

**SECOND RECORD OF *MACRONYCHUS QUADRITUBERCULATUS* IN GREECE  
(COLEOPTERA: ELMIDAE)**

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**ABSTRACT:** New locality of *Macronychus quadrituberculatus* from Greece is given (Serres district). This is the second country record of the species. Notes on distribution of this rare elmid species in the Balkan Peninsula and Europe are also provided.

**KEY WORDS:** Coleoptera, Elmidae, Greece, Balkan Peninsula, zoogeography, faunistics, new record

### ***Introduction***

Beetles belonging to Elmidae family are rather small. A body length in European species is usually 1.5-4.80 mm (Holland 1972). This group is classified by Jäch (1998) as “true water beetles”, what means that these insects spent most of time of their adult life under water surface. Most of Elmidae species live in streams and rivers, where both larvae and adults occur on submerged water-logged wood and stones overgrown by algae (Moog and Jäch 1995; Čiampor and Kodada 1998). Small body size, specific habits and biology of these insects make them difficult to collect. As a result we do not know much about their detailed distribution and frequency in some areas of Europe. One of such regions is the Balkan Peninsula, and among it the area of Greece.

According to Jäch et al. (2006) the riffle beetle fauna (Coleoptera: Elmidae) of Greece includes 21 species classified into 10 genera: *Potamophilus* Germar, 1811 (1 species), *Elmis* Latreille, 1802 (7 species), *Esolus* Mulsant et Rey, 1872 (3 species), *Grouvellinus* Champion, 1923 (1 species), *Limnius* Illiger, 1802 (4 species), *Normandia* Pic, 1900 (1 species), *Oulimnius* Gozis, 1886 (1 species), *Riolus* Mulsant et Rey, 1872 (1 species), *Stenelmis* Dufour, 1835 (1 species), and *Macronychus* P. J. W. Müller, 1806 (1 species). One of the most enigmatic Greek elmid species is *Macronychus*

*quadrituberculatus* P. W. J. Müller, 1806, known in this country only from one locality till now (Čiampor and Kodada 1998).

Below we provide the second record of this species from this country as well as we discuss its general distribution in the Balkan Peninsula and Europe.

### *Study site, results*

The study site was located 0.5 km NW from Loutra village (3km NE from Neo Petritsi, Serres district, N Greece, N41°16'59,25'' E23°19'49,70'', 53 m a.s.l., Fig.1.) on the Western bank of river Strimonas, ca. 2 km from the Greek-Bulgarian border.

Two males of *Macronychus quadrituberculatus* were attracted to UV light on 09.08.2011 (ca. 9:30 p.m.) during the entomological field trip “TB-Quest VII Expedition”. The light trap was located about 15 m from the river bed where it was placed on the ground among grass vegetation.

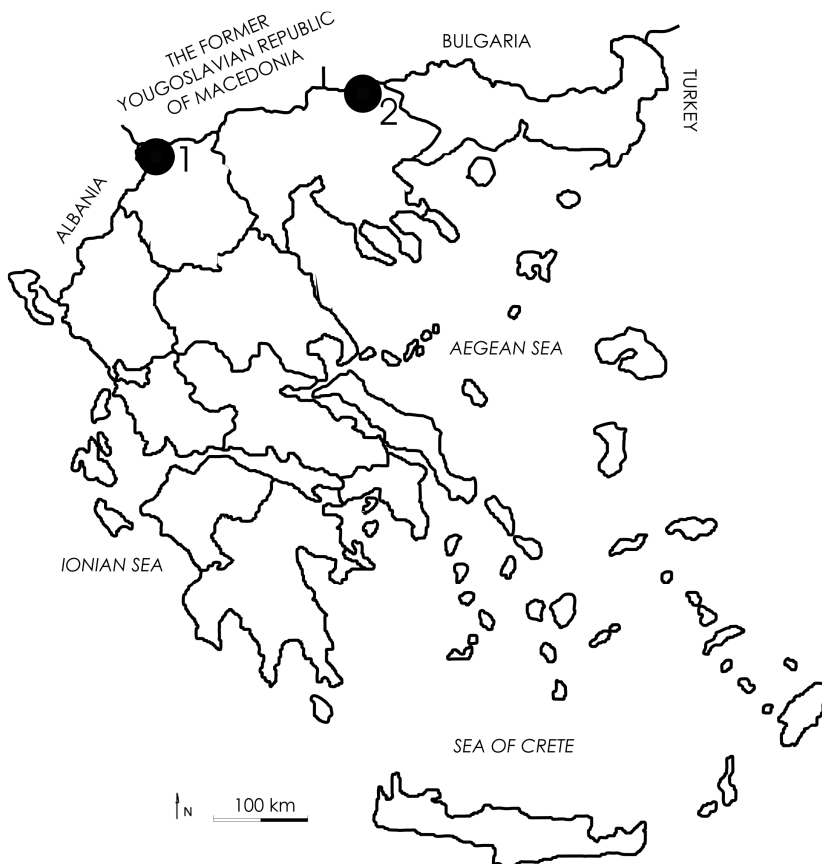


Fig. 1. Distribution of *Macronychus quadrituberculatus* in Greece: 1 – locality given by Čiampor and Kodada (1998), 2 – new locality

