

1-1-2009

Insects Associated with the Endemic Species *Heracleum platytaenium* Boiss. (Apiaceae) with New Records for the Turkish Fauna

ERHAN KOÇAK

MUSTAFA ÖZDEMİR

VLADIMIR V. ZLOBIN

Follow this and additional works at: <https://journals.tubitak.gov.tr/zoology>



Part of the [Zooology Commons](#)

Recommended Citation

KOÇAK, ERHAN; ÖZDEMİR, MUSTAFA; and ZLOBIN, VLADIMIR V. (2009) "Insects Associated with the Endemic Species *Heracleum platytaenium* Boiss. (Apiaceae) with New Records for the Turkish Fauna," *Turkish Journal of Zoology*. Vol. 33: No. 2, Article 16. <https://doi.org/10.3906/zoo-0806-23>
Available at: <https://journals.tubitak.gov.tr/zoology/vol33/iss2/16>

This Article is brought to you for free and open access by TÜBİTAK Academic Journals. It has been accepted for inclusion in Turkish Journal of Zoology by an authorized editor of TÜBİTAK Academic Journals. For more information, please contact academic.publications@tubitak.gov.tr.

Insects Associated with the Endemic Species *Heracleum platytaenium* Boiss. (Apiaceae) with New Records for the Turkish Fauna

Erhan KOÇAK^{1,*}, Mustafa ÖZDEMİR¹, Vladimir V. ZLOBIN²

¹Plant Protection Central Research Institute, 06172, Ankara - TURKEY

²Formerly Zoological Institute, Russian Academy of Sciences, St. Petersburg – RUSSIA

Received: 26.06.2008

Abstract: The perennial monocarpic endemic species *Heracleum platytaenium* Boiss. [Apiaceae (=Umbelliferae)] was collected with associated insects in Kızılcahamam (Ankara) between June and August in 2006-2007. Nine insects, namely Hemipterous *Graphosoma lineatum* (L.), *G. semipunctatum* (Fabricius) and *Anoraphis subterranea* (Walker), Coleopterous *Lixus nordmanni* Hochhuht, Lepidopterous *Aethes kasyi* Razowski, *Epinotia thapsiana* (Zeller) and *Epermenia chaerophyllella* (Goeze), Dipterous *Melanagromyza heracleana* Zlobin, and *Lasiambia albidipennis* (Strobl.) (Diptera) were determined on *H. platytaenium*. Among them, *M. heracleana* (Agromyzidae) is recorded from Turkey for the first time, and *Lasiambia albidipennis* (Chloropidae) is new as genus and species for the Turkish fauna. Additionally, *H. platytaenium* is recognized as new host for 5 species: *A. subterranea*, *A. kasyi*, *E. thapsiana*, *E. chaerophyllella*, and *M. heracleana*.

Key Words: Apiaceae, *Heracleum platytaenium*, Turkey, insect fauna, new records

Endemik *Heracleum platytaenium* Boiss. (Apiaceae) Üzerindeki Böcekler ve Türkiye Faunası için Yeni Kayıtlar

Özet: Çok yıllık, monokarpik ve Türkiye'ye endemik bir bitki türü olan *Heracleum platytaenium* Boiss. [Apiaceae (=Umbelliferae)] Ankara'nın Kızılcahamam ilçesinden 2006-2007 yılları Haziran-Ağustos döneminde toplanmıştır. Bitki üzerinde Hemiptera takımından *Graphosoma lineatum* (L.), *G. semipunctatum* (Fabricius) ve *Anoraphis subterranea* (Walker), Coleoptera takımından *Lixus nordmanni* Hochhuht, Lepidoptera takımından *Aethes kasyi* Razowski, *Epinotia thapsiana* (Zeller) ve *Epermenia chaerophyllella* (Goeze), Diptera takımından *Melanagromyza heracleana* Zlobin ve *Lasiambia albidipennis* (Strobl.) olmak üzere toplam dokuz böcek türü belirlenmiştir. Bu türler arasında *M. heracleana* (Agromyzidae) tür düzeyinde, *Lasiambia albidipennis* (Chloropidae) ise cins ve tür olarak Türkiye faunası için yeni kayıt durumundadır. Bunlara ek olarak, *H. platytaenium* bitkisi *A. subterranea*, *M. heracleana*, *A. kasyi*, *E. thapsiana*, ve *E. chaerophyllella* için yeni konukçu olarak belirlenmiştir.

Anahtar Sözcükler: Apiaceae, *Heracleum platytaenium*, Türkiye, böcek faunası, yeni kayıtlar

Heracleum platytaenium is a perennial herbaceous and monocarpic endemic species belonging to the Euxine phytogeographic region (Davis, 1972). Many studies on the relationship between *Heracleum* species and insects in the world, especially on their biology and the biological

control of giant hogweed, *H. mantegazianum* Sommier and Levier, and *H. sphondylium* L. with insect fauna in Europe, the Caucasus, and Canada were carried out (Bürki and Nentwig, 1997; Jakob et al., 1998; Seier et al., 2003; Hansen et al., 2006; Hattendorf et al., 2006;

* E-mail: erhan_kocak@hotmail.com

Karsholt, 2006; Page et al., 2006). In Turkey, results on the insects of *Heracleum* were reported by Özdemir et al. (2006) and Gültekin (2006, 2007). In the present study the insects associated with *H. platytaenium* were studied.

