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Article in *Israel Journal of Entomology* · September 2017

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Observational notes on populations of *Anthracocentrus arabicus* (Thomson, 1877) (Coleoptera: Cerambycidae) in Israel and a new host record

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Anthracocentrus arabicus (Thomson, 1877) was first reported from Israel by Bytinski-Salz (1956) based on a 'mutilated' male. The species is widely distributed throughout North Africa (Algeria, Egypt (including Sinai), and Libya), Arabian Peninsula (Bahrain, Oman, Saudi Arabia, Yemen, and United Arab Emirates), Jordan, (Drumont & Komiya 2010) and Saharan and Sahelian countries (from southern Morocco and Mauritania to Central Eastern Africa (Sudan, Somalia, and Eritrea)) (Eldow 2011).



Fig. 1: *Anthracocentrus arabicus*, alive male, length 87 mm.

In Israel, it was always considered as a very rare species or for the least a rarely seen one, although it is one of the largest insects in the area reaching the length of 95 mm and more. In the catalog of the Cerambycidae of Israel (Sama *et al.* 2010) only 10 specimens are mentioned to be collected between 1971–1997. It is known in Israel from the Dead Sea area and southwards along the Arava Valley. The data labels of specimens deposited in the Steinhardt Museum of Natural History indicate that this species is active in Israel from the end of June to December, but mainly during July–September.

On 31 July and 13 August 2017 I visited 'En Yahav [עין יהב, 30°40'N 35°15'E], which is located in the center of the Arava Valley, in order to make some observations on one of the local populations of *A. arabicus*. Around six hours of observation took place during activity hours and the daytime was used to locate additional sites. This is the only observation of this kind in Israel as only wondering individuals have been seen so far. In total, 13 living adults (11 males among them) and 12 dead specimens (9 males) were seen. The largest male specimen (Fig. 1) reached 87 mm and the largest female reached 65 mm. The smallest adult was a 41 mm male. General habituses of both male and female are illustrated in Fig. 2.

The observed activity took place in two close-by locations inside 'En Yahav settlement. In both cases there were holes in the ground (2–8 cm wide). The holes in both locations were close to a tree that had been cut down recently and in a radius of no more than about one meter from it. Near the first tree, there were seven



Fig. 2: *Anthracocentrus arabicus*, male (left) and female (right). Scale bar = 87 mm.

holes and five holes near the second. Two tunnels hosted living adults, one close to the opening and another observed at the depth of about 20 cm. Both adults stayed in the tunnel through the time spent in the place (2 hours). This may be a reaction



Figs 3, 4: Emergence holes of *Anthracocentrus arabicus*: (3) around cut trees, circled; (4) same, enlarged.

to a strong light that was lit on a very close wall above the tunnels. Before the light was on, the two beetles showed great awareness to flash lights and responded by immediate withdrawing deeper into the tunnel until no eye contact was possible. Two males were found on tree logs (one was climbing and the second one rested inside a large hole with only its head protruding). Two males and a female were hiding under an air conditioner before they left for activity at dusk. Two more males were seen walking on the ground. One female was found during daytime resting on a dead log (under a cover). One female and two males were seen resting on a tree trunk in the shade during the day (1–2 meters from the ground, about 40 cm from each other). This was the only case, when adults were seen completely exposed during daytime.

Some approached adults moved for the nearest shelter. The majority, however, took an aggressive threat stand. When handled or approached too closely the beetles did not hesitate to give a surprisingly strong and painful pinch. An interesting behavior was observed in two cases, when the male adult was laid on the author's hand. Instead of just flying away or falling to the ground as many other Cerambycidae and other beetles in general do, both males literally jumped down by pushing their body away with their legs strongly and fast. This behavior repeated in several attempts to dislocate the adult. It is worth mentioning that no adult were seen making an attempt to fly. Is it possible that the large and heavy adults may take to the air more easily while falling from trees? This may explain the jumping behavior, but it should be verified first. Anyway, this does not explain why even small specimens do not take to the air when trying to avoid contact. No adults were seen near artificial light in the area, although they were reported to be attracted to light (Sama *et al.* 2002).

All dead specimens seemed to die of old age (body was intact including abdomen, which suggest this species is not in great danger of predation, although rodents and cats were seen in the vicinity).

The previously known host plants for *Anthracocentrus arabicus* are *Acacia* spp., *Tamarix articulata* Wahl, *T. aphylla* (L.) (Sama *et al.* 2010), *Prosopis cineraria* (Rejzek *et al.* 2005), *Acacia radiana*, *Acacia scorpioides* and *Senegalia senegal* (Eldow 2011). The tree species that served as a host in 'En Yahav was in no doubt *Tipuana tipu* of the family Fabaceae. This tree originates from South America and is planted regularly in many settlements in Israel, also along the Arava Valley. The two trees that were cut down had many emergence holes around them. Additional two cut down trees were found, both with emergence holes around them (Fig. 3). These emergence holes were not recent and indeed at night no living (or dead) specimens were found. In some cases, the emergence holes appeared in a very hard and stony soil (Fig. 4). This represents the amount of power required from the adult and its mandibles and it is truly impressive.

The soil in this area is enriched with salts. In order to grow healthy *Tipuana tipu* trees, a regular watering is needed otherwise salt causes the trees to weaken and

dry. This is the reason why some trees need to be cut down before they can pose a danger of collapsing inside the settlement ('En Yahav chief gardener, pers. comm.). It is probably at this stage, when the trees are vulnerable that the adult beetles attack the trees and lay their eggs. No healthy trees were found, among the dozens, which were closely checked, to be surrounded with emergence holes.

On the next day the author visited in Hazeva Field School (north to 'En Yahav), where *Tamarix* trees are present everywhere. The survey took place after a personal communication from Rei Segali, who had been encountering *A. arabicus* in the Field School compound every year during the summer month. Only few emergence holes were seen (all near healthy *Tamarix* trees), but all were from past years. No dead specimens were found.

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