

***Galicioreicheia* gen. nov. (Carabidae: Scaritinae: Clivinini: Reicheiina), a new genus  
with a new species and subspecies, from Galicia, north-western Spain**

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**Taxonomy, new genus, new species, new subspecies, Coleoptera, Carabidae, Reicheiina, Galicia, Spain**

**Abstract.** *Galicioreicheia* gen. nov., an anophthalmic genus of the subtribe Reicheiina with a single new species comprising two subspecies is described from Galicia in north-western Spain. The new taxa are illustrated, including aedeagi and female stylomeres, and compared with related genera of the subtribe Reicheiina.

## INTRODUCTION

According to Jeannel (1957), Balkenohl (2003), Grebennikov et al. (2009) and Bulirsch & Magrini (2014), 18 genera of anophthalmic Reicheiina are known. Most genera occur in the Mediterranean area and to date four of them were collected in the Iberian Peninsula.

In 2012 and 2013 Tim Struyve, a Belgian specialist in Staphylinidae and especially in the genus *Mayetia* Mulsant & Rey, 1875 (Staphylinidae, Pselaphinae), collected by soil washing at several locations in Galicia, north-western Spain, together with several specimens of *Reicheiodes assmanni* Balkenohl, 1999 (Scaritinae, Dyschiriini), few specimens of *Galicyotyphlotus weberi* Assmann 1999 (Carabidae, Platinina) and next to numerous *Mayetia* also 49 specimens of a new eyeless scaritin. All these beetles were collected with digging out soil till about 50 cm deep from promising places, mostly on cool shady afforested slopes near brooks. Soil was thrown into a big vessel filled with water and then firmly stirred. The floating debris was scooped from the surface and put into a linen sac to drip out. After that it was put on a metal gaze with fine mesh size over a plastic plate filled with water. While the debris was desiccating the insects fell in the water where they were sorted out on a daily basis.

These scaritin specimens distinctly differ from all the known Reicheiina species (including the Iberian ones) and its study and description are the target of the present article.

## MATERIAL AND METHODS

The study of dry-mounted specimens, including measurements and examination of the microsculpture, was done at a magnification of 40×, 56× or 80×. All the specimens were measured. Standard measurements follow Bulirsch & Magrini (2014). The length of the body is given with an accuracy of 0.01 mm, other measurements, ratios and means are rounded-off to

two decimal places. Label data of all specimens are quoted verbatim. Aedeagi and stylomeres were slide-mounted in euparal or fixed with water-soluble glue.

For comparison, over 100 taxa of blind Reicheiina (mostly housed in the collection of the second author) including samples of the Iberian genera *Catalanodytes* Sciaky, 1989, *Parareicheia* Jeannel, 1957, *Reicheia* Saulcy, 1862 and almost 50 species of the genus *Typhloreicheia* Holdhaus, 1924 were examined.

Abbreviations used:

HT: holotype, PT: paratype(s).

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## RESULTS

To date, four genera of Reicheiina have been known from the Iberian Peninsula. Whereas the generic status of the genus *Reicheia* (Saulcy, 1862) (a relatively widely distributed genus with numerous species; one of them, *R. lucifuga* Saulcy, 1862, is known from SE Pyrenees mountains and another one from a cave in the near Mallorca Island) and the genus *Iberodytes* Jeannel, 1949 (with one species from Douro region in N Portugal) is consistent from its description; species of the remaining two genera were (sub)recently discussed and/or the generic placement was changed: the genus *Catalanodytes* was created by Sciaky (1989) for a single cave species (from Taragona neighbourhood) originally described as *Reicheia bellesi* Lagar, 1971, and the taxonomy of the genus *Parareicheia* has been discussed repeatedly. Jeannel (1957) described *P. nevesi* in the 'Italian' genus *Typhloreicheia* Holdhaus, 1924 and established for it the monotypic subgenus *Parareicheia*. *P. zoiai* (Sciaky, 1989) is described by the author based on a single female from Sierra de Cazorla in S Spain and placed in subgenus *Parareicheia* as well, and finally, Ortuño & Magrini (2006) described *Parareicheia lencinai* Ortuño & Magrini, 2006 based on a short type series from the Alicante Province in S Spain. The latter authors raised *Parareicheia* to a separate genus and clearly differentiated it from the genus *Typhloreicheia* s. str. by the labrum having seven setae (in series 5+2) whereas *Typhloreicheia* has only five (5+0) setae; by aedeagus having much larger setiferous vesicle, clearly prominent above aedeagal dorsum (always inside the aedeagus in *Typhloreicheia*); and finally by lacking large denticulate structures of the aedeagal median lobe in anterior position (nearly always present in *Typhloreicheia*). These authors considered the genus *Parareicheia* as more primitive compared to the species of the genus *Typhloreicheia*, because of having less convex elytra and by the presence of microphthalmia in one species.

