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Longhorn beetles (Coleoptera: Cerambycidae) of central Mazovia, Poland

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The paper presents the results of study on longhorn beetles in central Mazovia in Poland. Observations were carried out by the authors between years 1992 and 2015. The paper includes data on the distribution of 101 Cerambycidae species. Remarks on 30 interesting and rare species are given. Frequency and abundancy of longhorn beetles are analyzed. The current literature data status of some species is verified. Host plants (including 8 alien species) for 73 longhorn beetle species are presented. New host plants for *Necydalis major* Linnaeus, 1758 (*Corylus avellana* L.) and *Ropalopus macropus* (Germar, 1824) (*Rhus typhina* L.) are given. Remarks on trophic relations between larvae and host plants are provided. Moreover a zoogeographic analysis is presented. It is proposed that *Euracmaeops septentrionis* (Thomson, 1866) should be regarded as an Euro-Siberian zoogeographical element across Poland. Both *Leiopus linnei* Wallin, Nylander et Kvamme, 2009 and *L. nebulosus* (Linnaeus, 1758) are acknowledged as an European zoogeographical element.

Key words: Cerambycidae, Coleoptera, faunistic, new records, central Mazovia, Poland

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INTRODUCTION

Longhorn beetles is one of the most species abundant group of beetles with around 35000 already described species (Švácha & Lawrence 2014). There are more than 600 species known from Europe and nearly 200 noted from Poland (Lobl & Smetana 2010; Gutowski et al. 2011). Due to an attractive coloration and considerable sizes, Cerambycidae remain one of the most well-researched beetle families.

Fauna of Cerambycidae of Mazovian Lowland has been investigated since last century. Hence, a number of works were published (e.g. Hildt 1917; Śliwiński 1961; Burakowski & Nowakowski 1981; Borowski 1993; Gutowski 1995; Miłkowski 1997, 2004; Kurzawa 2002; Górski 2004; Miłkowski et al. 2008). However, a faunistic review of Cerambycidae in central Mazovia is still lacking. The main aim of this study was to gather and summarize new and existing faunistic data on the distribution of longhorn beetles, that occur in central Mazovia region with respect to rare species. Additionally, the purpose of this research was also to analyze connections between the species number and the state of environmental protection.

MATERIALS AND METHODS

Study area

Central part of Mazovian Lowland (Fig. 1) contains several smaller physic-geographical regions which were partially or entirely included into the study area. These are: Warsaw Basin, Central Vistula Valley (only northern part), Warsaw Plain (northern part), Łowicz - Błonie Plain (eastern part), Rawa Upland (northern part), Płońsk Upland, Ciechanów Upland (southern part), Lower Narew Valley (southern part), Łomża Interfluve (southern part), Garwolin Plain, Wołomin Plain and Lower Bug Valley (western part) (Kondracki 1978). This whole area was formed during the central-Polish and Baltic glaciations. Now, the Mazovian Lowland lies in the temperate climatic zone and its characteristic feature is a transitional character between the maritime and continental climate. Because of a long period of human settlement and an agricultural activity, now Mazovian Lowland is largely deforested and has agro-industrial character with some areas covered by production (mainly coniferous) forests. Remains of natural vegetation are represented mostly in protected areas. These are one National Park (Kampinos National Park), three Landscape Parks, 25 areas belonging to the European Natura 2000 framework, and approximately 70 nature reserves. The remains of riparian forests can be found in river valleys including the biggest rivers of region like Vistula, Bug or Narew. Various kind of biotopes were penetrated during the study including deciduous, coniferous and mixed forests, forest edges, orchards, parks, meadows, shrublands, wetlands and urban areas. Longhorn beetles, mostly associated with dead and dying wood occur predominantly in forests and only few species inhabit typical agricultural environments. Therefore, explorations predominantly were carried out in tree stands.

Methods

The study was carried on with various intensity between years 1992 and 2015. One summary of the earlier research carried out in Warsaw between 1992 and 2004 was published by Górski (2004). Upon this much more data was included into this paper. An intensified study was carried out between years 2004 and 2015. Literature data concerning the study area was included and used in discussion on selected, rare species.

