

Camptocera glaberrima (Walker, 1872) (Hemiptera: Heteroptera: Rhyparochromidae): first records for mainland Portugal

Simone Meacci¹ & Axel Gosseries²

¹ Department of Agricultural, Food and Environmental Sciences, Polytechnic University of Marche, via Brecce Bianche, 60131 Ancona, Italy. e-mail: meacsim@gmail.com

² 55, Rue du Loutrier, 1170 Brussels. e-mail: axel.gosseries@gmail.com

Abstract: In this note, the presence of *Camptocera glaberrima* (Walker, 1872) (Heteroptera: Rhyparochromidae) is reported for the first time from mainland Portugal. Some elements on its morphology, biology, and ecology are discussed. This discovery also confirms the importance of internet platforms, and reminds us that significant areas of Iberian dehesas/montados remain very rich in biodiversity despite facing significant challenges.

Key words: Heteroptera, Rhyparochromidae, *Camptocera glaberrima*, first record, mainland Portugal.

Resumen: *Camptocera glaberrima* (Walker, 1872) (Hemiptera: Heteroptera: Rhyparochromidae): primeros registros para Portugal continental. En esta nota se informa de la presencia de *Camptocera glaberrima* (Walker, 1872) (Heteroptera: Rhyparochromidae) por primera vez en Portugal continental. Se discuten algunos aspectos relacionados con su morfología, biología y ecología. Este descubrimiento también confirma la importancia de las plataformas de internet y nos recuerda que áreas significativas de dehesas/montados ibéricos siguen siendo muy ricas en biodiversidad, a pesar de estar bajo una amenaza considerable.

Palabras clave: Heteroptera, Rhyparochromidae, *Camptocera glaberrima*, primer registro, Portugal continental.

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Introduction

Camptocera glaberrima (Walker, 1872) (Heteroptera: Rhyparochromidae) is the only species of the genus *Camptocera* Jakovlev, 1877 (Aukema, 2025a). Since it only reaches a maximum length of 3 mm and is not conspicuously coloured, it is hard to spot. However, once discovered, it is easily recognizable. It is characterized by the absence of ocelli, the presence of a robust seta near the anterior angles of its pronotum, and the absence of carinae on the sides of this very same pronotum. The body is oval, yellowish brown, covered with short and sparse setae. Punctuation is absent from the head and the anterior area of the pronotum, while subtly present on the posterior area of the pronotum, and well-marked on the scutellum, clavus, and corium. Legs and antennae have the same colour as the body. Adults can be macropterous or brachypterous (Péricart, 1999; Ramón Castelló, 2025).

The biology and ecology of *C. glaberrima* are not fully understood. They could be partly comparable to those of *Lethaeus* spp. Dallas, 1852, the only other European genus with which it shares the tribe Lethaeini Stål, 1872. According to Péricart (1999), adults can be observed from spring to autumn on the ground, typically among the roots of grasses or under stones, as for *Lethaeus* spp. *C. glaberrima* also appears to prefer dry and sandy habitats, a trait shared with desert *Lethaeus* species, such as *L. lethierryi* (Puton, 1869) (Péricart, 1999). However, other *Lethaeus* species, such as *L. cribratissimus* (Stål, 1858) and *L. fulvovarius* Puton, 1884 can be also found under leaf litter (Péricart,

1999), a possibly suitable habitat for *C. glaberrima*. In line with Péricart (1999), Ramón Castelló (2025) suggests that this species can be found in sandy habitats, and Esenbekova (2011) considers it as a xerophilic and eurytopic species, detectable in different types of deserts. Moreover, Péricart (1999) reports that - similarly to *Lethaeus* spp. - macropterous adults of *C. glaberrima* are often attracted by light traps, a behaviour confirmed by other authors (Hoberlandt, 1955; Kirithshenko, 1964; Romet, 2025).

