

## ***Scolytus koenigi* Schevyrew, 1890: A New Record for Turkish Scolytinae (Coleoptera: Curculionidae) Fauna**

Oğuzhan SARIKAYA<sup>1\*</sup>

Milos KNIŽEK<sup>2</sup>

<sup>1</sup>Suleyman Demirel University, Faculty of Forestry, 32260 Isparta, TURKEY

\*Corresponding author: e-mail: oguzhansarikaya@sdu.edu.tr

<sup>2</sup> Forestry and Game Management Research Institute, Jiloviste

- Strnady, Praha 5 - Zbraslav, CZ - 156 04, CZECH REPUBLIC

e-mail: knizek@vulhm.cz

### **ABSTRACT**

The maple bark beetle, *Scolytus koenigi* Schevyrew, 1890 is reported for the first time from Turkey. Two adults of this species were collected from Kasnak Oak Nature Protected Area in Isparta-Eğirdir province (South-western Turkey). General information on the species, distribution and hosts are given.

**Key words:** *Scolytus koenigi*, Scolytinae, Isparta, Turkey, first record

### **INTRODUCTION**

The Scolytinae sub-family (Col.: Curculionidae) is one of the largest group of Coleoptera with over 6000 recorded species all around the world. The adult beetles bore tunnels and make breeding galleries in the wood under the bark of a wide range of trees where the eggs are laid (Hill, 1997).

*Scolytus* Geoffroy, 1762 is a large distributed and cosmopolitan genus of Scolytinae with more than 120 species (Wood and Bright, 1992). At least 61 species are known from the Palaearctic region (Michalski, 1973; Knížek, 2011). Fifteen *Scolytus* species are reported from Italy (Abbazzi *et al.*, 1995; Faccoli *et al.*, 1998), 17 from France (Balachowsky, 1949) and 14 from China (Yin and Huang, 1980). In countries neighbor to Turkey; the numbers of recorded *Scolytus* are 12 species in Greece, 16 in Bulgaria, 7 in Iran, 3 in Iraq, 5 in Georgia and only 1 in Armenia (Knížek, 2011).

Concerning Turkey, Schimitschek (1944) lists 7 *Scolytus* species although later Schedl (1959, 1961, 1968) mentioned only 4 ones. Recently the number of Turkish species belonging to this genus is of 11 species (1 species with 2 subspecies) which are given in Table 1 (Selmi, 1998; Knížek, 2011).

In the present paper we report *Scolytus koenigi* Schevyrew, 1890 for the first time in Turkey, contributing to the faunal knowledge of this country. Faunistic data and general information on *S. koenigi* are presented.

<i>Scolytus</i> species			
1	<i>Scolytus amygdali</i> Gueérin-Méneville, 1847	6	<i>Scolytus mali</i> (Bechstein, 1805)
2	<i>Scolytus carpini</i> (Ratzeburg, 1837)	7	<i>Scolytus multistriatus</i> (Marsham, 1802)
3	<i>Scolytus ensifer</i> Eichhoff, 1881	8	<i>Scolytus pygmaeus</i> (Fabricius, 1787)
4	<i>Scolytus intricatus</i> (Ratzeburg, 1837)	9	<i>Scolytus ratzeburgii</i> (Janson, 1856)
5	<i>Scolytus kirschii</i> Skalitzky, 1876	10	<i>Scolytus rugulosus</i> (Müller, 1818)
	<i>S. kirschii kirschii</i> Skalitzky, 1876	11	<i>Scolytus scolytus</i> (Fabricius, 1775)
	<i>S. kirschii fasciatus</i> Reitter, 1890		

Table 1. *Scolytus* species reported from Turkey in previous studies.

## MATERIAL AND METHODS

The specimens were collected from Kasnak Oak Nature Protected Area which consists of *Quercus vulcanica* [(Boiss. Heldr. ex) Kotschy] as main species and its mixture stands mostly with *Acer platanoides* L., *A. hyrcanum* Fisher and Meyer, L., *Quercus cerris* L. var. *cerris*, *Q. libani* Oliv., *Q. coccifera* L., *Q. infectoria* Oliv., *Q. pubescens* Willd., *Fraxinus ornus* L., *Cedrus libani* A. Rich and *Pinus nigra* Arn. subsp. *pallasiana* (Lamb.) Holmboe.

