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**Additions to the fauna of Chrysomelidae (Coleoptera)
from Hatila Valley National Park (Artvin, Turkey),
with notes on host plant preferences and zoogeographic evaluations**

**Дополнения к фауне Chrysomelidae (Coleoptera)
национального парка «Долина Хатилы» (Артвин, Турция)
с замечаниями о кормовых растениях
и зоогеографической оценкой**

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Key words: Coleoptera, Chrysomelidae, species composition, Hatila Valley National Park, Artvin, Turkey.

Ключевые слова: Coleoptera, Chrysomelidae, видовой состав, национальный парк «Долина Хатилы», Артвин, Турция.

Abstract. The first detailed data on species composition of leaf beetles of Hatila Valley National Park, Artvin, Turkey are presented. During the field surveys conducted in 2015, in total 49 species of Chrysomelidae from 26 genera belonging to 7 subfamilies were registered. Among them, 30 species are recorded for the first time from Artvin Province. The subfamily Galerucinae is the most diverse and includes 23 species in the park (18 – Alticini, 4 – Galerucini and 1 – Luperini), however two subfamilies, Criocerinae and Eumolpinae, are represented by only one species each. The genus *Cryptocephalus* Geoffrey, 1762 is the most diverse (7 species), followed by *Cassida* Linnaeus, 1758 (6), *Chrysolina* Motschulsky, 1860 (5), *Altica* Geoffrey, 1762 (4), *Longitarsus* Latreille, 1829 (4), *Phyllotreta* Chevrollet, 1836 (2) and *Batophila* Foudras, 1860 (2). The remaining genera are represented by only one species.

The brief information on activity periods, host plant preferences and distribution of each species collected from the area is given and discussed in detail. The results based on our material showed that Hatila Valley National Park has a low species composition in terms of leaf beetles and the faunal structure of leaf beetles was not as high as expected.

Резюме. Приведены первые подробные сведения о видовом составе листоедов национального парка «Долина Хатилы», провинция Артвин, Турция. Результаты наших исследований, проведенных в 2015 году, показали, что видовой состав листоедов национального парка «Долина Хатилы» характеризуется невысоким разнообразием: было зарегистрировано 49 видов Chrysomelidae из 26 родов, принадлежащих к 7 подсемействам. Среди них 30 видов впервые указаны для провинции Артвин. Наибольшим количеством видов (23) представлено подсемейство Galerucinae (18 – Alticini, 4 – Galerucini

и 1 – Luperini), наименьшим (по одному виду) – подсемейства Criocerinae и Eumolpinae. Род с самым большим количеством видов – *Cryptocephalus* Geoffrey, 1762 (7 видов), за ним следуют *Cassida* Linnaeus, 1758 (6 видов), *Chrysolina* Motschulsky, 1860 (5 видов), *Altica* Geoffrey, 1762 (4 вида), *Longitarsus* Latreille, 1829 (4 вида), *Phyllotreta* Chevrollet, 1836 (2 вида) и *Batophila* Foudras, 1860 (2 вида). Остальные роды представлены одним видом каждый.

Дана краткая информация о периодах активности жуков, кормовых растениях и распространении каждого вида.

Introduction

Hatila Valley National Park (HVNP) is located in Artvin Province in northeastern Turkey and is one of the most popular national parks in Turkey. It was declared a national park in 1994 due to unusual geomorphological structure and geology, which has created a distinctive landscape. The park covers an area of about 16944 hectare and represents all features of Colchic flora. The altitude of the area varies from 140 to 3241 m a.s.l. [Milliparklar, 2017]. The lower parts of the valley are dry and warm but the higher parts are cool and humid with snow cover in winter. The area is close to the Black Sea and has a Mediterranean climate with warm summers, cool winters and plentiful rainfall throughout the year. The valley is densely vegetated, especially in its middle and lower sections and therefore provides various habitats for a wide variety of plant and animal species [National Parks..., 2017].

Although the area is in European-Siberian flora region, plant species of Mediterranean flora can be seen at the lower parts by the help of microclimate formed by Çoruh valley. This situation leads to an increase in the biological

diversity of the valley [Milliparklar, 2017]. The park and its close environs are represented by 769 plant taxa belonging to 374 genera and 95 families [Eminağaoğlu, Anşin, 2003]. The forests in the park consist of both deciduous and coniferous tree species. These include sessile oak, eastern spruce, monumental spruce, fir, chesnut and linden, such as hornbeam, alder, beech, willow, birch and common aspen [Milliparklar, 2017].

Leaf beetles (Coleoptera: Chrysomelidae) is one of the most conspicuous groups of phytophagous beetles due to their food habits on the plants. Many species are quite host-specific, feeding only on a single plant species or on several closely related plants. However, others are generalists that feed on a wide variety of plants. Adult leaf beetles consume plants in a great variety of ways, but frequently by direct eating of the living foliage [Jolivet, Verma, 2002; Clark et al., 2004].

There is no work on the leaf beetle fauna of HVNP until now. Our knowledge on the beetle species in this park is limited to very scattered and incomplete collections. Therefore, it is necessary to determine the species of this group which is very closely related to the plants. The objectives of the present paper are to investigate the fauna and species composition, provide detailed distributional and some ecological data (host plant, phenology etc.) on the leaf beetles of HVNP.

Material and methods

Field surveys were conducted in May – September 2015. The sampling areas which are represented different habitat types in HVNP were selected and the samplings were performed in fine weather (at approximately 9:00 to 16:00 h). Adults were collected from various plants, shrubs and trees by means of sweep net and aspirator. Collected specimens were killed with ethyl acetate in poison bottles. The specimens were taken to the laboratory for dissection and identification. The prepared specimens were deposited at the Biology Department of Süleyman Demirel University (Isparta, Turkey). Plants showing feeding marks on the leaves by the adults were considered as a host plant. The species recorded for the first time in Artvin Province are given with the asterisk (*) in Table 1.

Identification was performed mainly based on the keys of Mohr [1966] and Warchałowski [2003, 2010]. The subfamilies and genera are listed according to the Catalogue of the Palaearctic Coleoptera [2010].

Subfamily Criocerinae

Oulema obscura (Stephens, 1831)

Material. 1♂, 1.09.2015.

Note. The specimen was collected from the vegetations on forest floor at 600 m elevation by sweep net and the host plant of the species could not be determined.

Distribution. A widespread and generally common species throughout the Palaearctic region [Bezděk, Schmitt, 2017]. According to Ekiz et al. [2013], in Turkey this species has been reported from Bolu, Karabük, Kayseri, Bayburt, Erzurum and Kars provinces until now. It is recorded for the first time from Artvin Province.

Subfamily Cassidinae

Cassida bella Falderman, 1837

Material. 2♂, 19.05.2015; 1♀, 20.06.2015; 9♂, 13♀, 2.07.2015; 1♀, 20.07.2015; 1♂, 21.08.2015; 1♀, 27.08.2015.

Note. This species was collected from *Mentha pulegium* L., which grows at 1600 m elevation.

Distribution. The species is known from the Caucasus (Armenia) and Turkey [Borowiec, 1999]. The species has been reported from Artvin before, and the other distribution areas in Turkey are İzmir, Sakarya, Düzce, Karabük, Kastamonu and Mersin provinces [Ekiz et al., 2013].

Cassida inquinata Brullé, 1832

Material. 3♂, 16.05.2015.

Note. The specimens were collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. Although the species is known from the Mediterranean region, the Caucasus and Turkmenistan, it is a very rare species in central Europe and known there from few records [Sekerka, 2010]. In Turkey, the species is reported from Çanakkale, İzmir, Muğla, Kırklareli, Tekirdağ, Balıkesir, Manisa, Bursa, Samsun, Giresun and Trabzon up to now [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Cassida prasina Illiger, 1798

Material. 1♀, 1.06.2015; 1♂, 2.06.2015; 1♂, 2♀, 10.06.2015; 1♀, 20.06.2015.