There is a number of effective methods of collecting longhorn beetles, e.g. sighting of imagines (especially on the blossoming flowers and a host material of larvae), using entomological umbrella and net, sweep-netting, attracting to light (e.g. *Arhopalus rusticus* (Linnaeus, 1758), *Prionus coriarius* (Linnaeus, 1758), *Saperda carcharias* (Linnaeus, 1758), *S. perforata* (Pallas, 1773), *S. scalaris* (Linnaeus, 1758), *Stenostola ferrea* (Schrank, 1776)), collecting host material with larvae and breeding. Last method is the most dependable to obtain some exact species, which are difficult to find in the field due to leading a secret life (e.g. *Necydalis major* Linnaeus, 1758, *Oplosia cinerea* (Mulsant, 1839), *Pogonocherus* Dejean, 1821) or spending most of a lifetime in the canopies (e.g. *Axinopalpis gracilis gracilis* (Krynicki, 1832), *Molorchus marmottani marmottani* (Brisout de Barneville, 1863), *Phymatodes pusillus pusillus* (Fabricius, 1787)). Therefore, numerous breeding processes were conducted. Proper notes were made on the most of the common species, which were observed and determined in the field without collecting.

The nomenclature of Cerambycidae was based on the Catalogue of Palearctic Coleoptera (Löbl & Smetana 2010) and a check-list of European Cerambycidae (Danilevsky 2015). Some data included in the Catalogue of Polish Fauna (Burakowski et al. 1990) were specified. Zoogeographical division of longhorn beetles was taken from earlier works (Gutowski 1995; Górski 2004; Miłkowski 2004) with slight changes. Abundance and frequency values were based on Miłkowski (2004) with minor changes as a result of a long-lasting research and significantly larger amount of data. The following values were established:

- abundant and frequent - at least 12 localities, at least 21 specimens;

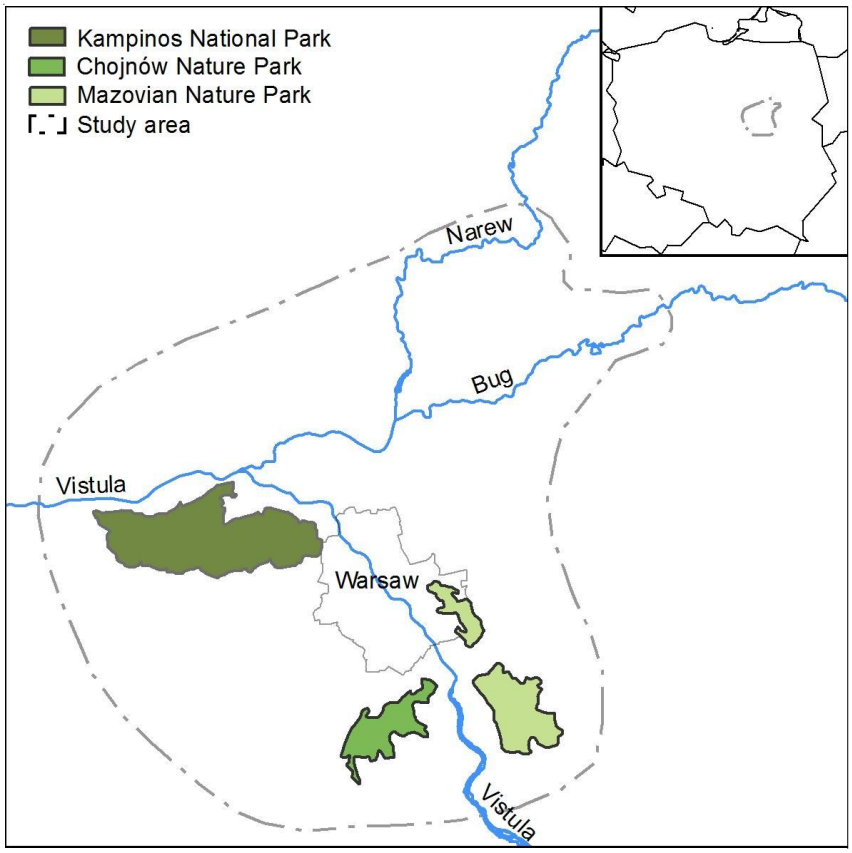

Fig. 1. Map of central Mazovia

- abundant and infrequent - less than 12 localities, at least 21 specimens;

- not abundant and frequent - at least 12 localities, less than 21 specimens;

- not abundant and infrequent - less than 12 localities, less than 21 specimens.

The authors received some unpublished data on the distribution of some longhorn beetle species, which was included in the presented study. The following abbreviations were used in the text: AS - Adam Stroiński, DK - Dariusz Kucharski, JH - Jacek Hilszczański, JTD - Jan Tatur-Dytkowski, KŁ - Krzysztof Łoś, MJ - Marcin Jakubowski, MW - Marek Wełnicki, PG - Paweł Górski.

RESULTS AND DISCUSSION

During the study a number of 101 species of longhorn beetles were recorded in the study area which is over 50% of polish longhorn beetles fauna. A number of 30 presented species are considered as rare in central Mazovia or across Poland. The occurrence of some of those was confirmed with new data whereas a number of new localities are also given. Data on species composition, number of localities, abundance and frequency, host plants and a zoogeographical analysis are listed in table 1.

