

Weevils (Coleoptera: Curculionoidea) of the Stobrawski Landscape Park

MIŁOSZ A. MAZUR

Center for Biodiversity Studies, Department of Biosystematics, Opole University,
Oleska 22, 45-052 Opole, Poland,
e-mail: milosz@uni.opole.pl

ABSTRACT. The work presents the results of faunistic and ecological studies on the weevils (Coleoptera: Curculionoidea without Scolytinae) of the Stobrawski Landscape Park. Between 2006-2008 more than 4 000 specimens representing 285 species of weevils were collected from nine types of plant communities. *Mesotrichapion punctirostre*, *Nanophyes brevis*, *Otiorhynchus lepidopterus*, *Phytobius leucogaster*, *Rhaphitropis marchicus* were collected for the first time in Lower or Upper Silesia. The geographical, habitat and food preferences of particular species are presented. The relationships between weevil species and the different habitats are analysed.

KEY WORDS: Coleoptera, Curculionoidea, Stobrawski Landscape Park, ecology, faunistic, Opole region, S Poland.

INTRODUCTION

The region of Silesia, in particular the areas located in the upper and central Odra (Oder) valley, has been quite selectively explored in coleopterological terms. The available data from the pre-war period relate mainly to the areas in the vicinity of Wrocław, the Silesian Industrial Region and the Sudetes Mountains (in particular, the Śnieżnik Mountains and the Kłodzko Valley), where German researchers worked extensively at the turn of the 20th century. One of the first researchers, who worked in the vicinity of Racibórz, was August KELCH, who published his findings in a series of works (1830, 1846, 1848, 1852). The first checklist of beetles inhabiting these areas was completed by ROGER (1856), while further and more comprehensive studies were published in subsequent years (KELCH 1846,

GERHARDT 1910). Such studies have been scarce in the area of the present-day province of Opole, irrespective of the valuable objects of nature to be found there. Single mentions of beetles from this area come from towns and villages such as Chrzastowice, Krasiejów, Nysa, Kup (GERHARDT 1910), Góra Św. Anny (KOLBE 1927), and from the Biskupia Kopa in the Opawskie Mountains (KELCH 1846, GERHARDT 1890). Weevils have been studied in more detail only in modern times, mainly by KUŚKA (1973, 1977, 1999) and MAZUR (2005, 2006a, b, c, d, 2007, 2008). The Stobrawski Landscape Park has never been the object of detailed coleopterological studies; there are only a few reports concerning common or typical species (ŁĘGOWSKI & KUŃKA 2006, GONTARKA & BADORA 2003).

The Stobrawski Landscape Park (henceforth the 'SLP') is important both from the point of view of nature and landscape conservation as well as the protection of insects. It is a vast area abounding in numerous valuable habitats which may be important refuges of fauna.

METHODS

The field studies were conducted during the three growing seasons in 2006-2008, from April to October at intervals of about two weeks in 31 localities. The research was qualitative; therefore, in order to avoid unnecessary catching of insects, only a few representative specimens from the population of characteristic and identifiable species were recovered. If identification on site was impossible, a situation applicable to a large group of small or indistinctive species, all specimens were collected for later identification. The insects were collected using standard entomological methods. The plant communities represent the major types of vegetation in the SLP. The number of localities was found to be dependent on the area occupied by each type of vegetation in the SPK. The research material is deposited in the collections of the Department of Biosystematics, University of Opole. Each species was assigned a range element based on criteria proposed by MAZUR (2001). Food preferences were determined on the basis of the host plants of larval stages. In the case of monophages, only the Latin name of the host plant is given. In the case of poliphages and oligophages, the corresponding abbreviations are given (Table 6). Specific habitat preferences are assigned to each species on the basis of the environment of host plants and insects; the abbreviations used are shown in the table header (Table 6).

STUDY AREA

The SLP is located in the northern part of Opole Province (Fig. 1). It has a total area of approx. 530 sq. km, which makes it one of the largest landscape parks in Poland. It was established to protect forest and wetland areas in the lowland parts of Opole province. The entire park is part of the national ecological network ECONET-PL, partly as a nodal area (a

biocentre) of international importance (the Central Odra Valley – 17M), and partly as a nodal area of national importance (Stobrawsko-Turawskie Forests – 15K) (Liro 1995). One section of the park, the Grądy Odrzańskie (Odrzańskie Broadleaved Forests), is part of the Nature 2000 network (area PLB020002); it represents 15% of the total area of the SLP.

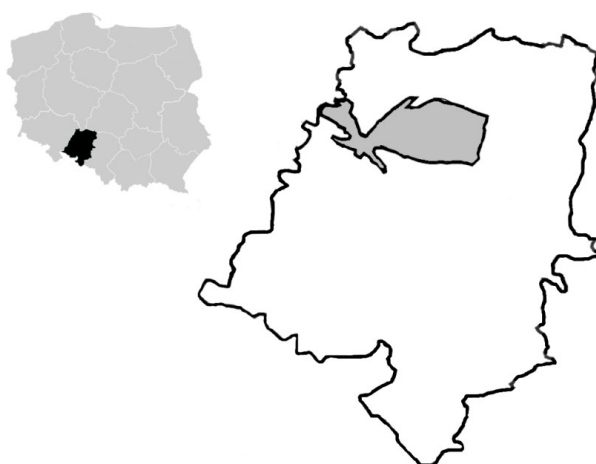


Fig. 1. Location of the Stobrawski Landscape Park.

The study covered the entire area of the SLP along with its representative plant communities (Fig. 2).

Alnion glutinosae – alder forests are found in the SLP near the Grądy Odrzańskie and fish ponds. Most of them, however, are anthropogenic and poorly developed. The study was conducted at five localities: 12, 13, 20, 23, 29.

Carpinion betuli – oak-hornbeam forest occurs throughout the entire area of the park; the most extensive and the best developed forests are found in the southern part in the Odra valley near Grądy Odrzańskie. The catches were made at ten localities: 3, 11, 12, 16, 17, 20, 21, 23, 28, 29.

Dicrano pinion – pine forests are the most commonly found forest communities in the SLP. In most cases, however, these are not artificial pine monocultures planted in oak-hornbeam habitats. Natural habitats for pine forests are located in the eastern part of the park, where sand dunes occur. Forests in the SLP are floristically poor and in many places covered with *Calamagrostis epigejos* and *Rubus* sp. The study was conducted at twelve localities: 1, 2, 5, 6, 7, 9, 11, 14, 15, 19, 23, 25, 31.

Salicion albae – riparian forests of this type are found mostly in the valley of the River Odra; these are thickets of willows and poplars in old river beds, reservoirs and ditches.

Generally, they are poorly developed, and their typical places of occurrence have been replaced with meadows and afforestation of a different character. The catches were conducted at eight localities: 6, 11, 17, 18, 25, 27, 28, 30.

Arrhenatherion elatioris – the most common type of meadowland in the SLP. Many pastures and hay meadows also represent this type. These plant communities often form in the park on floodbanks at some distance from watercourses and rivers, often adjacent to Molinietalia meadows. The degree of their development in the SLP varies, depending on the type and intensity of use. The studies were conducted at nine localities: 4, 8, 12, 15, 17, 21, 2, 3, 25, 28.

Calthion palustris – these meadows are extensively used, mainly for grazing; they are regularly "uGraded", which is also the case with the meadows of the Molinion alliance, and fertilized meadows. They develop in similar locations as the aforementioned meadows, but they are found in more fertile habitats. They have little environmental value. The catches were carried out at five localities: 3, 5, 13, 19, 22.