Heracleum platytaenium specimens were collected in the vicinity of Kızılcahamam (32°33' and 32°38'E, 40°33' and 40°30' N, approximately 1000 m a.s.l.) of Ankara, in June-August 2006-2007. The plants were brought to the laboratory with insects including the immature stage except for *Graphosoma* spp. (Hemiptera) and kept in plastic containers. Fresh food was provided as needed to rear the insects. The stem was kept separately from the umbel (seeds and flower stalks). Aphids were collected with a small soft brush and put into a tube with 70% alcohol. Preparation numbers (GP) of the moth genitalia are presented in the results.

The material examined, except for the common species *G. lineatum* and *G. semipunctatum*, was deposited in the collection of Plant Protection Central Research Institute, Ankara, Turkey and one-half of the flies, *M. heraclana* (1♀ and 1♂) and *L. albidipennis* (7♀♀ and 6♂♂), are kept in Zoological Institute, St. Petersburg, Russia.

In this study, insects on the endemic species *H. platytaenium* were as follows according to order and family:

Hemiptera

Graphosoma lineatum (Linnaeus, 1758)
(Pentatomidae)

Material examined. Very common, 5.VII–20.VIII.2007, Koçak leg and det.

Distribution. Palaearctic.

Graphosoma semipunctatum (Fabricius, 1775)

Material examined. Common, 5.VII–20.VIII.2007, Koçak leg and det.

Distribution. Palaearctic.

Anuraphis subterranea (Walker, 1852) (Aphididae)

Material examined. Numerous, 25.VI–15.VII.2007, Koçak leg. and Özdemir det.

Distribution. Palaearctic.

Remarks. This aphid was collected from the umbels of *H. platytaenium* that happened new host with this study.

Coleoptera

Lixus nordmanni Hochhuht, 1847 (Curculionidae)

Material examined. 4♂♂, 5♀♀, 20.VII–15.VIII.2007, Koçak leg. and Gültekin det.

Distribution. The Caucasus (Petri, 1904/1905), Turkey (Gültekin, 2006).

Remarks. *L. nordmanni* is recorded firstly from Ankara province.

Lepidoptera

Epermenia chaerophylllella (Goeze, 1783)
(Epermeniidae)

Material examined. 1♂, 1♀, 16.VII.2006, leg E. Koçak and det. M. Özdemir (Gp4480, Gp4481).

Distribution. Central Asia, Siberia, Western Europe (Fal'kovich, 1989).

Remarks. *E. chaerophylllella* is recorded from Ankara for the first time. It was recorded that the larvae was feeding on umbels of *H. platytaenium*.

Aethes kasyi Razowski, 1962 (Cochylidae)

Material examined. 2♂♂, 1♀, 16.VII.2006, leg E. Koçak and det. M. Özdemir (GP4508).

Distribution. Turkey, North Syria, Slovakia, Makedonia, Crimea, Iran (Razowski, 1970; Razowski, 2002).

Remarks. Larval host plant is recorded here for the first time.

Epinotia thapsiana (Zeller, 1847) (Tortricidae)

Material examined. 5♂♂, 1♀, 16.VII.2006, leg E. Koçak and det. M. Özdemir (GP4507).

Distribution. Canary Islands, southern and median belt of Europe to eastern European Russia, Transcaucasia, Turkey, Iran, southern Siberia, Kazakhstan, Tadzhikistan, Turkmenia, Korea (Razowski, 2003).

Remarks. *Epinotia thapsiana* is recorded from Ankara for the first time. *H. platytaenium* is new host for this species.

Diptera

Melanagromyza heracleana Zlobin, 2005
(Agromyzidae)

Material examined. 1♂, 2♀♀, 15.VI.2007, Koçak leg. and Zlobin det.

Distribution. Russia (Zlobin, 2005), Turkey (new record).

Remarks. The pupae of this species were collected in mid-June in old flower stem of the plant, and the imagos emerged in early July. This stem borer on *H. mantegazzianum* was described by Zlobin (2005) from the Caucasus.

Lasiambia albidipennis (Strobl, 1893) (Chloropidae)

Material examined. 14♂♂, 12♀♀, 14-19.VII.2007, Koçak leg. and Nartshuk det.

Distribution. Croatia, France, Italy, Russia, Czech Republic (Kubik, 2006), Turkey (new record).

Remarks. This is a little known and rare species. The larvae in young and old stems of the plant were collected in late June, and the imagos emerged in mid-July. This species is known as saprophage (Nartshuk, 2005). We

also found the larvae were nearby and on the decomposed stems, which were caused by some larvae of *L. nordmanni* and *M. heracleana*. Also the larvae were feeding inside of the dead bodies of *Lixus* sp. larvae or pupae.