Host plants of larvae

Numerous breeding processes were conducted during the study. Consequently, host plants have

been given for 73 species of longhorn beetles. Larvae, pupae and imagines were collected in the pupal cells of 41 types of host plants, which were determined to the genus or species level.

The most frequently infested plants were: oak (*Quercus*) with 24 ecologically associated species, scots pine (*Pinus silvestris* L.) with 18 species, norway spruce (*Picea abies*) with 12 species, aspen (*Populus tremula*) with 10 species, common hazel (*Corylus avellana*) and apple-tree (*Malus*) with 8 species, lime (*Tilia*) and elm (*Ulmus*) with 7 species.

Ropalopus macropus (Germar, 1824) has occurred as the most polyphagous longhorn beetle infesting 17 tree and shrub species. Corresponding 10 host plant species have been recorded for *Anisarthron barbipes* (Schrank, 1781), 9 species for *Pogonochaerus hispidus* (Linnaeus, 1758), 8 species for *Rhamnusium bicolor bicolor* (Schrank, 1781) and *Leiopus linnei* Wallin, Nylander & Kvamme, 2009, 7 species for *Grammoptera ruficornis ruficornis* (Fabricius, 1781), 6 species for *Necydalis major* Linnaeus, 1758, 5 species for *Clytus arietis* (Linnaeus, 1758), *Tetrops praeustus* (Linnaeus, 1758) and *Xylotrechus rusticus* (Linnaeus, 1758).

8 alien plant species were detected as a host material of Cerambycidae larvae. These were: silver maple (*Acer saccharinum*), ashleaf maple (*Acer negundo*), horse chestnut (*Aesculus hippocastanum*), common walnut (*Juglans regia*), mulberry (*Morus*), black cherry (*Prunus serotina*), black locust (*Robinia pseudoaccacia*) and staghorn sumac (*Rhus typhina*). Details are shown in table 1.

Some of the species were reported as breeding in the same host material simultaneously (e.g. *Molorchus marmottani marmottani* with *M. minor* (Linnaeus, 1758), *Phymatodes pusillus pusillus* with *Pyrrhidium sanguineum* (Linnaeus, 1758), *Obrium cantharinum* (Linnaeus, 1767) with *Leiopus punctulatus* (Paykull, 1800), *Pogonocherus decoratus* (Fairmaire, 1875) with *P. fasciulatus* (DeGeer, 1775), *Exocentrus punctipennis* Mulsant et Guillebeau, 1856 with *Clytus arietis, Necydalis major* with *Strangalia attenuata* (Linnaeus, 1758), *E. lusitanus* (Linnaeus, 1767) with *Stenostola ferrea, E. lusitanus* with *E. adspersus* Mulsant, 1846, *Saperda perforata* with *Xylotrechus rusticus, L. punctulatus* with *Xylotrechus rusticus*).

Trophic connections of imagines

24 species of Cerambycidae were observed as feeding on flowers. The most frequently visited (22 species) were blooming *Apiaceae*, followed by *Crataegus* L. (12 species), *Sorbus aucuparia* (7 species), *Cornus sanguinea* (7 species), *Achillea* (5 species), *Aruncus dioicus* (5 species), *Padus avium* (4 species). Feeding on the branches, leaves and stalks has also been observed (e.g. *Saperda carcharias* on *Populus, S. perforata* on *Populus tremula, Leiopus linnei* on *Quercus* and *Ulmus, Lamia textor* (Linnaeus, 1758) on *Salix alba, Agapanthia villosoviridescens* (DeGeer, 1775) on *Urtica dioica, A. intermedia* Ganglbauer, 1883 on *Knautia arvensis* and *Oberea erythrocephala* (Schrank, 1776) on *Euphorbia*).

Abundance and frequency

The most numerous species belong to the category abundant and frequent – 37 species. Exactly the same number is represented as not abundant and infrequent. Subsequently, abundant and infrequent with 25 species and 2 species in the not abundant and frequent category.

Zoogeographical elements

Palearctic elements have occurred as dominant in the study area with 28.7%, being followed by Euro-Caucasian (18.8%), Subponto-mediterranean (13.9%), and European (11.9%). Minority of species belong to Euro-Siberian (8.9%), Holarctic (5.9%), Subpontic (4.0%), Submediterranean (4.0%), Cosmopolitan (2.0%), South-European (2.0%) and Boreal-Mountain (1.0%) zoogeographical elements. Very similar proportions had been given from Łódź and its environs