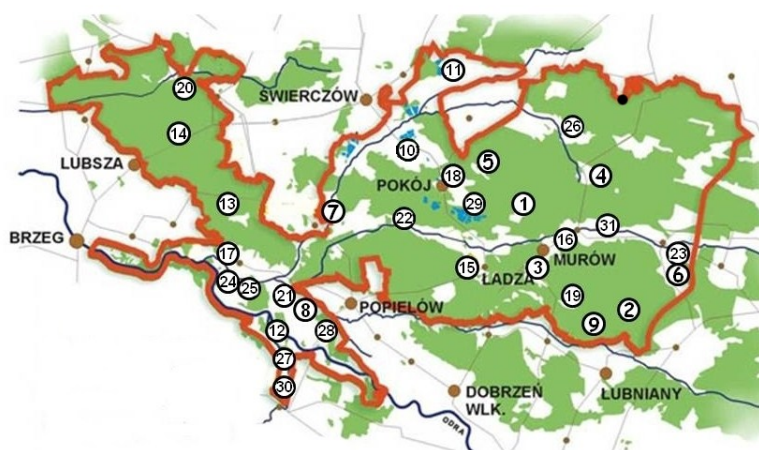


Fig. 2. Study area and sampling sites together with their UTM codes (in parentheses): 1 – Czarna Woda (YS04); 2 – Dąbrówka Lubniańska (BB93); 3 – Grabczok (YS03); 4 – Grabice (YS04); 5 – Jagienieckie Łąki (YS04); 6 – Kały (BB93); 7 – Karłowice (XS93); 8 – Kolonia Popielowska (XS93); 9 – Kosowce (YS13); 10 – Krogulna (XS94); 11 – Kuźnica Dąbrowska (XS95); 12 – Las Czapliniec (XS83); 13 – Lisie Łąki (XS84); 14 – Lubsza (XS74); 15 – Ładza (YS03); 16 – Murów (YS03); 17 – Nowe Kolnie (XS83); 18 – Pokój (XS94); 19 – Prąznica (YS03); 20 – Rogalice (XS84); 21 – Rybna (XS83); 22 – Siołkowickie Łąki (XS94); 23 – Stare Budkowice (BB93); 24 – Stare Kolnie (XS83); 25 – Stobrawa (XS83); 26 – Święciny (YS04); 27 – UE Stawki n. Nysą (XS83); 28 – Wielopole (XS93); 29 – Winna Góra (YS04); 30 – Wronów (XS83); 31 – Zagwóździe (YS04).

Molinion caeruleae – these meadows occur alongside watercourses and water bodies, but the vast majority are, to varying degrees, disturbed by frequent mowing, grazing and regular planting of different grass species (in particular, meadow foxtail – *Alopecurus pratensis*) and legumes. The catches were carried out at nine localities: 6, 7, 15, 17, 24, 25, 26, 28.

Onopordetalia acanthii – ruderal communities usually occupy small areas, e.g. fallow lands, slopes of flood banks (particularly those recently constructed or uGraded), roadsides and various mounds, always dry and exposed to the sun. The catches were carried out at five localities: 17, 23, 25, 28, 29.

Phragmition – rushes occur frequently on the banks of watercourses and rivers as well as other water bodies (mainly fish ponds). However, those near the ponds are often extensive monocultures of *Phragmites australis* with a small proportion of other plants, which is the result of intensive fishing activities and proximity to fertilized meadows and cultivated fields. The catches were conducted at seven localities with the best developed communities: 10, 17, 18, 19, 23, 28.

RESULTS AND DISCUSSION

As a result of the study, 4 051 specimens representing 285 species were collected, which represents approximately 30% of the weevil fauna of Poland. The number of specimens of each species collected in the plant communities is presented in Table 6.

Most of the forest community species were caught in oak-hornbeam forests (102 species), the fewest in alder forests (43 species). Relatively few species were found in pine forests (*Dicrano-Pinion*), but the largest percentage of them (37%) was specific to this environment and these species were not found anywhere else. Among the non-forest communities, the richest in terms of species found were meadows of the class *Arrhenatherion elatioris*, with 127 species, which accounted for more than 44% of all weevils found in the SLP. A comparable number of species were found in communities of the order *Onopordion acanthii*, where more than 28% of the species did not occur in any other community. A similar percentage (27%) of exclusive species was recorded in rush communities of the alliance *Phragmition*; only 37 species were found there, however, which is the lowest number found in any of the plant communities investigated.

Among all the forest communities analysed in this study, the largest numbers of species were collected in oak-hornbeam forest communities, the lowest numbers in alder communities (Table 6). The significant proportion of eurytopic species is remarkable. In forests of the alliances *Alnion glutinosae* and *Carpinion betuli*, the number of eurytopic species was the same as the number of mesophilous forest species. In the other two forest communities, woodland species were dominant (Table 1).

Table 1. The number of species with different habitat preferences from forest plant communities.

	<i>Alnion glutinosae</i>	<i>Carpinion betuli</i>	<i>Dicrano-Pinion</i>	<i>Salicion albae</i>
Eurytopic	19	39	12	20
Mesophilous of open areas	4	22	3	10
Mesophilous of forest areas	19	39	39	40
Hygrophilous	1	2	0	2
Xerothermic	0	0	0	0

In forests of the alliances *Alnion glutinosae* and *Carpinion betuli*, the species associated with herbaceous vegetation were prevalent, followed by dendrophilic species. In pine and riparian forests these proportions were reversed. The number of generalists in alder forests was high, which is evidence for the weak development of this forest type in the SLP (Table 2).

Table 2. The number of species with different food preferences from forest plant communities.

	<i>Alnion glutinosae</i>	<i>Carpinion betuli</i>	<i>Dicrano-Pinion</i>	<i>Salicion albae</i>
Monophagous	6	11	8	10
Oligophagous of herbaceous plants	12	42	8	16
Oligophagous of trees	9	19	22	26
Polyphagous of herbaceous plants	1	3	0	0
Polyphagous of trees	8	17	12	13
Generalist	16	10	7	10

The species common to all the forest communities were: five eurytopic species (including three polyphagous generalists – *Strophosoma melanogrammum*, *Phyllobius glaucus*, *Ph. maculicornis*, a herbaceous plant oligophage – *Ceutorhynchus obstrictus*, and one monophage of the common nettle – *Nedys quadrimaculatus*), and seven mesophylic forest species: *Strophosoma capitatum*, *Deporaus betulae*, *Polydrusus tereticollis*, *Phyllobius argentatus*, *Ph. pyri*, *Acalyptus carpini*, *Tachyerges stigma* (Table 6).

As far as grasslands are concerned, species associated with herbaceous plants were dominant. The share of dendrophilic species did not exceed 10%, and these species constituted random elements. Eurytopic species accounted for approximately 30% of the weevils in their faunas (Table 3). Mesophilous species of open areas were dominant in meadows, which is especially evident in the case of fresh meadows and groups of ruderal communities. These species are mostly oligophages of the Papilionaceae, which are associated not only with the natural occurrence of this vegetation in this type of community, but also with its replanting by users of the land (Table 3).

The drier and sunlit locations in the meadows of the alliance *Arrhenatherion elatioris* and the order *Onopordetalia acanthii* were the only places where xerothermic species were found. This is interesting in that grasslands, which for some of the species are not typical habitats, do not in fact occur in the SLP, and that communities resembling them are very rare and develop only locally, mostly on flood banks with adequate exposure to the sun.

The hygrophilous species occurred the most frequently in rush communities. Single species were found in moist and fresh meadows, but they were random elements in the latter (Table 3).

In all non-forest areas, oligophagous species associated with herbaceous vegetation were the most frequently collected; the presence of pure monophages was also reported, while the remaining groups were of marginal importance (Table 4).

Table 3. The number of species with different habitat preferences from non-forest plant communities.