Note. The adult specimens were collected from a *Achillea* sp. belonging to Asteraceae, at 750 m elevation.

Distribution. This species has a wide distribution from the Western Palaearctic to West China [Borowiec, 1999]. According to Ekiz et al. [2013], it is a widely distributed species in almost all regions of Turkey. The species is recorded for the first time from Artvin Province.

Cassida rubiginosa Müller, 1776

Material. 1♂, 23.05.2015; 1♂, 2♀, 2.07.2015; 1♂, 8.07.2015.

Note. The adult individuals were collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. The species has a wide distribution in the Palaearctic region [Borowiec, 1999; Fuss et al., 2005; Świętojańska et al., 2013] and similarly in Turkey [Ekiz et al., 2013]. This species is recorded for the first time from Artvin Province.

Cassida vibex Linnaeus, 1767

Material. 1♂, 1♀, 1.06.2015; 2♂, 1♀, 2.07.2015; 1♂, 2♀, 21.08.2015; 1♂, 1♀, 22.08.2015; 1♂, 1.09.2015.

Note. The adults were collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. The species is widespread in the Palaearctic region [Borowiec, 1999; Warchałowski, 2003; Gruev, Tomov, 2007] and similarly in Turkey [Ekiz et al.,

Table 1. Leaf beetle species of Hatila Valley National Park: activity periods, altitude distribution, number of collected specimens and distribution in Turkey.

Таблица 1. Листоеды национального парка «Долина Хатилы»: периоды активности, высотное распределение, количество найденных особей и распространение в Турции.

| Species Вид | Activity period (months) / Период активности (месяцы) | Altitude distribution / Высотное распределение | Number of specimens / Количество экземпляров | Distribution in Turkey Распространение в Турции |
|--|---|---|---|--|
| CRIOCERINAE | | | | |
| Lemini | | | | |
| <i>Oulema obscura</i> * | September сентябрь | I | 1 | CAR, EAR, EBS, WBS |
| CASSIDINAE | | | | |
| <i>Cassida bella</i> | May – August май – август | III | 28 | AEG, MAR, MED, EBS, WBS |
| <i>C. inquinata</i> * | May май | I, II | 3 | AEG, CAR, MAR, CBS, EBS |
| <i>C. prasina</i> * | June июнь | II | 6 | AEG, CAR, EAR, SAR, MAR, MED, WBS, EBS |
| <i>C. rubiginosa</i> * | May, July май, июль | II | 5 | AEG, CAR, EAR, MAR, MED, WBS, CBS, EBS |
| <i>C. vibex</i> * | June – September июнь – сентябрь | II | 11 | AEG, CAR, MED, WBS, CBS, EBS |
| <i>C. viridis</i> * | May – August май – август | II | 11 | AEG, CAR, EAR, SAR, MAR, MED, WBS, CBS, EBS |
| <i>Hypocassida cornea</i> * | June июнь | I | 2 | EBS |
| CHRYSOMELINAE | | | | |
| Chrysomelini | | | | |
| <i>Chrysolina adzharica heinzi</i> | May – September май – сентябрь | II | 33 | EBS |
| <i>Ch. chalcites</i> | June июнь | II | 1 | AEG, CAR, SAR, MAR, MED, WBS, CBS, EBS |
| <i>Ch. coeruleans angelica</i> | July – September июль – сентябрь | III | 38 | AEG, EAR, SAR, MED, EBS |
| <i>Ch. herbacea</i> | May – September май – сентябрь | II, III | 75 | AEG, CAR, EAR, MAR, MED, WBS, CBS, EBS |
| <i>Ch. polita</i> | May, August май, август | I, II | 3 | CAR, EAR, SAR, MAR, MED, WBS, CBS, EBS |
| <i>Gastrophysa viridula</i> | September сентябрь | IV | 3 | EAR, EBS |
| <i>Leptinotarsa decemlineata</i> | June июнь | I, II | 7 | AEG, CAR, EAR, MAR, MED, WBS, CBS, EBS |
| <i>Phratora coeruleascens</i> * | May, August – September май, август – сентябрь | III | 54 | EAR, MED, EBS |
| Timarchini | | | | |
| <i>Timarcha hummeli</i> | August август | III | 1 | EBS |
| GALERUCINAE | | | | |
| Alticini | | | | |
| <i>Altica carduorum</i> | May – July, September май – июль, сентябрь | I | 38 | CAR, EAR, MAR, CBS, EBS |
| <i>A. impressicollis</i> | May – June, September май – июль, сентябрь | I | 14 | CAR, EAR, MAR, MED, CBS, EBS |
| <i>A. oleracea</i> * | May – September май – сентябрь | I | 59 | CAR, EAR, MAR, MED WBS, CBS, EBS |
| <i>A. quercetorum</i> * | May – June, August – September май – июль, август – сентябрь | I | 10 | AEG, MAR, MED, EBS |
| <i>Aphthona rugipennis</i> * | July июль | III | 4 | EAR, EBS |

Table 1 (continuation).
Таблица 1 (продолжение).

| Species Вид | Activity period (months) / Период активности (месяцы) | Altitude distribution / Высотное распределение | Number of specimens / Количество экземпляров | Distribution in Turkey Распространение в Турции |
|---------------------------------------|---|---|---|--|
| <i>Batophilafallax</i> | May – June, September май – июнь, сентябрь | III | 19 | CAR, EAR, MAR, MED, WBS, CBS, EBS |
| <i>B. rubi</i> * | May, August – September май, август – сентябрь | III | 16 | EBS |
| <i>Chaetocnema scheffleri</i> * | June июнь | III | 1 | AEG, EAR, CAR, MAR, MED, EBS |
| <i>Crepidodera aurea</i> * | May, July – September май, июль – сентябрь | III | 9 | CAR, EAR, MAR, MED, WBS, CBS, EBS |
| <i>Epitrix pubescens</i> * | May, September май, сентябрь | III | 3 | AEG, CAR, EAR, MAR, WBS, EBS |
| <i>Longitarsus anchusae</i> * | May, September май, сентябрь | III | 17 | EAR, MAR, MED, WBS, EBS |
| <i>L. aramaicus</i> * | May – June, August – September май – июнь, август – сентябрь | III | 20 | CAR, MED, EBS |
| <i>L. luridus</i> | May, July – September май, июль – сентябрь | III | 107 | CAR, EAR, MAR, MED, EBS |
| <i>L. nasturtii</i> * | July – August июль – август | III | 80 | AEG, MED, EBS |
| <i>Neocrepidodera ferruginea</i> * | June – July, September июнь – июль, сентябрь | III | 10 | CAR, EAR, MAR, MED, EBS |
| <i>Phyllotreta cruciferae</i> * | May май | III | 2 | AEG, CAR, EAR, MAR, MED, CBS, EBS |
| <i>P. undulata</i> * | June – July июнь – июль | III | 18 | CAR, EAR, MAR, EBS |
| <i>Psylliodes napi</i> * | May – June, August – September май – июнь, август – сентябрь | IV | 8 | AEG, CAR, EAR, MED, EBS |
| Galerucini | | | | |
| <i>Agelastica alni</i> | May – August май – август | II | 33 | AEG, CAR, EAR, MAR, MED, WBS, EBS |
| <i>Galeruca circassica</i> * | June, August – September июнь, август – сентябрь | IV | 32 | CAR, EAR, MAR, MED, WBS, CBS, EBS |
| <i>Lochmaea caprea</i> * | May, August май, август | IV | 11 | AEG, CAR, EAR, MAR, MED, CBS, EBS |
| <i>Xanthogaleruca luteola</i> * | May май | I | 1 | AEG, CAR, EAR, MAR, MED, WBS, CBS, EBS |
| Luperini | | | | |
| <i>Phyllobrotica elegans</i> * | June июнь | III | 1 | MAR, MED, WBS, EBS |
| CRYPTOCEPHALINAE | | | | |
| Clytrini | | | | |
| <i>Smaragdina vaulogeri</i> * | May – July май – июль | I | 39 | MED, SAR, EBS |
| Cryptocephalini | | | | |
| <i>Cryptocephalus transcaucasicus</i> | June – August июнь – август | III | 43 | AEG, CAR, EAR, MAR, MED, WBS, EBS |
| <i>C. duplicatus</i> | September сентябрь | III | 1 | AEG, CAR, EAR, SAR, MAR, MED, WBS, CBS, EBS |
| <i>C. elegantulus</i> * | June июнь | III | 4 | CAR, EBS |
| <i>C. moraei</i> | May – September май – сентябрь | III | 39 | AEG, CAR, EAR, SAR, MAR, MED, WBS, CBS, EBS |
| <i>C. ocellatus</i> | May – July, September май – июль, сентябрь | III | 4 | AEG, CAR, EAR, SAR, MAR, MED, WBS, CBS, EBS |
| <i>C. praticola</i> | June – August июнь – август | III | 57 | EAR, MAR, CBS, EBS |