Furthermore, Carapezza (1984) reports that some specimens were collected in an ant nest. Bernard (1931) recorded several individuals under a rock covering an ant nest, in both cases in a coastal area. This may suggest myrmecophily, a common phenomenon in Rhyparochromidae (O'Donnell, 2007; Schuch & Weirauch, 2020; Brückner, 2022). Since this species seems not to possess specialized ant-mimicry strategies (e.g., morphological adaptations), if its myrmecophily were confirmed, it could be facultative, perhaps involving chemical mimicry (Akino, 2008) or true chemical defense, as observed in *Scolopostethus pacificus* Barber, 1918 (Rhyparochromidae) (Brückner, 2022). As Brückner (2022) hypothesized for *S. pacificus*, living within ant nests could protect *C. glaberrima* from predators.

Limited information is currently available on its trophic regime. Ribes & Saulea (1979) found it associated with *Arthrocaulon macrostachyum* (Moric.) Piirainen & G. Kadereit, a member of Amaranthaceae occurring in sandy and saline coastal habitats (ElNaker *et al.*, 2020). This observation suggests that *C. glaberrima* may feed on the seeds of this or other plant species with similar ecology. As for many other members of Rhyparochromidae (Schuch & Weirauch, 2020), *C. glaberrima* is likely to be a ground-dwelling generalist that feeds on fallen seeds. Therefore, its occasional myrmecophily could then also be explained by its consumption of seeds stored within ant nests. However, it is not excluded that it may also prey on ants or their brood, as Brückner (2022) hypothesized for *S. pacificus*.

Camptocera glaberrima has a wide Saharo-Sindian distribution, being currently known from Europe (Bulgaria, Croatia, France, Greece, Italy, Malta, Russia, Spain, Ukraine), Africa (Algeria, Canary Islands, Chad, Egypt, Eritrea, Lybia, Morocco, Tunisia, Sudan), and Asia (Afghanistan, Armenia, Azerbaijan, Cyprus, Georgia, India, countries of Indo-China, Iran, Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Saudi Arabia, Syria, Tadjikistan, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Yemen) (Carapezza, 1984; Slater & O'Donnell, 1995; Péricart, 1999; Linnavuori, 2007; Linnavuori *et al.*, 2014; Heckmann *et al.*, 2015; El Meghrai, 2020; Matocq & Azar, 2023; Aukema, 2025b; Ramón Castelló, 2025). Although it is also known from Madeira (Péricart, 1999), which belongs politically to Portugal, it had not previously been recorded for mainland Portugal for which this note provides the first confirmed observations.

Prior to these recordings, its presence in mainland Portugal was likely, considering that this species has been collected in various Spanish sites (Ribes & Saulea, 1979; Ribes, 1984; Ribes *et al.*, 2004; Ramón Castelló, 2025) and that its presence in Spain is further supported by numerous observations uploaded on the internet platforms iNaturalist and Observation.org. Among all the Spanish records, the closest to our observations is one from Palma del Río, in Andalusia (see [here](#)), 200 km away from the three observation sites reported here.

Material and methods

Samplings took place through using a LepiLED light and a white cloth at night, after warm summer days (around 40°C). Identification was carried out using the key and description provided by Péricart (1999). The three sampled individuals were not collected but only photographed, using a Raynox ring. Their observations were subsequently uploaded on iNaturalist:

- <https://www.inaturalist.org/observations/305288988>.
- <https://www.inaturalist.org/observations/306291639>.
- <https://www.inaturalist.org/observations/307034162>.

Results and sampling area

The three observations of *C. glaberrima* that this note is reporting on all took place during the summer of 2025, respectively on August 9, 13, and 16. We only recorded a single macropterous adult individual per spot (see Fig. 1). Samplings occurred in three different spots of the Campo and Campinho peninsula (Alentejo), formed by the Degebe and Guadiana rivers and inserted since 2002 into the Alqueva dam lake.