	<i>Arrhenatherion elatioris</i>	<i>Calthion palustris</i>	<i>Molinion coerulea</i>	<i>Onopordetalia acanthii</i>	<i>Phragmition</i>
Eurytopic	35	15	14	19	8
Mesophilous of open areas	72	22	24	74	9
Mesophilous of forest areas	13	5	5	7	5
Hygrophilous	3	3	5	0	16
Xerothermic	5	0	0	7	0

There were only 11 species common to all types of meadows were and, with the exception of one (the dendrophile *Strophosoma capitatum* – commonly inhabiting nearby trees), were the common eurytopic and mesophylic species typical of open areas: Papilionaceae (*Sitona cylindricollis*, *S. macularius*, *Protapion apricans*), *Rumex* sp. (*Perapion curtirostre*), Cruciferae (*Ceutorhynchus obstrictus*, *C. pallipes*, *C. typhae*) and two monophages of *Urtica dioica* (*Nedyus quadrimaculatus*, *Taeniapion urticarium*).

Table 4. The number of species with different food preferences from non-forest plant communities.

	<i>Arrhenatherion elatioris</i>	<i>Calthion palustris</i>	<i>Molinion coerulea</i>	<i>Onopordetalia acanthii</i>	<i>Phragmition</i>
Monophagous	19	8	7	19	6
Oligophagous of herbaceous plants	82	29	35	72	23

Oligophagous of trees	7	1	1	2	3
Polyphagous of herbaceous plants	3	0	0	2	0
Polyphagous of trees	5	3	3	4	3
Generalist	10	3	2	9	3

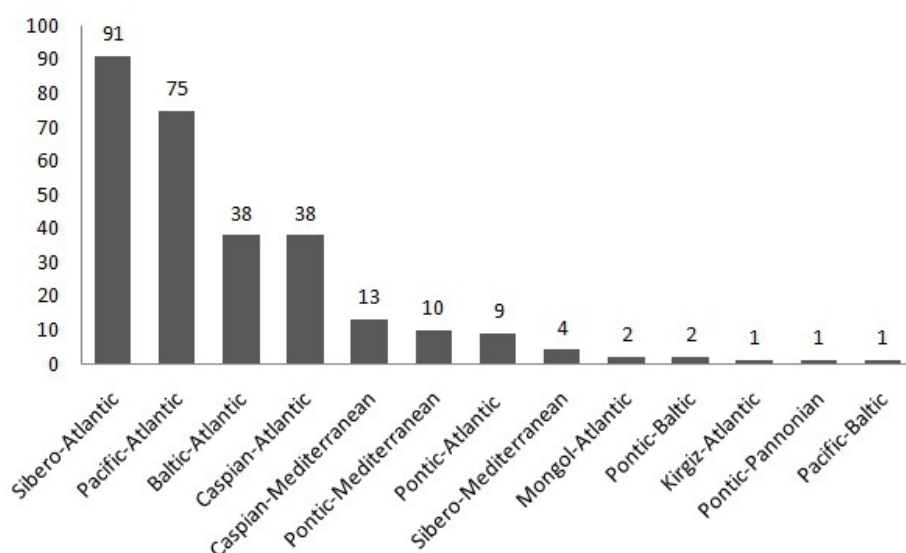


Fig. 3. Number of species with different range elements.

The fauna in the SLP was represented mainly by the ubiquitous Sibero- and Pacific-Atlantic elements, which together account for more than 58% of all species collected during this study. The Baltic-Atlantic and Caspian-Atlantic elements were also significant: approx. 27% of the species recorded belonged to these groups. The remaining elements were represented by single species (Fig. 3).

The proportions of individual elements varied depending on the communities analyzed. Nevertheless, the Sibero- and Pacific-Atlantic elements were always the dominant ones. The proportions of the remaining elements differed depending on the type of community. The percentage of individual range elements in all the environments in the SLP studied is presented in Table 5.

Table 5. Percentages of different range elements in the plant communities investigated: AG – *Alnion glutinosae*; CB – *Carpinion betuli*; DP – *Dicrano-Pinion*; SA – *Salicion albae*; AE – *Arrhenatherion elatioris*; CP – *Calthion palustris*; MC – *Molinion caeruleae*; OA – *Onopordion acanthii*; PH – *Phragmition*.

	AG	CB	DP	SA	AE	CP	MC	OA	PH
Sibero-Atlantic	40	35	46	32	32	24	35	31	32
Pacific-Atlantic	33	29	22	37	35	44	42	31	38
Baltic-Atlantic	21	12	20	11	12	16	13	7	8
Caspian-Atlantic	2	10	2	6	11	5	4	11	16
Caspian-Mediterranean	-	3	4	4	2	9	-	6	-
Pontic-Mediterranean	2	3	-	6	2	-	2	6	3
Pontic-Atlantic	2	5	2	4	2	2	2	6	-
Sibero-Mediterranean	-	-	-	-	2	-	-	1	3
Mongol-Atlantic	-	2	-	-	-	-	-	-	-
Pontic-Baltic	-	1	-	-	1	-	-	-	-
Kirgiz-Atlantic	-	-	-	-	1	-	-	1	-
Pontic-Pannonian	-	-	2	-	-	-	-	-	-
Pacific-Baltic	-	-	-	-	-	-	2	-	-

Table 6. List of weevils collected in the Stobrawski Landscape Park: AG – *Alnion glutinosae*; CB – *Carpinion betuli*; DP – *Dicrano-Pinion*; SA – *Salicion albae*; AE – *Arrhenatherion elatioris*; CP – *Calthion palustris*; MC – *Molinion caeruleae*; OA – *Onopordion acanthii*; PH – *Phragmition*.

Range: BT-AT – Baltic-Atlantic; CA-AT – Caspian-Atlantic; CA-ME – Caspian-Mediterranean; KI-AT – Kirgiz-Atlantic; MO-AT – Mongol-Atlantic; PA-BT – Pacific-Baltic; PC-AT – Pacific-Atlantic; PO-AT – Pontic-Atlantic; PO-BT – Pontic-Baltic; PO-ME – Pontic-Mediterranean; PO-PA – Pontic-Pannonian; SI-AT – Sibero-Atlantic; SI-ME – Sibero-Mediterranean.

Food: Latin name of plant – monophagous; OT – oligophagous on trees; PT – polyphagous on trees; G – generalist; OH – oligophagous of herbaceous plants; PH – polyphagous of herbaceous plants.

Habitat preferences: MF – mesophilous of forest areas; MO – mesophilous of open areas; KS – xerothermic; HI – hygrophilous; EU – eurytopic.

Species	Localities	Plant community	Range	Food	Habitat preferences
NEMONYCHIDAE					
<i>Chimberis attelaboides</i>	1, 5, 6, 15, 19, 25, 31	DP	PC-AT	<i>Pinus sylvestris</i>	MF

ANTHRIBIDAE					
<i>Anthribus nebulosus</i>	5, 14, 18, 28	CB, DP, SA	SI-AT	OT	MF
<i>Platystomos albinus</i>	18, 28	CB, SA	SI-AT	OT	MF
<i>Bruchela rufipes</i>	11, 17, 25	DP, OA	PO-AT	OH	MO
<i>Dissoleucas niveirostris</i>	21	CB	PC-AT	PT	MF
<i>Rhaphitropis marchicus</i>	14	CB	MO-AT	PT	MF
ATTELABIDAE					
<i>Apoderus coryli</i>	6, 11, 13, 18, 23, 25	AG, CB, SA	PC-AT	PT	MF
<i>Attelabus nitens</i>	18, 19	CB, DP	SI-AT	OT	MF
RHYNCHITIDAE					
<i>Auletobius sanguisorbae</i>	23	MC	PC-BT	<i>Sanguisorba officinalis</i>	MO
<i>Byctiscus betulae</i>	11, 18	CB, SA, PH	PC-AT	PT	MF
<i>Byctiscus populi</i>	17, 27	SA	PC-AT	OT	MF
<i>Deporaus betulae</i>	2, 6, 13, 15, 17, 18, 21, 25, 28, 30	AG, CB, DP, SA, PH	PC-AT	PT	MF
<i>Involvulus cupreus</i>	5	DP	PC-AT	PT	MF
<i>Lasioryhynchites cavifrons</i>	28	CB	CA-AT	OT	MF
<i>Lasioryhynchites caeruleocephalus</i>	23, 25	SA, OA	PO-ME	PT	MF
<i>Neocoenorrhinus germanicus</i>	8, 28	AE, OA	PC-AT	G	EU
<i>Neocoenorrhinus pauxillus</i>	17	OA	CA-ME	OT	MF
<i>Tatianaerhynchites aequatus</i>	18, 25, 28, 30	CB, DP	CA-AT	OT	MF
<i>Temnocerus nanus</i>	13, 25	AG, SA	SI-AT	PT	MF
<i>Temnocerus tomentosus</i>	17, 28	AE, PH	PC-AT	OT	MF
APIONIDAE					
<i>Apion cruentatum</i>	17, 21, 25, 26, 28	AE, MC, OA	SI-AT	OH	MO
<i>Apion frumentarium</i>	6, 8, 15, 17, 23, 24, 25, 26, 28, 30	AG, CB, AE, MC	CA-AT	OH	EU
<i>Apion haematodes</i>	23, 25	OA	CA-AT	<i>Rumex acetosella</i>	MO
<i>Apion rubiginosum</i>	28	AE	CA-AT	<i>Rumex acetosella</i>	MO

