

# **Two new species of the genus *Paratriarius* SCHAEFFER, 1906 from Ecuador (Coleoptera: Chrysomelidae, Galerucinae, Luperini)**

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## **Abstract**

Two new species of the genus *Paratriarius* SCHAEFFER, 1906 are described and illustrated from Ecuador: *P. christinae* sp. n. und *P. becki* sp. n.

## **Introduction**

Two new species of *Paratriarius* SCHAEFFER, 1906 from the Bellavista Cloud Forest Reserve (Pichincha District) are described below.

Diabroticina is a subtribe of the Luperini (Galerucinae) and comprises four sections: Diabroticites, Cerotomites, Phyllecthrites and Trachyscelidites (WILCOX 1972, SEENO & WILCOX 1982). Due to the lack of keys and the sometimes-vague descriptions of species there has been a lot of confusion about the taxonomic status of taxa in Diabroticites. SMITH & LAWRENCE (1967) provided information on the type specimens of the species in this group and designated lectotypes where necessary. Important is the key to the genera in Diabroticites they provided. The concepts of genera by SMITH & LAWRENCE (1967) is followed in this paper.

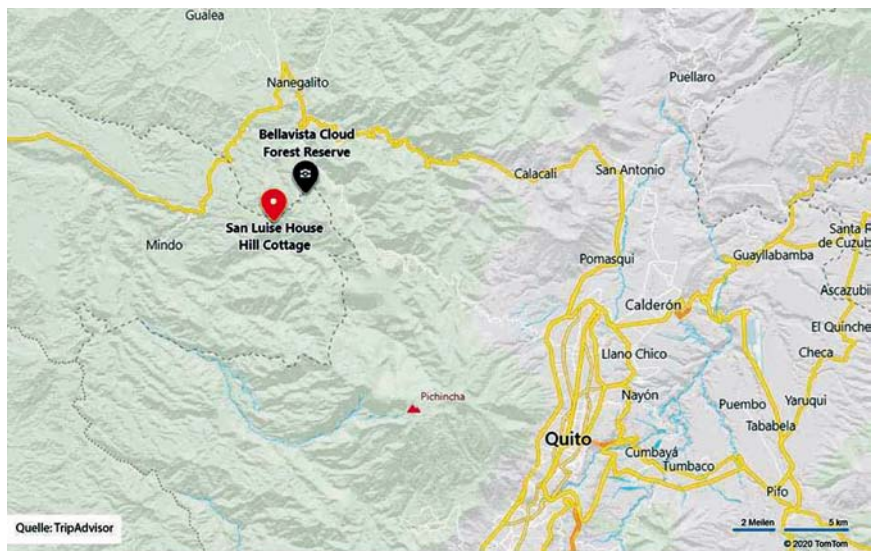
*Paratriarius* comprises five species groups: *dorsata*, *flavolimbata*, *adonis*, *festiva*-group and *not determined* group (WILCOX 1972). The last group is not included in the above mentioned identification key.

These groups differ in several characteristics (SMITH & LAWRENCE, 1967):

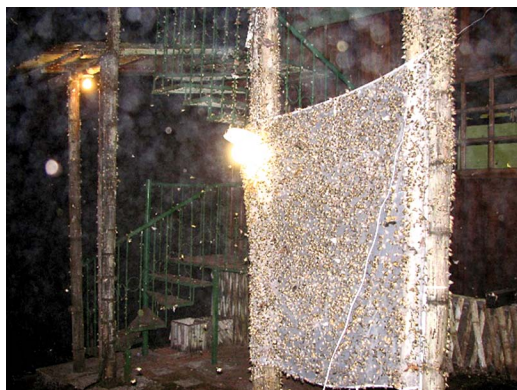
- A Males with apices of elytra not excavated, or if excavated, without excavation extending to apex [type species *Galeruca dorsata* SAY] ..... *Paratriarius* SCHAEFFER, 1906
- Males with 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> antennal segments distinctly wider than adjacent ones ..... *Paratriarius* (*dorsata* group)
- Males with 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> antennal segments not thickened ..... B
- B Elytra striato-punctate or rugosely punctate, often costate ..... *Paratriarius* (*flavolimbata* group)
- Elytra not striato-punctate and costate ..... C
- C Apical area of elytra of males with elongate, usually slightly curved, subsutural raised areas ..... *Paratriarius* (*adonis* group)
- Elytra of males with strong submarginal impressions in apical third of elytra ..... *Paratriarius* (*festiva* group)

Since the specimens under study match the characteristics of the genus but not characteristics of the four groups, they are assigned to the not determined group. In this group species are included whose elytral surfaces are similar in shape: uneven due to depressions.