Table 1 (completion).
Таблица 1 (окончание).

| Species Вид | Activity period (months) / Период активности (месяцы) | Altitude distribution / Высотное распределение | Number of specimens / Количество экземпляров | Distribution in Turkey Распространение в Турции |
|---------------------------|--|---|---|--|
| <i>C. sexpunctatus</i> * | May, September май, сентябрь | I | 3 | EAR, CBS, EBS |
| EUMOLPINAЕ | | | | |
| Bromiini | | | | |
| <i>Bromius obscurus</i> * | September сентябрь | III | 1 | MED, EBS |

Note. Altitude distribution (m): I – 400–700; II – 701–1100; III – 1101–1900; IV – 1901–2200. Distribution in Turkey: MAR – Marmara Region; AEG – Aegean Region; MED – Mediterranean Region; CAR – Central Anatolia Region; WBS – Western Black Sea Region; CBS – Central Black Sea Region; EBS – Eastern Black Sea Region; EAR – Eastern Anatolia Region; SAR – Southeast Anatolia Region.

Примечание. Высотное распределение (м): I – 400–700; II – 701–1100; III – 1101–1900; IV – 1901–2200. Распространение в Турции: MAR – область Мраморного моря; AEG – область Эгейского моря; MED – область Средиземного моря; CAR – Центральная Анатолия; WBS – западная область Черного моря; CBS – центральная область Черного моря; EBS – восточная область Черного моря; EAR – Восточная Анатолия; SAR – Юго-Восточная Анатолия.

2013]. It is known that this species has a distribution in western and central parts of Turkey up to now. It is recorded for the first time from Artvin Province.

Cassida viridis Linnaeus, 1758

Material. 1♀, 18.05.2015; 1♂, 1♀, 21.05.2015; 2♀, 10.06.2015; 1♂, 20.06.2015; 1♀, 2.07.2015; 2♂, 2♀, 21.08.2015.

Note. It is a common species in the studied area. The adult individuals were collected from *Mentha longifolia* (L.) Huds., which grows in moist areas in a stream bank at 765 m elevation.

Distribution. The species has a wide distribution in the Palaearctic region [Borowiec, 1999; Bordy, 2009] and similarly in Turkey. It is a common species in almost all regions of Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Hypocassida cornea (Marseul, 1868)

Material. 1♂, 1♀, 20.06.2015.

Note. The adult individuals were collected by sweeping from dried herbaceous vegetation at 450 m elevation and thus host plant of the species could not be detected.

Distribution. It is a Mediterranean species reaching southern Austria, Hungary and Slovakia [Sekerka, 2010]. Although the species has been reported from Turkey, any locality information has not been given for Turkey [Borowiec, Sekerka, 2010; Ekiz et al., 2013]. Locality data in Turkey are reported for the first time in this study.

Subfamily Chrysomelinae

Tribe Chrysomelini Latreille, 1802

Chrysolina adzharica heinzi Kippenberg, 2012

Material. 1♂, 18.05.2015; 1♂, 1♀, 21.05.2015; 8♂, 5♀, 10.06.2015; 8♂, 5♀, 2.07.2015; 1♂, 6.08.2015; 1♀, 21.08.2015; 1♂, 1♀, 1.09.2015.

Note. It is a common subspecies in the studied area. The adults were found while feeding on leaves of *Petasites hybridus* (L.) (Asteraceae), which grows in moist areas in a stream bank at 700 m elevation. The host plant of the subspecies is reported for the first time.

Distribution. The subspecies is known only from northeastern Turkey [Kippenberg, 2012; Özdikmen, 2014] and is restricted only by Artvin Province.

Chrysolina chalcites (Germar, 1823)

Material. 1♂, 1.06.2015.

Note. The specimen was collected from the vegetations on forest floor by sweep net and the host plant of the species could not be determined.

Distribution. The species has a wide distribution including areas such as the Southeastern Europe, the Caucasus (including the North Caucasus), the Near East, Asia Minor, Kazakhstan and Middle Asia [Gruev, Tomov, 1998; Bieńkowski, 2010]. In Turkey, the species has been reported from Amasya, İzmir, Denizli, Istanbul, Bursa, Sakarya, Bolu, Antalya, Konya, Mersin, Osmaniye, Sinop, Samsun, Gaziantep, Diyarbakır, Erzurum and Artvin provinces until now [Ekiz et al., 2013].

Chrysolina coeruleans angelica (Reiche et Saulcy, 1858)

Material. 8♂, 3♀, 2.07.2015; 4♂, 1♀, 21.08.2015; 1♀, 25.08.2015; 9♂, 11♀, 30.08.2015; 1♀, 1.09.2015.

Note. It is a common subspecies in HVNP. The adults were found while feeding on leaves of wild mint *Mentha longifolia*, which grows in moist areas in a stream bank at 1600 m elevation.

Distribution. The subspecies is known from Azerbaijan, Turkey, Syria, Central Asia [Aslan et al., 2003; Özdikmen, 2014] and Israel [Friedman, 2016]. According to Ekiz et al. [2013], in Turkey it has been recorded from İzmir, Antalya, Ankara, Mersin, Hatay, Kahramanmaraş, Erzincan, Erzurum, Artvin and Kars provinces.

Chrysolina herbacea (Duftschmid, 1825)

Material. 1♀, 23.05.2015; 12♂, 16♀, 10.06.2015; 7♂, 15♀, 2.07.2015; 6♂, 6♀, 21.08.2015; 1♂, 22.08.2015; 2♂, 25.08.2015; 1♂, 1♀, 30.08.2015; 7♀, 1.09.2015.

Note. It is one of the most abundant species in HVNP. The adults were found while feeding on leaves of *Mentha*

longifolia and *Urtica* sp., which grow in moist areas in stream banks at 750–1600 m elevations.

Distribution. It is an Eurasian species widely distributed in Europe, Asia Minor, Caucasian countries, North Iran and Central Asia [Rozner, Rozner, 2014]. The species has a very wide distribution in Turkey including almost all Anatolia [Ekiz et al., 2013]. It is probably the most widespread species of *Chrysolina* Motschulsky, 1860 in Turkey.

Chrysolina polita (Linnaeus, 1758)

Material. 1♂, 1♀, 21.05.2015; 1♂, 26.08.2015.

Note. The adults were collected from leaves of *Mentha* sp., which grows at 700 m elevation.

Distribution. It is an European-Siberian species, associated with the genus *Mentha* [Rozner, Rozner, 2008; Gavrilović et al., 2014]. This species has a widespread distribution in Turkey [Ekiz et al., 2013].

Gastrophysa viridula (De Geer, 1775)

Material. 1♂, 2♀, 1.09.2015.

