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# **A study of types of L.W. Schaufuss:** ***Pachybrachis suffriani*** (Coleoptera: Chrysomelidae: Cryptocephalinae)

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Abstract: Syntypes of *Pachybrachis suffriani* Schaufuss, 1862 were traced and re-examined, and a lectotype was designated. The lectotype is re-described. *Pachybrachis danieli danieli* Burlini, 1968 was found to be a junior synonym of *P. suffriani*. *Pachybrachis assiettae* Burlini, 1968 is suggested to be a proper species, not a subspecies of *P. suffriani*. The female of *P. suffriani* is described and the spermatheca is figured for the first time. Diagnostic characters are provided to distinguish female *P. suffriani* and *P. assiettae* from *P. fimbriolatus*.

Key words: Coleoptera, Chrysomelidae, Cryptocephalinae, Pachybrachini, *Pachybrachis*, Palaearctic, Europe

## Introduction

Ludwig Wilhelm SCHAUFUSS (1833–1890) described beetles in various families including two species of leaf beetles in the genus *Pachybrachis* Chevrolat, 1832. While many beetles from the L.W. SCHAUFUSS collection were donated to the Deutsches Entomologisches Institut, Berlin (now Senckenberg Deutsches Entomologisches Institut, Müncheberg, Brandenburg) by his son Camillo F.C. SCHAUFUSS (1862–1944) (EBERT et al., 1986), all L.W. SCHAUFUSS Chrysomelidae types are deposited in the collection of the Museum für Naturkunde, Berlin (F. HIEKE, pers. com.). In this study, the types of *P. suffriani* are re-examined.

## Materials and Methods

Included in this study are specimens located in the following collections.

MCSN = Museo Civico di Storia Naturale, Milano, Italy (F. RIGATO).  
 MESG = Matthias SCHÖLLER personal collection, Berlin, Germany.  
 NMW = Naturhistorisches Museum Wien, Austria (H. SCHILLHAMMER).  
 SMF = Senckenberg, Gesellschaft für Naturforschung, Frankfurt am Main, Germany (D. KOVAC).  
 UHPC = Uwe HEINIG personal collection, Berlin, Germany.  
 ZMHUB = Museum für Naturkunde, Berlin, Germany (J. FRISCH, M. UHLIG).  
 ZSM = Zoologische Staatssammlung München, Germany (M. BALKE)

## Results

### *Pachybrachis (Pachybrachis) suffriani* Schaufuss, 1862

*Pachybrachis Suffriani* Schaufuss, 1862: 312

= *Pachybrachis danieli* Burlini, 1968: 94 **syn. nov.**

= *Pachybrachis unguiculatus* Burlini, 1968: 94 **syn. nov.**

Type specimens studied:

Lectotype *Pachybrachys Suffriani* Schaufuss (male, ZMHUB, this designation): / *Pachybrachis Suffriani* m H occ [white] / Coll. L.W. Schaufuß [white] / (my label) Lectotypus *Pachybrachis suffriani* Schaufuss, 1862; des. Matthias Schöller [red] /.

3 Paralectotypes *Pachybrachis Suffriani*: (female, ZMHUB) Burgos m.; (female, ZMHUB) Coll. L.W. Schaufuß; (female, ZMHUB) Coll. L.W. Schaufuß (head and Pronotum missing); all labels white, all with my label: Paralectotypus *Pachybrachis suffriani* SCHAUFUSS, 1862; des. Matthias Schöller [red] /.

Holotype (Palencia) and female paratype (El Escorial) *Pachybrachys danieli* Burlini (ZSM) (Fig. 13).

