (27.0-29.10) ( $n=2$ )	22.75 $\pm$ 0.35 (22.5-23.0) ( $n=2$ )	15.70 $\pm$ 0.28 (15.5-15.9) ( $n=2$ )
Males	52.0 ( $n=1$ )	27.0 ( $n=1$ )	22.5 ( $n=1$ )	15.9 ( $n=1$ )
<i>H. l. collina</i> Costa Rica to W Panama	55.40 $\pm$ 1.79 (53.0-60.0) ( $n=26$ )	28.68 $\pm$ 2.20 (24.8-32.5) ( $n=26$ )	24.06 $\pm$ 1.12 (22.2-26.4) ( $n=24$ )	16.60 $\pm$ 1.01 (14.7-18.6) ( $n=21$ )
Males	54.75 $\pm$ 1.67 (53.0-57.0) ( $n=6$ )	29.48 $\pm$ 2.64 (24.8-32.5) ( $n=6$ )	24.17 $\pm$ 1.25 (22.6-25.4) ( $n=6$ )	16.47 $\pm$ 1.03 (15.1-17.9) ( $n=6$ )
<i>H. l. aff. brunneiceps</i> Darién	53.66 $\pm$ 3.09 (50.0-62.0) ( $n=16$ )	23.41 $\pm$ 1.99 (21.0-28.0) ( $n=16$ )	23.53 $\pm$ 0.94 (21.5-24.5) ( $n=16$ )	17.70 $\pm$ 0.86 (16.5-19.0) ( $n=15$ )
Males	54.95 $\pm$ 2.89 (52.0-62.0) ( $n=11$ )	23.77 $\pm$ 2.24 (21.0-28.0) ( $n=11$ )	23.95 $\pm$ 0.57 (23.0-24.5) ( $n=11$ )	18.20 $\pm$ 0.54 (17.5-19.0) ( $n=10$ )
<i>H. l. brunneiceps</i> West Andes	53.13 $\pm$ 1.43 (52.0-56.0) ( $n=8$ )	23.50 $\pm$ 1.50 (21.4-25.4) ( $n=7$ )	23.27 $\pm$ 1.42 (21.8-25.4) ( $n=8$ )	17.44 $\pm$ 1.18 (15.0-18.9) ( $n=7$ )
Males	53.13 $\pm$ 1.93 (52.0-56.0) ( $n=4$ )	24.43 $\pm$ 0.85 (23.8-25.4) ( $n=3$ )	24.03 $\pm$ 1.55 (21.8-25.4) ( $n=4$ )	17.25 $\pm$ 1.51 (15.0-18.2) ( $n=4$ )
<i>H. l. leucophrys</i> West Andes	53.33 $\pm$ 1.87 (50.0-56.0) ( $n=9$ )	26.93 $\pm$ 2.01 (24.5-29.5) ( $n=9$ )	23.39 $\pm$ 0.86 (22.5-25.2) ( $n=9$ )	16.18 $\pm$ 1.10 (14.6-18.3) ( $n=9$ )
Males	52.83 $\pm$ 1.72 (50.0-55.0) ( $n=6$ )	26.75 $\pm$ 2.16 (24.5-29.5) ( $n=6$ )	23.68 $\pm$ 0.93 (22.8-25.2) ( $n=6$ )	16.02 $\pm$ 0.93 (14.6-17.0) ( $n=6$ )
<i>H. l. leucophrys</i> Central Andes	54.14 $\pm$ 1.57 (52.0-57.0) ( $n=7$ )	27.12 $\pm$ 1.61 (23.9-28.2) ( $n=6$ )	23.05 $\pm$ 0.82 (22.0-24.4) ( $n=6$ )	16.13 $\pm$ 1.29 (14.5-18.2) ( $n=7$ )
Males	54.60 $\pm$ 1.52 (53.0-57.0) ( $n=5$ )	27.65 $\pm$ 0.30 (27.2-27.8) ( $n=4$ )	22.83 $\pm$ 0.62 (22.0-23.5) ( $n=4$ )	16.62 $\pm$ 1.16 (15.4-18.2) ( $n=5$ )
<i>H. l. leucophrys</i> East Andes	55.20 $\pm$ 2.87 (49.0-61.5) ( $n=65$ )	27.56 $\pm$ 1.73 (24.2-30.6) ( $n=59$ )	23.83 $\pm$ 0.93 (22.1-26.0) ( $n=64$ )	16.83 $\pm$ 0.87 (15.0-18.6) ( $n=58$ )
Males	56.03 $\pm$ 2.97 (51.0-61.0) ( $n=35$ )	28.07 $\pm$ 1.78 (24.6-30.6) ( $n=31$ )	24.06 $\pm$ 0.94 (22.2-26.0) ( $n=35$ )	17.22 $\pm$ 0.72 (15.8-18.6) ( $n=33$ )
<i>H. l. bangsi</i> Santa Marta, lower elevations	55.00 $\pm$ 2.74 (51.0-59.0) ( $n=9$ )	26.17 $\pm$ 1.73 (23.8-28.9) ( $n=9$ )	23.17 $\pm$ 1.28 (21.0-25.1) ( $n=2$ )	17.27 $\pm$ 1.15 (15.0-19.2) ( $n=9$ )
Males	56.25 $\pm$ 2.06 (54.0-59.0) ( $n=4$ )	26.78 $\pm$ 2.09 (23.9-28.8) ( $n=4$ )	23.75 $\pm$ 0.65 (23.0-24.5) ( $n=4$ )	17.95 $\pm$ 0.88 (17.2-19.2) ( $n=4$ )

