

## **Redescription and history of *Vombisidris jacobsoni* (Forel, 1915) (Hymenoptera, Formicidae)**

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**Redescription and history of *Vombisidris jacobsoni* (Forel, 1915) (Hymenoptera, Formicidae).** - *Vombisidris jacobsoni* (Forel, 1915) is redescribed and recognized as a member of the *V. australis* group, as defined by Bolton (1991). A lectotype is designated. In addition, the convoluted history of the two type specimens in the Forel Collection at the Muséum d'Histoire Naturelle, Genève, Switzerland is presented. An additional paralectotype specimen from the Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy is included.

**Keywords:** Formicidae - Formicoxenini - redescription - lectotype designation

### INTRODUCTION

During taxonomic research work for a recent paper (Zettel & Sorger, 2010), I came across Bolton's (1995, 2003) mention of the missing type material for the species *Vombisidris jacobsoni* (Forel, 1915) from the Forel Collection at the Muséum d'Histoire Naturelle, Genève. In order to study this species in more detail and to better understand its history of description, I contacted the curator of the Forel Collection, to find out whether the material considered as lost by Bolton (1995, 2003) had been returned to the collection.

Luckily, it had been and therefore it was possible to borrow and study two syntype specimens and in the process to understand not only the story of the specimens but also the appropriate placement of the species. I was also able to discover an additional specimen in the collections of the Museo Civico di Storia Naturale "Giacomo Doria" in Genova, Italy.

The original description of this species was as *Atopula jacobsoni* Forel, 1915. It was transferred to *Leptothorax* a year later (Forel, 1916) and after some initial speculation about its generic combination by Bolton (1995), it was finally transferred to *Vombisidris* by Bolton (2003), even though types were not available for examination at the time. Originally, *Vombisidris* was placed in the myrmicine tribe Leptothoracini Emery, 1914 which was later recognised as a junior synonym of Formicoxenini Forel, 1893 (Bolton, 2003).

## HISTORY OF TYPE SPECIMENS

When Forel (1915: 25-27) originally described *Vombisidris jacobsoni* as *Atopula jacobsoni*, he initially expressed some doubt about the correct generic combination of this species and also of *Atopula ceylonica* (Emery, 1901), now *Paratopula ceylonica*: “Ich hatte damals aus der *A. ceylonica* einen *Leptothorax* gemacht (von *Taylori* For.). Ich bin jetzt noch nicht überzeugt, dass diese Art, und vor allem die *A. jacobsoni* von *Leptothorax* generisch zu unterscheiden sei. Wenn aber Letztere ein *Leptothorax* ist, muss *ceylonica* ebenfalls dazu gezogen werden.” [Translation: Back then I had made a *Leptothorax* (from *Taylori* For.) of *A. ceylonica*. I am still not convinced this species and, especially, *A. jacobsoni* are generically separable from *Leptothorax*. If, however, the latter is a *Leptothorax*, then *A. ceylonica* also needs to be placed in *Leptothorax*.] (Forel, 1915: 27). Therefore, it was not surprising that Forel readily accepted Emery’s suggestion [in litt.] to place the species in *Leptothorax* just a year later (Forel, 1916: 458): “M. Emery m’écrit qu’il considère mon *Atopula Jacobsoni* (Fauna simalurensis 1915, page 25) comme *Leptothorax*. Je suis d’accord (voir ibidem page 27), ...” [Translation: M. Emery wrote me that he believes my *Atopula Jacobsoni* (Fauna simalurensis 1915, page 25) to be a *Leptothorax*. I am in agreement (see ibidem page 27), ...].

Emery (1924: 250) placed *V. jacobsoni* in the subgenus *Leptothorax* (*Goniothorax*) Emery, 1896 (today a junior synonym of *Nesomyrmex* W. M. Wheeler, 1910; see Bolton, 2003): “Espèce d’Asie 11. *L. jacobsoni* (Forel), Tijdschr. V. Ent. Vol. 58, p. 25 (1915) ♀ (*Atopula*). Sumatra.”

When Bolton (1995: 240) published “A New General Catalogue of the Ants of the World”, the type material from the Forel Collection was missing. The catalogue entry reads: “*Atopula jacobsoni* Forel, 1915a: 25 (w.) SUMATRA. Combination in *Leptothorax*: Forel, 1916: 458 (in text); in *L. (Goniothorax)*: Emery, 1922f: 250. [Note. This may be a *Vombisidris* species; holotype is currently missing from Forel Collection.]”. Eight years later, Bolton (2003: 272) finally transferred the species into *Vombisidris*, saying after his discussion of *Nesomyrmex*: “Taxon excluded from the above *jacobsoni*, which from the original description is probably a *Vombisidris* species (holotype is missing; see Bolton, 1995b: 240). Combination of this is provisionally *Vombisidris jacobsoni* (Forel) comb. n.”.

When Bernhard Merz (Muséum d’Histoire Naturelle, Genève) informed me that the specimens were returned to the Forel Collection and available for loan, I decided to borrow them and investigate their cryptic identity. Having examined the missing specimens I can now confirm Bolton’s suspicion – there is no doubt this species belongs in *Vombisidris*. I can also resolve the whereabouts of the type specimens.