Note: In his original description, SCHAUFUSS gave two records: Patria: Hispan. merid., leg. Dr. STAUDINGER; Hispan. occid. (Burgos), leg auctor. Two specimens were traced in ZMHUB, obviously collected by SCHAUFUSS. The historical series placed in the drawer as *P. suffriani* consists of five specimens, three of which were labelled as Coll. L.W. SCHAUFUSS and chosen for the lectotype designation. These specimens are in agreement with the original description of *P. suffriani* by SCHAUFUSS. The other two specimens, not bearing the label Coll. L.W. SCHAUFUSS and not in agreement with the original description, were a male from Bañuelas, determined by BURLINI as *P. suffriani* in 1968, and another one from which only the abdomen and the aedeagus are left, both belonging to the species *P. fulvipes* Suffrian, 1848. These were the specimens studied by BURLINI (1968), who noted two specimens from the WEISE collection on page 65, and might have been the specimens studied by WEISE. This is

the explanation why BURLINI (1968) gave a figure of the aedeagus of *P. fulvipes* on table 2 Fig. 21 as *P. suffriani*, and figured the aedeagus of *P. terminalis* Suffrian, 1849 twice in Fig. 35 (as *P. fulvipes*) and Fig. 37 (as *P. terminalis*). Male type specimens of *P. fulvipes* (specimen no. 33588) and *P. terminalis* (specimen no. 33589) were studied by the author in the SUFFRIAN-collection in Halle/Saale. In his description of *P. suffriani*, SCHAUFUSS (1862) wrote (in French): „.... Dr. SUFFRIAN wrote me from Münster, that (these specimens) belong to a new species, and I dedicated it to him“. It seems unlikely that SUFFRIAN, who produced only few synonyms, forgot his description of *P. fulvipes*. On the other hand, it is quite possible that SUFFRIAN noticed that the specimens did not belong to the similar species *P. fimbriolatus* Suffrian, 1848, because he also described another species that is close to *P. fimbriolatus*, *P. mendax* Suffrian, 1860.

The lectotype of *P. suffriani* is exactly 3.0 mm, as given in the original description, this species might be on the average larger than *P. fimbriolatus*.

The interpretation of *P. suffriani* Schaufuss by WEISE (1882: 251) and BURLINI (1968) was followed later on in determination keys (PETITPIERRE 2000, WARCHAŁOWSKI 2008). However, this view cannot be preserved because the syntypes of *P. suffriani* are preserved, and the specimens of *P. fulvipes* seen as *P. suffriani* sensu WEISE and BURLINI are not in accordance with the original description by SCHAUFUSS (1862).

HEYDEN (1870) published a further record for *P. fulvipes* from St-Albas, Banuelas (Reis. Span. 47), that Weise thought to be *P. suffriani* sensu Burlini. I traced a specimen from the 19<sup>th</sup> century from Astorga, Paganetti, determined as *P. suffriani* (not known by whom) indicating that there was a previous understanding of the correct name.



Fig. 12: Lectotype of *P. suffriani* in Coll. ZMHUB.

### **Redescription of lectotype**

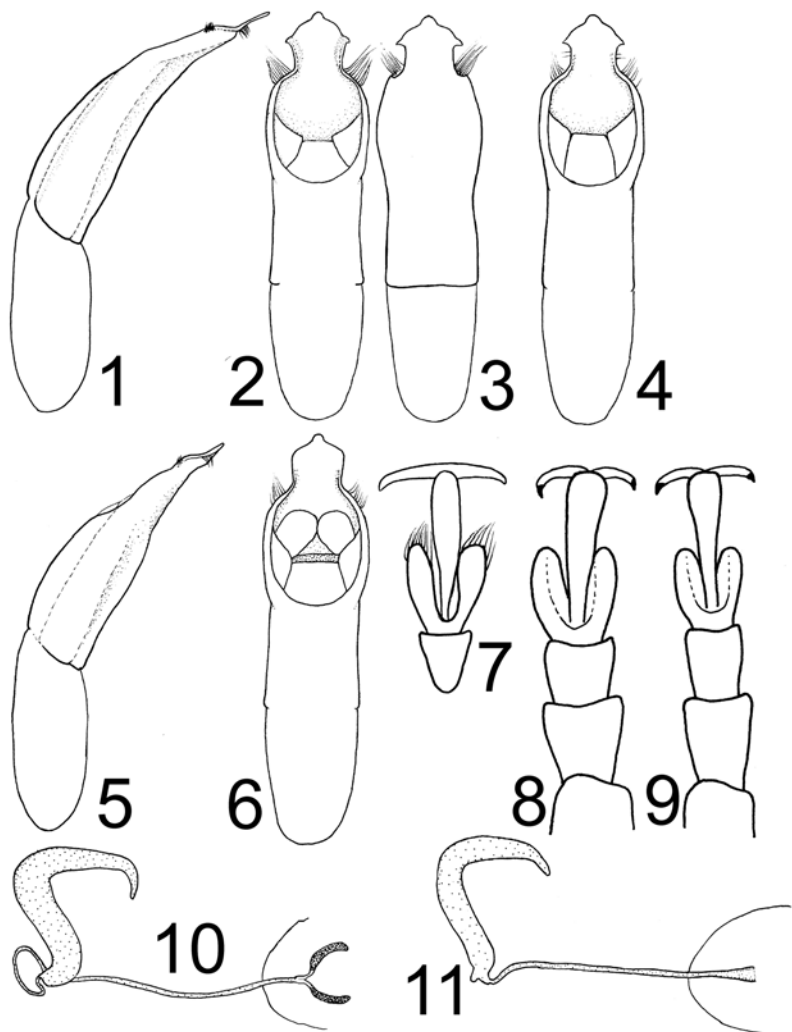
**Habitus:** Body small, shape cylindrical (Fig. 12), size [mm]: length 3.00, width of elytra at humeri 1.40, length of pronotum 0.95, width 1.35.