<i>Pseudoperapion brevirostre</i>	3, 5, 6, 7, 14, 15, 17, 21, 23, 25, 26, 28, 29	AG, CB, DP, AE, CP, MC, OA	PC-AT	OH	MO
<i>Pseudostenapion simum</i>	4, 7, 25, 26, 28	AE, MC, OA	PO-ME	OH	MO
<i>Perapion curtirostre</i>	5, 8, 13, 15, 17, 21, 22, 23, 25, 26, 28, 29	CB, AE, CP, MC, OA	PC-AT	OH	MO
<i>Perapion marchicum</i>	17, 23, 25, 29	OA,	PC-AT	<i>Rumex acetosella</i>	MO
<i>Perapion oblongum</i>	17, 21, 23	AE, OA	PC-AT	<i>Rumex acetosa</i>	MO
<i>Perapion violaceum</i>	2, 8, 15, 17, 21, 23, 26, 28	AE, MC, OA	SI-AT	OH	MO
<i>Protapion apricans</i>	3, 5, 6, 7, 8, 15, 17, 21, 23, 24, 25, 26, 28,	CB, SA, AE, CP, MC, OA	PC-AT	OH	MO
<i>Protapion assimile</i>	15, 17, 21, 23, 28, 29	SA, AE, OA	PC-AT	OH	MO
<i>Protapion filirostre</i>	8, 28	CB, AE, PH	PC-AT	OH	MO
<i>Protapion fulvipes</i>	6, 7, 15, 16, 23, 24, 25, 28	CB, DP, SA, AE, MC, OA, PH	PC-AT	OH	MO
<i>Protapion nigritarse</i>	4, 8, 17, 21, 23, 25, 28	CB, AE, OA	PC-AT	OH	MO
<i>Protapion ononidis</i>	8, 21, 28	AE	CA-AT	OH	MO
<i>Protapion trifolii</i>	2, 4, 6, 8, 17, 23, 28	SA, AE, OA	PC-AT	OH	MO
<i>Pseudoprotapion astragali</i>	4	AE	SI-AT	<i>Astragalus glycyphyllos</i>	EU
<i>Catapion jaffense</i>	7, 26, 28	MC	SI-AT	OH	MO
<i>Catapion meieri</i>	25	OA	PO-ME	<i>Trifolium hybridum</i>	MO
<i>Catapion pubescens</i>	21	CB	SI-AT	OH	MO
<i>Catapion seniculus</i>	17, 21, 28	AE, OA	SI-AT	OH	MO
<i>Betulapion simile</i>	1, 5, 23, 31	DP, OA	PC-AT	<i>Betula verrucosa</i>	EU
<i>Synapion ebeninum</i>	16, 17, 18, 21, 28	CB, OA	SI-AT	OH	EU
<i>Ischnopterapion loti</i>	4, 17, 23, 29	AE, OA	PC-AT	OH	MO
<i>Ischnopterapion virens</i>	6, 7, 8, 15, 21, 26, 28, 30	CB, SA, AE, MC	PC-AT	OH	MO

<i>Stenopterapion tenue</i>	4, 6, 23, 25, 28	SA, AE, OA	PC-AT	OH	MO
<i>Cyanapion afer</i>	21	CB	SI-AT	<i>Lathyrus pratensis</i>	MO
<i>Cyanapion gyllenhalii</i>	21	CB	PO-ME	OH	MO
<i>Cyanapion spencii</i>	8, 17, 28	AE	SI-AT	OH	MO
<i>Mesotrichapion punctirostre</i>	2	AE	SI-ME	OH	KS
<i>Hemitrichapion pavidum</i>	21	AE	SI-AT	<i>Coronilla varia</i>	MO
<i>Holotrichapion aethiops</i>	2, 28	AE	PC-AT	OH	MO
<i>Holotrichapion pisi</i>	2, 15	AE	PC-AT	OH	MO
<i>Holotrichapion pullum</i>	17	AE	PC-AT	OH	MO
<i>Eutrichapion ervi</i>	2, 8, 15, 17, 21, 28	CB, AE, OA	SI-AT	OH	EU
<i>Eutrichapion viciae</i>	2, 8, 17, 21, 23, 28	AE, OA	PC-AT	OH	EU
<i>Eutrichapion vorax</i>	21	CB	SI-AT	OH	EU
<i>Oxystoma cerdo</i>	17, 28, 29	AE, OA	PC-AT	OH	EU
<i>Oxystoma craccaae</i>	8, 15, 23, 28	CB, AE	PC-AT	OH	EU
<i>Oxystoma ochropus</i>	28	AE, PH	SI-AT	OH	EU
<i>Oxystoma pomonae</i>	7, 15, 26, 28	AE, MC	SI-AT	OH	EU
<i>Oxystoma subulatum</i>	8, 13, 15, 26, 28	AG, CB, AE	PC-AT	OH	EU
<i>Exapion fuscirostre</i>	23	DP	BT-AT	<i>Sarothamnus scoparius</i>	EU
<i>Taeniapion urticarium</i>	5, 6, 13, 17, 18, 21, 22, 23, 25, 26, 28, 30	AG, CB, SA, AE, CP, MC, OA	PC-AT	<i>Urtica dioica</i>	EU
<i>Melanapion minimum</i>	6, 7, 11, 15, 27	SA, MC	SI-AT	OT	MF
<i>Omphalapion dispar</i>	17	OA	CA-ME	OH	MO
<i>Omphalapion hookerorum</i>	8, 15, 17, 23, 24, 28	AE, MC, OA, PH	SI-AT	OH	MO
<i>Diplapion confluens</i>	17	AE	CA-AT	OH	MO
<i>Diplapion detritum</i>	25	OA	CA-ME	OH	KS
<i>Diplapion stolidum</i>	4, 25, 28	AE	CA-AT	<i>Chrysanthemum leucanthemum</i>	MO
<i>Ceratapion gibbirostre</i>	13, 22	CP	SI-AT	OH	MO
<i>Ceratapion onopordi</i>	17, 18, 19, 21, 22, 28, 29, 30	AG, CB, AE, CP, OA	PC-AT	OH	MO
NANOPHYIDAE					
<i>Nanomimus circumscriptus</i>	19, 28	CP, PH	CA-AT	<i>Lythrum salicaria</i>	HI