Note. The specimens were collected from leaves of *Rumex alpinus* L., which grows at 2200 m elevation.

Distribution. The species is native to Europe and has a widespread distribution throughout Europe [Mohr, 1966]. Its range extends eastward into Turkey, the Caucasus Mountains and Central Asia [Maican, 2007]. It is known that this species is distributed only in Trabzon, Artvin and Erzurum provinces in the northeastern parts of Turkey [Ekiz et al., 2013].

Leptinotarsa decemlineata (Say, 1824)

Material. 1♂, 6♀, 10.06.2015.

Note. The adults were found while feeding on leaves of *Solanum tuberosum* L. in potato garden at 735 m elevation.

Distribution. It is a cosmopolitan species throughout the world [Winkelman, Debreuil, 2008] and similarly in Turkey [Ekiz et al., 2013].

Phratora coeruleascens Küster, 1848

= *Phratora horioni* (Mohr, 1966): Kippenberg, 2018: 20.

Material. 27♂, 18♀, 23.05.2015; 1♂, 1♀, 21.08.2015; 1♀, 22.08.2015; 3♂, 3♀, 1.09.2015.

Note. It is a common species in the studied area. The specimens were collected from leaves of *Salix cinerea* L. It was observed that the adults cause seriously damages to the host plant.

Distribution. It is known that this species has distribution in the Central and Western Caucasus and northeastern Turkey [Aslan et al., 2003]. It has been reported from Antalya, Trabzon and Bitlis provinces in Turkey until now [Ekiz et al., 2013; Medvedev, 2015]. But the record of the species in Antalya is questionable and probably it may be wrong. It is recorded for the first time from Artvin Province in this study.

Tribe Timarchini Motschulsky, 1860

Timarcha hummeli Faldermann, 1837

Material. 1♂, 26.08.2015.

Note. The specimen was found by chance on the ground at night.

Distribution. The species is distributed in Georgia, Armenia, Azerbaijan and Turkey [Aslan, Özbek, 1999; Kippenberg, 2010]. It is emphasized that the species is distributed only in Artvin Province in Turkey [Ekiz et al., 2013].

Subfamily Galerucinae

Tribe Alticini Spinola, 1844

Altica carduorum Guérin-Meneville, 1858

Material. 1♂, 1♀, 16.05.2015; 1♂, 2♀, 18.05.2015; 1♂, 3♀, 21.05.2015; 4♂, 8♀, 23.05.2015; 1♀, 2.06.2015; 3♀, 10.06.2015; 1♀, 20.06.2015; 1♀, 2.07.2015; 3♂, 8♀, 1.09.2015.

Note. It is a common species that has been found in large number in the studied area. The adult individuals were collected by sweeping from herbaceous vegetation at 400 m elevation and thus host plant of the species could not be determined.

Distribution. It is a Asiatic-European species introduced to North America [Baviera, Biondi, 2015]. It has a widespread distribution in Turkey [Ekiz et al., 2013].

Altica impressicollis (Reiche, 1862)

Material. 1♀, 23.05.2015; 4♂, 6♀, 4.06.2015; 1♂, 2♀, 1.09.2015.

Note. The adult individuals were collected relatively in small number by sweeping from herbaceous vegetation and thus host plant of the species could not be determined.

Distribution. It is a European-Mediterranean species [Baviera, Biondi, 2015]. According to Ekiz et al. [2013], in Turkey the species is known from Kocaeli, Sakarya, Bilecik, Isparta, Antalya, Samsun, Kayseri, Erzurum and Artvin provinces.

Altica oleracea (Linnaeus, 1758)

Material. 3♂, 5♀, 16.05.2015; 4♂, 6♀, 18.05.2015; 1♀, 19.05.2015; 4♂, 7♀, 26.05.2015; 1♀, 10.06.2015; 1♀, 20.06.2015; 1♀, 7.07.2015; 1♂, 2♀, 22.08.2015; 1♀, 27.08.2015; 1♀, 30.08.2015; 9♂, 12♀, 1.09.2015.

Note. It is one of the most common species in the park. The adults were collected by sweeping from the herbaceous vegetations growing in moist areas in stream banks at 500 m elevations and thus host plant of the species could not be determined.

Distribution. It is a polyphagous species with wide distribution along the Palaearctic [Baviera, Biondi, 2015] and widespread in Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Altica quercetorum Foudras, 1860

Material. 1♂, 2♀, 23.05.2015; 1♀, 10.06.2015; 2♀, 21.08.2015; 1♂, 3♀, 1.09.2015.

Note. The adults were collected relatively in small number by sweeping from the herbaceous vegetations in meadows at 400 m elevation and thus host plant of the species could not be determined.

Distribution. Although it is mainly European species, it is also known from Asia, including Georgia, Armenia, Russia (Dagestan), Azerbaijan and Iran [Gruev, Döberl, 1997]. This species has been reported from İzmir, İstanbul,

Isparta, Antalya, and Osmaniye provinces of Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Aphthona rugipennis Oglobin, 1926

Material. 4♀, 8.07.2015.

Note. The adults were collected from Euphorbia sp.

Distribution. This species is known from Central Europe, Czech Republic, Slovakia, Hungaria, Ukraine, the Caucasus (Krasnodar Region of Russia; Georgia and Armenia), Kazakhstan, Uzbekistan [Bergeal, Čížek, 2003]. The species has a limited distribution in Turkey and has been reported only from Erzurum up to now [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Batophila fallax Weise, 1888

Material. 1♂, 1♀, 19.05.2015; 1♀, 20.06.2015; 7♂, 9♀, 1.09.2015.

Note. The adults were collected relatively in small number by sweeping from herbaceous vegetation on the forest floor and thus host plant of the species could not be detected.

Distribution. It is mainly a Pontic species [Rozner, Rozner, 2008]. In Turkey, this species has been reported from Sakarya, Bolu, Eskişehir, Isparta, Ordu, Giresun, Rize, Artvin and Erzurum provinces [Ekiz et al., 2013].

Batophila rubi (Paykull, 1799)

Material. 1♂, 1♀, 19.05.2015; 2♂, 3♀, 23.08.2015; 4♂, 5♀, 1.09.2015.

Note. The adults were collected relatively in small number from herbaceous vegetation on the forest floor and thus host plant of the species could not be detected.

Distribution. It is a common species with wide distribution in Europe and the Caucasus [Rozner, Rozner, 2008; Bukejs, 2009a]. Although the species is also known from Turkey, it has been given no data on locality in Turkey [Borowiec, 2017]. Locality data in Turkey are reported for the first time in this study.

Chaetocnema scheffleri (Kutschera, 1864)

Material. 1♀, 4.06.2015.

Note. The specimen was collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. It is a Mediterranean species with distribution in southern part of Europe, in Algeria, Tunisia, Asia Minor, Caucasian countries and Near East [Rozner, Rozner, 2008]. In Turkey, the species has been reported from İstanbul, İzmir, Isparta, Burdur, Antalya, Ankara, Konya and Erzurum provinces [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Crepidodera aurea (Geoffroy, 1785)

Material. 1♀, 26.05.2015; 3♂, 1♀, 2.07.2015; 1♀, 23.08.2015; 3♀, 1.09.2015.

Note. Although this species has been collected from herbaceous vegetation growing on the lower part of the poplars, it probably occurs on Populus.

Distribution. It is an Asiatic-European species [Rozner, Rozner, 2008; Baviera, Biondi, 2015]. In Turkey, this species has been reported from İstanbul, Bartın, Eskişehir, Ankara, Hatay, Ordu and Erzurum provinces [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Epitrix pubescens (Koch, 1803)

Material. 1♀, 21.05.2015; 2♀, 1.09.2015.