Table 1. The list of longhorn beetles (Coleoptera: Cerambycidae) species recorded during presented study: **Host plants of larvae:** Aa – European silver fir (*Abies alba*), An – Ashleaf maple (*Acer negundo*), Ap – Norway maple (*A. platanoides*), Aps – Sycomore maple (*A. pseudoplatanus*), As – Silver maple (*A. saccharinum*), Ah – Horse chestnut (*Aesculus hippocastanum*), Ag – Common alder (*Alnus glutinosa*), Bp – Silver birch (*Betula pendula*), Car – Common hornbeam (*Carpinus betulus*), Ca – Common hazel (*Corylus avellana*), Cr – Hawthorn (*Crataegus* sp.), E – Spindle (*Euonymus* sp.), Fs – Common beech (*Fagus sylvatica*), Fe – Asch (*Fraxinus excelsior*), Jr – Common walnut (*Juglans regia*), L – Larch (*Larix* sp.), M – Apple-tree (*Malus* sp.), Mo – Mulberry (*Morus* sp.), Pa – Norway spruce (*Picea abies*), Ps – Scots pine (*Pinus sylvestris*), Pal – White poplar (*Populus alba*), Pn – Black poplar (*P. nigra*), Pt – Aspen (*P. tremula*), Px – Hybrid black poplar (*Populus x canadensis*), Paa – Bird cherry (*Padus avium*), Pra – Sweet cherry (*Prunus avium*), Ps – Blackthorn (*P. spinosa*), Prs – Black cherry (*P. serotina*), Pr – *Prunus* sp., P – Pear (*Pyrus* sp.), Rf – Alder buckthorn (*Rhamnus frangula*), Rp – Black locust (*Robinia pseudacacia*), Rt – Staghorn sumac (*Rhus typhina*), Sc – Goat willow (*Salix caprea*), Sal – White willow (*S. alba*), S - *Salix* sp., Sr – Red elderberry (*Sambucus racemosa*), Sa – Rowan (*Sorbus aucuparia*), Q – Oak (*Quercus* sp.), T – Lime (*Tilia* sp.), U – Elm (*Ulmus* sp.). **Abundance and frequency:** a – abundant, n – not abundant, f – frequent, i – infrequent. **Distribution in protected areas (with buffer zones):** K – Kampinos National Park, C – Chojnów Landscape Park, M – Mazovian Landscape Park. **Zoogeographical elements:** Co – Cosmopolitan, Ho – Holarctic, Pa – Palearctic, Es – Euro-Siberian, Ec – Euro-Caucasian, Eu – European, Pm – Subponto-Mediterranean, Po – Subpontic, Se – South-European, Me – Submediterranean, Bm – Boreal-Mountain

No	Subfamily/Species	Number of localities	Host plant of larvae	Occurrence in protected areas	Abundance and frequency	Zoogeographical elements
	Subfamily: Prioninae					
1	*Ergates faber faber* (Linnaeus, 1760)	2	Ps.		a – i	Pm
2	*Prionus coriarius* (Linnaeus, 1758)	14	Ps.	K, C, M	a – f	Pa
	Subfamily: Spondylidinae					
3	*Anisarthron barbipes* (Schrank, 1781)	18	Ap., Aps., As., An., T., Ah., M., Pn., Px., U.		a – f	Eu
4	*Arhopalus ferus* (Mulsant, 1839)	1	Ps		a – i	Co
5	*A. rusticus* (Linnaeus, 1758)	9	Ps.	K, C, M	a – i	Ho
6	*Asemum striatum* (Linnaeus, 1758)	10	Ps.	C	n – i	Ho
7	*Spondylis buprestoides* (Linnaeus, 1758)	15	Ps.	K, C, M	a – f	Pa
8	*Tetropium castaneum* (Linnaeus, 1758)	2	Pa.		a – i	Pa
9	*T. fuscum* (Fabricius, 1787)	6	Pa.	C, M	n – i	Es
10	*T. gabrieli* Weise, 1905	4	L.	C	n – i	Eu
	Subfamily: Lepturinae					
11	*Alosterna tabacicolor tabacicolor* (DeGeer, 1775)	24	Ca.	K, C, M	a – f	Pa
12	*Anastrangalia reyi* (Heyden, 1889)	1		K	n – i	Eu
13	*A. sanguinolenta* (Linnaeus, 1760)	1		M	n – i	Bm
14	*Anoplodera rufipes rufipes* (Schaller, 1783)	3		C	n – i	Ec
15	*Cortodera femorata* (Fabricius, 1787)	8	L., Pa.	K, C	a – i	Eu
16	*C. humeralis* (Schaller, 1783)	8		K, M	a – i	Se
17	*Dinoptera collaris* (Linnaeus, 1758)	8		C	a – i	Pa
18	*Euracmaeops marginatus* (Fabricius, 1781)	1		M	n – i	Pa
19	*E. septentrionis* (Thomson, 1866)	3	Pa.	C	a – i	Es
20	*Grammoptera abdominalis* (Stephens, 1831)	9	Q.	K, C, M	n – i	Ec