## Discussion

*Macronychus quadrituberculatus* is a small riffle beetle species with body size 2.65-4.2 mm (Holland 1972; Čiampor and Kodada 1998). It is the only member of genus *Macronychus* P.W.J. Müller, 1806 occurring in Europe (Čiampor and Kodada 1998). Comparing with other European Elmidae adult specimens of this species are relatively easy to identify even for not-specialists because of their very long legs and presence of two tubercles on thorax and one on shoulder of each elytra. *M. quadrituberculatus* lives in running waters where it can be found on submerged water-logged wood and stones overgrown by different species of algae (Moog and Jäch 1995; Čiampor and Kodada 1998).

Our new record of *Macronychus quadrituberculatus* confirms occurrence of this riffle beetle species in Greece and in the Balkans being the second locality of this taxon in Greece. According to the literature, till now this species was noted only from two regions of the Balkan Peninsula. The first one is Pramoritza located in Florina district (NW Greece), where one female specimen was found in 1992 (Čiampor and Kodada 1998), and the second is the area of Serbia and Montenegro (only general distributional; Jäch et al. 2006). Outside the Balkan Peninsula *M. quadrituberculatus* was noted from great part of Western Palaearctic region, including North Africa (Morocco) and Europe (Austria, Byelorussia, Czech Republic, Estonia, Finland, France, Great Britain, Germany, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Russia, Slovakia, Spain, Sweden, and Ukraine) (Jäch et al. 2006). Unfortunately, from many of these countries only single individuals of *M. quadrituberculatus* are known so often it is very difficult to estimate its frequency in particular regions. Moreover, great part of these records are old or very old and should be confirmed by new faunistic data. Because of that it was suggested that this species probably had become endangered or even extinct in some regions of Europe (e.g. Holland 1972; Kaszab 1990; Jäch 1992). As a result of its rarity in some European countries *M. quadrituberculatus* is legally protected (Csabai 2005) or is placed in the local or national Red Books and Red Lists of threatened species (e.g. Kaszab 1990; Kubisz et al. 1998; Holecova and Franc 2001; Pawłowski et al. 2002; Hebauer et al. 2003; Spitzenberg 2004; Boardman 2005; Boukal 2005; Jäch et al. 2005). However, faunistic researches conducted during last two decades allow to find many new localities of this beetle and show that at least in some regions of Central and Eastern Europe this species is not so rare as it was mentioned before (Kovács and Ambrus 2001; Claude et al. 2003; Csabai and Móra 2003; Holzer 2003, 2006; Jaskuła et al. 2005; Jäch and Prokin 2005; Kovács and Merkl 2005; Telnov et al. 2005; Buczyńska and Buczyński 2006; Buczyński and Przewoźny 2006; Boukal et al. 2007; Kovács and Ködöböc 2008; Kálmán et al. 2009; Csabai et al. 2010a-b; Klink 2010; Przewoźny and Konwerski 2009; Przewoźny et al. 2006, 2009, 2011). Moreover, findings of this elmidae species are correlated with sampling methods using for collecting this aquatic beetle. Most specimens of *M. quadrituberculatus* recently noted in Europe (years 1990-2011) were sampled using hydrobiological methods (benthic hand net or sweeping nets) (e.g. Kovács et al. 1999, 2002; Němcová 2001; Graf and Kovács 2002; Buczyński and Pałka 2003; Kalisiak et al. 2003; Csabai 2005; Jaskuła et al. 2005; Telnov et al. 2005; Kovács et al. 2008; Kálmán et al. 2009; Przewoźny and Konwerski 2009; Csabai et al. 2010a-b; Przewoźny et al. 2006, 2009, 2011) or using light traps (e.g. Ponel 1997; Graf and Kovács 2002; Kovács et al. 1999; Kalisiak et al. 2003; Jaskuła et al. 2005; Csabai and Sár 2007), with the first one as the much more successful method. A

good example comes from studies by Kovacs et al. (1999) made in Hungary where only about 5% of collected individuals of this species were attracted to light. A hydrobiological method was much more effective also in Poland, where less than 10% of its recent localities are based on material caught by light traps (Jaskuła et al. 2005; Buczyńska and Buczyński 2006; Przewoźny and Konwerski 2009; Przewoźny et al. 2006, 2009, 2011). Superiority of hydrobiological methods over light traps in collecting of *M. quadrituberculatus* can be explained not only by species morphological characters (many specimens have strongly reduced wings and can not be attracted to the light as they can not fly) but also by its life cycle (both larvae and adults live under water surface). As our Greek specimens of *M. quadrituberculatus* were recorded using “less successful collecting method” it can be expected that this species can be found in larger number of individuals at least in the Strimonas river system in the future. Moreover, as this new locality is placed only a few kilometers from the Greek-Bulgarian border, and the river Strimonas (=Struma in Bulgarian) is crossing this border, it can be believed that *M. quadrituberculatus* is occurring in Bulgaria too.

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