The study of new Galician Reicheiina led to surprising results. This series distinctly differs from all the Iberian as well as all remaining Mediterranean genera and seems to be most similar to the genera *Typhloreicheia* and *Parareicheia* but tending slightly more to the 'Italian' genus *Typhloreicheia*. Nevertheless the Galician specimens can be clearly distinguished from *Typhloreicheia*, *Parareicheia* and other Iberian genera and moreover there exist a large geographical gap with *Typhloreicheia*, so it seems appropriate to assign this taxon to a new genus.

## *Galicioreicheia* gen. nov.

**Type species:** *Galicioreicheia struyvei* sp. nov.

**Diagnosis.** Medium sized (body length 2.12-2.69 mm, mean 2.47 mm), endogean, anophthalmous, flightless Reicheiina (Clivinini) genus. Body reddish brown, antennae and legs slightly lighter, mouthparts yellowish. Upper surface of head, pronotum and elytra with rough reticulation.

Head with oblique impressions on clypeus prolonged to sharp and rather long longitudinal median keel; eyes absent; antennae short and with last maxillary palpomeres broadly securiform; genae strongly flattened. Chaetotaxy of upper surface: one anterior and one posterior pair of supra-ocular setae; labrum 5-setose, lateral setae about twice as long as inner ones; clypeus laterally with one long seta.

Pronotum subsphaerical, sides rather slightly rounded in dorsal view; not to very faintly narrowed anteriorly; posterior angles broadly rounded; reflexed lateral margin entire, extending from acute anterior angles to base as distinct prebasal groove; posterior median part of pronotal base (flange) small, faintly protruding, not separated from disc by furrow; lateral channel with two pairs of lateral setiferous punctures and neither discal nor sublateral setae; median line very deep, deepened and slightly broadened posteriorly; anterior transverse impression deeply incised (at least laterally); proepisterna distinctly visible from above in apical half.

Elytra rather strongly convex, almost regularly oval; broadest at above midlength; disc slightly flattened in lateral view; base moderately to rather strongly sloping to slightly to moderately protruding humeri; outline rather slightly to moderately broadened on sides; lateral channel moderately broad, broadest below humeri, its lateral margin with several teeth: sharp and dense in anterior half, much finer apically to almost indistinct on apex; base without tubercle, with moderately large basal setiferous puncture, striae 1-8 very deep and very coarsely punctured almost throughout; stria 8 slightly shortened basally, striae latero-apically weakened on apical inclination; intervals 2-7 with rows of about 20 large, dense and erect setiferous punctures. Marginal umbilical series continuous, with about 20 setiferous punctures.

Protibia characteristic of species of subtribe, lateral teeth small and rather sharp, especially lower one.

Hind tarsi with tarsomeres 1 slightly elongated, distinctly shorter than tarsomeres 2 and 3 combined.

Lower surface uncommonly punctate: proepisterna densely and roughly punctate; meso-, metaepisterna, meso- and metathorax with sparse and fine to rough punctures; ventrites with rough reticulation and dense punctures, especially on first three ventrites laterally and along anterior margin. Second ventrite with very distinct  $\wedge$ -shaped carina below metacoxae.

**Differential diagnosis.** *Galicioreicheia* gen. nov. differs from the habitually most similar genus *Typhloreicheia* (occurring in Italia and its islands) by its head with broader maxillary palpomeres with less acute apex and with more flattened genae only slightly visible from above (more or less strongly vaulted in *Typhloreicheia*); by the pronotum with much deeply incised anterior transverse furrow (missing or very superficial in *Typhloreicheia*) and with

much deeply incised isodiametric reticulation of pronotal surface; by the elytra with much deeper, not shortened elytral striae and with very rough strial punctures and rather strongly vaulted intervals throughout; in *Typhloreicheia*, the striae are mostly much finer, and more or less strongly weakened latero-apically and intervals flat or only rather slightly vaulted, only very exceptionally, (e.g. according to Magrini & Paladini (2014), in two Sicilian species), the striae are more or less deep throughout and intervals vaulted, by the intervals with dense elytral setae (about 20 setae in each of interval 2-7), and finally by the shape of aedeagus and its inner structure.