Acknowledgement

The authors are grateful for identification of chloropid species to E.P. Nartshuk from Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia, for weevil to L. Gültekin from Plant Protection Department of Agricultural Faculty of Atatürk University, Erzurum, Turkey, and for aphid species to I. Özdemir from Plant Protection Central Research Institute, Ankara, Turkey.

References

- Bürki, C. and Nentwig, W. 1997. Comparison of herbivore insect communities of *Heracleum sphondylium* and *H. mantegazzianum* in Switzerland (Spermatophyta: Apiaceae). *Entomologia Generalis*. 22: 147-155.
- Davis, P.H. 1972. *Flora of Turkey and the East Aegean Islands*. vol. IV. Edinburgh University Press, Edinburgh.
- Falkovich, M.I. 1989. Epermeniidae. In: *Keys to the Insects of the European Part of the USSR*, (Ed. G.S. Medvedev). Volume IV, Part II: 567-583.
- Gültekin, L. 2006. Host plant range and biology of *Lixus nordmanni* Hochhuth (Coleoptera, Curculionidae) on hogweed L. in eastern Turkey. *Journal of Pest Science*. 79: 23-25.
- Gültekin, L. 2007. Oviposition niches and behavior of the genus *Lixus* Fabricius (Coleoptera: Curculionidae, Lixinae). *Entomologica Fennica*. 18: 74-81.
- Hansen, S.O., Hattendorf, J., Wittenberg, R., Reznik, S.Y., Nielsen, C., Ravn, H.P. and Nentwig, W. 2006. Phytophagous insects of giant hogweed *Heracleum mantegazzianum* (Apiaceae) in invaded areas of Europe and in its native area of the Caucasus. *European Journal of Entomology*. 103: 387-395.
- Hattendorf, J., Hansen, S.O., Reznik, S.Y. and Nentwig, W. 2006. Herbivore Impact Versus Host Size Preference: Endophagous Insects on *Heracleum mantegazzianum* in Its Native Range. *Environmental Entomology*. 35: 1013-1020.
- Jakob, B., Mandach, T.V. and Nentwig, W. 1998. Phytophage an *Heracleum mantegazzianum* und *Heracleum sphondylium*. *Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz*. 16: 223-230.
- Karsholt, O., Lvovsky, A.L. and Nielsen, C. 2006. A new species of *Agonopterix* feeding on giant hogweed (*Heracleum mantegazzianum*) in the Caucasus, with a discussion of the nomenclature of *A. heracliana* (Linnaeus) (Depressariidae). *Nota lepidoptera*. 28: 177-192.
- Kubik, S. 2006. New Records of Chloropidae (Diptera) from the Czech and Slovak Republics. *Entomofauna Carpathica*. 18: 31-32.
- Nartshuk, E.P. 2005. Chloropidae. In: *Fauna Europaea: Diptera, Flies*. (Ed.: T. Pape) *Fauna Europaea*, version 1.1.
- Özdemir, I., Toros, S., Kilincer, A.N. and Gürkan, M.O. 2006. A Survey of Aphididae (Homoptera) on wild plants in Ankara, Turkey. *Ekoloji* 58: 38-41.
- Page, N.A., Wall, R.E., Darbyshire, S.J. and Mulligan, G.A. 2006. The Biology of Invasive Alien Plants in Canada. 4. *Heracleum mantegazzianum* Sommier and Levier. *Canadian Journal of Plant Science*. 86: 569-589.
- Petri, K. 1904/1905. Bestimmungs Tabellen der europäischen Coleopteren, 55. Curculionoidea, *Lixus* F. Paskau. 1-62.
- Razowski, J. 1970. Cochylidae. In: *Microlepidoptera Palaearctica 3*. (Eds.: H. Amsel, F. Gregor and H. Reisser). Verlag Georg Fromme and Co, Wien, p. 356.
- Razowski, J. 2002. Tortricidae (Lepidoptera) of Europe. Vol 1 Tortricinae and Chlidanotinae. 247 pp. Frantisek Slamka, Bratislava.
- Razowski, J. 2003. Tortricidae (Lepidoptera) of Europe. Vol. 2, Olethreutinae. 301 pp. Frantisek Slamka, Bratislava.
- Seier, M., Wittenberg, R., Ellison, C.A., Djeddour D.H. and Evans, H.C. 2003. Surveys for natural enemies of giant hogweed (*Heracleum mantegazzianum*) in the Caucasus Region and assessment for their classical biological control potential in Europe. In: *Proceedings of the XI International Symposium on Biological Control of Weeds*. (Eds.: J.M. Cullen, D.T. Briese, D.J. Kritikos, W.M. Lonsdale, L. Morin and J.K. Scott). Canberra. CSIRO Entomology, Canberra, Australia. pp. 149-154.
- Zlobin, V.V. 2005. A new species of *Melanagromyza* feeding on giant hogweed in the Caucasus (Diptera: Agromyzidae). *Zoosystematica Rossica*. 14: 173-177.