*Scolytus koenigi* specimens were captured by using window traps which contain to transparent plastic plates with dimensions of 35 x 65cm. An aluminum cup has been fixed underneath the plastic rectangle and glycol has been placed in this cup.

The examined material is stored in the collection of Suleyman Demirel University, Faculty of Forestry. The identification keys in Michalski (1973), Pfeffer (1955; 1995) and Stark (1952) have been used to determine the specimens. Photographs were taken using Olympus SZX 16 stereozoommicroscope, Olympus DP72 digital camera and QuickPHOTO CAMERA 2.3 software.

## RESULTS AND DISCUSSION

During a study of the Turkish fauna of Scolytinae, the bark beetle species *Scolytus koenigi* was recorded for the first time, bringing at 12 the number of *Scolytus* species in Turkey.

### *Scolytus koenigi* Schevyrew, 1890

Material examined (Fig.1): Turkey, Isparta-Eğirdir, Yukarıgökdere, Kasnak Oak Nature Protected Area, 37° 74' 72" N, 30° 83' 51" E, 1550 m, 31.VII.2012 (2, ♂, leg. O. Sarikaya).

Morphology: *Scolytus koenigi* belongs to the group of *Scolytus* species without neither tubercles or processes on the 2nd, 3rd and 4th abdominal sternites, nor brushes of setae on the 5th abdominal sternite.

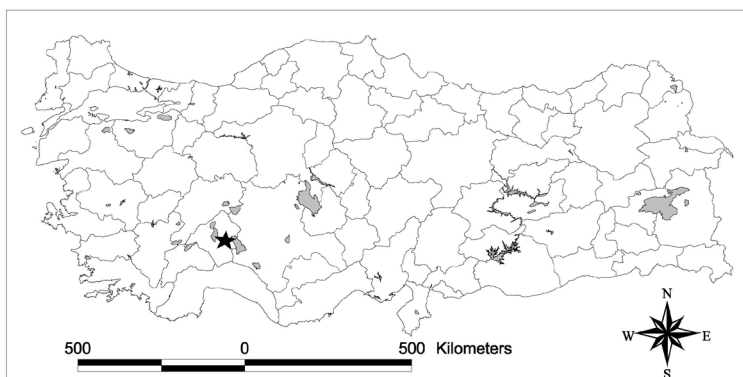


Fig.1. Locality of *Scolytus koenigi* Schevyrew in Turkey: Isparta-Eğirdir

Adults of *S. koenigi* are 3 - 4.5 mm long, dark brown, nearly black, with slightly pale, brownish or reddish elytra. Frons is flat in male, convex in female; longitudinally finely rugose and with intermixed punctures and fine granules. Vestiture of frons is of golden shorter hair-like setae on the frontal disk and long, medially incurved hair-like setae on upper and lateral margins of frons in male and short sparse hair-like setae on the whole surface of frons in female (setae are longer on the lower part of the frons). Pronotum smooth, shining, rather strongly constricted in frontal part; punctuation of very fine and sparse, somewhat elongate punctures on the disk, sometimes with smooth median line without punctures, punctuation becoming denser and deeper front- and back-wards; dark, hair-like setae on anterior angles. Elytra parallel in the anterior half, posterior angles broad, elytral margin mostly serrate (smooth in some specimens), slightly emarginated at the suture. Elytral striae distinctly impressed with particular round or slightly longitudinal punctures. Interstriae broad, ornamented with circular punctures, which are slightly smaller than these in striae and are organized mostly uniseriately. Short sparse rusty hair-like setae on interstriae, becoming longer towards the elytral declivity. Angle between the 1<sup>st</sup> and 2<sup>nd</sup> abdominal sternite perpendicular in male and nearly so (obtuse) in female, posterior margins of the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> sternites slightly raised; sternites shining, punctuation fine, dense, more sparse on 2<sup>nd</sup> sternite, vestiture of moderately short rusty hair-like thick setae.

Gallery patterns: Mating system of *Scolytus koenigi* is longitudinal monoramous, with maternal gallery 1 - 5 cm long and about 3 mm broad, larval galleries dense, long up to 12 cm, excavated or not excavated in sapwood depending on bark thickness (the same for pupal chambers) (Stark, 1952; Michalski, 1973).