*Galicioreicheia* gen. nov. can be distinguished from the most similar Iberian genus *Parareicheia* especially by the labrum having 5+0 setae (5+2 in *Parareicheia*); by the pronotum having much deeper anterior transverse impression, and finally by very different inner structure of the median lobe of the aedeagus (*Parareicheia* has its internal sac large, placed partially out of the median lobe as illustrated by Magrini et Ortuño (2006)).

*Galicioreicheia* gen. nov. very distinctly differs from *Iberodytes*, the closest occurring genus, by several characters such as by the chaetotaxy of the upper surface (*Iberodytes* has five setae in the pronotal lateral channel and several bristles on posterior part of pronotum and elytra) and by the elytra with lateral margin without denticles.

Moreover *Galicioreicheia* gen. nov. differs from all the Mediterranean Reicheiina including *Typhloreicheia*, *Parareicheia*, *Iberodytes* by a roughly punctate considerable part of the lower surface, especially proepisterna. Similarly punctured proepisterna are known within anophthalmic Reicheiina only in Tanzanian *Antireicheia nguruensis* described by Bulirsch & Magrini (2011).

**Name derivation.** The name is a combination of the geographic origin of all the known specimens and the name of the firstly described genus of the subtribe. Gender: feminine.

#### ***Galicioreicheia struyvei* sp. nov.**

(Figs. 1-14, map 1)

All 49 to date known specimens of the new genus belong to one species and created two new subspecies described below.

**Diagnosis.** As in the description of the genus.

#### ***Galicioreicheia struyvei struyvei* subspec. nov.**

(Figs. 1-7, map 1)

**Type material.** Holotype (♂): Spain, Lugo, Pedrefitta do Cobrero, Cotelo, 42°38'46.80''N, 7°07'42.55''W, 702 m, 25.06.2012. Paratypes: (3 ♂♂), (1 ♀) with the same data as Holotype; (2 ♂♂), (3 ♀♀) Lugo, Lamas de Moreira, 43°3'20.37''N, 7°4'31.82''W, 447 m, 27.03.2013; (1 ♀) Pontevedra, Riocortuñas, 42°16'2.05''N, 8°19'40.57''W, 602 m.; (4 ♂♂), (2 ♀♀) Lugo, Santo Sidro, 42°40'24.85''N, 7°14'5.67''W, 778 m, 26.03.2013. All specimens have been collected by Tim Struyve. HT will be placed in the collection of MNCN, PT in the collections of Ron Felix, Petr Bulirsch, Tim Struyve (Muizen, Belgium) and Naturalis Biodiversity Centre (Leiden, Netherlands).



Fig. 1. *Galicioreicheia struyvei struyvei* ssp. nov. Habitus (HT).



Fig. 7. *Galicioreicheia struyvei struyvei* ssp. nov., pronotum.

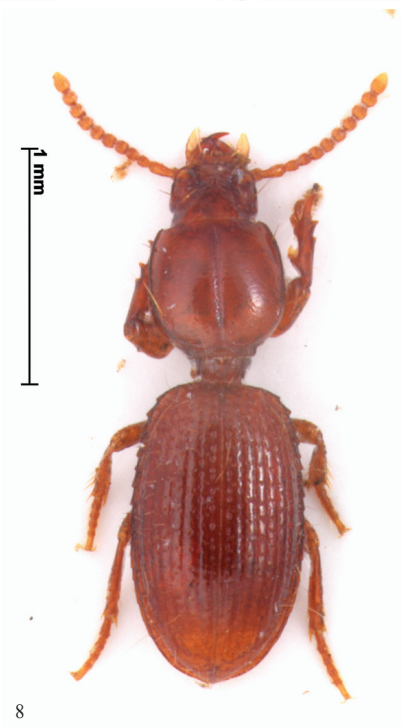


Fig. 8. *Galicioreicheia struyvei occidentalis* ssp. nov. Habitus (HT).



Fig. 14. *Galicioreicheia struyvei occidentalis* ssp. nov., pronotum.

