

Short communication

First record of *Graphosoma melanoxanthum* Horváth, 1903 (Hemiptera: Heteroptera: Pentatomidae) in Kurdistan Iraq

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Abstract. *Graphosoma melanoxanthum* is reported for the first time in Iraq. *In natura* photo, it is shown on a newly reported host plant *Eryngium billardierei* (Apiaceae). The distinguishing characters of *G. melanoxanthum* are discussed, and the global distribution map of this species in the Middle East with some new records is provided.

Key words: true bugs, shield bugs, Podopinae, *Graphosoma*, new records, distribution, Iraq, Apiaceae, *Eryngium*.

Among the Pentatomidae, the genus *Graphosoma* Laporte, 1833 is easy to recognize because its scutellum covers a large part of its abdomen (like the other Podopinae). Moreover, its dorsal body colour is red, orange, or yellow with four to six parallel longitudinal black bands, sometimes interrupted. It is distributed only in the Palearctic Region and includes ten species (Rider 2006; Péricart 2010; Aukema et al. 2013; Lupoli 2017). In Iraq, three species of this genus were recorded so far (Linnavuori 1993), namely *Graphosoma semipunctatum* (Fabricius, 1775), *G. stali* Horváth, 1881 and *G. lineatum italicum* (O. F. Müller, 1766). The latter was recently (Lupoli, 2017) recognized as a distinct species of *Graphosoma* [*G. italicum* (O. F. Müller, 1766)].

G. semipunctatum and *G. stali* have interrupted black longitudinal bands on the pronotum and a connexivum without alternated red and/or yellow and black colours. Four *Graphosoma* species share six continuous black longitudinal bands on the pronotum, four on the scutellum and a connexivum alternately red and/or yellow and black: *Graphosoma rubrolineatum* (Westwood, 1837), *G. italicum*, *G. lineatum* (Linnaeus, 1758), and *G. melanoxanthum* Horváth, 1903.

G. rubrolineatum is a species present only in Southeast Asia (China, Mongolia, Korea, Japan, Russia (Sikhote-Alin)). This species is characterized by having a robust anterior slope of its pronotum and by the confluence of black spots of the connexivum (Horváth 1903). Among the three other species, *G. italicum* is the most widespread, found from the Iberian Peninsula to Iran. *G. lineatum* is known only in North Africa, Sicily and Malta (Lupoli 2017). *G. melanoxanthum* is distributed mainly in the Middle East (Rider 2006).

G. italicum has overall black legs (except in Sardinia), and *G. lineatum* has mostly red legs (except in Sicily) (Lupoli 2017). *G. melanoxanthum* has light yellow legs, like the rest of the body. But what distinguishes *G. melanoxanthum* from *G. lineatum* and *G. italicum* is the presence of one black spot on the rugose part of odoriferous apertures in the distal direction (Fig. 2B). At the same time, it is a long black band for *G. lineatum* and *G. italicum* (Fig. 2A) and different shapes of the parameres in male genitalia (Péricart 2010).

The specimens we observed in Kurdistan Iraq have six continuous black longitudinal bands on the pronotum, four on the scutellum, and a connexivum (the lateral part of the paratergites) alternately red or yellow and black (Fig. 1). For all these reasons, we identified our specimens as *G. melanoxanthum*.



Fig. 1. *G. melanoxanthum*, ♀ & ♂ observed on *Eryngium billardierei* in Kurdistan Iraq: Halgurd-Sakran National Park / Choman district, Erbil Province, 36.56438N 44.96918E, 2300 m, 26.VII.2021, during Kurdistan Botanical Foundation surveys (photo: Soran H. Ahmed).

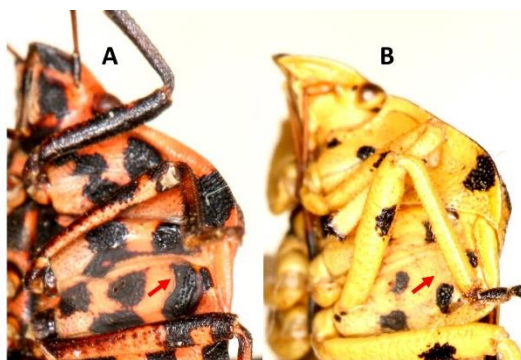


Fig. 2. *Graphosoma odoriferous* apertures on the ventral side. **A.** *G. italicum* with a long black band on the rugose part of the odoriferous aperture. **B.** *G. melanoxanthum* with one small black spot on the rugose part of the odoriferous aperture (photo: Roland Lupoli).

New record. IRAQ: Halgurd-Sakran National Park/Choman district, Erbil Province, Subalpine zone, Rocky mountainsides, 36.56438N 44.96918E, 2300 m, 26.VII.2021, Soran H. Ahmed leg., coll. Soran H. Ahmed. Kurdistan Botanical Foundation surveys, 2 ♀ & 1 ♂ on *Eryngium billardierei* F. Delaroché, 1807 (Apiaceae).

Other material examined. ARMENIA: Arailer Mt, 40.4057N 44.432E, 2300 m, 12-14.VI.2016, S. Murzin leg., coll. Roland Lupoli, 3 ♂. IRAN: Zagros Mt, Prov. Fars-Yasuj, 24.V.2010, J. Dalihod leg., coll. Roland Lupoli, 1 ♀. TURKEY: env. Tatvan, 38.48N 42.24E, 1800 m, 5-9.VI.2012, J. Hron & S. Murzin leg., coll. Roland Lupoli, 1 ♀ & 3 ♂.

G. melanoxanthum was recorded in Armenia, Azerbaijan, Georgia, Iran, Turkey (Rider 2006; Ghahari et al. 2014) and Albania (Ramsay 2014). Green dots represent these observations on the map (Fig. 3). We present the first observation of *G. melanoxanthum* in Kurdistan Iraq (Fig. 3, red dot indicated by the red arrow). This species prefers upland grasslands and is most commonly found at elevations above 2000 m and up to 2700 m.



Fig. 3. Distribution map of *G. melanoxanthum* in the Middle East. Green dots represent published observations (they are unfilled when a precise location was not found). The red dots represent the new sightings mentioned in this paper (a red arrow indicates the new record in Kurdistan Iraq).

Species of *Graphosoma* live on Apiaceae where they feed on developing seeds, and *G. melanoxanthum* was only reported on *Heracleum* sp. (Nateq Golestan et al. 2010). We, therefore, mention this species for the first time on *E. billardierei*, an Apiaceae recorded from Iraq (Wolff, 1913).

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