

## Parasitoids of the Small Poplar Longhorn Beetle, *Saperda populnea* (L.) (Coleoptera: Cerambycidae), in the Aras Valley (Kars and Erzurum Provinces), Turkey

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**Abstract:** The parasitoids of the small poplar longhorn beetle, *Saperda populnea* (L.) (Coleoptera: Cerambycidae), were studied in the Aras Valley (Kars and Erzurum provinces), Turkey, during 2006-2007. Five parasitoid species, *Paraperithous gnathaulax* (Thomson), *Dolichomitus populneus* (Ratzeburg), *Dolichomitus tuberculatus* (Geoffroy) (Hymenoptera: Ichneumonidae), *Ipbiaulax impostor* (Scopoli) (Hymenoptera: Braconidae), and *Billaea irrorata* (Meig.) (Diptera: Tachinidae), were reared from the overwintering larvae living in the galls of *S. populnea*. *Dolichomitus populneus* was the most numerous of the parasitoids and accounted for 55% of all parasitoids reared. *Ipbiaulax impostor* and *B. irrorata* were reared from *S. populnea* for the first time in Turkey. Additionally, *B. irrorata* is a new record for the Turkish fauna.

**Key Words:** *Saperda populnea*, parasitoids, *Paraperithous gnathaulax*, *Dolichomitus populneus*, *Ipbiaulax impostor*, *Billaea irrorata*, new records, Turkey

### Aras Vadisi'nde (Kars ve Erzurum) *Saperda populnea* (L.) (Küçük Kavak Tekeböceği) (Coleoptera: Cerambycidae)'nin Parasitoidleri

**Özet:** Aras Vadisi'nde 2006 ve 2007 yıllarında *Saperda populnea* (L.) (küçük kavak teke böceği) (Coleoptera: Cerambycidae)'nin parasitoidleri çalışıldı ve kışlayan larvalardan *Paraperithous gnathaulax* (Thomson), *Dolichomitus populneus* (Ratzeburg), *Dolichomitus tuberculatus* (Geoffroy) (Hymenoptera: Ichneumonidae), *Ipbiaulax impostor* (Scopoli) (Hymenoptera: Braconidae), and *Billaea irrorata* (Meig.) (Diptera: Tachinidae) olmak üzere beş parasitoid türü elde edildi. Bunlardan *D. populneus*, yoğunluğu en yüksek olan tür olup tüm parasitoid bireylerinin % 55'ini oluşturmaktadır. *Ipbiaulax impostor* ve *B. irrorata* türleri, ülkemizde *S. populnea*'dan ilk defa bu çalışma ile elde edildiği gibi, *B. irrorata* Türkiye faunası için yeni kayıt durumundadır.

**Anahtar Sözcükler:** *Saperda populnea*, parasitoid, *Paraperithous gnathaulax*, *Dolichomitus populneus*, *Ipbiaulax impostor*, *Billaea irrorata*, yeni kayıt, Türkiye

The black poplar, *Populus nigra* L. (Salicaceae), grows predominantly along rivers and streams in Turkey. It is valuable because of its rapid growth and has been the tree chosen for plantations where a quick return on the investment was desired by growers. It has been planted for firewood and timber, and, to a lesser extent, for soil conservation and ornamental plantings.

The small poplar longhorn beetle, *Saperda populnea* L. (Coleoptera: Cerambycidae), is one of the most injurious and widespread Holarctic insect pests of poplars (*Populus* spp.) and willows (*Salix* spp.) (Georgiev, 2001). It is a xylophagous insect; larvae bore into the xylem tissue, causing galls at the point of infection on young stems and twigs of the host plants (Georgiev et al., 2004). *Saperda*

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*populnea* is also known a vector of fungal and bacterial diseases of the host plant (Grechkin and Vorontzov, 1962).

Black poplar trees, mostly of young age, are sporadically present in eastern Anatolia, along the Aras Valley, starting from Karakurt (Sarıkamış) village (Kars Province) to the vicinity of Horasan (Erzurum Province). This area is more than 15 km long and 1450-1550 m in altitude. The twigs of poplar trees are heavily infested with *S. populnea* in the vicinity of Karayolları Çeşmesi in the Aras Valley. No trees were free from galls; almost all twigs were infested with a density of galls up to 10 on one twig from the base to the top. On strongly attacked stands weakening and mortality of the trees were observed. However, in other black poplar populations, such as in the narrow valleys along all branches of the Çoruh River in northeastern Turkey (Bayburt, Ispir, Tortum, Uzundere, Narman, Oltu, Olur, and Yusufeli), Karasu Valley, and Tercan Plateau (Erzincan), the population of *S. populnea* is low or not present. *Saperda populnea* also infests stands of aspen, *Populus tremula* L., in mountains and willows (*Salix* spp.) in eastern Anatolia.

Although *S. populnea* is widespread in Turkey (Gül-Zümreoğlu, 1975; Özdikmen and Hasbenli, 2004) and is known as an important poplar pest in some nurseries and twigs of big poplar trees (Sekendiz, 1974), until recently no knowledge was available on the parasitoids of this species in this country. Most recently, Çoruh and Özbek (2008) recorded the ichneumonid parasitoids *Paraperithous gnathaulax* (Thomson), *Dolichomitus populneus* (Ratzeburg) and *D. tuberculatus* (Geoffroy) (Hymenoptera) from the larvae of *S. populnea*. The present study was carried out to determine further parasitoids of this particular pest species during 2006 and 2007 in the Aras Valley.

The twigs with *S. populnea* galls, about 8-10 cm long, were cut with pruning scissors and each cutting was inserted into a test tube and covered with a cotton stopper. The test tubes were kept at room temperature (20-22 °C) for 4-5 weeks and checked every 1 or 2 days for parasitoids. The parasitoids that emerged were transferred to a killing jar.

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Five parasitoid species were reared from the overwintered larvae in the galls of *S. populnea*: *Paraperithous gnathaulax*, *Dolichomitus populneus*, and *D. tuberculatus* (Hymenoptera: Ichneumonidae); *Ipbiaulax impostor* Scopoli (Hymenoptera: Braconidae) and *Billaea irrorata* (Meig.) (Diptera: Tachinidae). All are solitary primary parasitoids. Among them, *D. populneus* is the most numerous and accounts for 55% of the parasitoid specimens; *B. irrorata* follows it with 32%. The rest of the parasitoids are in low numbers, accounting for 2-8% of the specimens. In Bulgaria, *D. populneus*, *I. impostor*, and *B. irrorata* were reared from *S. populnea* feeding on poplar trees (*Populus* spp.) as recorded by Tsankov and Georgiev (1991) and Georgiev (2001). Later, Georgiev et al. (2004) obtained *D. tuberculatus*, *Xylophrurus lancifer* (Gravenhorst), *Gelis ornatus* (Thomson) (Ichneumonidae), and *Dendrocerus serricornis* (Boheman) (Hymenoptera: Megaspilidae) from the galls of *S. populnea* on twigs of the aspen, goat willow, and hybrid poplars in Bulgaria. The first 2 species are primary parasitoids; the last 2 species are hyper parasitoids. Thomson (1957) listed *Acanthocinus carinulatus* Gebel. and *S. populnea* L. (Cerambycidae) as hosts of *P. gnathaulax*; however, Bulgarian researchers have not obtained this parasitoid from *S. populnea*. Herard et al. (2000) reared some of the above-mentioned parasitoids from *S. populnea* in France.

Among these parasitoids, *I. impostor* and *B. irrorata* were reared from *S. populnea* for the first time in Turkey. Additionally, *B. irrorata* is a new record for the Turkish fauna.

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