**Description.** Habitus as in Fig 1. Body length 2.29 mm in HT, 2.17-2.52 mm (mean 2.34 mm, n=17).

Head. Narrow, neck very broad, width in HT 0.38 mm, in PT 0.36-0.41 mm (mean 0.39 mm); anterior margin of clypeus between slightly protruding, blunt lateral lobes rather slightly, regularly emarginate, distinctly bordered; impressions of clypeus oblique, very broad and deep, longitudinal carina moderately long and sharp. Genae very slightly vaulted, especially in its anterior part, just visible from above posteriorly; posterior angles shortly rounded; strongly vaulted supra-antennal plates distinctly bordered, separated from genae by moderately deep and broad furrow; carina of prolonged supra-antennal plates rather sharp, long, parallel anteriorly. Length of antennae in HT 0.79 mm, in PT 0.71-0.84 mm (mean 0.77 mm). First antennomere robust, length of second one in HT 0.10 mm, in PT 0.10-0.12 mm (mean 0.11 mm), third one slightly longer than wide, length of fourth in HT 0.07 mm, in PT 0.05-0.08 mm (mean 0.06 mm), fifth to tenth moniliform, eleventh pyriform, larger than previous ones, length in HT 0.10 mm, in PT 0.09-0.12 mm (mean 0.10 mm).

Pronotum. Moderately convex, slightly vaulted in lateral view; moderately shiny, reticulation regular, strongly impressed; outline between lateral pores slightly to moderately vaulted, not attenuated anteriorly; ratio width/length in HT 0.95, in PT 0.89-1.01 (mean 0.98); widest at about to slightly below midlength. Median line deeply and broadly impressed, finely to rather deeply connected with prebasal groove; anterior transverse impression deep, sharply incised, weakened or disappeared just along median line as in Fig. 7. Anterior setiferous puncture at anterior fifth, posterior one in middle of very broadly rounded posterior angles.

Elytra. Ratio length / width in HT 1.71, in PT 1.64-1.76 (mean 1.71); lateral margin with 4-7 humeral acute teeth, next about 4-6 longer and blunt lateral teeth in about median third and indistinct denticulation in apical third. Suture broadly and superficially depressed at base.

Aedeagus. Length in HT 0.42 mm, in PT 0.42 - 0.46 mm (mean 0.45mm). Median lobe in lateral, ventral and dorsal view as in Figs. 2-4. Inner sac as in Fig. 2, small not prolapsed outwards. Apex laterally and dorsally evenly broadly rounded; apical third of lobe in lateral view rather strongly bent downwards. Parameres as in Fig. 5; with two setae on broadly rounded apex.

Stylomeres. As in Fig. 6; apex long, sharp, distinctly curved.

**Name derivation.** Named after Tim Struyve, the collector of all the type specimens.

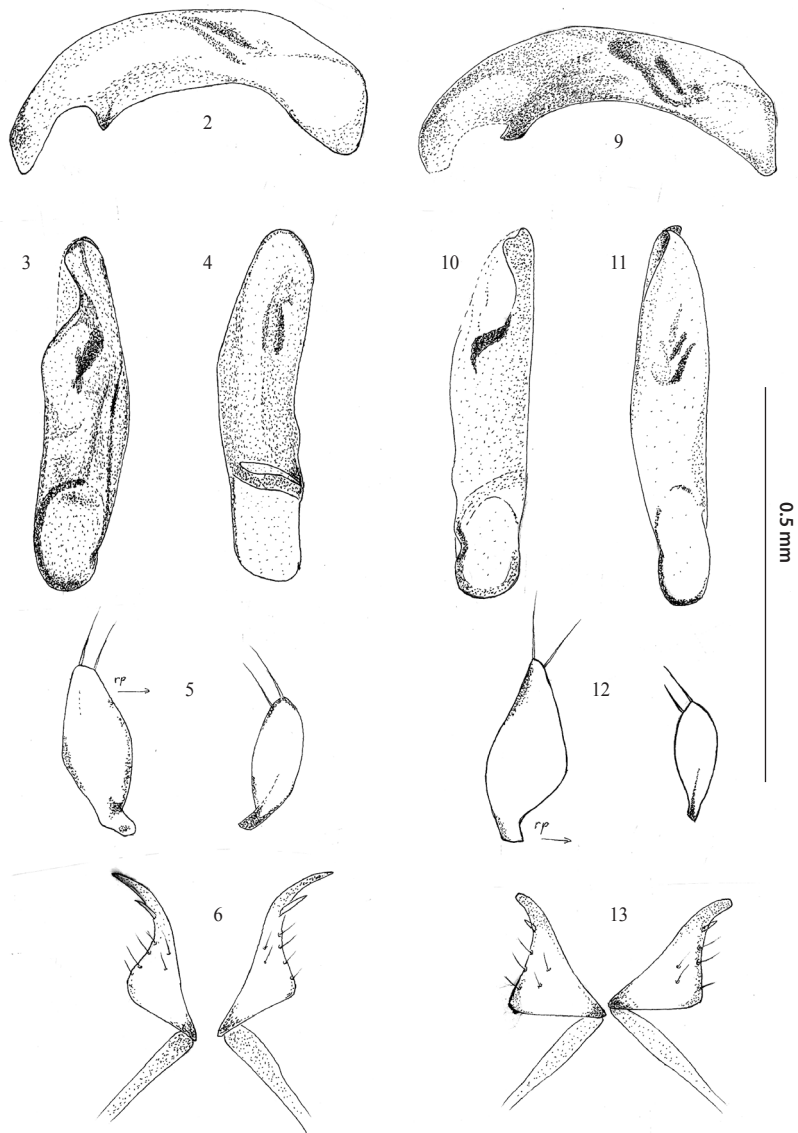
***Galicioreicheia struyvei occidentalis* subsp. nov.**