Besides the two new taxa, the not determined group of *Paratriarius* is represented thirteen species: *P. batesi* (BALY, 1859), *P. castanea* (BOWDITCH, 1911), *P. centrastigma* (BOWDITCH, 1911), *P. coccinea* (BALY, 1865), *P. denotata* (GAHAN, 1891), *P. elongata* (DUVIVIER, 1887), *P. flavifrons* (?) (JACOBY, 1886), *P. flavocincta* (BALY, 1886), *P. limbatipennis* (?) (BALY, 1889), *P. pallens* BOWDITCH, 1911, *P. stali* (?) (BALY, 1889), *P. staudingeri* (BALY, 1889) and *P. unifasciata* (BALY, 1889).



**Fig. 1:** Map of the location from Bellavista Cloud Forest Reserve and San Luis House, Hill Cottage, Ecuador (Quelle: TripAdvisor).



**Fig. 2:** At night insects have been collected by a cloth in combination with a light bulb facing the open landscape of figure 2 and 3 (Photo: Michael Langer).

#### Abbreviations:

MLCL = MICHAEL LANGER collection, Lichtenwalde, Germany, MDCV = MAURO DACCORDI collection, Verona, Italy, RBCN = Ron BEENEN collection, Nieuwegein, The Netherlands, ZSM = Zoologische Staatssammlung München, Germany.

WILCOX (1972) gives the information on the where abouts of the type specimens:

- P. batesi* BALY, 1859 (♂ holotype Ega BMNH)
- P. castaneus* BOWDITCH, 1911 (♂ holotype San Carlos MCZ)
- P. centrastigmus* BOWDITCH, 1911 (♀ holotype San Carlos MCZ)
- P. coccineus* BALY, 1865 (♀ holotype Magd. BMNH)
- P. denotatus* GAHAN, 1891 (♂ lectotype Ecuador BMNH)
- P. elongatus* DUVIVIER, 1887 (♀ holotype Cauca IRSNB)
- P. flavifrons* JACOBY (?), 1886 (♀ lectotype Cordova BMNH)
- P. flavocinctus* BALY, 1886 (♀ lectotype Colombia BMNH)
- P. limbatipennis* BALY (?), 1889 (lectotype N. Freib. BMNH)
- P. pallens* BOWDITCH, 1911 (♀ holotype Costa Rica MCZ)
- P. stali* BALY (?), 1889 (Type lost)
- P. staudingeri* BALY, 1889 (holotype Cauca BMNH)
- P. unifasciatus* BALY, 1889 (lectotype Peru BMNH)

In total there are thirteen species in this not determined group (WILCOX 1972), from Central America (Costa Rica, three species) and South America (Brazil-Amazonas, Venezuela, Ecuador, Colombia, Peru, nine species) and from Mexico (one species). Research on the Internet to the genus *Paratriarius* has shown that since the publication of the catalog by WILCOX (1972), no further species from this group or with these elytra features have been described.



**Fig. 3:** Environment of type locality of *Paratriarius christinae* **sp. n.** and *Paratriarius becki* **sp. n.** and environment of the San Louis House, Hill Cottage (Photo: Michael Langer).



**Fig. 4:** Type locality of *Paratriarius christinae* **sp. n.** and *Paratriarius becki* **sp. n.** and environment of the San Louis House, Hill Cottage (Photo: Michael Langer).

## *Paratriarius* SCHAEFFER, 1906

*Paratriarius* SCHAEFFER, 1906: 243. Type species: *Galleruca dorsata* SAY, 1824: 456, by monotypy.  
*Chanchamayia* BECHYNÉ, 1956: 243.