Table 1. The list of longhorn beetles (Coleoptera: Cerambycidae) species recorded during presented study (Continuation)

21	*G. ruficornis ruficornis* (Fabricius, 1781)	33	Rp., Rf., S., Paa., Pr., M., Sa.	K, C, M	a – f	Ec
22	*G. ustulata ustulata* (Schaller, 1763)	3	Q.		n – i	Ec
23	*Leptura aethiops* Poda, 1761	12	Ca.	K, C, M	a – f	Pa
24	*Leptura quadrifasciata* Linnaeus, 1758	28	Bp., S., Pt., Car.	K, C, M	a – f	Pa
25	*Pseudovadonia livida livida* (Fabricius, 1777)	39		K, C, M	a – f	Pa
26	*Rhagium inquisitor inquisitor* (Linnaeus, 1758)	17	Ps., Pa.	K, C, M	a – f	Ho
27	*Rhagium mordax* (DeGeer, 1775)	13	Bp., Q.	K, C, M	a – f	Es
28	*R. sycophanta* (Schrank, 1781)	1			n – i	Pa
29	*Rhamnusium bicolor* (Schrank, 1781)	23	Ap.,An., As., T., Ah., Pn., Px., U.	K, M	a – f	Eu
30	*Stenocorus meridianus* (Linnaeus, 1758)	5			n – i	Es
31	*Stenurella bifasciata bifasciata* (Müller, 1776)	11		C, M	a – i	Pa
32	*S. melanura melanura* (Linnaeus, 1758)	44		K, C, M	a – f	Pa
33	*S. nigra nigra* (Linnaeus, 1758)	25	Q.	K, C, M	a – f	Ec
34	*Stictoleptura maculicornis maculicornis* (DeGeer, 1775)	20		K, C, M	a – f	Ec
35	*S. rubra rubra* (Linnaeus, 1758)	34	Ps., Pa.	K, C, M	a – f	Pa
36	*Strangalia attenuata* (Linnaeus, 1758)	33	Car., U., Q.	K, C, M	a – f	Pa
	Subfamily: Necydalinae					
37	*Necydalis major* Linnaeus, 1758	9	Ca., Pt., Sc., Sal., Pr., Q.	K, C, M	n – i	Pa
	Subfamily: Cerambycinae					
38	*Anaglyptus mysticus* (Linnaeus, 1758)	3	U., Ca., Ag.	K	n – i	Me
39	*Aromia moschata moschata* (Linnaeus, 1758)	10	Sc., Sal., S.	K, M	n – i	Pa
40	*Axinopalpis gracilis gracilis* (Krynicki, 1832)	1	Q.		n – i	Po
41	*Callidium aeneum aeneum* (DeGeer, 1775)	6	Ps.	C	n – i	Pa
42	*C. violaceum* (Linnaeus, 1758)	5	Pa., Ps.	C, M	n – i	Ho
43	*Cerambyx cerdo cerdo* Linnaeus, 1758	1	Q.		a – i	Eu
44	*Chlorophorus herbstii* (Brahm, 1790)	1			n – i	Es
45	*C. varius varius* (Müller, 1766)	6		C, M	n – i	Pm
46	*Clytus arietis* (Linnaeus, 1758)	14	U., M., Prs., Pr., Ca.	K, C, M	a – f	Ec
47	*C. tropicus* (Panzer, 1795)	2	Q.		n – i	Me
48	*Hylotrupes bajulus* (Linnaeus, 1758)	10	Ps.	M	n – i	Co
49	*Molorchus marmottani marmottani* (Brisout de Barneville, 1863)	1	Ps.		n – i	Eu
50	*M. minor minor* (Linnaeus, 1758)	15	Ps., Pa., L., Aa	K, C, M	a – f	Pa
51	*M. umbellatarus umbellatarus* (Schreber, 1759)	14	Paa., Pr., M., Cr.	K, C, M	a – f	Ec
52	*Obrium brunneum* (Fabricius, 1793)	6	Pa.	C	n – i	Ec
53	*O. cantharinum* (Linnaeus, 1767)	4	Px., Pt.	C	n – i	Pa
54	*Phymatodes alni alni* (Linnaeus, 1767)	17	Q.	K, C, M	a – f	Ec
55	*P. pusillus pusillus* (Fabricius, 1787)	2	Q.		n – i	Ec

Table 1. The list of longhorn beetles (Coleoptera: Cerambycidae) species recorded during presented study (Continuation)