Note. The specimens were collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. It is an European-Asiatic species, associated with Solanaceae [D'Alessandro, 2004; Rozner, Rozner, 2008]. This species has a wide distribution in the Palaearctic and also has been introduced to North America recently [Bieńkowski, Orlova-Bienkowskaja, 2016]. It has been reported from Kırklareli, İstanbul, Balıkesir, Denizli, Bilecik, Eskişehir, Düzce and Erzurum provinces of Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Longitarsus anchusae (Paykull 1799)

Material. 2♀, 18.05.2015; 6♂, 9♀, 1.09.2015.

Note. The specimens were collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. It is an Asiatic-European species, associated with Boraginaceae [Rozner, Rozner, 2008; Baviera, Biondi, 2015]. It has been reported from Edirne, Isparta, Antalya, Mersin, Adana, Kastamonu, Erzurum, Ardahan and Kars provinces in Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Longitarsus aramaicus Leonardi, 1979

Material. 1♀, 21.05.2015; 2♀, 18.06.2015; 6♂, 8♀, 21.08.2015; 1♂, 1♀, 22.08.2015; 1♀, 1.09.2015.

Note. The specimens were collected from herbaceous vegetation by sweeping and thus host plant of the species could not be detected.

Distribution. It is a Middle Eastern species. It is known from Turkey, Cyprus, Israel, Palestine and Jordan [Gruev, Döberl, 1997; Döberl, 2010]. In Turkey it has been reported from Ankara, Isparta and Antalya provinces [Ekiz et al., 2013]. Although this species has been reported from the inner Anatolia and the Mediterranean region of Turkey until now, it is recorded for the first time from northern Turkey (Artvin Province).

Longitarsus luridus (Scopoli 1763)

Material. 1♂, 21.05.2015; 1♀, 2.07.2015; 3♂, 1♀, 7.07.2015; 1♂, 3♀, 21.08.2015; 20♂, 37♀, 23.08.2015; 1♂, 25.08.2015; 1♂, 27.08.2015; 1♂, 30.08.2015; 14♂, 23♀, 1.09.2015.

Note. It is one of the most abundant species in the park. The adults were collected by sweeping from the herbaceous vegetations and thus host plant of the species could not be determined.

Distribution. It is a polyphagous species with wide distribution along the Palaearctic [D'Alessandro, 2004;

Rozner, Rozner, 2008, 2014; Baviera, Biondi, 2015]. Similarly, it is a very common and widespread species in Turkey [Ekiz et al., 2013].

Longitarsus nasturtii Fabricius, 1792

Material. 21♂, 41♀, 7.07.2015; 5♂, 8♀, 22.08.2015; 2♂, 3♀, 25.08.2015.

Note. The adults were collected by sweeping from the herbaceous vegetations and thus host plant of the species could not be determined.

Distribution. It is an European-Asiatic species [Gruev, 2004]. Although this species has been reported from Isparta and İzmir up to now [Ekiz et al., 2013], it is recorded for the first time from northern Turkey (Artvin Province).

Neocrepidodera ferruginea (Scopoli, 1763)

Material. 1♂, 20.06.2015; 4♀, 2.07.2015; 1♀, 7.07.2015; 1♂, 3♀, 1.09.2015.

Note. The adults were collected by sweeping from the herbaceous vegetations and thus host plant of the species could not be determined.

Distribution. The range of the species includes the Azores, all of Europe, except Iceland, the European part of Russia, Turkey and Iran [Döberl, 2010], and the species also has been reported from Canada (Quebec and Ontario) recently [LeSage, Savard, 2012]. The species is known from Sakarya, Isparta, Antalya, Ankara, Konya, Kayseri and Erzurum provinces of Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Phyllotreta cruciferae (Goeze, 1777)

Material. 1♀, 16.05.2015; 1♀, 26.05.2015.

Note. Although this species has been collected from herbaceous vegetation by sweeping, it mainly feeds on various plants belonging to the Brassicaceae family.

Distribution. It has a widespread distribution in the Palaearctic region, especially in Europe [Baviera, Biondi, 2015]. The species is very common and widespread in Turkey [Ekiz et al., 2013]. It is recorded for the first time from Artvin Province.

Phyllotreta undulata (Kutschera, 1860)

Material. 4♂, 8♀, 10.06.2015; 2♂, 4♀, 2.07.2015.

Note. Specimens were collected relatively in small number from herbaceous vegetation by sweeping and thus host plant of the species could not be determined.

Distribution. It is a very common Palaearctic species, introduced to North America and Australia [D'Alessandro, 2004; Rozner, Rozner, 2008; Baviera, Biondi, 2015]. It has been reported from İstanbul, Bilecik, Eskişehir and Erzurum provinces of Turkey [Ekiz et al., 2013] and is recorded for the first time from Artvin Province.

Psylliodes napi (Fabricius, 1792)

Material. 1♀, 26.05.2015; 3♂, 2♀, 18.06.2015; 1♀, 25.08.2015; 1♀, 1.09.2015.

Note. The species has been collected relatively in small number in the studied area at 1900 m elevation from herbaceous vegetation by sweeping and thus host plant could not be determined.

Distribution. It is a Palaearctic species, widely distributed in almost all Europe, North Africa, Asia Minor, the Caucasian countries, Central Asia [Rozner, Rozner, 2013, 2014]. This species is also known from North America [Clark et al., 2004]. Its range in Turkey includes Manisa, Isparta, Antalya, Ankara, Kayseri, Adana and Erzurum provinces [Ekiz et al., 2013], and it is recorded for the first time from Artvin Province.

Tribe Galerucini Latreille, 1802

Agelastica alni (Linnaeus, 1758)

Material. 6♂, 15♀, 18.05.2015; 1♂, 4♀, 24.05.2015; 2♀, 26.05.2015; 1♂, 10.06.2015; 1♀, 2.07.2015; 2♂, 1♀, 30.08.2015.

Note. The adults were collected from leaves of *Alnus glutinosa* (L.), which grows on the stream banks at 1100 m elevation. It was observed that they cause seriously damages to the host plant.

Distribution. This species has a wide distribution from Ireland and South Scandinavia to the Caucasus, Asia Minor and Iran [Beenen, 2010]. It is mainly a Palaearctic species and is also known from North America [Clark et al., 2004]. Similarly, it is a very common and widespread species in Turkey [Ekiz et al., 2013].

Galeruca circassica Reitter, 1899

Material. 3♂, 4.06.2015; 2♀, 10.06.2015; 2♂, 20.06.2015; 6♂, 9♀, 22.08.2015; 2♂, 8♀, 1.09.2015.

Note. The adults were collected from *Centaurea salicifolia* Bieb. (Asteraceae), which grows at 1900 m elevation.

Distribution. It is an endemic species to the Caucasus, distributed in the coastal regions of the Black Sea, in Turkey, Georgia and Armenia [Beenen, 2010]. This species has been reported from Çanakkale, Antalya, Ankara, Kastamonu, Tokat, Sivas, Bayburt, Erzurum, Ardahan and Hakkari provinces of Turkey [Ekiz et al., 2013] and is recorded for the first time from Artvin Province.

Lochmaea caprea (Linnaeus, 1758)

Material. 2♂, 3♀, 23.05.2015; 1♂, 5♀, 21.08.2015.

Note. The adults were collected from willow in the moist areas.

Distribution. It is very common and widely distributed species in Europe. Besides, it is known from the Caucasus, Asia Minor, Kazakhstan, Siberia, Russian Far East, China, Korean Peninsula, Japan [Bukejs, 2009b; Beenen, 2010]. In Turkey, this species has been reported from Çanakkale, Manisa, İstanbul, Eskişehir, Isparta, Ankara, Tokat and Erzurum provinces [Ekiz et al., 2013] and is recorded for the first time from Artvin Province.

Xanthogaleruca luteola (Müller, 1766)

Material. 1♀, 18.05.2015.

Note. The specimen was collected from herbaceous vegetations by sweep net.