Taxonomic remarks: *Scolytus koenigi* was described originally from Turkmenistan (Kopet-Dagh) by Schevyrew (1890) (lectotype (male) designated by Michalski (1973). Consequently the same species was described several times, by Knotek (1892) (description of female) under the name *Scolytus aceris* from Bosnia-Herzegovina, by Eggers (1908) as *Eccoptogaster siculus* from Italy (Sicily) and by Stark (1941) as *Scolytus belokanicus* from Azerbaijan; all later species are younger synonyms (Knížek, 2011).

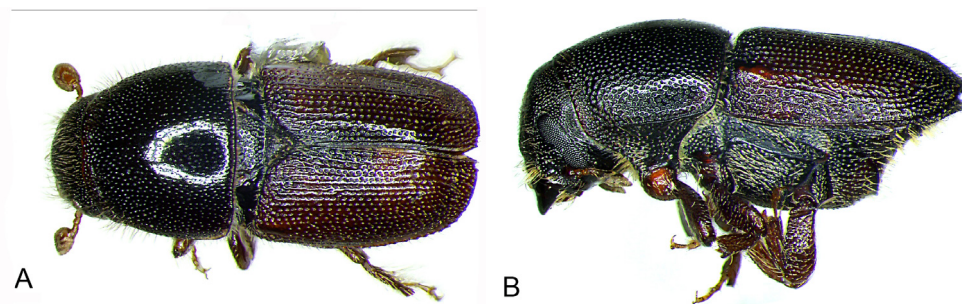


Fig.2. *Scolytus koenigi* Schevyrew, 1890 female, a) dorsal, b) lateral

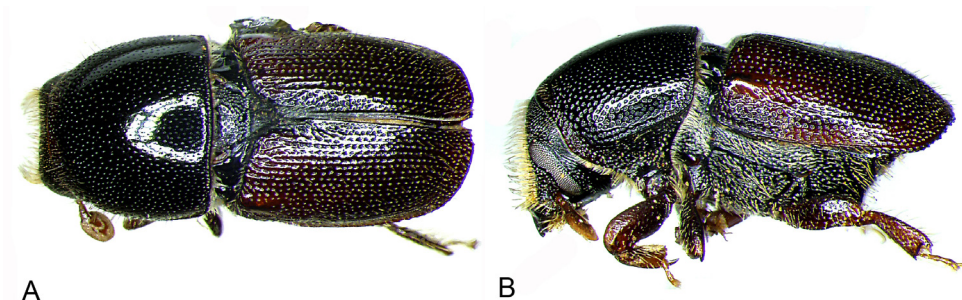


Fig.3. *Scolytus koenigi* Schevyrew, 1890 male, a) dorsal, b) lateral

**Distribution:** The species has been reported from south, south-eastern, central and east Europe (Azerbaijan, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, France, Hungary, Italy, Moldavia, Romania, Russia-South European Territory, Ukraine, Caucasus); Algeria, Morocco, Russia (Eastern Siberia), Iraq and Turkmenistan (Pfeffer, 1995b; Petrov, 2005; Knižek, 2011). Thus, the record of *S. koenigi* from Turkey extends its distribution range.

Although there were several records in the neighbor countries, *Scolytus koenigi* was reported for the first time for Turkish fauna. One reason of this, studies on Scolytidae species which are distributed on deciduous trees are inadequate whereas a great number of studies were put forwarded on species in coniferous forests. So that, further work will be needed to clarify distribution in other regions of Turkey and life cycle of the pest.

**Host plants:** *S. koenigi* feeds on *Acer campestre*, *A. hyrcanum*, *A. opalus* var. *obtusatum*, *A. platanoides*, *A. rubrum*, *A. trautvetteri*, *A. velutinum* (Pfeffer, 1995).

## REFERENCES

- Abbazzi, P., Colonnelli, E., Masutti, L., Osella, G., 1995, *Coleoptera Polyphaga XVI (Curculionoidea). Checklist delle specie della fauna italiana*, Calderini, Bologna, 61: 68.
- Balachowsky, A., 1949, *Coléoptère Scolytides. Faune de France* 50. P. Lechevalier, Paris, France, 320.

