

**On the Male and Female Genital Structures of  
*Phyllobius (Metaphyllobius) glaucus* (Scopoli, 1763)  
(Coleoptera: Curculionidae: Phyllobini) from Turkey<sup>1</sup>**

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**Abstract:** Several structures of the male genitalia (tegmen, parameres, manubrium, endophallus), and ninth abdominal sternite (spiculum gastrale) as well as the female genitalia (genital spicule and eight sternite, ovipositor, and spermatheca) of *Phyllobius (Metaphyllobius) glaucus* are described and illustrated for the first time as they are useful for separating *P. glaucus* from other congeners.

**Key Words:** Coleoptera, Curculionidae, *Phyllobius glaucus*, male and female genitalia

Species of the polyphagous weevil genus *Phyllobius* generally live on cultivated shrubs and trees, particularly those in the families Urticaceae, Betulaceae, Salicaceae, and Rosaceae (Pesarini 1980). Their larvae often feed on the roots and, upon reaching adulthood, the beetles are seen on the shoots (Dieckmann 1980, Ross 1963). Sometimes, both larvae and adults cause major economic damage, particularly when grazing on young plants. *Phyllobius (Metaphyllobius) glaucus* (Scopoli, 1763) thrives from plains to mountainous and even subalpine zones (Dieckmann 1980).



Figure 1. *Phyllobius glaucus*. Photo copyright 2005 J .K. Lindsey, <http://www.commanster.eu>. Used with permission.

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Structures used in copulation (Figure 2) and reproduction have widespread use for insect identification (Hoffmann 1950, 1954; Tuxen 1970; Pajni et al. 1977; Ter-Minasyan 1978; Pesarini 1980; Caldara 1985, 1990; Sert and Çağatay 1999; Sert 1997, 2006; Yunakov and Korotyaev 2007). The genitalia of *Phyllobius (Metaphyllobius) glaucus* has been partially illustrated by several authors (Angelov 1976, Pesarini 1980, Yunakov and Korotyaev 2007) although some structures, such as the tegmen, parameres, manubrium, endophallus, ninth abdominal sternite, and the female genitalia remain undescribed, as far as we know. Herein, we describe and illustrate those structures for the first time as they are useful for separating *P. glaucus* from other congeners (Figures 3 and 4).



Figure 2. Mating *Phyllobius glaucus* (Scopoli, 1763); female to the left, male to the right. Photo taken by Andreas Haselböck ([www.naturspaziergang.de](http://www.naturspaziergang.de)). Used with permission.

### Methods

*Phyllobius glaucus* beetles were collected on meadows from different localities of Yozgat Province (Central Anatolia of Turkey) in 2011. The specimens are deposited at the Ahi Evran University Zoology Museum Entomology (AUZM-Ent.). Identification was made based using the relevant literature (Angelov 1976, Dieckmann 1980, Hoffmann 1950, Pesarini 1980). Male and female genitalia were dissected following standard methods (Erbey and Candan 2010, Erbey et al. 2013). Observations were made using a stereomicroscope (Olympus SZX12 Photomicroscope at 40X). The classification proposed by Alonso-Zarazaga and Lyal (1999) is followed. Nomenclature follows Pajni et al. (1977), Sert (1998, 2006), Tuxen (1970), and Wanat (2007).

### Results

**Male genitalia:** Lateral view. Aedeagal tube curved medially, narrowing towards base; tegmen with parameres located at base of aedeagal tube; manubrium long and curved apically; aedeagal apodemes long and thin, widened basally; aedeagal apodemes clearly curved basally, endophallus spinose, as in Figure 3A. Dorsal view: aedeagal tube straight, narrowed apically, apex with a medial suture; tegmen and parameres resemble scissors; aedeagal tube strongly sclerotized laterally, medial is transparent; aedeagal apodemes distinct; endophallus expanded with strongly sclerotized spines (Figure 3B); ninth abdominal sternite long and thin, basally curved, with an apical fork-like projection, connecting to symmetrical crescent-shaped sclerites by a transparent membrane (Figure 3C).

