

Short Communication

Massylaea vermiculata (O. F. Müller, 1774): A Serious Land Snail Pest Introduced to Jordan

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Abstract: A heavy infestation of *Massylaea vermiculata* in an olive farm located in the eastern desert of Jordan is reported.

Keywords: *Massylaea vermiculata*, Jordan, invasive species.

Massylaea vermiculata is commonly referred to as the chocolate-band snail or noodle-snail, and was formerly known as *Eobania vermiculata* (Bouaziz-Yahiatene *et al.*, 2017). The species is a circum-Mediterranean land snail known to invade all types of habitats including home gardens, plant nurseries and agricultural farms (Mienis *et al.*, 2016). It is considered as one of the most widespread land snails in the Mediterranean region and has been introduced to suitable habitats in many parts of the world including arid countries as Saudi Arabia and Qatar (Neubert, 1998; Al-Khayat, 2010; Amr and Al-Shammari, 2013). It is strongly believed that it has been introduced to the Middle East through the import of ornamental garden plants from Europe (Mienis, 1973; Neubert *et al.*, 2015).

The shell has a creamy-whitish background color with four or five brown to chocolate colored stripes, spotted or speckled with white dots. It has five to six whorls; peristome shiny white; umbilicus inconspicuous. The diameter size of adult specimens reaches 20-30 mm (Neubert *et al.*,

2015). This snail can lay up to 60-80 eggs in the soil, and reaches maturity after two years (Ronsmans and Van den Neucker, 2016).

On June 30, 2015, it was brought to our attention by a farmer at Wādī ad Dulayl (32°06'45.62"N 36°15'15.10"E) that his olive farm was heavily infested by snails. Upon inspection, hundreds of *M. vermiculata* were found attached to olive tree trunks and twigs (Figure 1). Also, hundreds of dried snails were found around trees. All snails were of the adult stage. The following years, the problem disappeared, and no further infestation was reported. Wādī Dulayl is located east of Az Zarqā'. It is characterized by an arid climate with an annual rainfall not exceeding 200 mm. A possible explanation behind the snail infestation is that *M. vermiculata* gained access to the farm through seedlings containing adult snails or eggs. A similar observation was reported from the Jordan University of Science and Technology campus near Ar Ramthā. In 1994, several live specimens were collected from the campus, and then disappeared ever since (Neubert *et al.*, 2015). In Egypt, *Massylaea vermiculata* snails were also found to infest fruit orchards and ornamental plants (Eshra, 2013). Other species of invasive land snails known to Jordan include: *Rumina decollata* (Linnaeus, 1758) and *Cochlicella acuta* (O. F. Müller, 1774) commonly found in home gardens and plant nurseries (Neubert *et al.*, 2015). It is recommended that the Ministry of Agriculture in Jordan should implement protective measures against the invasive land snails including further inspection of any plants imported from Europe.

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Figure 1. *Massylaea vermiculata* snails on an olive tree at Wādī ad Dulayl.

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