### Diagnosis

The genus *Paratriarius* is among Diabroticites mainly characterized by mediate genal spaces (width one-four to one-half the maximum diameter of the eye) and the 3<sup>rd</sup> antennal joint, which is twice as long as the 2<sup>nd</sup> joint, 4<sup>th</sup> antennal joint about 1/3 longer than the 3<sup>rd</sup>. Basal tarsal segment of hind leg of male longer than segments 2 and 3 together, but not as long as all of the following segments combined. Tarsal claws bifid. Claw link of the middle and rear tarsi very long, about 2.5 times longer than the 3<sup>rd</sup> tarsal link. Surface of elytra with faint indications of longitudinal carina extending back from humerus. Elytra of males with depressions and without excavation near the apex making the elytral apex pointed (SCHAEFFER; 1906; SMITH & LAWRENCE 1967).

### Description of new species of *Paratriarius*

#### *Paratriarius christinae* sp. n. (Figs 5-12)

##### Type material

**Holotype:** ♂, Ecuador, District Pichincha, Bellavista Cloud Forest Res., 3 km sw of Bellavista Lodge (San Luis House / Hill Cottage), S 00°01'58.9" W 078°41'41.9", H = 2,298 m ca. 60 km nw Quito, 26.VIII. - 13.IX.2012 (on light), leg. M. Langer, R. Beck, M. + St. Dietl / coll. ZSM (via M. Langer, Niederwiesau) (ZSM).

**Paratypes:** 151 ♂♂, 76 ♀♀ (same location and date) (143 ♂♂, 71 ♀♀ MLCL; 2 ♂♂, 2 ♀♀ ZSM; 1 ♂, 1 ♀ RBCN; 5 ♂♂, 2 ♀♀ MDCV).

**Measurements:** Length: ♂ (HT) 12.5 mm, 11.5-13.0 mm (♂ and ♀ PT).

##### Description

Head: black, smooth, only very sparsely finely punctured, almost triangular. Eyes big, oval, protruding. Gena very small, 1/4 or smaller than the diameter of the eye. Frons smooth with a deep central pit between the eyes. Clypeus with a distinct longitudinal carina and pale, long, erecting hairs. Labrum transverse, with individual bristles. Between the clypeus and the labrum there is a pale-colored joint membrane, sloping steeply from the clypeus to the labrum. Maxillar palpus with a small, bright reddish end joint and yellowish tip, which is narrower than the penultimate joint, rounded tip, 1<sup>st</sup> and 2<sup>nd</sup> joint with a pale tip edge. Color of the labial palpus similar to the maxillar palpus. Mandible broad, flat, base black, middle reddish, apex black. Antennae with 11 joints, 2<sup>nd</sup> antennomere short, 3<sup>rd</sup> about 2.5 times longer than 2<sup>nd</sup>, 4<sup>th</sup> antennal joint about 1/3 longer than the 3<sup>rd</sup>, 4<sup>th</sup> - 7<sup>th</sup> antennal joints about the same length. Yellowish, 1st antennal joint dark brown. Second antennal joint an onwards with erecting bristles. Antennae reach about 2/3 the length of the elytra.

Pronotum slightly wider than long, black, finely shagreened, not very shiny, smooth and finely punctured. Lateral margin broad, from the base to the middle sinuate and from the middle to the anterior edge converging. Surface flat, slightly convex. Posterior half with a deep pit on each side. Posterior and anterior corners obtuse, rounded, with a bristle point. Basal and lateral borders margined, front border not margined.

Scutellum: black, smooth, shiny, triangular, with the posterior corner strongly rounded.

Elytra: black, very finely chagrined and sparsely finely punctured. Backwards expanding. Both margins in the front third not visible from above at the same time. Suture margined, to the apex raised. Converging at the apex with the wide margin and rounded together. Elytra bulging (with dorsal depressions) to behind the middle. At the apex of the elytra with a partly larger depression (partly obsolete). Elytra depressed on the outer side behind the shoulder bulge with several pits. These form a longitudinal plicate towards the surface. In addition, there are three wide transverse pits on the inner disc. The first of these is semicircular and delimits the basilar space, behind it the second is bent backwards. This is located approximately in the middle of the elytra. The third (often not clearly visible), shallower pit is a short distance behind the second. The basilar space on each elytra and the surface between the transverse furrows are slightly raised.

Body ventrally: black, posterior episterna densely hairy yellowish; outer sides of the metathorax densely hairy yellowish; sternite of the abdomen on the outside with longer yellowish hairs; middle less hairy; sternite V of male with a semicircular bulge.

Epipleura running fairly parallel to behind the middle of the elytra, but do not reach the apex, at the beginning of the last quarter of the elytra, the epipleura connect with the marginal edge.