<i>Nanophyes brevis</i>	24	PH	CA-AT	<i>Lythrum salicaria</i>	HI
<i>Nanophyes marmoratus</i>	3, 10, 13, 17, 22, 24, 28	CB, AE, CP, MC, PH	SI-AT	<i>Lythrum salicaria</i>	HI
CURCULIONIDAE					
<i>Sitophilus granarius</i>	8	AE	PC-AT	OH	MO
<i>Notaris acridulus</i>	17, 18, 28	AE, PH	SI-AT	<i>Glyceria aquatica</i>	HI
<i>Notaris scirpi</i>	10, 24, 28	PH	PC-AT	OH	HI
<i>Tournotaris bimaculata</i>	10, 24, 28	PH	PC-AT	OH	HI
<i>Grypus equiseti</i>	7, 25, 26	MC, PH	PC-AT	OH	HI
<i>Tanysphyrus lemnae</i>	10, 17, 24, 28	MC, PH	PC-AT	OH	HI
<i>Otiorhynchus lepidopterus</i>	5	CP	BT-AT	G	EU
<i>Otiorhynchus ligustici</i>	28	CB, AE	CA-AT	PH	EU
<i>Otiorhynchus ovatus</i>	5, 13, 17, 23, 28	AG, CB, SA, AE	SI-AT	G	EU
<i>Otiorhynchus sulcatus</i>	15, 23	AE	BT-AT	G	EU
<i>Otiorhynchus raucus</i>	18, 28	CB, AE	CA-AT	G	EU
<i>Trachyploeus aristatus</i>	23	OA	SI-AT	G	MO
<i>Trachyploeus bifoveolatus</i>	17, 23	OA	CA-AT	G	MO
<i>Trachyploeus scabriculus</i>	23	OA	BT-AT	G	MO
<i>Pseudomylocerus sinuatus</i>	24	PH	CA-AT	G	EU
<i>Phyllobius arborator</i>	1, 5, 15, 23, 25, 28	CB, DP, AE	BT-AT	PT	MF
<i>Phyllobius argentatus</i>	5, 6, 11, 13, 14, 16, 18, 22, 23, 25, 28	AG, CB, DP, SA, AE, CP, PH	PC-AT	PT	MF
<i>Phyllobius glaucus</i>	2, 3, 5, 6, 13, 14, 17, 18, 22, 25, 27, 28, 30	AG, CB, DP, SA, CP, MC	SI-AT	G	EU
<i>Phyllobius maculicornis</i>	2, 5, 13, 15, 17, 23, 25, 28	AG, CB, DP, SA, AE, CP, MC, OA	SI-AT	G	EU
<i>Phyllobius oblongus</i>	28	AE	SI-AT	G	EU
<i>Phyllobius pomaceus</i>	3, 13, 15, 17, 18, 25, 28	AG, CB, SA, CP, OA, PH	SI-AT	G	EU

<i>Phyllobius pyri</i>	5, 6, 7, 13, 15, 17, 28, 25, 28, 31	AG, CB, DP, SA, AE, CP, MC	SI-AT	PT	MF
<i>Phyllobius vespertinus</i>	6, 8, 18, 23, 30	AG, CB, AE, OA, PH	SI-AT	G	EU
<i>Phyllobius virideaeris</i>	23, 29	OA	SI-AT	OH	MO
<i>Phyllobius viridicollis</i>	13, 15, 19, 23	AG, CB, DP, OA	SI-AT	G	EU
<i>Polydrusus cervinus</i>	5, 11, 15, 18, 23, 25	CB, DP, SA, AE	SI-AT	PT	MF
<i>Polydrusus flavipes</i>	4	AE	CA-AT	OT	MF
<i>Polydrusus formosus</i>	19	DP	SI-AT	PT	MF
<i>Polydrusus impar</i>	1, 15, 19, 31	DP	BT-AT	OT	MF
<i>Polydrusus mollis</i>	1, 18, 23, 31	CB, DP, SA	SI-AT	PT	MF
<i>Polydrusus pallidus</i>	1, 5, 31	DP	BT-AT	OT	MF
<i>Polydrusus picus</i>	5, 13, 15, 29	AG, CB, DP, OA	SI-AT	PT	MF
<i>Polydrusus pterygomalis</i>	17, 18, 28	CB, SA	SI-AT	PT	MF
<i>Polydrusus tereticollis</i>	1, 6, 14, 15, 18, 21, 23, 28, 30, 31	AG, CB, DP, SA, MC, OA	SI-AT	PT	MF
<i>Pachyrhinus mustela</i>	2, 19, 31	DP	PO-PA	OT	MF
<i>Liophloeus lentus</i>	28	CB	PO-BT	OH	EU
<i>Liophloeus tessulatus</i>	18, 28	CB	PA-AT	OH	EU
<i>Sciaphilus asperatus</i>	17, 20, 22, 28	CB, SA, AE, CP	PO-AT	G	EU
<i>Eusomus ovulum</i>	17, 23, 28, 29	AE, OA	SI-AT	PH	KS
<i>Brachysomus echinatus</i>	11, 15, 18, 27, 28	CB, SA, AE	SI-AT	G	EU
<i>Barypeithes pellucidus</i>	18, 28	CB	BT-AT	PH	EU
<i>Brachyderes incanus</i>	5, 11, 19, 23, 25	CB, DP	PO-AT	<i>Pinus sylvestris</i>	MF
<i>Strophosoma capitatum</i>	5, 6, 11, 13, 14, 15, 16, 17, 18, 23, 25, 28, 29, 31	AG, CB, DP, SA, AE, CP, MC, OA	SI-AT	PT	MF
<i>Strophosoma faber</i>	17, 28	AE, OA	BA-AT	G	EU
<i>Strophosoma melanogrammum</i>	1, 6, 7,	AG, CB, DP, SA	BA-AT	G	EU
<i>Sitona ambiguus</i>	24, 25, 28	AE, MC	SI-AT	OH	MO
<i>Sitona cambricus</i>	13, 17	CP, MC	BT-AT	OH	MO

<i>Sitona cylindricollis</i>	5, 7, 8, 17, 21, 24, 26, 28	AE, CP, MC, OA	PC-AT	OH	EU
<i>Sitona griseus</i>	1	DP	BT-AT	OH	EU
<i>Sitona hispidulus</i>	15, 21, 23, 28	AE	PC-AT	OH	MO
<i>Sitona humeralis</i>	6, 8, 14, 15, 17, 18, 28	AG, CB, SA, AE, OA	PO-ME	OH	MO
<i>Sitona languidus</i>	17, 23	OA	PO-AT	OH	KS
<i>Sitona lepidus</i>	14, 21, 28	CB, AE	PC-AT	OH	MO
<i>Sitona lineatus</i>	13, 15, 17, 21, 23, 28, 29	AE, CP, MC, OA	PC-AT	OH	MO
<i>Sitona macularius</i>	3, 5, 6, 7, 8, 15, 17, 22, 23, 24, 25, 28, 29,	CB, SA, AE, CP, MC, OA	PC-AT	OH	MO
<i>Sitona puncticollis</i>	8, 17, 26, 28	AE, MC, OA	CA-AT	OH	MO
<i>Sitona regensteiniensis</i>	23	DP	BA-AT	OH	EU
<i>Sitona striatellus</i>	29	OA	PO-ME	OH	MO
<i>Sitona sulcifrons</i>	6, 8, 15, 17, 21, 23, 24, 25, 26, 28, 29	CB, SA, AE, MC, OA	PC-AT	OH	MO
<i>Sitona suturalis</i>	8, 17, 24, 25, 29, 28	CB, AE, MC, OA	PC-AT	OH	MO
<i>Sitona waterhousei</i>	25	OA	PO-AT	OH	MO
<i>Tanymecus palliatus</i>	2, 15, 28	AE	SI-AT	PH	EU
<i>Hypera contaminata</i>	23	OA	PO-ME	<i>Lathyrus tuberosus</i>	MO
<i>Hypera meles</i>	2, 17	AE, PH	PC-AT	OH	MO
<i>Hypera nigrirostris</i>	2, 17, 28, 29	AE, OA	SI-AT	OH	MO
<i>Hypera plantaginis</i>	25, 28, 29	AE, OA	CA-AT	OH	MO
<i>Hypera postica</i>	4, 8, 19, 28, 29	AE, CP, OA	PC-AT	OH	MO
<i>Hypera rumicis</i>	17	MC	PC-AT	OH	MO
<i>Hypera suspiciosa</i>	2, 4, 15	AE	SI-AT	OH	MO
<i>Hypera viciae</i>	2, 4, 8, 23, 25, 28, 29	AE, OA, PH	SI-AT	OH	MO
<i>Limobius borealis</i>	23	OA	CA-AT	OH	MO
<i>Larinus brevis</i>	5, 13, 22	OA	PC-AT	OH	KS
<i>Larinus planus</i>	5, 22, 28	AE, CP	CA-AT	OH	MO
<i>Larinus sturnus</i>	23	OA	CA-AT	OH	MO
<i>Larinus turbinatus</i>	5	CP	CA-ME	OH	MO
<i>Lixus bardanae</i>	23	OA	CA-AT	OH	MO
<i>Lixus iridis</i>	10, 17, 24, 28	PH	CA-AT	OH	HI
<i>Rhinocyllus conicus</i>	3, 5, 22	CP	CA-ME	OH	MO