The general landscape around the observation spots is characterized, besides the close and recent presence of the dam lake, by grazed *Quercus rotundifolia* Lam. savannah (referred to as "montado") and crop areas (mostly cereals) (see Fig. 2). The number of tree species in natural regeneration is limited. For instance, in the vicinity of two of the three observation spots, there are only three tree species growing naturally besides *Q. rotundifolia* (and a few *Q. x avellaniformis* Colmeiro & Boutelou): *Fraxinus angustifolia* Vahl, *Olea europaea* L., and *Pyrus bourgaeana* Decne. This is probably due in part to selection in the past by farmers and to grazing practices. In the Campo and Campinho peninsula itself, olive groves are relatively small and there are some vineyards. Soils are clayey and very superficial. The area is very dry in the summer and the slightly hilly landscape is crossed by some temporary streams.

All three observation spots are located in lower areas of the landscape with more vegetation. The first spot (Monte Santo Amador) (38°22'40"N, 7°26'38"W, 164 m a.s.l.) is located next to a long-abandoned orchard and under two large *Ceratonia siliqua* L. trees, along a dust track. Even in the heart of the summer, this is a place that preserves some level of humidity under the soil surface. It has for instance spots of *Rubus* spp. and some *Citrus* spp., that survived despite not having been watered for many years. The two other spots belong to Monte das Cebolas. The second spot (38°20'36"N, 7°27'09"W, 169 m a.s.l.) is the old adobe wall of a small active "horta" with a diversity of fruit trees, surrounded by high grass, and close to a little stream that dries in the summer. The third spot (38°20'30"N, 7°26' 57"W, 167 m a.s.l.) is a large stone directly in the dry riverbed, surrounded by high grass and in the proximity of a large *F. angustifolia*.

Discussion

In line with the literature (Péricart, 1999; Esenbekova, 2011), the xerophilic ecology of *C. glaberrima* is confirmed by the hot, dry, and almost semi-desertic habitats provided by the three sampling spots. Its presence in diverse environmental conditions supports its xerophilic eurytopy suggested by Esenbekova (2011). Indeed, the spot in Monte Santo Amador - an abandoned orchard - is the most humid, while the two other spots in Monte das Cebolas are respectively a small and drip irrigated walled orchard and a dry riverbed with dense vegetation. In addition, since the soil of these sites is clayey, the species does not seem to be confined to sandy soils, contrary to what Péricart (1999) and Ramón Castelló (2025) suggest. In line with our observations, Esenbekova & Homziak (2013) found the species both in sandy and clayey deserts.

It is surprising that, despite *C. glaberrima* being widely reported in Spain (also relatively close to the Portuguese border), it had never been recorded for mainland Portugal to date, considering also the extensive research and observations conducted in the Algarve, including by other amateur entomologists. Given that this species is not considered rare but rather elusive, it is very likely that *C. glaberrima* may be present in other sites of the Campo and Campinho peninsula and in other areas of Portugal with similar environmental conditions. Moreover, considering its wide but scattered distribution (Péricart, 1999; Aukema, 2025b), its presence may be undocumented also for other countries.

The elusiveness of this species could be attributed to several factors.

First, it may be related to its biogeographic history, which may tie it to a quite specific habitat: with a fragmented distribution across xeric areas of the Palaearctic, it may represent perhaps a relict taxon that became confined due to climate changes. The combination of peculiar morphologic characteristics that it exhibits - unique within the tribe Lethaeini - may support the hypothesis of its relictual nature and phylogenetic isolation. These traits are so distinctive that Wagner (1961) proposed the tribe *Camptocerini* to include *Camptocera* and *Ptilocamptocera* Wagner, 1961, the latter being an African genus comprising two species. Although *Camptocerini* are not currently considered a valid tribe and the species is now classified within the tribe Lethaeini, this does not preclude the possibility that *C. glaberrima* occupies a distinct evolutionary lineage within the group. Future phylogenetic studies, including through morphological and molecular studies, may help confirm its relictual status and clarify its systematic position.

Second, the species's small size and unobtrusive colouration are definitely significant factors too. Indeed, although a LepiLED light had already been used during the summer of 2024 at or near the same spots, *C. glaberrima* had not yet been observed. More attention was paid to tiny invertebrates in 2025 thanks to the availability of a Raynox ring.