Distribution. The species is native to Europe and was accidentally introduced to North America and Australia. It is now widespread, and a serious pest in Australia and parts of North America [Encyclopedia..., 2017]. Its distribution in the Palaearctic extends from Portugal to Iran and Middle Asia; Algeria and Morocco [Beenen, 2010]. Similarly, it is a very common and widespread species in Turkey [Ekiz et al., 2013] and is recorded for the first time from Artvin Province in this study.

Tribe Luperini Gistel, 1848

Phyllobrotica elegans Kraatz, 1866

Material. 1♀, 20.06.2015.

Note. The specimen has been collected from herbaceous vegetation by sweeping and thus host plant of the species could not be determined.

Distribution. It is mainly a species with the Caucasus, Anatolia and Middle East distribution. This species is known from Ukraine, Moldova, Bulgaria, Russia, Georgia, Armenia, Azerbaijan, Turkey, Syria, Lebanon and Israel [Bezděk, 2010]. It has been reported from İstanbul, Bursa, Bolu, Isparta, İçel, Osmaniye and Erzurum provinces of Turkey [Ekiz et al., 2013] and is recorded for the first time from Artvin Province.

Subfamily Cryptocephalinae

Tribe Clytrini Kirby, 1837

Smaragdina vaulogerii (Pic, 1894)

Material. 1♀, 18.05.2015; 1♀, 1.06.2015; 1♂, 2.06.2015; 15♂, 17♀, 20.06.2015; 2♂, 2♀, 2.07.2015.

Note. The adults were collected from *Dorycnium graecum* (L.) Ser. (Fabaceae), which grows at 450 m elevation. However, it could not be determined any clue whether the specimens feed on this plant or not.

Distribution. This species has a limited distribution and is known only from Turkey, Syria and Iran [Bezděk, Regalin, 2015]. It is known from Isparta, Mersin, Osmaniye, Hatay and Gaziantep provinces, located in the southern parts of Turkey [Ekiz et al., 2013]. Also, it has been recorded from Muş Province recently [Medvedev, 2015]. Although it has generally been reported from the Mediterranean region of Turkey until now, it is recorded for the first time in northern Turkey (Artvin Province).

Tribe Cryptocephalini Gyllenhal, 1813

Cryptocephalus transcaucasicus Jakopson, 1898

Material. 4♂, 8♀, 20.06.2015; 9♂, 7♀, 2.07.2015; 8♂, 7♀, 25.08.2015.

Note. The adults were collected from *Trifolium* sp. (Fabaceae) and *Hypericum* sp. (Hypericaceae), which grow at 1600 m elevation.

Distribution. It has a wide distribution area including Switzerland, Italy, Austria, Poland, Slovakia, Hungary, Slovenia, Bosnia and Herzegovina, Montenegro, Albania, Macedonia, Serbia, Romania, Moldavia, Bulgaria, Greece, Azerbaijan, European Russia, Georgia, Armenia, Turkey, Jordan, Iran [Sassi, 2014]. Similarly, it is a common and widespread species especially in northern Turkey [Ekiz et al., 2013].

Cryptocephalus duplicatus Suffrian, 1847

Material. 1♂, 1.09.2015.

Note. The specimen has been collected from herbaceous vegetation by sweeping and thus host plant of the species could not be determined.

Distribution. This species is known from the Balkans, Turkey, Israel and the Caucasus [Gruev, 2004, 2005]. It has a common and widespread distribution in almost every part of Turkey [Ekiz et al., 2013].

Cryptocephalus elegantulus Gravenhorst, 1807

Material. 2♂, 2♀, 20.06.2015.

Note. The specimens have been collected from herbaceous vegetation by sweeping and thus host plant of the species could not be determined.

Distribution. It is an European-Asiatic species, known from Europe, Asia Minor, Kazakhstan, Middle Asia, Siberia, Mongolia, Korea [Gruev, 2006]. Its distribution in Turkey is very limited and only known from Konya, Niğde and Giresun provinces [Ekiz et al., 2013] and the species is recorded for the first time from Artvin Province in this study.

Cryptocephalus moraei (Linnaeus, 1758)

Material. 1♂, 23.05.2015; 5♂, 3♀, 20.06.2015; 6♂, 13♀, 2.07.2015; 1♂, 1♀, 7.07.2015; 2♂, 2♀, 21.08.2015; 1♀, 22.08.2015; 3♂, 1♀, 1.09.2015.

Note. The adults were collected relatively in large number from *Hypericum perforatum* L. (Hypericaceae), which grows at 1600 m elevation.

Distribution. It is a common Eurasiatic species [Rozner, Rozner, 2008], distributed in all Europe, the Caucasus, Turkey and West Siberia [Gruev, Tomov, 1998, 2007]. Similarly, it is commonly found in almost every region of Turkey [Ekiz et al., 2013].

Cryptocephalus ocellatus Drapiez, 1819

Material. 1♀, 21.05.2015; 1♀, 20.06.2015; 1♂, 2.07.2015; 1♀, 1.09.2015.

Note. The specimens have been collected from herbaceous vegetation by sweeping and thus host plant of the species could not be determined.

Distribution. The species is known from western parts of Europe, the Caucasus, Turkey, Iran, Kazakhstan and Siberia [Gruev, 2004]. It has a widespread distribution in almost all Turkey [Ekiz et al., 2013].

Cryptocephalus praticola Weise, 1889

Material. 8♂, 12♀, 20.06.2015; 25♂, 11♀, 2.07.2015; 1♂, 21.08.2015.

Note. The specimens have been collected from herbaceous vegetation by sweeping and thus host plant of the species could not be determined.

Distribution. This species is known from Romania, the European part of Russia (the regions adjacent to the Black Sea), Georgia, Armenia, Azerbaijan, and the northern parts of Turkey [Sassi, 2014]. In Turkey, its range includes Kırklareli, Samsun, Rize, Artvin, Erzurum and Kars provinces [Ekiz et al., 2013].

Cryptocephalus sexpunctatus (Linnaeus, 1758)

Material. 1♀, 18.05.2015; 2♀, 1.09.2015.

Note. The specimens have been collected from herbaceous vegetation by sweeping in stream bank at 400 m elevation and thus host plant of the species could not be determined.

Distribution. The species is known to occur over the whole of the Palaearctic region, from England, East France, North Italy and the basin of Danube to Siberia, Japan [Gruev, 2004]. Its distribution in Turkey is very limited, and the species is only known from Tokat and Erzurum provinces [Ekiz et al., 2013] and is recorded for the first time from Artvin Province in this study.

Subfamily Eumolpinae
Tribe Bromiini Baly, 1865

Bromius obscurus (Linnaeus, 1758)

Material. 1♀, 1.09.2015.

Note. The specimen has been collected from herbaceous vegetation by sweeping in stream bank at 1600 m elevation and thus host plant of the species could not be determined.

Distribution. It is a widespread Holarctic species [Rozner, Rozner, 2008]. It seems that the species is rather common in Europe and North America [An et al., 2014]. However, this species shows a very limited distribution in Turkey and only known from Osmaniye up to now [Ekiz et al., 2013] and is recorded for the first time from Artvin Province in this study.