<i>Bothynoderes affinis</i>	23	OA	SI-AT	PH	MO
<i>Cleonis pigra</i>	23	OA	PC-AT	OH	MO
<i>Magdalis armigera</i>	28	CB	SI-AT	OT	MF
<i>Magdalis duplicata</i>	5, 18, 19, 31	CB, DP, CP	SI-AT	OT	MF
<i>Magdalis frontalis</i>	31	DP	SI-AT	<i>Pinus sylvestris</i>	MF
<i>Magdalis linearis</i>	19	DP	SI-AT	<i>Pinus sylvestris</i>	MF
<i>Magdalis memnonia</i>	19	DP	SI-AT	OT	MF
<i>Magdalis nitida</i>	13	AG	SI-AT	OT	MF
<i>Magdalis violacea</i>	7, 31	DP	SI-AT	OT	MF
<i>Hylobius abietis</i>	1, 5, 15, 19, 23, 31	DP	SI-AT	OT	MF
<i>Pissodes castaneus</i>	15	DP	SI-AT	OT	MF
<i>Pissodes pini</i>	19, 23, 31	DP	SI-AT	OT	MF
<i>Pissodes piniphilus</i>	23	DP	SI-AT	OT	MF
<i>Trachodes hispidus</i>	2	DP	BT-AT	PT	MF
<i>Anoplus plantaris</i>	6, 23	AG, OA	SI-AT	OT	MF
<i>Anoplus roboris</i>	4, 6, 13, 17, 18, 23, 25	AG, CB, SA, AE, CP, MC	BT-AT	<i>Alnus glutinosa</i>	MF
<i>Cossonus cylindricus</i>	28	CB	SI-AT	PT	MF
<i>Cossonus linearis</i>	14	CB	SI-AT	OT	MF
<i>Stereocorynes truncorum</i>	15	CB	CA-AT	PT	MF
<i>Rhyncolus ater</i>	14, 18, 28, 30	CB, SA	SI-AT	PT	MF
<i>Bagous glabrirostris</i>	10, 18, 28	PH	CA-AT	OH	HI
<i>Bagous subcarinatus</i>	17	PH	CA-AT	OH	HI
<i>Bagous tempestivus</i>	17	PH	SI-AT	OH	MO
<i>Bagous tubulus</i>	17	PH	BT-AT	OH	HI
<i>Archarius crux</i>	6, 11, 30	SA	PC-AT	OT	MF
<i>Archarius pyrrhoceras</i>	11, 18, 23, 28	CB, DP, SA, AE	CA-ME	OT	MF
<i>Archarius salicivorus</i>	6, 11, 17, 28	SA	SI-AT	OT	MF
<i>Curculio betulae</i>	13, 25	AG, SA	SI-AT	OT	MF
<i>Curculio glandium</i>	5, 18, 25, 27, 28, 30	CB, SA, AE	CA-AT	OT	MF
<i>Curculio nucum</i>	18	CB	CA-AT	<i>Corylus avellana</i>	MF
<i>Curculio pellitus</i>	18, 23, 28	CB, DP, SA	CA-ME	OT	MF
<i>Curculio venosus</i>	5	CB	CA-AT	OT	MF
<i>Orthochaetes setiger</i>	21	CB	BT-AT	PH	MO
<i>Dorytomus filirostris</i>	18, 28	SA	PO-ME	OT	MF
<i>Dorytomus melanophthalmus</i>	6, 17, 18, 25, 27, 30	AG, SA	BT-AT	OT	MF
<i>Dorytomus rufatus</i>	18, 27, 28	SA	CA-AT	OT	MF

<i>Dorytomus taeniatus</i>	27, 28	SA, PH	SI-ME	OT	MF
<i>Dorytomus tortrix</i>	27, 30	SA	CA-AT	<i>Populus tremula</i>	MF
<i>Dorytomus tremulae</i>	27	SA	SI-AT	OT	MF
<i>Ellescus bipunctatus</i>	13	AG	PC-AT	OT	MF
<i>Ellescus scanicus</i>	30	SA	PC-AT	OT	MF
<i>Acalyptus carpini</i>	13, 15, 27	AG, CB, DP, SA	PC-AT	OT	MF
<i>Lignyodes enucleator</i>	17, 28	SA	CA-AT	OT	EU
<i>Tychius aureolus</i>	17, 28	AE, OA	KI-AT	OH	KS
<i>Tychius brevisculus</i>	17	OA	PC-AT	OH	MO
<i>Tychius crassirostris</i>	17	OA	CA-AT	OH	MO
<i>Tychius junceus</i>	17, 21	AE, OA	SI-AT	OH	MO
<i>Tychius medicaginis</i>	17	AE, OA	CA-AT	OH	KS
<i>Tychius meliloti</i>	14, 17, 21, 24, 26, 29	CB, AE, MC, OA	PC-AT	OH	MO
<i>Tychius parallelus</i>	1, 23	DP	BA-AT	OH	EU
<i>Tychius picrostris</i>	2, 8, 14, 15, 17, 18, 21, 22, 23, 24, 28	CB, SA, AE, CP, OA, PH	PC-AT	OH	MO
<i>Tychius quinquepunctatus</i>	2, 3, 6, 7, 13, 15, 17, 21, 23, 24, 26, 28	AE, CP, MC, OA	PC-AT	OH	MO
<i>Tychius schneideri</i>	17	AE, OA	PO-AT	<i>Anthylis vulneraria</i>	KS
<i>Tychius stephensi</i>	4, 8, 17, 21, 23, 2, 29	AE, OA	SI-AT	OH	MO
<i>Sibinia pellucens</i>	17, 23	OA	CA-AT	OH	MO
<i>Sibinia pyrrhodactyla</i>	17, 23, 25, 28	AE, OA	BT-AT	OH	MO
<i>Sibinia viscariae</i>	17	AE	SI-AT	OH	MO
<i>Anthonomus phyllocola</i>	19, 31	DP	SI-AT	OT	MF
<i>Anthonomus rectirostris</i>	5, 6, 11, 23, 25, 28	CB DP, SA	PC-AT	OT	MF
<i>Anthonomus rubi</i>	11, 21, 27, 28	CB, DP, SA, AE	SI-AT	OT	MF
<i>Brachonyx pineti</i>	1, 2, 5, 18, 19, 23, 31	AG, DP	SI-AT	<i>Pinus sylvestris</i>	MF
<i>Bradybatus kellneri</i>	28	CB	CA-AT	OT	MF
<i>Gymnetron beccabungae</i>	28	AE	BT-AT	OH	HI
<i>Gymnetron melanarium</i>	2, 15, 21, 23, 28	CB, AE, OA	BT-AT	OH	MO
<i>Gymnetron rostellum</i>	2, 17, 28	AE	PO-BA	OH	MO
<i>Mecinus labilis</i>	8, 28	AE	BA-AT	<i>Plantago lanceolata</i>	MO
<i>Mecinus pascuorum</i>	3, 4, 5, 8, 13, 17, 22, 23, 28	AE, CP, OA	CA-ME	<i>Plantago lanceolata</i>	MO