Third, the ineffectiveness of some trapping methods may also be a relevant factor. The sampling through light traps widely described as effective in the literature and used in our three observations allowed to sample only macropterous individuals and confirms a rather nocturnal behaviour. In contrast, Linnavuori *et al.* (2014), did not collect *C. glaberrima* through Malaise and pan traps, whereas they successfully collected this species through light traps. Moreover, pitfall traps and other methods used for sampling ground-dwelling insects - although effective for capturing other small Rhyarochromidae - appear to have remained less effective so far at collecting brachypterous individuals. This may be partly explained by the phenology of this species: it is more active and abundant in summer, when soils are dry and their arthropod fauna is less frequently studied. Consistent with the ground-dwelling behaviour of this species, extensive sampling research conducted in Portugal using alternative trapping methods - such as the vegetation aspiration technique employed by Morais (2021) in the close vicinity of our observation sites - did not record any instances of *C. glaberrima*. Therefore, the use of trapping methods with more effectiveness - such as light traps - and/or conducted in a more favourable period of the year may allow the recording of *C. glaberrima* in more areas characterized by suitable habitats.

Fourth, the limited knowledge on its biology and ecology may also contribute to the elusiveness of *C. glaberrima*. For instance, its overwintering sites remain unknown. During winter observation sessions over the last three years in Campinho, the species was never found under the bark of small dead branches or under small stone mounds, two habitats that have received significant attention from one of the two co-authors. While in line with the phenology of *C. glaberrima* suggested by Péricart (1999), this aspect should be investigated in future research. Moreover, two ecological aspects described in the literature - its lack of specific host plants and its potential myrmecophily - should be further investigated. However, since plant specialists are only rare exceptions within Rhyarochromidae, *C. glaberrima* is most likely a generalist. Furthermore, since the nymphal instars are almost unknown, their study would be valuable to deepen our understanding of the species' ecology and life cycle, and possibly to clarify its phylogenetic position.

Lastly, it may also be that this species exhibits lower population density than other taxa. For instance, in the three spots of Campo and Campinho, while we may have missed one or two extra individuals on the white cloth during night observations, there were certainly no aggregations of *C. glaberrima* individuals comparable to what we observed, for example, for small Carabidae. However, this "lower population density" hypothesis is strongly challenged by the fact that noteworthy aggregations of specimens have been collected at night with light traps by Fent *et al.* (2022) and other authors in various countries. Therefore, the elusiveness of *C. glaberrima* in Portugal may instead reflect a locally low population density resulting from the marginal position of this country in this species' range. Future research could clarify this aspect too.

Obstacles like these are quite common in the study of the geographic distribution of insects, particularly within Heteroptera, a large, diverse, and highly adaptable suborder of Hemiptera. To fill these gaps, platforms such as iNaturalist and Observation.org can serve as useful tools. Indeed, the identification of the three individuals from Campo and Campinho was carried out through one of these platforms.

Finally, this discovery reminds us that the Campo and Campinho peninsula is still very rich in biodiversity, considering also the recent discovery of several other species of invertebrates new to Portugal in this area (e.g., Grosso-Silva & Gosseries, 2024). However, the ecological quality of this Montado landscape is under threat in Campo and Campinho and around. Agricultural practices are intensifying. The water availability from the dam led to a massive development of superintensive almond and olive groves in the region. Devoid of any proper vegetation underneath, these groves are biodiversity deserts. Even where the oak savannah remains, pruning practices that allow for the preservation of the old oaks - that would otherwise break because of their traditionally horizontalized main branches - are declining. Animal densities are such that they often prevent the natural regeneration of young oaks. In addition, the proximity of the lake in the Campo and Campinho peninsula and elsewhere has led to increased touristic pressure, likely to lead to more constructions across the landscape. This does not even mention the harsher conditions imposed year after year by climate change. This discovery underlines the crucial importance of preserving this area through sustainable agricultural and touristic activities.

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Fig. 1.- Adult of *Camptocera glaberrima* spotted in the Campo and Campinho peninsula (Alentejo) (photo by Axel Gosseries).



Fig. 2.- Typical landscape of the Campo and Campinho peninsula (Alentejo) (photo by Axel Gosseries).