56	*P. testaceus* (Linnaeus, 1758)	8	Q., Cr., S.		a – i	Ho
57	*Plagionotus arcuatus arcuatus* (Linnaeus, 1758)	22	Q.	K, C, M	a – f	Pm
58	*P. detritus detritus* (Linnaeus, 1758)	13	Q.	K, C, M	a – f	Ec
59	*Pyrrhidium sanguineum* (Linnaeus, 1758)	9	Q.	C	a – i	Me
60	*Ropalopus clavipes* (Fabricius, 1775)	1	Bp., Px., Ag.		a – i	Ec
61	*R. femoratus* (Linnaeus, 1758)	1	Q.		n – i	Se
62	*R. macropus* (Germar, 1824)	21	Ag., Bp., Ca., Car., Ap., Q., U., P., Pra., Ps., Pr., M., Mo., Cr., S., Rt., Fs.	K, C, M	a – f	Ec
63	*Xylotrechus antilope antilope* (Schöenherr, 1817)	16	Q.	K, C, M	a – f	Pm
64	*Xylotrechus ibex* (Gebler, 1825)	1	Ag		n – i	Es
65	*X. rusticus* (Linnaeus, 1758)	9	Bp., Fs., Pal., Pn., Pt.	C, M	a – i	Pa
	Subfamily: Laminae					
66	*Acanthocinus aedilis* (Linnaeus, 1758)	25	Ps.	K, C, M	a – f	Pa
67	*A. griseus griseus* (Fabricius, 1793)	11	Ps., Pa.	K, C, M	a – i	Es
68	*Agapanthia intermedia* Ganglbauer, 1883	3		M	a – i	Po
69	*A. villosoviridescens* (DeGeer, 1775)	20		K, C, M	a – f	Es
70	*Anaesthetis testacea* (Fabricius, 1781)	12	Q., S., Jr.	C	n – f	Pm
71	*Exocentrus adspersus* Mulsant, 1846	6	Q., Ca., T.	M	a – i	Ec
72	*E. lusitanus* (Linnaeus, 1767)	18	T.	K, C, M	a – f	Ec
73	*E. punctipennis* Mulsant et Guillebeau, 1856	8	U.	K, C	a – i	Po
74	*Lamia textor* (Linnaeus, 1758)	6		M	n – i	Pa
75	*Leiopus linnei* Wallin, Nylander et Kvamme, 2009	34	An., Q., U., Rp., Sa., Sc., M., Ps.	K, C, M	a – f	Eu
76	*L. nebulosus nebulosus* (Linnaeus, 1758)	1		K	n – i	Eu
77	*L. punctulatus* (Paykull, 1800)	5	Pt.	C, M	a – i	Eu
78	*Menesia bipunctata* (Zoubkoff, 1829)	12	Rf., Pt.	K, M	a – f	Eu
79	*Mesosa curculionoides* (Linnaeus, 1761)	7	Q.	M	n – i	Pm
80	*M. nebulosa nebulosa* (Fabricius, 1781)	4	Q.		n – i	Me
81	*Monochamus galloprovincialis pistor* (Germar, 1818)	14	Ps.	K, C, M	a – f	Pa
82	*M. saltuarius* (Gebler, 1830)	3	Ps., Pa.	C	a – i	Es
83	*Oberea erythrocephala erythrocephala* (Schrank, 1776)	5		M	n – i	Pm
84	*O. linearis* (Linnaeus, 1761)	4		C	n – i	Ec
85	*O. oculata* (Linnaeus, 1758)	9		M	n – i	Pa
86	*Oplosia cinerea* (Mulsant, 1839)	5	T., U., Sa	K	a – i	Pa
87	*Phytoecia coerulescens coerulescens* (Scopoli, 1763)	3			a – i	Pm
88	*P. nigricornis* (Fabricius, 1781)	6		K	a – i	Po
89	*P. pustulata* (Schrank, 1776)	10		K, M	a – i	Pm
90	*P. virgula* (Charpentier, 1825)	13		M	a – f	Pm
91	*Pogonocherus decoratus* (Fairmaire, 1875)	10	Ps., Pa..	K, C, M	n – i	Eu

Table 1. The list of longhorn beetles (Coleoptera: Cerambycidae) species recorded during presented study (Continuation)