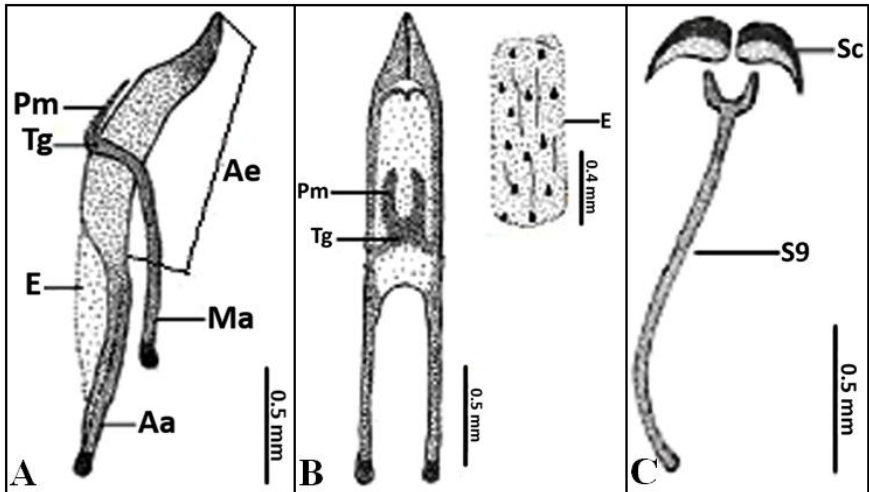


Figure 3. Male genitalia of *Phyllobius (Metaphyllobius) glaucus*. A. Aedeagus (lateral view): Ae, Aedeagal tube; Aa, Aedeagal apodemes; E, Endophallus; Ma: Manubrium; Tg, Tegmen; Pm, Parameres. B. Aedeagus (dorsal view): Tg, Tegmen; Pm, Parameres. C. Ninth abdominal sternite, S9, Sc: Eighth sternite.

**Female genitalia:** Genital spicule and eighth abdominal sternite as in Figure 4A. Genital spicule long and thin, less curved than in conspecific male, connected to a “V” shaped eighth abdominal sternite through a membrane; eighth abdominal sternite with long setae like “V” shape (Figure 4A); ovipositor tubular, translucent, membranous, sides membrane corrugated, apically divided into two, heavily sclerotized coxites (hemisternites) bearing long hairs (Figure 4B); spermatheca hook-like, cornu short, less narrowed apically, proximal bar short and thick, ramus is short, nodul long and distinctly curved apically, narrower than the other parts (Figure 4C).

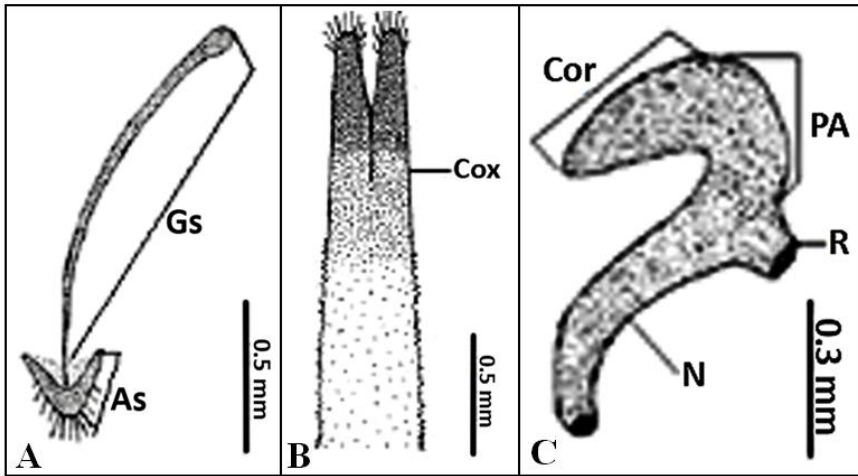


Figure 4. Female genitalia of *Phyllobius (Metaphyllobius) glaucus* female. A. Genital spicule (GS) and eighth abdominal sternite (As). B. Ovipositor: Cox., Coxite (Hemisternite). C. Spermatheca: Cor, Cornu; PA, Proximal bar; R, Ramus; N, Nodul.

### Discussion

Several authors use only the spermatheca for species identification but Pajni et al. (1977) and Sert (1997, 1998, 2000, 2006, 2007) have found that the genital spicule, eighth abdominal sternite, and ovipositor are useful to distinguish species of weevils. Additionally, the shape of the ninth sternite (spiculum gastrale) has been used in identification of some weevils (Clark 1990). The tegmen of *P. glaucus*, with its parameres and a manubrium, has a unique construction as compared to other species of *Phyllobius* as is true of the aedeagal apodemes and the spinose endophallus. Angelov (1976), Pesarini (1980), as well as Yunakov and Korotyayev (2007) have illustrated the aedeagal apex (dorsal and ventral) in *Phyllobius*. We think that systematically illustrating the tegmen, parameres, manubrium, spermatheca, genital spicule, eighth abdominal sternite, and ovipositor should be useful to students of the phylogeny of weevils.

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