**Head:** Dark yellow with vertex black, a central longitudinal black stripe on frons, a black area around the scape, lateral and apical margins of clypeus black, black base and side margins of cheek, puncturation sparse and coarse, eyes large, ratio of minimum distance between upper lobes to eye length 0.85 : 1; antenna longer than pronotum, length 2.3 mm, antennal segments 1–5 dark yellowish, 6–11 blackish brown.

**Thorax:** pronotum transverse, width 1.42 times length, black with apical and lateral margins yellow, a longitudinal yellow stripe reaching mid of pronotum and a pair of longitudinal oval markings at basal margin next to scutellum yellow, glabrous, shiny, puncturation coarse and dense, ca. 22 punctures longitudinally along the midline of the pronotum; along lateral margin a regular row of small punctures followed by a yellow bulging puncture-free area; pro-, meso- and metathorax completely black; scutellum black; elytra glabrous, basal margin of elytra swollen, yellow, elytra with punctures dense, coarse and confused, above lateral margin two bulging carinae, basal one yellow and upper one partly yellow, further bulging yellow markings as in Fig. 12; fore legs yellowish brown, mid- and hind legs blackish brown with yellow spot on femur and light brown base of tibia, fore coxa yellow, mid- and hind coxae black, fore femur with a ventral ridge, tibiae simple, fore- and mid-tibiae with tibial spurs, first segment of fore tarsus not widened, claw segment very large (Fig. 7), first tarsomere of hind tarsus as long as following tarsomeres combined (without claw segment).

**Abdomen:** Completely black, apical margin of ventrite V with a shallow, sparsely punctate and shiny fovea at centre, covered with short white setae; length of aedeagus 1.5 mm, aedeagus in lateral view gradually bent and slender (Fig. 1), apex of aedeagus triangular with a pair of lateral and one apical denticle, ostium at widest point wider than base of aedeagus, a pair of lateral triangular frenulae present (Fig. 2), ventrally regularly vaulted (Fig. 3).

**Female paralectotype:** The spermathecal duct is straight and short, weakly pigmented, its base is U-shaped and strongly pigmented, the spermathecal receptacle and the pump are narrow, receptacle as long as pump, inner margin rectangular in lateral view (Fig. 10), spermatheca light brown, length of spermathecal duct 0.70 mm, length of spermatheca 0.30 mm, width 0.25 mm.