Quite surprisingly, I found a label with the correct combination already on the pin while examining the labels of the specimens in the Forel Collection – “*Vombisidris jacobsoni* (FOREL), Det: 1995 A. Francoeur”. I immediately contacted Prof. André Francoeur (University of Québec at Chicoutimi) who provided extracts from the notes he had made on the Forel collection. Thanks to Prof. Francoeur’s kind cooperation, I ascertained that in 1995 Prof. Francoeur found the specimens in the collection under *Goniothorax* and concluded that they neither belong to *Leptothorax* nor *Nesomyrmex* and labelled them as “*Vombisidris jacobsoni*” at a later stage of his research

(Francoeur, in litt.). So it seems that, while Prof. André Francoeur was studying borrowed specimens from the Forel Collection, Barry Bolton was working on “A New General Catalogue of the Ants of the World” (1995) and therefore, could not find the missing type specimens in the Forel Collection.

## MATERIAL AND METHODS

The specimens are dry mounted on card squares. Examination of all three specimens was carried out with an Olympus SZH10 Research Stereo binocular microscope; measurements were taken at magnifications of 25× and 70×. Digital photographs were taken with a Leica DFC490 camera attached to a Leica MZ16 binocular microscope with the help of Image Manager IM50 and processed with the software Helicon Focus 4.80 and Adobe Photoshop 7.0.

Terminology and method of description largely follow Bolton (1991), most measurements and indices follow Bolton (1983) (as done by Bolton, 1991). All measurements are in millimetres.

Measurements and indices (\* after Bolton, 1983):

- TL\* Total Length. Total outstretched length of ant from mandibular apex to gastral apex.
- HL\* Head Length. Length of head proper, excluding mandibles, measured in full face view from mid-point of anterior clypeal convexity to mid-point of occipital margin.
- HW\* Head Width. Maximum width of head, in full-face view measured behind eyes (excluding eyes).
- CI\* Cephalic Index.  $HW/HL \times 100$
- EL Eye length. Length of maximum eye diameter in lateral aspect of head.
- EI Eye Index.  $EL/HW \times 100$
- SL\* Scape Length. Maximum straight line length of antennal scape excluding basal constriction or neck close to condylar bulb.
- SI\* Scape index.  $SL/HW \times 100$
- PW\* Pronotal Width. Maximum width of pronotum in dorsal view.
- AL\* Alitrunk Length. Diagonal length of alitrunk in profile, from the point at which the pronotum meets the cervical shield to posterior base of metapleuron.
- FL Hind femur Length. Maximum length of metafemur.
- FI Hind femur Index.  $FL/HW \times 100$

## SYSTEMATIC PART

### *Vombisidris jacobsoni* (Forel, 1915)

Figs 1-5

TYPE MATERIAL: 1 lectotype worker (upper specimen), 1 paralectotype worker (lower specimen) labelled “Type”, “*Atopula jacobsoni* ♀ Type For.”, “27\ No 15\ Sinabang\ (Simalur\ Sumatra\ I 1913\ (E. Jacobson)” [= leg. Edw. Jacobson], “sp. A. *Jacobsoni* For.”, “*Vombisidris jacobsoni* (FOREL)\[on backside:] Det: 1995\ A. Francoeur”, “LECTOTYPE\ *Atopula jacobsoni* FOREL, 1915\ des. D.M. Sorger 2010”, “PARALECTOTYPE\ *Atopula jacobsoni* FOREL, 1915\ D.M. Sorger 2010”, “*Vombisidris jacobsoni* (Forel)\ det. D.M. Sorger 2010”, specimens glued on two squared card boards on the same pin, in coll. Forel at MHNG (Muséum d’Histoire Naturelle, Genève), Switzerland. – 1 paralectotype worker labelled “Cotypus”, “*Atopula jacobsoni* ♀ Type For.\ Simalur”, “SYNTYPUS\ *Atopula jacobsoni* A. Forel, 1915”, “MUSEO GENOVA\ coll. C. Emery\ dono 1925”, “PARALECTOTYPE\ *Atopula jacobsoni*”



FIG 1

*Vombisidris jacobsoni*, lectotype worker from Sumatra, Simalur, in the Forel Collection of the Muséum d'Histoire Naturelle, Genève. Habitus, dorsal view. © www.antbase.net, published with permission.

FOREL, 1915\ D.M. Sorger 2010", "*Vombisidris\ jacobsoni* (Forel)\ det. D.M. Sorger 2010", glued on a squared card board, in coll. Emery at Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy.

TYPE LOCALITY: Indonesia, Sumatra, Simalur Island (alternative spelling: Simeulue), Sinabang (capital city) (2° 29' 0" N, 96° 22' 30" E, Google Earth)

DESCRIPTION OF WORKER: A species of the genus *Vombisidris* as defined by Bolton (1991), with the following characters.

Colour of entire body light brown to yellow (two type specimens almost entirely light brown, one type specimen almost entirely yellow). Femora and tibiae lighter than rest of body (whitish yellow except for infuscated bases) (figs 1, 2, 3).