92	*P. fasciculatus fasciculatus* (DeGeer, 1775)	10	Ps.	K, C, M	a – i	Pa
93	*P. hispidulus* (Piller et Mitterpacher, 1783)	6	Ca., Paa., Pr.	K, C, M	a – i	Pm
94	*P. hispidus* (Linnaeus, 1758)	12	T., E, Pt., Paa, Pr., Cr., Rf., M., Sr.	K, C, M	a – f	Pm
95	*Saperda carcharias* (Linnaeus, 1758)	12	Pt.	K, C, M	n – f	Pa
96	*S. perforata* (Pallas, 1773)	12	Pt., Pal.	K, C, M	a – f	Pa
97	*S. populnea populnea* (Linnaeus, 1758)	17	Pt., Pal.	K,C, M	a – f	Ho
98	*S. scalaris scalaris* (Linnaeus, 1758)	16	Q., Ag.	K, C, M	a – f	Pa
99	*Stenostola ferrea ferrea* (Schrank, 1776)	12	T.	K, C	a – f	Ec
100	*Tetrops praeustus praeustus* (Linnaeus, 1758)	24	Sa., Rf., M., Cr., Paa.	K, C, M	a – f	Pm
101	*T. starkii starkii* Chevrolat, 1859	4	Fe		n – i	Ec

(Śliwiński 1961), Wrocław (Strojny 1974) and Kozienicka Forest near Radom (Miłkowski 2004).

Protection of longhorn beetles in central Mazovia

The richest species composition has been recorded within the boundaries of protected areas and their environs, i.e. nature reserves, national and landscape parks, areas of Nature 2000 framework. The species richness within the borders of those is greater than in any other penetrated locations. The following numbers of species were recorded in the biggest protected areas in central Mazovia – 52 in Kampinos National Park, 61 in Chojnów Landscape Park and 62 in Mazovian Landscape Park. Furthermore numerous species were also found in forest reserves. *Cerambyx cerdo*, the only protected by polish law longhorn beetle species in central Mazovia still exists in Bielański Forest nature reserve in Warsaw. Former localities recorded from Warsaw - Młociny and Warsaw - Marymont indicate that the range of this very rare species is currently limited to this only locality. The greatest species richness accumulates in protected nature reserves in tree stands. Protection of those remains of natural biotopes is the most effective way to save the riches of species composition.

Remarks on selected species

***Agapanthia intermedia* Ganglb.**

Monophagous species of *Knautia arvensis*. Its larvae develop in stalks of host plants. By some authors species is treated as *A. violacea* (Fabricius, 1775) (Barševskis & Savenkov 2013). Species has already been recorded from Poland by Hofmański & Kerg (2011) and wrongly as *A. violacea* from the study area by Górski (2004). Its occurrence was confirmed on one locality and two new are given.

Localities: Kołbiel, 1 ex. on a stalk of host plant on 3.06.2006, leg. PG; Rajszew ad Warsaw, 5 exx. on *K. arvensis* on 9.05.2014, leg. PG; Warsaw – Kabaty, many specimens were observed on host plants between April and June of 2004 and 2014 (Fig. 2), leg. JTD & PG.

***Anastrangalia reyi* (Heyd.)**

Ecologically associated with coniferous and mixed forests. Common in mountainous and northern parts of Poland, however infrequent on lowlands. One known locality in Kampinos National Park (Burakowski & Nowakowski 1981, Burakowski et al. 1990) was confirmed during presented study.

Fig. 2. *Agapanthia intermedia* Gangl. on its host plant, *Knautia arvensis*. (Photo: JTD)

Fig. 5. *Cerambyx cerdo cerdo* L. in its habitat – deciduous forest with age-old *Quercus*, its host plant. (Photo: JTD)

Fig. 3. *Anoplodera rufipes rufipes* (Schall.) feeding on the blooming *Crataegus*. (Photo: JTD)

Fig. 6. *Clytus tropicus* (Panz.) lying eggs into bough of *Quercus*, its host plant. (Photo: JTD)

Fig. 4. *Axinopalpis gracilis gracilis* (Kryn.) on thin branch of *Quercus*, its host plant. (Photo: JTD)

Fig. 7. *Ergates faber faber* (L.) – pupa and fresh imago in pupal cells in the trunk of *Pinus sylvestris*. (Photo: JTD)

Fig. 8. *Euracmaeops septentrionis* (Thoms.) larva in its pupal cell created in the bark of *Picea abies*. (Photo: JTD)

Fig. 11. *Leiopus punctulatus* (Payk.) larva in its pupal cell in *Populus tremula* branch. (Photo: JTD)

Fig. 9. *Euracmaeops septentrionis* (Thoms.) on the collar-root of its host plant, *Picea abies*. (Photo: JTD)

Fig. 12. *Leiopus punctulatus* (Payk.) on a thick bough of *Populus tremula* right after hatching. (Photo: JTD)

Fig. 10. *Lamia textor* (L.) feeding on the *Salix alba* branch. (Photo: JTD)

Fig. 13. *Molorchus marmottani marmottani* (Bris.) on its host plant, *Pinus sylvestris*. (Photo: JTD)

Locality: Kampinos National Park – Łomna environs, one specimen collected on 1.07.1999, leg. AS.