<i>Mecinus pyrae</i>	22	CP	CA-ME	OH	MO
<i>Miarus ajugae</i>	2, 4, 8, 28	AE	SI-ME	OH	MO
<i>Rhinusa asellus</i>	23	OA	CA-ME	OH	MO
<i>Rhinusa bipustulata</i>	17, 23	OA	SI-AT	OH	MO
<i>Rhinusa tetra</i>	17, 23	AE, OA	SI-ME	OH	MO
<i>Cionus hortulanus</i>	21, 23, 25	AE, OA	SI-AT	OH	MO
<i>Cionus scrophulariae</i>	14, 18	CB	SA-AT	OH	EU
<i>Cionus thapsus</i>	23	OA	CA-AT	OH	MO
<i>Cionus tuberculosus</i>	21, 28	CB, AE	SI-AT	OH	EU
<i>Stereonychus fraxini</i>	6, 17, 18, 28	CB, SA	PO-ME	<i>Fraxinus excelsior</i>	EU
<i>Isochnus populicola</i>	17, 19, 27	SA, CP	PC-AT	OT	MF
<i>Orchestes jota</i>	4, 15, 17, 25, 28	DP, SA, AE	PC-AT	OT	MF
<i>Orchestes rusci</i>	6, 15, 25	DP, SA	PC-AT	OT	MF
<i>Orchestes testaceus</i>	18, 21	AG, CB	BT-AT	OT	MF
<i>Rhamphus oxyacanthae</i>	28	CB	BT-AT	OT	MF
<i>Rhamphus pulicarius</i>	6, 27	SA	PC-AT	OT	MF
<i>Tachyerges salicis</i>	5, 27, 28	CB, SA, AE	PC-AT	OT	MF
<i>Tachyerges stigma</i>	2, 5, 6, 17, 18, 25, 27, 28, 31	AG, CB, DP, SA	PC-AT	OT	MF
<i>Baris artemisiae</i>	17, 23, 28, 29	AE, OA	SI-AT	OH	MO
<i>Limnobaris t-album</i>	3, 7, 19, 22, 24, 25, 28	CP, MC, PH	SI-AT	OH	HI
<i>Mononychus punctumalbum</i>	10, 17, 18, 19, 28	AG, SA, PH	BT-AT	<i>Iris pseudoacorum</i>	HI
<i>Marmaropus besseri</i>	17, 21, 23, 28	AE, OA	BT-AT	OH	MO
<i>Phytobius leucogaster</i>	18	SA, PH	SI-AT	OH	HI
<i>Pelenomus quadrituberculatus</i>	13	CP	PC-AT	OH	MO
<i>Pelenomus waltoni</i>	15, 22	CP, MC	PC-AT	OH	MO
<i>Rhinoncus bruchoides</i>	3, 5, 15, 25, 28	CB, AE, CP, OA	PC-AT	OH	MO
<i>Rhinoncus castor</i>	5, 17, 19, 23, 28	AE, CP, OA	PC-AT	<i>Rumex acetosella</i>	MO
<i>Rhinoncus pericarpus</i>	3, 7, 15, 17, 17, 23, 25, 26, 28, 30	AG, CB, SA, AE, CP, MC, PH	PC-AT	OH	EU
<i>Rhinoncus perpendicularis</i>	6, 18, 23, 24, 28, 30	AG, CB, AE, MC, OA, PH	PC-AT	OH	MO
<i>Rutidosoma globulus</i>	18	AG	PC-AT	OT	MF

<i>Scleropterus serratus</i>	18	AG	BT-AT	PH	EU
<i>Tapeinotus sellatus</i>	10, 15, 24, 26, 28	CB, MC, PH	SI-AT	OH	HI
<i>Amalus scortillum</i>	17	AE	SI-AT	OH	MO
<i>Micrelus ericae</i>	13, 15, 23	AG, DP	BT-AT	OH	EU
<i>Trichosirocalus barnevillei</i>	8, 17, 23	AE, OA	SI-AT	<i>Achillea millefolium</i>	MO
<i>Trichosirocalus troglodytes</i>	17, 28	AE, OA	BT-AT	<i>Plantago lanceolata</i>	MO
<i>Zacladus geranii</i>	28	CB	SI-AT	OH	EU
<i>Nedys quadrimaculatus</i>	2, 3, 4, 5, 6, 7, 13, 14, 15, 16, 17, 18, 21, 22, 23, 25, 26, 27, 28, 29, 30	AG, CB, DP, SA, AE, CP, MC, OA, PH	SI-AT	<i>Urtica dioica</i>	EU
<i>Coeliastes lamii</i>	11, 18, 20, 30	AG, CB, SA	PO-AT	OH	EU
<i>Calosirus terminatus</i>	6	MC	BT-AT	OH	EU
<i>Ceutorhynchus alliariae</i>	18	CB, SA	BT-AT	<i>Alliaria officinalis</i>	EU
<i>Ceutorhynchus assimilis</i>	2, 8, 15, 17, 21, 23, 28, 29, 30	CB, AE, OA	SI-AT	OH	EU
<i>Ceutorhynchus chalybaeus</i>	18	CB	MO-AT	OH	EU
<i>Ceutorhynchus constrictus</i>	6, 7, 18, 22, 24, 27, 28	AG, CB, SA, AE, CP, MC, PH	BT-AT	<i>Alliaria officinalis</i>	EU
<i>Ceutorhynchus dubius</i>	23	OA	CA-ME	<i>Berteroa incana</i>	MO
<i>Ceutorhynchus erysimi</i>	2, 8, 19, 21, 23, 28, 29	CB, AE, CP, OA	PC-AT	OH	EU
<i>Ceutorhynchus griseus</i>	17, 23, 29	OA	CA-AT	OH	MO
<i>Ceutorhynchus hirtulus</i>	23	AE	CA-AT	<i>Erophila verna</i>	MO
<i>Ceutorhynchus obstructus</i>	2, 5, 11, 13, 17, 18, 24, 25, 28, 30	AG, CB, DP, SA, AE, CP, MC, OA	BT-AT	OH	EU
<i>Ceutorhynchus pallidactylus</i>	2, 14, 21, 23, 28, 30	CB, SA, AE	CA-ME	OH	EU
<i>Ceutorhynchus pallipes</i>	2, 6, 7, 8, 13, 15, 16, 17, 18, 21, 23, 24, 25, 28	CB, AE, CP, MC, OA	SI-AT	OH	EU

<i>Ceutorhynchus pulvinatus</i>	21, 23	AE, OA	SI-AT	OH	MO
<i>Ceutorhynchus pumilio</i>	15, 23	MC, OA	BT-AT	<i>Teesdalea nudicaulis</i>	MO
<i>Ceutorhynchus roberti</i>	16, 17, 18, 26	CB, SA, MC	PO-AT	<i>Alliaria officinalis</i>	EU
<i>Ceutorhynchus syrites</i>	15, 23	AE, OA	SI-AT	OH	MO
<i>Ceutorhynchus typhae</i>	3, 5, 8, 13, 14, 17, 18, 23, 25, 28, 29, 30	AG, CB, SA, AE, CP, MC, OA	PC-AT	OH	EU
<i>Parethelcus pollinarius</i>	13, 22, 28, 30	CB, SA, AE, CP	BT-AT	<i>Urtica dioica</i>	EU
<i>Glocianus punctiger</i>	23, 29	OA	PC-AT	<i>Taraxacum officinale</i>	MO
<i>Hadroplontus litura</i>	22, 28	AE, CP	BT-AT	OH	MO
<i>Datonychus melanostictus</i>	17	PH	PO-ME	OH	MO
<i>Mogulones asperifoliarum</i>	8, 17, 18, 23, 28	AG, AE, OA	SI-AT	OH	EU
<i>Mogulones geographicus</i>	23	OA	CA-ME	<i>Echium vulgare</i>	MO
<i>Microplontus millefolii</i>	17	AE	BT-AT	<i>Tanacetum vulgare</i>	MO
<i>Microplontus triangulum</i>	23, 29	OA	SI-AT	<i>Achillea millefolium</i>	MO

CONCLUDING REMARKS

The research on weevils found in the Stobrawski Landscape Park enabled 285 species representing about 30% of Poland's weevil fauna to be identified. In comparison with other such Parks, this number is comparable, but not distinctive. The study revealed five species new to the fauna of Lower (Mesotrichapion punctirostre, Nanophyes brevis, Otiorhynchus lepidopterus) or Upper Silesia (Phytobius leucogaster); in addition, Rhaphitropis marchicus had never before been recorded in either part of Silesia. The presence was confirmed of many species, for which the last reports can be regarded as historical; the most interesting of these are Lasiorhynchites caeruleocephalus, Trachyploeus scabriculus, Pseudomylocerus sinuatus, Polydrusus flavipes, Sitona regensteiniensis, Bagous subcarinatus, Tychius parallelus.