(Figs.8-14)

**Type material:** Holotype (♂): A Coruña, Touro, 42°51'27.77''N, 8°22'21.55''W, 160 m, 21.05.2013. Paratypes: (1 ♂), (3 ♀♀) with the same data as Holotype. (1 ♀) Lugo, Castroverde, 43°1'17.58''N, 7°20'20.23''W, 586 m, 27.03.2013; (1 ♂), (1 ♀) Lugo, Baamonde, 43°10'21.20''N, 7°47'56.58''W, 418 m, 14.04.2013; (1 ♂) Lugo, Sarria, 42°46'11.03''N, 7°30'1.29''W, 550 m, 26.03.2013; (1 ♂), (4 ♀♀) A Coruña, Boquixon, 43°13'31.75''N, 8°0'26.41''W, 290 m, 14.04.2013; (1 ♂, 1 ♀) A Coruña, Sotullo, 43°29'38.28''N, 8°2'43.39''W, 164 m, 15.04.2013; (2 ♂♂), (2 ♀♀) A Coruña, Novais, 42°58'2.83''N, 8°37'38.89''W, 191 m, 22.05.2013; (2 ♂), Lugo, Guitiriz, 43°23'12.19''N, 8°2'26.83''W, 251 m, 14.04.2013.

**Next material (not included in type series):** (5 ♂♂), (2 ♀♀) Lugo, Oourol, 43°33'32.90''N, 7°41'10.71''W, 334 m, 15.04.2013; (1 ♂), (1 ♀) Pontevedra, Castalliño, 42°23'30.01''N, 8°6'34.30''W, 238 m, 17.05.2013.

HT will be placed in the collection of MNCN, PT in the collections of Ron Felix, Petr Bulirsch, Tim Struyve (Muizen, Belgium) and Naturalis Biodiversity Centre (Leiden, Netherlands).



Figs. 2-6: *Galicioreicheia struyvei struyvei* ssp. nov. 2- aedeagus (HT) in right lateral view; 3- aedeagus (PT, same data as in HT) in ventral view; 4- aedeagus (PT, same data as in HT) in dorsal view; 5- parameres (HT); 6- stylomeres (PT, Lamas de Morera).

Figs. 9-13: *Galicioreicheia struyvei occidentalis* ssp. nov. 9- aedeagus (HT) in right lateral view; 10- aedeagus (PT, same locality as in HT) in ventral view; 11- aedeagus (HT) in dorsal view; 12- parameres (HT); 13- stylomeres (PT, Gastroverde).

**Description.** As in nominotypical subspecies except as follows. Habitus as in Fig 8. Body length 2.24 mm in HT, in PT 2.12-2.67 mm (mean 2.49 mm, n=32).

Head. Width in HT 0.39 mm, in PT 0.39-0.44 mm (mean 0.41 mm). Length of antennae in HT 0.71 mm, in PT 0.75-0.87 mm (mean 0.79 mm).

