

Description of the Larva of *Oxyallagma dissidens* (Selys, 1876) (Odonata: Coenagriidae, Ischnurinae)

Matthias Hartung

Natural History Museum, Leipzig, Germany

Email address:

ah.matthias.hartung@t-online.de

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Abstract: *Oxyallagma dissidens* is a species of high elevations 2600-2700m in Ecuador and Peru. The larva of *Oxyallagma dissidens* was hitherto unknown. Based on exuviae of reared specimens, the final instar larva of *Oxyallagma dissidens* is described. Exuviae of *Oxyallagma dissidens* have two parallel rows of dark spots on the dorsum of the abdomen, the prementum has 5-6 setae and the labial palps 6 setae. Antenna 7-segmented, distal margin of labial palp with four crenulations and a large spine. Head brownish and between the eyes at the front with a light band with three loops to behind. Pterothorax with parallel stripes on the wing bags at the inner side. Metathoracic femur length 2.75 mm. All femora with four darker edges with fine spines. Abdominal dorsum with fine punctuations and with a darker brownish distal half. *Oxyallagma dissidens* has a comparable strong armation on the femurs. The gill lamellae have a medial broad dark brown vein, with several veins at all sides to the border of gills. In one case a description on *Oxyallagma dissidens* was not given, but a figure was published. *Oxyallagma dissidens* was mentioned from Peru (Quito, La Granadilla) and from Ecuador (Lago San Pablo, Campos of Guayaquil). *Oxyallagma dissidens* is the recent name in contrast to the alternative name *runtuni*. Bota-Sierra and Andrés described *Oxyallagma colombianum* as new species of the genus from Colombia.

Keywords: Dragonfly, Zygoptera, Exuvia, Ecuador, Peru, Colombia, South America

1. Introduction

Agrónomo, Ingeniero has given a good description on *Oxyallagma dissidens* [1]. He has mentioned an exuvia or larva from this species, but has not given a detailed description. In his Figure 34 he shown the “vista dorsal de la náyade de *Oxyallagma dissidens*”. He has reported *Oxyallagma dissidens* from Peru. Kennedy [8]: ‘In a recent review of several species of *Oxyagrion* in the writer's collection in an attempt to identify described forms it was discovered that *Protallagma runtuni* Kennedy was described by Selys [11], as *Oxyagrion dissidens* from Quito [9]. De Selys placed this aberrant species by itself in “Group 1” of his genus *Oxyagrion*. Kennedy had erected the genus *Oxyallagma* for *dissidens* as based on material in the Williamson collection which had been sent by Campos of Guayaquil, Ecuador, with the exact locality not indicated. The description of *Oxyallagma* gen. nov. reads, “Characters as in *Enallagma*, except red a dominant colour, no postocular spots, and penis without lateral lobes.” *Runtuni* is thus a synonym of *Oxyallagma dissidens* (Selys) [8]. The adult specimens are

differentiated from *Oxyagrion* in the key of Heckman. *Oxyallagma dissidens* is the only species of this genus [7]. *Oxyallagma dissidens* was mentioned also by Seehausen, Malte [10] from Quito (Ecuador). De Marmels discussed the status of *Oxyallagma dissidens* [12]. Garrison et al. have mentioned *Oxyallagma dissidens* as the recent name in contrast to the name *runtuni* [5]. Vladimir Carvajal L mentioned *Oxyallagma dissidens* from Ecuador [13]. Garrison et al. [5] have described *Oxyallagma dissidens* from Peru and Ecuador, but they have written, that this genus may occur in high altitudes in the Andean plateau. Bridges and Tsuda have described the species as the only member of the Genus *Oxyallagma* [14, 15]. Ellenrieder et al. mentioned *Oxyallagma dissidens* from the Royal Belgian Institute of Natural Sciences, Brussels, Belgium [3]. Bota-Sierra and Andrés described *Oxyallagma colombianum* as new species of the genus from Colombia. He has created a key for these two species [2]. Garrison et al. have made a world list of Odonata. They have confirmed the second species in the genus *Oxyallagma* [6]. Here are described 3 exuvia in detail from *Oxyallagma*

dissidens from Ecuador, Lago San Pablo, 2600-2700m.

2. Material and Methods

3 exuvia specimen (1 m, 2f) of *Oxyallagma dissidens* (Selys, 1876) from Ecuador, Lago San Pablo, 2600-2700m leg at the 3.11.1998. V. Bürkle & H. Werning with Prof. Günter Gunkel, S 0° 12.5' - W 78° 13' Another adult specimen (1 m) comes from Peru, La Granadilla, Hacienda Taulis, S 6° 50.0' - W 79°10.00' kept on 29.02.1952-01.03.1952 from W. and M. Koepcke. These materials I have got from G. Peters, Natural Museum Berlin., at 5.02.1999 and resp. 27.2.1995.

Oxyallagma dissidens larva were reared in Ecuador by V. Bürkle & H. Werning. The dried imagines with their exuviae

were transported to Berlin in Germany, thereby obtaining associated exuviae based on the identification of emerged imagines. Using the features of these exuviae, the final instar larva of *Oxyallagma dissidens* is described herein.

The exuviae and their corresponding adults each received an identification number. The adults were identified following Clarence [7, 8] (Figure 9-10). No. 166.2.1999 (female) is defined as type exuviae.

The overall length of the 3 exuviae was measured with a calliper. A microscope with a metric ocular (10x) was used to measure details in mm. Head width and the length of the third femurs was measured on both sides. The premental setae and the setae of the labial palpus were counted on both sides. A mean was calculated from both sides and from all measurements.

Table 1. Measurements.