The research on weevils in the SLP is the first of its kind in this location and has filled a gap in research on weevils in this part of the Silesian Lowland. The research also confirmed

the value of the SLP as an important element in the regional network of protected areas.

The richest plant communities in terms of species were fresh meadows (*Arrhenaterion elatioris*) and ruderal communities (*Onopordetalia acanthii*), where a total of 58% of all the species identified were collected. The species-richest forest communities were oak-hornbeam forests (*Carpinion betuli*). The lowest number of species were found in rush communities: their weevil fauna was the least similar to those of the communities. The highest percentage (37%) of exclusive species was recorded in the pine forests.

In terms of habitat preferences, over 40% of the weevil fauna in the SLP are mesophilous species of open areas, whereas xerothermic species accounted for the smallest percentage. As far as nutritional preferences are concerned, nearly half of all the species were oligophages associated with herbaceous plants; at the same time, oligophages associated with herbaceous plants accounted for the smallest share in the total fauna.

The backbone of the SLP fauna are broad-range species covering the entire Palaearctic (Pacific-Atlantic element) and the Euro-Siberian elements (Sibero-Atlantic), which is typical of Poland's fauna.

The weevil fauna of the plant communities in the SLP that were not included in this study requires further research to be conducted in the future. This applies in particular to farmland as well as plant communities within the park's boundaries in the form of single patches with small surface areas. This may yield more reports of new species in the SLP. Regular studies of the weevil fauna in the already examined communities is also desirable, as they will enable observation of the changes that will occur as a result of the changing ways in which the different types of meadows and forests are used. This is particularly important in protected areas, nature reserves and Natura 2000 sites.

REFERENCES

- ERHARDT J. 1890. Fortsetzung des K. Letzner'schen Verzeichnisses der Käfer Schlesiens. Zeitschrift für Entomologie, Breslau (N. F.) **15**: 285-348.
- GERHARDT J. 1910. Verzeichnis der Käfer Schlesiens preussischen und österreichischen Anteils, geordnet nach dem catalogus coleopterorum Europae vom Jahre 1909. Dritte, neubearbeitete Auflage, Berlin, XVI. 431 pp.
- GONTARKA M., BADORA K. [eds.]. 2003. Ścieżki przyrodniczo-krajobrazowe Stobrawskiego Parku Krajobrazowego. ZOPK. 120 pp.
- KELCH A. 1830. [Bei Ratibor gesammelte Käfer]. Uebersicht der Arbeiten und Veränderungen der schlesischen Gesellschaft für vaterländische Cultur Breslau, 1829. Pp.: 53.
- KELCH A. 1846. Grundlage zur Kenntniss der Käfer Oberschlesiens, insonders der Umgegend von Ratibor. [In]: Zu der öffentlichen Prüfung aller Classen des Königlichen Gymnasiums zu Ratibor den 4. und 7. April, und dem mit Entlassung der Abiturienten verbundenen Redeactus den 20. April laden ergebenst ein Director und Lehrer-Collegium. Ratibor. 54 pp.
- KELCH A. 1848. *Nebria livida* FAB. und *Chlaenius spoliatus* FAB. Bei Ratibor. Uebersicht der Arbeiten und Veränderungen der schlesischen Gesellschaft für vaterländische Cultur Breslau,

- Breslau. Pp.: 101.
- KELCH A. 1852. Grundlage zur Kenntniss der Käfer Oberschlesiens etc. Erster Nachtrag. [In:] Zu der öffentlichen Prüfung aller Classen des Königlichen Gymnasiums zu Ratibor und der Entlassung der Abiturienten den 5. und 6. April ladet ergebenst ein das Lehrer-Collegium. Ratibor: 6-19.
- KOLBE W. 1927. Beiträge zur schlesischen Käferfauna. Zeitschrift für Entomologie, Breslau **15**: 2-14.
- KUŚKA A. 1973. Materiały do znajomości ryjkowców (Col.: Curculionidae) Śląska. Polskie Pismo Entomologiczne **43**: 717-727.
- KUŚKA A. 1977. Materiały do znajomości ryjkowców (Col., Curculionidae) wylotu Bramy Morawskiej w Polsce. Polskie Pismo Entomologiczne **47** : 3-16.
- Kuśka A. 1999. Ryjkowce (Coleoptera: Anthribidae, Attelabidae, Apionidae, Curculionidae) Parku Krajobrazowego "Góry Opawskie". Rocznik Muzeum Górnośląskiego (Przyroda) **15**: 136-153.
- LIRO A. [red.], 1995. Koncepcja krajowej sieci ekologicznej ECONET – Polska. IUCN. Warszawa.
- ŁĘGOWSKI D., KUŚKA A. 2006. Materials to the distribution of protected, rare and endangered insects species in the Stobrawa Landscape Park. Nature Journal **39**: 57-60.
- MAZUR M. 2001. Ryjkowce kserotermiczne Polski (Coleoptera: Nemonychidae, Attelabidae, Apionidae, Curculionidae). Studium zoogeograficzne. Monografie Fauny Polski **22**, Kraków. 378 pp.
- MAZUR M.A. 2005. Ryjkowce (Coleoptera: Curculionoidea) siedlisk kserotermicznych Śląska. Wiadomości Entomologiczne **24**: 175-178.
- MAZUR M.A. 2006a. Weevils (Coleoptera: Curculionoidea: Anthribidae, Apionidae, Curculionidae, Rhynchitidae) of selected excavations of Opole Silesia. NOWAK A., HEBDA G. (eds.). Biodiversity of quarries and pits. Opole – Góraźdże. Pp.: 145-161.
- MAZUR M.A. 2006b. Materiały do znajomości ryjkowców (Coleoptera: Curculionoidea: Apionidae, Curculionidae) Śląska. Wiadomości Entomologiczne **25**: 225-232.
- MAZUR M.A. 2006c. Apionidae (Coleoptera: Curculionoidea) siedlisk kserotermicznych Śląska Opolskiego. Wiadomości Entomologiczne. Supl. **2**: 159-162.
- MAZUR M.A. 2006d. Materials to knowledge of beetles (Coleoptera: Curculionidae, Bruchidae) in Opole Region. Nature Journal **39**: 69-72.
- MAZUR M.A. 2007a. Materiały do znajomości fauny ryjkowców (Coleoptera: Curculionoidea: Anthribidae, Apionidae, Curculionidae, Rhynchitidae) Śląska. Acta Entomologica Silesiana **14-15**: 86-87.
- MAZUR M.A. 2008. Uzupełnienie do wykazu ryjkowców (Coleoptera: Curculionoidea: Apionidae, Curculionidae, Rhynchitidae) Parku Krajobrazowego Gór Opawskich. Parki Narodowe i Rezerваты Przyrody **27**: 127-130.

Received: May 07, 2011

Accepted: May 20, 2011