Entire body with short thick, blunt (abruptly truncated apically) setae (some setae on postpetiole even slightly clavate); distinctly shorter setae on head (fig. 3), longer and finer setae on scapes (fig. 4). In addition, some fine, short scattered appressed hairs on gaster.

Head, dorsum of mesosoma, petiole and postpetiole with distinct rugoreticulum. Spaces between costulae mostly smooth and shiny. Pronotum angulate, cervical shield with a few longitudinal ridges overlaying granulate microsculpture (figs 1, 2). Sides of mesosoma with some rugae overlaying microsculpture (fig. 3). Dorsum of petiolar peduncle with very finely reticulate sculpture. Gaster slightly depressed in lateral aspect, smooth and shiny, some short striae at base of tergite 1 (figs 1, 2, 3).



FIGS 2-5

*Vombisidris jacobsoni*, paralectotype worker from Sumatra, Simalur in the Forel Collection of the Muséum d'Histoire Naturelle, Genève. (2) Habitus, dorsal view. (3) Habitus, lateral view. (4) Head, full face view. (5) Labels of lectotype and paralectotype workers (on one pin). © www.antbase.net, published with permission.

Head slightly longer than wide, sides behind eyes feebly convergent (fig. 4). Eyes protruding and relatively large (EI 24, 25) containing 8-10 ommatidia in longest row. Clypeus strongly convex in lateral aspect (fig. 3), in full face view its anterior margin covered by its convexity (fig. 4). Subocular groove complete, from mandibular insertion backwards to latero-occipital margin. Mandibles smooth with some fine short hairs, hair pits indistinct (fig. 4). Dorsal and lateral faces of mesosoma forming an angle, mesosoma broadest at outer pronotal angles, continuously becoming narrower towards propodeum in dorsal aspect (maximum pronotum width ca. twice maximum propodeum width), sides feebly concave (figs 1, 2), dorsum evenly convex in lateral aspect, metanotal groove absent (fig. 3). Propodeum in dorsal aspect slender (figs 1, 2); spiracle situated below level of spines (fig. 3). Propodeal spines long, slightly down-curved in lateral aspect (fig. 3), curved inwards in dorsal aspect (figs 1, 2). Petiole (figs 1, 2, 3) with long peduncle bearing a pair of teeth in front of spiracle; anterior and dorsal face of node separated by a transverse ridge forming a blunt angle in lateral aspect, ventrally with anterolateral small teeth. Postpetiole in dorsal aspect (figs 1, 2) subtrapezoidal, widest anteriorly. Legs relatively short (FL < HW), femora and tibiae conspicuously thickened (figs 1, 2, 3).

MEASUREMENTS: Lectotype worker (coll. Forel): TL 3.8; HL 0.86; HW 0.81; CI 95; EL 0.20; EI 25; SL 0.60; SI 74; PW 0.59; AL 1.20; FL 0.79; FI 97; paralectotype worker 1 (coll. Forel): TL 2.8; HL 0.81; HW 0.73; CI 90; EL 0.17; EI 24; SL 0.54; SI 75; PW 0.51; AL 1.09; FL 0.70; FI 96; paralectotype worker 2 (coll. Emery): TL 3.7; HL 0.83; HW 0.80; CI 97; EL 0.20; EI 25; SL 0.60; SI 75; PW 0.60; AL 1.10; FL 0.79; FI 98.

NOTES: In Bolton's (1991) key *V. jacobsoni* reaches couplet 3 where a short metafemur contradicts the absence of a metanotal groove. Following Bolton's (1991: 5) species-group descriptions, *V. jacobsoni* belongs to the *V. australis* group: "*V. australis*-group. Subocular groove complete. Legs and antennae relatively short. Metanotal groove vestigial to absent. A convenience-group to hold species not fitting any of the above groups [Other species groups in *Vombisidris* are: *V. bilongrudi*-group, *V. philax*-group and *V. dryas*-group, see Bolton (1991)]. Includes *australis*, *harpeza*, *occidua*."

*Vombisidris australis* (Wheeler, 1934) differs from *V. jacobsoni* in size (smaller), presence of mesonotal suture (although indistinct) and shape and length of propodeal spines (shorter, blunt); *V. harpeza* Bolton, 1991 differs from it in head shape (sides behind eyes approximately parallel) and presence of metanotal groove (although almost obliterated); and *V. occidua* Bolton, 1991 differs in size (larger), occurrence of basigastral costulae (vestigial) and colour (head and mesosoma dark brown, gaster lighter brown, legs yellow) (see Wheeler, 1934; Bolton, 1991).

In Forel's (1915: 27) original description of *V. jacobsoni*, he mentions the smallest specimen to be paler than the rest and wonders about its maturity. Even though, it is impossible to know whether I have seen all specimens Forel based his original description on (since he does not mention the total number of specimens studied), I believe the aforementioned specimen to be the one I examined and photographed as the paralectotype in the Forel Collection (figs 2-4). Total Length of specimen deviates from Forel's original description – probably due to differences between my measurement technique and that of Forel.

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