	Premental setae		Palpal setae		Premental -Width	Hind femur	Length
	left	right	left	right			
163.2.1999 male	6	6	6	6	1.3		11.89
167.2.1999 female	5	5	6	6	2.2	2.8	11.85
166.2.1999 female	6	6	6	6	2.2	2.7	12.10
Mean	5.67	5.67	6	6	1.9	2.75	11.95
Standarddeviation	0.47	0.47	0	0	0.42	0.05	0.11



Figure 1. Habitus of the exuvia of *Oxyallagma dissidens* 166.2.1999 in dorsal view.



Figure 2. Habitus of the exuvia of *Oxyallagma dissidens* 166.2.1999 in ventral view.



Figure 3. Habitus of the exuvia of *Oxyallagma dissidens* 166.2.1999, Pterothorax.



Figure 4. Prementum and labial palps of the exuvia of *Oxyallagma dissidens* 163.2.1999 in frontal view.



Figure 5. Labial palps of the exuvia of *Oxyallagma dissidens* 166.2.1999 in frontal view.



Figure 6. Labial palps of the exuvia of *Oxyallagma dissidens* 167.2.1999 in frontal view.



Figure 7. Abdominal gills of the exuvia of *Oxyallagma dissidens* 167.2.1999.



Figure 8. Hind Femur of the exuvia of *Oxyallagma dissidens* 97.1999.



Figure 9. *Oxyallagma dissidens*: male appendix, lateral 97.1999.



Figure 10. *Oxyallagma dissidens*: penis, lateral 97.1999.

3. Results

Measurements of overall length, the number of premental setae and the setae on the labial palps and the length of the hind femur are presented in Table 1.

Description of larva

3 exuviae (1 ♂, 2♀) of larvae from controlled emergence. Origin of larvae: Ecuador, Lago San Pablo, 2600-2700m at the 3.11.1998 (S 0° 12' - W 78° 12'). Exuviae and adult imagines are deposited in the author's collection.

Head - Antenna 7-segmented. The number of premental setae on each side is 5 to 6, and number of palpal setae is 6 (Figure 2). Distal margin of labial palp with four crenulations and a large Spine (Figure 6). Head brownish and between the eyes at the front with a light band with three loops to behind.

Thorax - Pterothorax with parallel stripes on the wing bags at the inner side. Metathoracic femur length 2.75 mm. All femora with four darker edges with fine spines (Figure 3, 8).

Abdomen - Abdominal dorsum with fine punctuations and with a darker brownish distal half (Figure 1).

The gill lamellae have a broad medial dark brown vein, with several veins at all sides to the border of gills (Figure 7).

Measurements (mm) - mean body length 11.94 mm.

In the Figures 9 and 10 the appendix and the penis of the adult male was shown.

4. Discussion

Selys has listed the species *dissidens* in his group 1, in contrast to group 2 (*O. rubidum*) and group 3 (*O. basale*) [11]. According to Kennedy *O. dissidens* belongs to the genus *Oxyallagma* [8]. Heckman has described *Oxyagrion* larva: "Obvious transverse sutures are evident on the gill lamellae, or, if they are not evident or only suggested by the change in the armament along the margins of the lamella, there are four to six long or medium setae in each row on the prementum. If there are four, then there are long lateral rows of strong setae along the margins of the prementum that sometimes extend onto the dorsal surface or patches of such setae on the open surface (figure 3.1.377). The length of most final instars without gill lamellae exceeds 12mm. The genus is very heterogenous, and descriptions of more species will be necessary before characters can be identified [7]. Garrison et al. have described *Oxyallagma dissidens* as the only species of this genus [4]. Agrónomo, Ingeniero has given a good description on *Oxyallagma dissidens* [1]. He has mentioned also an exuvia or larva from this species, but has not given a detailed description. In his Figure 34 he has shown the "vista dorsal de la náyade de *Oxyallagma dissidens*".

The exuvia from *Oxyallagma dissidens* has four to five long setae and one to two small setae at the prementum, on the labial palps are 6 setae on each side (Figure 4). The head width is 2.2mm. The hind femur in mean is 0.275 long (Figure 8). The mean length of final instars without gill lamellae is 11.94 mm.

The femora with four darker edges each with fine spines

(Figure 1, 8). This occurs in all femora (Figure 1). Regarding [7] other Coenagrionid larva *Oxyallagma dissidens* has a comparable strong armation on the femurs.

The gill lamellae have a medial broad dark brown vein, with several veins at all sides to the border of gills. They are difficult to prepare and have a broad structure, which may not break in it, but mostly from the abdomen. The figure 7 shows the gill lamellae.

The adult specimens are differentiated from *Oxagrion* in the key of Heckman. *Oxyallagma dissidens* was the only species of this genus [7]. *Oxyallagma dissidens* was mentioned also by Seehausen [10] from Quito (Ecuador). De Marmels discussed the status of *Oxyallagma dissidens* [12]. Garrison et al. have mentioned *Oxyallagma dissidens* in contrast to the alternative name *runtuni* [5]. Bota-Sierra and Andrés described *Oxyallagma colombianum* as new species genus from Colombia [2]. Garrison et al. have confirmed the second species in the genus *Oxyallagma* [6].

5. Conclusion

The Exuvia from *Oxyallagma dissidens* has been described. There are some typical differences to other species. The typical habitus and details are shown in some Figures. The prementum has 5-6 setae and the labial palps 6 setae. *Oxyallagma dissidens* has a comparable strong armation on the femurs. The gill lamellae have a medial broad dark brown vein, with several veins at all sides to the border of gills. Bota-Sierra and Andrés described *Oxyallagma colombianum* as new species of the genus from Colombia. The second species in the genus have been confirmed as *Oxyallagma colombianum*.

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