

Study of the Genus *Scolytus* Geoffroy, 1762 (Coleoptera: Curculionidae: Scolytinae) in East Azarbaijan Province

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During 2014 and 2015, four species of bark beetles (Coleoptera: Curculionidae: Scolytinae), belonging to a single genus *Scolytus* Geoffroy, 1762, were collected from elm trees in East Azarbaijan province, northwestern Iran. They were *Scolytus pygmaeus* (Fabricius, 1787), *Scolytus ensifer* Eichhoff, 1881, *Scolytus ecksteini* Butovitsch, 1929, and *Scolytus kirschii fasciatus* Reitter, 1890. All of them represent new records for East Azarbaijan province.

Keywords: Scolytinae, *Scolytus*, fauna, Iran.

Weevils (Coleoptera: Curculionidae) are the second largest family of beetles, with about 86,000 described species, occurring throughout the world, from the Arctic zone in the north to the sub-Antarctic islands in the south, from beaches to mountain tops, and from deserts to rainforests (Marvaldi et al., 2002; Oberprieler, 2004). Depending on the species, the majority of weevils are capable of boring into almost every type of plant and plant parts, including roots, stems, seeds, fruits, buds and wood, and some species are considered as serious pests of agriculture or forestry (Anderson, 2002).

Bark and ambrosia beetles (Curculionidae: Scolytinae) are a relatively large group of beetles, with more than 6,000 described species in 247 genera worldwide. The majority of bark and ambrosia beetles live most of their lives inside dead, weakened, dying, or occasionally living trees, where their larvae feed on either kambium and phloem (true bark beetles) or symbiotic fungi that their mother has cultured at the surface of their tunnel walls during egg laying (ambrosia beetles). Bark and ambrosia beetles play a crucial role in forest ecology, as they are the most abundant and important organisms in the early stages of forest decomposition (Jordal and Cognato, 2012). Although these beetles are of considerable economic importance in the timber trade, a few species are associated with living fruit and forest trees, and therefore are considered as pests (Alford, 2014).

Scolytus Geoffroy, 1762, is a cosmopolitan genus of true bark beetles, with more than 100 described species worldwide, of which 61 species are known to occur in the

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Palaearctic region (Knížek 2011; Kašák et al., 2015). From the subfamily Scolytinae, a total of 69 species from 26 genera, including 17 species of *Scolytus* were recorded from Iran (Beaver et al., 2016). This study aims to contribute to the knowledge of bark beetles of the genus *Scolytus*, living on elm trees of East Azarbaijan province, northwestern Iran.

Materials and Methods

Specimens were collected from elm trees in Tabriz city, East Azarbaijan province located at the northwestern Iran (36° 45' to 39° 26' N and 45° 5' to 48° 22' E) in 2014 and 2015. The insects were captured by hand and aspirator. All specimens were collected by the first author (Mehrdad Alizade). The classifications and nomenclature of bark beetles suggested by Mikhail Mandelshtam have been followed. All specimens are kept in Jalal Afshar Zoological Museum, University of Tehran, Karaj, Iran.

Results

A total of four *Scolytus* species were collected and identified from elm trees. All of them are new records for East Azarbaijan province.

Scolytus pygmaeus (Fabricius, 1787)

Material examined: (3♂, 3♀); Tabriz city, 38°03'16.3"N 46°19'53.4"E; 13. IV. 2014. On *Ulmus* spp., leg. M. Alizade.

General distribution: Europe except the far north, southern Russia, Azerbaijan, Georgia, Turkey (Beaver et al., 2016).

Diagnostic characters: Body 1.5 mm long and shining in males, 2.5 mm long, and head and pronotum black with shining brown margins in females. Frons flat and covered by erect hairs in males, convex and covered by dispersed hairs in females. The posterior margin of fourth abdominal ventrite with flattened and compacted convexity in males, without protrusion in females.

Scolytus ensifer Eichhoff, 1881

Material examined: (4♂, 5♀); Tabriz city, 38°03'16.3"N 46°19'53.4"E; 17. IV. 2014. On *Ulmus* spp., leg. M. Alizade.

General distribution: Central and southern Europe, southern Russia, Azerbaijan, Turkey (Beaver et al., 2016).

Diagnostic characters: Body 2.3–3.2 mm long and shining black. Elytra dark brown, antennae and tarsi yellowish gold. Frons flat and covered by erect hairs in males, convex and covered by dispersed hairs in females. Abdominal appendage in males high and curved, in the females short and not curved.

Scolytus ecksteini Butovitsch, 1929

Material examined: (2♂, 4♀); Tabriz city, 38°03'16.3"N 46°19'53.4"E; 25.VI.2015. On *Ulmus glabra*, leg. M. Alizade.

General distribution: Azerbaijan, Kazakhstan, Southern Russia, Turkmenistan (Beaver et al., 2016).

Diagnostic characters: Body length 2.8 mm, body laterally convex, dark brown with black head, frons flattened and covered by yellow and long hairs in males, frons concave and covered by short hairs in females. Second abdominal ventrite of females with apical emargination. Abdominal appendage in second abdominal ventrite flat and horizontal, in females a bit longer than in males.

Scolytus kirschii Skalitzky, 1876

Material examined: (4♂, 1♀); Tabriz city, 38°03'16.3"N 46°19'53.4"E; 25.VI.2015. *Ulmus* spp., leg. M. Alizade.

General distribution: France, Sicily, Spain, southern Russia, Algeria, Turkey, Turkmenistan, Uzbekistan (Beaver et al., 2016).

Diagnostic characters: Body very small (1.5–3.0 mm long), elongate, and reddish brown, elytra covering posterior portion of the abdomen. Second abdominal ventrite steeply meeting elytra and with long, semi-erect hairs. Second abdominal ventrite with central spine on anterior margin.

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