*Scolytus koenigi* Schevyrew, 1890: A New Record for Turkish Scolytinae Fauna

- Eggers, H., 1908, Zwei neue Scolytiden aus Italia. *Il Naturalista Siciliano*, 20: 193-194.
- Faccoli, M., Zanocco D., Battisti A., Masutti L., 1998, Chiave semplificata per la determinazione degli Scolytus Geoffroy (Coleoptera Scolytidae) Italiani viventi sugli olmi. *Redia*, 81: 183-197.
- Hill, D. S., 1997, *The Economic Importance of Insects*, Chapman and Hall, London, x+395.
- Knížek, M., 2011, *Scolytinae*, In: Löbl, I. and Smetana, A. (Eds), Catalogue of Palaearctic Coleoptera, Apollo Books, Stenstrup, 7: 86-87, 204-251.
- Knotek, J., 1892, Zwei neue Scolytidae aus dem Occupationsgebiete. *Wiener Entomologische Zeitung*, 11(2): 234-236.
- Michalski, J., 1973, *Revision of the Palaearctic species of the genus Scolytus Geoffroy (Coleoptera, Scolytidae)*. Państwowe Wydawnictwo Naukowe, Kraków, 214.
- Petrov, A. V., 2005, Fauna of bark beetles (Coleoptera: Scolytidae) of Daghestan. (In Russian). *Russian Entomological Journal*, 14: 217-222.
- Pfeffer, A., 1955, *Kürovci - Scolytoidea. Fauna ČSR, svazek 6*. ČSAV, Praha, 324.
- Pfeffer, A., 1995, *Zentral- und Westpaläarktische Borken und Kernkäfer (Coleoptera: Scolytidae, Platypodidae)*. Pro Entomologia, Basel, 310.
- Schedl, K. E., 1959, Borkenkäfer aus der Türkei. 180. Beitrag zur Morphologie und Systematik der Scolytoidea. *Anzeiger für Schädlingkunde*, 32: 99-100.
- Schedl, K. E., 1961, Borkenkäfer aus der Türkei, 11. Mitteilung. 190. Beitrag zur Morphologie and (sic!) Systematik der Scolytoidea. *Anzeiger für Schädlingkunde*, 34: 184-188.
- Schedl, K. E., 1968, Borkenkäfer aus der Türkei, 111. Mitteilung. 252. Beitrag zur Morphologie und Systematik der Scolytoidea. *Anzeiger für Schädlingkunde*, 41: 21-24.
- Schevyrew, I., 1890, Liste des espèces du genre *Scolytus* de la collection du Musée de l'Académie Impériale des Sciences de St. Petersburg. *Bulletin de l'Académie Impériale de Sciences de St. Petersburg* (Nouvelle Série), 33: 469-471 [note: also in *Mélanges Biologiques*, 13: 97-99].
- Schimitschek, E., 1944, *Forsrinseben der Tiirkei und ihre Umweh*. Volk und Reich Verlag, Prag-Gmsterdam-Berlin-Wien, 371.
- Selmi, E., 1998, *Türkiye Kabuk Böcekleri ve Savaşı*. Emek Matbaacılık, Istanbul, 196.
- Stark, V. N., 1941, Dva novykh koroeda roda *Scolytus* [Deux espèces nouvelles du genre *Scolytus*]. *Izvestiya Vyashikh Kursov Prikladnoy Zoologii i Fitopatologii*, XII, 299-304.
- Stark, V. N., 1952, *Zhestkokrylye, Koroedy. Fauna SSSR*. Akademia Nauk SSSR, Moskva, Leningrad, 463.
- Wood, S. L., Bright, D. E., 1992, *A Catalog of Scolytidae and Platypodidae (Coleoptera), Part 2: Taxonomic Index. Great Basin Naturalist Memoirs (13)*. Brigham Young University, Provo, Utah, 1553.
- Yin, H.-F., Huang, F.-S., 1980, Notes on some new species of the genus *Scolytus* Geoffroy (Coleoptera: Scolytidae) [In Chinese, English summary]. *Acta Entomologica Sinica*, 23, 1: 47-53.

Received: May 10, 2013

Accepted: September 16, 2013