Results

Faunistic composition of leaf beetles of HVNP. In total 49 leaf beetle species from 26 genera representing 7 subfamilies were collected from HVNP during May – September 2015 (Table 1). It was found that the subfamily Galerucinae has the largest number of species and is represented by 23 species (18 – Alticini, 4 – Galerucini and 1 – Luperini) in the park, however the Criocerinae and Eumolpinae subfamilies are represented by only one species each. The genus with the highest number of species was *Cryptocephalus* Geoffrey, 1762 (7 species),

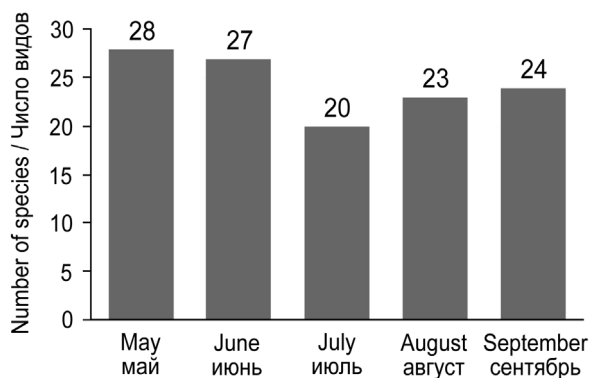


Fig. 1. Species numbers by months in 2015.
Рис. 1. Число видов по месяцам в 2015 году.

followed by *Cassida* Linnaeus, 1758 (6), *Chrysolina* (5), *Altica* Geoffrey, 1762 (4), *Longitarsus* Latreille, 1829 (4), *Phyllotreta* Chevrolat, 1836 (2) and *Batophila* Foudras, 1860 (2). The remaining genera are represented by only one species.

Phenologic properties of leaf beetles of HVNP. The highest number of species (28) was collected in May and the least (20) in July (Fig. 1). It was found that the species with the longest activity period are *Chrysolina adzharica heinzi*, *Ch. coeruleans angelica*, *Ch. herbacea*, *Altica oleracea*, *Cryptocephalus aureolus* and *C. praticola*, collected from May to September (Table 1). This results indicate that some of the most abundant species in the area have the longest activity.

Host plant preferences of leaf beetles of HVNP. It was observed that the leaf beetles are mainly associated with various herbaceous vegetations belonging to Lamiaceae, Asteraceae, Fabaceae, Hypericaceae and Polygonaceae, and also the woody vegetations of Salicaceae, Fagaceae and Betulaceae. The host plant of 16 species collected in the studied area were precisely determined. Among them, the host plant of *Chrysolina adzharica heinzi*, which is described recently, is reported for the first time in this study and thus were contributed to the information about the host plant of the subspecies. Also, it was found that the species belonging to the genus *Mentha*, which grow on the edge of the stream, were the most preferred host plants by five leaf beetle species. While the host plants of 16 leaf beetle species were precisely detected, host plants of the remaining species were not identified.

Zoogeographical composition of leaf beetles of HVNP. It was determined that the leaf beetles collected from HVNP are primarily associated with the fauna of two major areas: Europe and Central Asia. Also, it was found that a large part of the species obtained in the study are widely distributed species especially in Europe. Other species are distributed across the Caucasus, Anatolia and Middle East (Table 1).

The results indicate that numerous species collected during this study typically occur in central and southern parts of Europe and the Mediterranean region. Also, four species with the Caucasian and northern Anatolian distribution were found in the area (*Cassida bella*, *Phratora coeruleascens*, *Timarcha hummeli* and *Galeruca circassica*); two species with Middle Eastern distribution (*Longitarsus aramaicus* and *Smaragdina vaulogeri*); only one species with Pontic distribution (*Batophila fallax*).

So far, the leaf beetles of Hatila Valley National Park has not been systematically studied, especially lacking knowledge about detailed fauna and species composition, activity period, host plant preference and zoogeographic composition information. This paper is the first detailed study on the species composition and some ecological features of leaf beetles in HVNP.

In the study presented here, 49 species in 26 genera and 7 subfamilies (982 specimens) were recorded. It was observed that many of the species found in the field are quite widespread and common species in Turkey. The others (8 species) have a relatively narrow distribution area or are known only from this region.

Results presented here establish baseline data for faunistic composition and some ecological characteristics of leaf beetles of HVNP and can serve as a reference study for future work and can offer supporting data for future research.