Legs: black, femora from the base to the middle reddish-brown. Femora and tibiae with longer yellowish hairs. Male with anterior tibia wider than female. First joint of anterior tarsi widened in male. Third



joint with dense bristles in both sexes. First segment of the posterior tarsi long, about as long as the following three combined. Claw joint of the anterior tarsi long, about two times longer than the third tarsal joint. Claw joint of the middle and posterior tarsi very long, about 2.5 times longer than the third tarsal joint. Trochanter yellow.



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**Figs 5-8:** *Paratriarius christinae* sp. n. (holotype ♂): 5, habitus, dorsal view; 6, head, frontal view; 7, apex of elytra; 8, habitus, ventral view.



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**Figs 9-12:** *Paratriarius christinae* sp. n. aedeagus; 9, dorsal view; 10, lateral view; 11, ventral view; 12, spermatheca.

#### **Aedeagus:** figs 9-11

In dorsal view the sides subparallel, a little wider towards the tip. Apex ends in a short tip. In the lateral view, the sides are nearly straight.

## **Spermatheca:** fig. 12

Sexual dimorphism: First segments of anterior tarsi in male are wider than in female. Anterior tibia in male wider than in female. Anal sternite with a semi-circular-bulge in the male; in female rounded.

**Etymology:** This species is named after my wife, Christina LANGER.

## **Diagnosis:**

*Paratriarius christinae* **sp. n.** is a species with a completely black head, pronotum and elytra. All previously known species of the not determined group of *Paratriarius* are not completely black. Either the entire surface is reddish to pitch-brownish (*P. coccinea*) or yellowish (*P. castanea*, *P. centrastigma* and *P. pallens*). All other species in this group are two-colored.

The present series is a total of 228 copies (152 ♂♂ and 76 ♀♀). It is a relatively large series that does not show any noticeable aberrations in color. It can therefore be assumed that this species is not very variable in color.

## ***Paratriarius becki* sp. n. (Figs 13-20)**

### **Type material**

**Holotype:** ♂, Ecuador, District Pichincha, Bellavista Cloud Forest Res., 3 km sw of Bellavista Lodge (San Luis house / Hill Cottage), S 00°01'58.9" W 078°41'41.9", H = 2.298 m ca. 60 km nw Quito, 26.VIII. - 13.IX.2012 (on light), leg. M. Langer, R. Beck, M. + St. Dietl / coll. ZSM (via M. Langer, Niederwiesau) (ZSM).

**Paratypes:** 19 ♂♂, 17 ♀♀ (same location and date) (16 ♂♂, 12 ♀♀ MLCL; 1 ♂, 1 ♀ ZSM; 1 ♂, 1 ♀ RBCN; 1 ♂, 3 ♀♀ MDCV).

**Measurements:** Length: ♂ (HT) 12.8 mm 12.0-14.0 mm (♂ and ♀ PT).

### **Description**

Head: Black, smooth, very sparsely finely punctured (finer and more extensive punctured than in *Paratriarius christinae* **sp. n.**), almost triangular. Eyes big, oval, protruding. Gena very small, ¼ or smaller than the diameter of the eye. Frons smooth with a deep central pit between the eyes. Clypeus with a distinct longitudinal carina and pale, long, erecting hairs. Labrum transverse, with individual bristles. Between the clypeus and the labrum there is a pale-colored joint membrane. Sloping steeply from the clypeus to the labrum. Maxillar palpus with a small, dark end joint and light colored tip, which is narrower than the penultimate joint, rounded tip, 1<sup>st</sup> and 2<sup>nd</sup> joint with a pale tip edge. Color of the labial palpus similar to the maxillar palpus. Mandible broad, flat, base black, middle reddish, apex black. Antennae with 11 joints, 2<sup>nd</sup> antennal joint short, 3<sup>rd</sup> antennal joint about 2.5 times longer than 2<sup>nd</sup>, 4<sup>th</sup> antennal joint about ½ longer than the 3<sup>rd</sup>, 4<sup>th</sup>-7<sup>th</sup> antennal joints about the same length. Black-brown, the last four joints lighter, reddish. Second antennal joint an onwards with erecting bristles. The antennae reach about ⅔ the length of the elytra.