<i>H. l. anachoreta</i> Santa Marta, higher elevations	51.00 ± 4.24 (48.0–54.0) (n=2)	25.9 (n=1)	24.40 ± 0.85 (23.8–25.0) (n=2)	16.50 ± 2.26 (14.9–18.1) (n=2)
Males	54.0 (n=1)	/	25.0 (n=1)	18.1 (n=1)
<i>H. l. tamae</i> Northern East Andes.	53.20 ± 2.35 (50.0–57.0) (n=10)	29.72 ± 1.44 (27.5–32.3) (n=10)	23.46 ± 0.89 (21.8–24.7) (n=10)	16.02 ± 0.98 (14.5–17.3) (n=10)
Males	53.44 ± 2.35 (50.0–57.0) (n=9)	29.97 ± 1.29 (28.7–32.3) (n=9)	23.49 ± 0.94 (21.8–24.7) (n=9)	16.19 ± 0.87 (14.8–17.3) (n=9)
<i>H. l. subsp.</i> Southern East slope of Andes.	50.50 ± 2.89 (47.0–54.0) (n=4)	25.08 ± 2.68 (22.8–28.9) (n=4)	22.95 ± 1.30 (21.8–24.8) (n=4)	15.63 ± 0.93 (14.6–16.8) (n=4)
Males	50.67 ± 3.51 (47.0–54.0) (n=3)	25.83 ± 2.70 (23.8–28.9) (n=3)	23.33 ± 1.29 (22.4–24.8) (n=3)	15.57 ± 1.12 (14.6–16.8) (n=3)

### Live capture data

Data are based entirely on live mist-net capture data. Data on *H. leucophrys* comes from studies in San Pedro de los Milagros, Antioquia (n=4; locality details in Donegan *et al.* 2009), La Forsoza, Antioquia (n=1, locality details in Salaman *et al.* 2001, 2002) and Serranía de los Yariguies (n=15; locality details in Donegan *et al.* 2010). Data on *H. leucosticta* comes from studied in San Lucas (n=2, details in Donegan 2012), Alto de los Tarros / Bajo Anorí, Antioquia (n=1, locality details in Salaman *et al.* 2001, 2002) and Cerro de la Paz and Bajo Simacota (n=3, details in Donegan *et al.* 2010).

Taxon	Wing-chord from skins (mm)	Tail (mm)	Tarsus (mm)	Culmen to skull (mm)	Weight (g)
<i>H. leucophrys leucophrys</i> Central and East Andes	57.29 ± 2.20 (54.0–61.0) (n=17)	29.88 ± 2.04 (26.3–33.0) (n=13)	24.06 ± 0.92 (23.0–25.5) (n=17)	16.99 ± 0.89 (15.3–18.4) (n=17)	16.55 ± 0.79 (15.0–17.7) (n=13)
<i>H. leucosticta albilateralis</i> San Lucas, Bajo Anorí and Cerro de la Paz	59.50 ± 3.89 (55.0–64.0) (n=6)	24.80 ± 1.35 (23.5–27.0) (n=5)	21.94 ± 0.96 (20.6–23.1) (n=5)	15.68 ± 1.76 (14.0–18.0) (n=4)	16.15 ± 1.01 (14.7–16.9) (n=4)