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References

- An S., Hong Ch.-K., Kim S., Lee S., Cho S. 2014. *Aoria rufotestacea* Fairmaire (Coleoptera: Chrysomelidae) long been confused as *Bromius obscurus* (Linnaeus) in Korea. *Entomological Research*. 44(2): 80–85. DOI: 10.1111/1748-5967.12052
- Aslan İ., Özbek H. 1999. Erzurum, Erzincan ve Artvin İlleri Chrysomelinae (Coleoptera, Chrysomelidae) Alt Familyası Üzerine Faunistik ve Sistematiği Bir Araştırma. *Turkish Journal of Zoology*. 23: 751–767.
- Aslan İ., Gruev B., Özbek H. 2003. A preliminary review of the subfamily Chrysomelinae (Coleoptera, Chrysomelidae) of Turkey. *Linzer Biologische Beiträge*. 35(1): 581–605.
- Baviera C., Biondi M. 2015. The Alticinae (Coleoptera: Chrysomelidae, Galerucinae) of Sicily: recent records and updated checklist. *AAPP Physical, Mathematical, and Natural Sciences*. 93(2): 1–50. DOI: 10.1478/AAPP932A2
- Beenen R. 2010. Galerucinae. In: Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea. (I. Löbl, A. Smetana eds). Stenstrup: Apollo Books: 443–491.
- Bergeal M., Čížek P. 2003. A propos des répartitions d'*Aphthona aeneomicans* Allard et d'*Aphthona rugipennis* Oglögin (Chrysomelidae, Alticinae). *Nouvelle Revue d'Entomologie (N. S.)*. 20(2): 192–194.
- Bezděk J. 2010. *Phyllobrotica malinka* sp. nov. from Turkey and Iran and a review of allied species (Coleoptera: Chrysomelidae: Galerucinae). *Acta Entomologica Musei Nationalis Pragae*. 50(2): 563–575.
- Bezděk J., Regalin R. 2015. Identity of species-group taxa of the Western Palaearctic Clytrini (Coleoptera: Chrysomelidae) described by Maurice Pic and Louis Kocher. *Acta Entomologica Musei Nationalis Pragae*. 55(Suppl.): 1–114.
- Bezděk J., Schmitt M. 2017. Subfamily Criocerinae in Löbl, I. & Smetana, A. (eds.) Catalogue of Palaearctic Coleoptera vol. 6, Corrigenda et Addenda. *Entomologische Blätter und Coleoptera*. 113(2): 113–135.
- Bieńkowski A.O. 2010. Review of the leaf-beetle genus *Chrysolina* Motschulsky (Coleoptera, Chrysomelidae) from Russia and European countries of the former USSR: I. A Key to species with developed hind wings. *Entomological Review*. 90(7): 885–902. DOI: 10.1134/S0013873810070079
- Bieńkowski A.O., Orlova-Bienkowskaja M.J. 2016. Key to Holarctic species of *Epitrix* flea beetles (Coleoptera: Chrysomelidae: Galerucinae: Alticinae) with review of their distribution, host plants and history of invasions. *Zootaxa*. 4175(5): 401–435. DOI: 10.11646/zootaxa.4175.5.1
- Bordy B. 2009. Faune de France, Vol. 85: Coléoptères Chrysomelidae 3. Hispinae et Cassidinae. Paris: Fédération Française des Sociétés de Sciences Naturelles. 260 p.
- Borowiec L. 1999. A world catalogue of the Cassidinae (Coleoptera: Chrysomelidae). Wrocław: Biologica Silesiae. 476 p.
- Borowiec L. 2017. European Chrysomelidae. Available at: <http://culex.biol.uni.wroc.pl/cassidae/European%20Chrysomelidae/batophila%20rubi.htm> (accessed 25 May 2017).
- Borowiec L., Sekerka L. 2010. Cassidinae. In: Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea. (I. Löbl, A. Smetana eds). Stenstrup: Apollo Books: 368–390.
- Bukejs A. 2009a. New data on little-known flea beetles (Coleoptera: Chrysomelidae: Alticinae) in the fauna of Latvia. *Baltic Journal of Coleopterology*. 9(2): 161–175.
- Bukejs A. 2009b. Review of Leaf-Beetles Subfamily Galerucinae (Coleoptera: Chrysomelidae) of the Latvian Fauna. *Acta Biologica Universitatis Daugavpiliensis*. 9(2): 197–220.
- Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea. (I. Löbl, A. Smetana eds). 2010. Stenstrup: Apollo Books. 924 p.
- Clark S.M., LeDoux D.G., Seeno T.N., Riley E.G., Gilbert A.J., Sullivan J.M. 2004. Host Plants of Leaf Beetle Species Occurring in the United States and Canada (Coleoptera: Orsodacnidae, Megalopodidae, Chrysomelidae exclusive of Bruchinae). The Coleopterists Society, Special Publication 2. 602 p.
- D'Alessandro P. 2004. 9. Coleoptera, CHRYSOMELIDAE. In: Invertebrati Di Una Foresta Della Pianura Padana Bosco Della Fontana, Secondo Contributo – Conservazione Habitat Invertebrati. 3. Verona: 261–262.
- Döberl M. 2010. Alticinae. In: Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea. (I. Löbl, A. Smetana eds). Stenstrup: Apollo Books: 491–563.
- Ekiz A.N., Şen İ., Aslan E.G., Gök A. 2013. Checklist of leaf beetles (Coleoptera: Chrysomelidae) of Turkey, excluding Bruchinae. *Journal of Natural History*. 47: 2213–2287. DOI: 10.1080/00222933.2012.763069
- Eminagaoglu Ö., Anşın R. 2003. The Flora of Hatila Valley National Park and its Close Environs (Artvin). *Turkish Journal of Botany*. 27(1): 1–27.
- Friedman A.L.L. 2016. Rosemary beetle *Chrysolina americana*: A new invasive leaf beetle (Coleoptera: Chrysomelidae: Chrysomelinae) in Israel. *Israel Journal of Entomology*. 46: 87–91.
- Fuss G., Geiser E., Patzner R. 2005. On the host plants of several leaf beetles of Central Europe – the problem of fame and evidence (Coleoptera: Chrysomelidae). *Koleopterologische Rundschau*. 75: 359–371.
- Gavrilović B., Gavrilović B., Čurčić S., Stojanović D., Savić D. 2014. Leaf Beetles (Coleoptera: Chrysomelidae) of Mt. Fruška Gora (Vojvodina Province, Northern Serbia), with an Overview of Host Plants. *Šumarski list*. 1–2: 29–41.
- Gruev B.A. 2004. The Leaf Beetles (Insecta: Coleoptera: Chrysomelidae) of the Rila Mountain (Bulgaria). Fauna and Zoogeography. *Travaux scientifiques de l'Université de Plovdiv, Animalia*. 40(6): 77–96.
- Gruev B.A. 2005. A Comparative List of the Leaf Beetles of the Balkan Countries (Coleoptera: Chrysomelidae). *Travaux scientifiques de l'Université de Plovdiv, Animalia*. 41: 23–16.
- Gruev B.A. 2006. The leaf beetles (Coleoptera: Chrysomelidae) of the Pirin Mountain (Bulgaria). *Historia naturalis bulgarica*. 17: 51–79.
- Gruev B., Döberl M. 1997. General distribution of the flea beetles in the Palaearctic Subregion (Coleoptera, Chrysomelidae: Alticinae). *Scoplia*. 37: 1–496.
- Gruev B., Tomov V. 1998. Catalogus Faunae Bulgariae. Vol. 3. Coleoptera: Chrysomelidae. Sofia: Pensoft. 160 p.
- Gruev B., Tomov V. 2007. A Distributional atlas and catalogue of the leaf beetles of Bulgaria (Coleoptera: Chrysomelidae). Zoocartographica Balcanica, Vol. 3. Sofia – Moscow: Pensoft. 358 p.
- Jolivet P., Verma K.K. 2002. Biology of leaf beetles. Andover, Hampshire, UK: Intercept Publishers. 200 p.
- Kippenberg H. 2010. Chrysomelinae. In: Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea. (I. Löbl, A. Smetana eds). Stenstrup: Apollo Books: 390–443.
- Kippenberg H. 2012. *Lopatinica* subg. n., eine neue Untergattung von *Chrysolina* Motschulsky aus dem Kaukasus und der Türkei (Coleoptera: Chrysomelidae). *Koleopterologische Rundschau*. 82: 317–337.
- Kippenberg H. 2018. Coll. Küster: Chrysomelidae (Coleoptera), Typusmaterial. *Mitteilungen der München Entomologischen Gesellschaft*. 108: 17–29.
- LeSage L., Savard K. 2012. First Record of the European Rusted Flea Beetle, *Neocrepidodera ferruginea* (Scopoli, 1763), in North America (Coleoptera: Chrysomelidae: Galerucinae: Alticinae). *Psyche: A Journal of Entomology*. 2012: 1–11. DOI: 10.1155/2012/387564
- Maican S. 2007. Contributions to the knowledge of the leaf beetle fauna (Coleoptera: Chrysomelidae) from Maramureş (Northern Romania). *Entomologica Romanica*. 12: 301–324.
- Medvedev L.N. 2015. To the knowledge of leaf beetles (Coleoptera: Chrysomelidae) from Turkey. *Caucasian Entomological Bulletin*. 11(2): 391–394. DOI: 10.23885/1814-3326-2015-11-2-391-394
- Milliparklar. Available at: <http://milliparklar.gov.tr> (accessed 20 July 2017).
- Mohr K.H. 1966. Chrysomelidae. In: Die Käfer Mitteleuropas. 9. Cerambycidae, Chrysomelidae. Krefeld: Goecke and Evers: 95–280.
- National Parks of Turkey. Available at: <http://nationalparkssofturkey.com/hatila-valley-national-park> (accessed 1 August 2017).
- Özdikmen H. 2014. Chorotype identification for Turkish Chrysomeloidea (Coleoptera), Part VII – Chrysomelidae: Chrysomelinae and Timarchinae. *Munis Entomology & Zoology*. 9(1): 266–286.
- Rozner I., Rozner G. 2008. Data to the leaf-beetle fauna of Macedonia (Coleoptera: Chrysomelidae). *Natura Somogyiensis*. 12: 111–131.
- Rozner I., Rozner G. 2013. Collection data to North Africa's (Morocco, Algeria, Tunisia) leaf beetle fauna (Coleoptera: Chrysomelidae). *Natura Somogyiensis*. 23: 159–172.
- Rozner I., Rozner G. 2014. Data to the leaf-beetle fauna of Greece (Coleoptera: Chrysomelidae). *Natura Somogyiensis*. 24: 81–98.
- Sassi D. 2014. Taxonomic remarks, phylogeny and evolutionary notes on the leaf beetle species belonging to the *Cryptocephalus sericeus*

- complex (Coleoptera: Chrysomelidae: Cryptocephalinae). *Zootaxa*. 3857(3): 333–378.
- Sekerka L. 2010. Icones Insectorum Europae Centralis: Coleoptera: Chrysomelidae Cassidinae. No: 13. Czech Republic: Folia Heyrovskyana. 24 p.
- Świętojańska J., Moradian H., Borowiec L., Ostovan H. 2013. Description of larvae of two closely related species *Cassida palaestina* Reiche, 1858 and *Cassida rubiginosa* Müller, 1776 (Coleoptera: Chrysomelidae: Cassidinae). *Zootaxa*. 3741(4): 511–537.
- Warchałowski A. 2003. Chrysomelidae: The Leaf-beetles of Europe and the Mediterranean Area. Warszawa: Natura Optima Dux Foundation. 656 p.
- Warchałowski A. 2010. The Palaearctic Chrysomelidae. Identification Keys. Vol. 1–2. Warszawa: Natura Optima Dux Foundation. 1211 p.
- Winkelman J., Debreuil M. 2008. Les Chrysomelinae de France (Coleoptera, Chrysomelidae). France: Rutilans. 188 p.
- Xanthogaleruca luteola*. Encyclopedia of Life. Available at: <http://eol.org/pages/1174703/overview> (accessed 4 September 2017).

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