Pronotum a little wider than long, black, finely shagreened, not very shiny, smooth, finely punctured. Lateral border broadly, from the base to the middle sinuate and from the middle to the anterior edge converging. Surface flat, slightly convex. In the posterior half with a deep pit on each side. Posterior and anterior corners obtuse, rounded, with a bristle point. Basal and lateral borders margined, front border not margined.

Scutellum: black, smooth, shiny, glabrous. Triangular, posterior corner strongly rounded.

Elytra: black, apex yellow to yellow-red. Very finely chagrined and sparsely finely punctured, glabrous. Backwards expanding. Both margins in the front third are not visible from above at the same time. Suture margined, to the apex raised. Converging at the apex with the wide margin and rounded together. Elytra bulging (with dorsal depressions) to behind the middle of the elytra. At the apex of the elytra with a partly larger depression (partly obsolete). Elytra depressed on the outer side behind the shoulder bulge with several pits. These form a longitudinal plicate towards the surface. In addition, there are two wide, relatively flat transverse pits on the inner disc. The first of these is semicircular and delimits the basilar space, behind it the second is bent backwards. This is located approximately in the middle of the elytra. The basilar space on each elytra and the surface between the transverse furrows are slightly raised.

Body ventrally: black, posterior episterna densely hairy yellowish (less dense than on *Paratriarius christinae* **sp. nov.**); outer sides of the metathorax densely hairy yellowish. Sternite on the outside with longer yellowish hairs; middle less hairy; sternite V of male with a semicircular bulge.

Epipleura running fairly parallel to behind the middle of the elytra, but do not reach the apex of the elytra, at the beginning of the last quarter of elytra, epipleura connect with marginal edge.

Legs: black, femora completely yellow. Femora and tibiae with longer yellowish hairs. Male with anterior tibia wider than female. First joint of anterior tarsi widened in male. Third joint with dense bristles in both sexes. First segment of the posterior tarsi long, as long as the following three combined. Claw joint

of the anterior tarsi long, about two times longer than the third tarsal joint. Claw joint of the middle and posterior tarsi very long, about 2.5 times longer than the third tarsal joint. Trochanter yellow.



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**Figs 13-16:** *Paratriarius becki* sp. n. (paratype ♀): 13, habitus, dorsal view; 14, head, frontal view; 15, apex of elytra; 16, habitus, ventral view.



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**Figs 17-20:** *Paratriarius becki* sp. n., aedeagus; 17, dorsal view; 18, lateral view; 19, ventral view; 20, spermatheca.

#### **Aedeagus:** figs 17-19

In dorsal view the sides sinuate in the middle, a little wider towards the tip. Apex ends in a short tip. In the lateral view, the sides are slightly curved.

## **Spermatheca:** fig. 20

Sexual dimorphism: first segments of anterior tarsi wide in male. Anterior tibia in male wider than in female. Sternite V with a semi-circular-bulge in the male; in female rounded.

## **Etymology:**

This species is dedicated to Dr. Robert BECK, a good friend and one of the collectors on the trip to Ecuador.

## **Diagnosis:**

*Paratriarius becki* **sp. n.** has a completely black surface with a yellowish apex of the elytra. This marking takes up one tenth of the apical of the elytra. Similar is this species to the *P. elongata*. The yellowish marking in *P. elongata* occupy the entire apical third (30%) of the elytra. However, the yellowish tip part of the elytra in *P. becki* **sp. nov.** is not so wide.

The color of the surface of *P. elongata* is brownish in contrast to the newly described species, whose surfaces are completely black. Another difference is the yellowish femora on all legs, in *P. elongata*, at most the anterior femora of the legs are yellowish.

The present series is a total of 37 copies (20 ♂♂ and 17 ♀♀). It is a relatively large series that does not show any noticeable aberrations in color. It can therefore be assumed that this species is not very variable in color.

Another similar species is *P. staudingeri*. This species differs in its yellowish-white lateral edge of the pronotum and a yellowish-white lateral edge of the elytra as soon as a yellowish-white apical part of the elytra. This species is significantly smaller at 9 mm.

## **Acknowledgment**

I would like to thank Ron BEENEN (Nieuwegein) and Luciano de A. MOURA (Brazil) for the critical reading of the manuscript and the information that went into this article.

## **Zusammenfassung**

Zwei neue Arten von *Paratriarius* SCHAEFFER, 1906, werden aus Ecuador beschrieben:

*Paratriarius christinae* **sp. n.** und *Paratriarius becki* **sp. n.**

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