Figs 1–11: *Pachybrachis suffriani*, 1–3 Lectotype: 1) aedeagus lateral; 2) aedeagus dorsal; 3) aedeagus ventral; 4) male from Astorga, aedeagus dorsal; 5–6 male *P. assiettae* from Alpes Maritimes: 5) aedeagus lateral; 6) aedeagus dorsal; 7–8 *P. suffriani*: 7) male left fore tarsus; 8) female left fore tarsus; 9) *P. fimbriolatus* female left fore tarsus; 10) *P. suffriani* spermatheca; 11) *P. fimbriolatus* spermatheca.

Variability: In males the central longitudinal black stripe on frons might be fused with the black area around the scape, in females the head might be predominantly black, the yellow colour reduced to some spots, and the yellow markings on the pronotum might be reduced. The lateral aedeagal denticles may be slightly more acute as in males from Central Spain, Province León, Astorga 42°27'N, 6°3'W (NMW) (Fig. 4).



Fig. 13: Male holotype (left) and female paratype (right) of *P. danieli* in Coll. ZSM.

***Pachybrachis assiettae* Burlini, 1968**

= *Pachybrachis danieli assiettae* Burlini, 1968: 95

The aedeagus is shortened apically in lateral view (Fig. 5) and the lateral denticles at the tip of the aedeagus in dorsal view are absent (Fig. 6).

*P. suffriani* is distributed in Spain and Portugal, and eventually in France (SCHÖLLER et al., 2010) (Fig. 14). In the same publication where he described *P. danieli danieli* from Spain, BURLINI (1968) described the

subspecies *P. danieli assiettae* from Southern France and Piemonte. BURLINI (1968) stated the male fore claws being smaller in *P. danieli assiettae* compared to the nominate subspecies, but still larger compared to *P. fimbriolatus*. In this study, no difference in size of the male fore claws was found between *P. suffriani* and *P. assiettae*. *P. assiettae* can be distinguished from *P. suffriani* by the aedeagus being shorter and stouter, and the absence of lateral denticles.

Contrary to *P. suffriani*, *P. assiettae* is sympatric with *P. fimbriolatus*. Males of *P. assiettae* and of *P. suffriani* can be easily distinguished from male *P. fimbriolatus* by the larger and asymmetric claws of the fore tarsi, the size of the last tarsomere in the male fore tarsus is about 0.38 mm long in *P. suffriani*, compared to the male fore tarsus in *P. fimbriolatus* with about 0.18 mm. However, females are hardly distinguishable by external characters. The female third fore tarsomere was found to be the slightly wider in *P. assiettae* and *P. suffriani* (Fig. 8) compared to



Fig. 14: Distribution of *P. suffriani* (black triangle) and *P. assiettae* (white triangle), grey triangle = questionable record of *P. suffriani* from France.

*P. fimbriolatus* (Fig. 9). The puncturation of the pronotum of female *P. assiettae* and *P. suffriani* is more dense than in *P. fimbriolatus* the number of punctures longitudinally along the midline of the pronotum is 14–17 and 22–25 in *P. fimbriolatus* and *P. suffriani*, respectively. The puncturation of the elytra below the scutellum is finer in *P. suffriani* compared to *P. fimbriolatus*. A reliable character is the base of the spermathecal ductus, which is simple in *P. fimbriolatus* (Fig. 11) and U-shaped and strongly pigmented in *P. suffriani* (Fig. 10).

## Discussion

All records of *P. assiettae* are from France and Italy, and all but one record from *P. suffriani* from Spain and Portugal. The exception is a record published by BURLINI (1968) from Camargue Bouches du Rhône (France). The presence of *P. suffriani* east of the Pyrenees needs future verification.

*P. fimbriolatus* is not present in the Iberian Peninsula (PETITPIERRE, 2000). WARCHAŁOWSKI (1991) indicated records of *P. fimbriolatus* from Catalonia, but later on considered these to be wrong based literature from the 19<sup>th</sup> Century like SEIDLITZ (WARCHAŁOWSKI, pers. com.), the source that was cited for the record from Spain in BURLINI (1968), too.

The character of enlarged claws in male *P. suffriani* and *P. assiettae* are unique among Palaearctic *Pachybrachis*, but can be found in several Neotropical *Pachybrachis* spp. (SCHÖLLER, 2009).

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