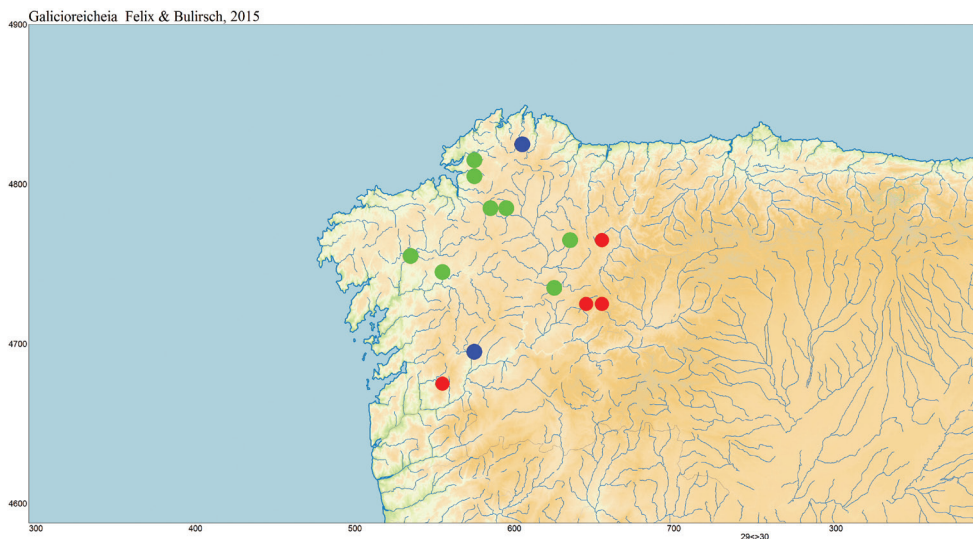
Pronotum. Ratio width/length in HT 1.06, in PT 1.00-1.08 (mean 1.03). Median line very deeply and broadly impressed, moderately to deeply connected with prebasal groove; anterior transverse impression moderately deep to rather fine, mostly broadly weakened or disappearing along median line.

Elytra. Ratio length / width in HT 1.67, in PT 1.65-1.76 (mean 1.69).

Aedeagus. Length in HT 0.45 mm, in PT 0.43-0.49 mm (mean 0.46 mm). Median lobe in lateral, ventral and dorsal view as in Figs. 9-11. Inner sac as in Fig. 9, small, not prolapsed outwards. Apex laterally narrowly rounded, dorsally broadly rounded underneath and distinctly shortly rounded in upper part; apical third of lobe in lateral view slightly bent downwards. Parameres as in Fig. 12; with two setae on moderately broadly rounded apex.

Stylomeres. As in Fig. 13; apex rather short, blunt, moderately curved.

**Differential diagnosis.** *G. s. occidentalis* sp. nov. can be distinguished from the nominotypical subspecies by having in average slightly broader pronotum (mean of ratio width / length 1.03 v. 0.98) with distinctly finer anterior transverse impression (especially much finer medially). The males differ moreover by the aedeagal median lobe (with apical third slightly bent down and with the apex broadly rounded underneath and distinctly shortly rounded in the upper part, which gives the impression of a turned-up nose, whereas in the typical series the apical third is more strongly bent down and the apex is evenly broadly rounded in dorsal and lateral views); the females can be distinguished by short and blunt apices of the stylomeres, while in the typical series they are longer, more acute and more distinctly curved.



Map 1. Distribution of *Galicioreicheia struyvei* sp. nov.: red circles- *G. s. struyvei* sp. nov.; green circles- *G. s. occidentalis* ssp. nov.; blue circles- *G. struyvei* sp. nov. intermediate form near to ssp. *occidentalis* ssp. nov.



**Name derivation.** Named after its more western occurrence.

**Variability.** Among both type series there exist some variability: the colour of the body is in average slightly darker in *G. s. occidentalis* ssp. nov. but exceptions exist; the shape of elytral outline vary from slightly to moderately broadened in dorsal view; the depth of the pronotal anterior transverse impression is a bit variable especially in *G. s. occidentalis* ssp. nov., and length of the apex of styli could be exceptionally a bit longer in the females of the latter subspecies.

The variability is most striking within the series of five males and two females from Ourol: in three males the apex is broader but still characteristic of *G. s. occidentalis* ssp. nov. whereas two females have stylomeres with longer apices, intermediate between both subspecies. In the series of Carballiño the apex of the aedeagus is characteristic to *G. s. occidentalis*, whereas the styli of the female are long and characteristic to the nominotypical subspecies. It seems interesting to investigate if there is a zone in which both taxa occur together and if they hybridize. We did not include these seven specimens of Ourol and the two specimens of Carballiño in the type series.

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