***Anastrangalia sanguinolenta* (L.)**

Likewise, *A. reyi*, associated with coniferous and mixed forests. Rather rarely encountered on lowlands, however it had been recorded from the research area previously but had not been confirmed for decades (Burakowski et al 1990). One locality has been discovered in Mazovian Landscape Park during presented study.

Locality: Karpiska ad Celestynów on blossoming *Apiaceae* on 06.1995 few specimens, leg. PG.; on 15.07.2004 1 ex. collected on *Apiaceae*, leg. PG.

***Anoplodera rufipes rufipes* (Schall.)**

Occurs all over Poland, mainly in its mountainous parts (Burakowski et al. 1990). Ecologically associated with deciduous and mixed forests, although its biology is not yet known. Widely spread across Poland and rarely encountered in the central part of Mazovia (Burakowski et al. 1990). Recorded on two new localities during the study.

Localities: Żabieniec ad Piaseczno, 6 exx. on 6.06.1996 on blossoming flowers of *Cornus sanguineus*, leg. PG; Sękocin Stary ad Warsaw, 1 ex. in flight on 24.05.2003, leg. MW; Warsaw – Kabacki Forest, imagines between May of 2001 and 2014 on blossoming *Crateagus* (Fig. 3) and *Apiaceae* leg. JTD & PG.

***Arhopalus ferus* (Muls.)**

Wide-spread in coniferous and mixed forests associated mainly with *Pinus*, rarely with *Picea* and *Larix* (Starzyk 1999). Contrary to *Arhopalus rusticus*, *Arhopalus ferus* is rarely collected. Species has already been reported from Warsaw (Burakowski & Nowakowski 1981) and its environs (Stobiecki 1939). Recorded from one new locality within the study area.

Locality: Sękocin Stary ad Warsaw, dead specimen in a *Pinus sylvestris* trunk collected on 24.03.2005, leg. MJ.

***Axinopalpis gracilis gracilis* (Kryn.)**

Species rarely recorded from Poland. In the study area found once near Warsaw in Szczaki village (Kalisiak & Wełnicki 2013). Its development takes place in very thin branches of deciduous trees, mainly *Quercus* in warm and insolated places (Barševskis 2009). Its occurrence has been confirmed with new data on the only one known locality in the study area.

Locality: Szczaki ad Warsaw, 2 exx. reared on 15.01.2015 and 30.01.2015 from thin branches of *Quercus* found on 20.09.2014 (Fig. 4), leg. et cult. JTD.

***Cerambyx cerdo cerdo* L.**

Very rare, associated with old living oaks. Listed on Red List of Threatened Animals in Poland and in the Polish Red Book of Animals as vulnerable (Głowaciński 1992, 2004). Species is protected by polish law. From number of localities it became extinct in the last century (Burakowski et al. 1990). Reported numerous times from the last contemporary locality in northern Poland – Bielański Forest nature reserve (Hildt 1917; Schnaider 1964; Burakowski & Nowakowski 1981). Moreover the area is a European NATURE 2000 reserve where *C. cerdo* remains as an object of protection and a special care. It is regrettable that no protection activities were ever conducted to preserve the species in the area whereas its host trees are dying in an alarming tempo. Former localities of this species had been also reported from other places in northern part of Warsaw – Młociny and Marymont (Burakowski et al. 1990; Górski 2004).

Locality: Warsaw - Bielański Forest nature reserve, many specimens and their remains were observed between May and July of 1992-2014 (Fig. 5).

***Chlorophorus herbstii* (Brahm.)**

Despite its wide-spread distribution in Poland, it is encountered very occasionally. Species ecologically associated with deciduous trees, mainly with *Tilia* and *Quercus*, (Burakowski et al. 1990). Found once in the research area.

Locality: Ciszyca ad Warsaw, 1 ex. on blossoming *Apiaceae* collected on 7.07.2013, leg. JTD.

***Clytus tropicus* (Panz.)**

Rarely recorded on polish lowlands. Larvae develop in thick *Quercus* boughs in sun-drenched deciduous and mixed forests. Recorded from two localities from the study area. Its occurrence has been confirmed during the study on one already known location (Burakowski & Nowakowski 1981b; Burakowski 1982; Górski 2004) and a new locality is given.

Localities: Warsaw – Bielański Forest, dead specimen found in the pupal cell of oak on 22.03.2008, leg. JTD; Wólka Górska ad Nowy Dwór Mazowiecki, 2 larvae were collected on 8.12.2009 and 2 exx. reared (male and female) on 20-21.12.2009, leg. et cult. JTD. Further breeding was conducted ex ovo. Both beetles copulated and eggs were laid into a thick oaken branch (Fig. 6). On 15-21.11.2010 reared 5 exx., cult. JTD.

***Ergates faber faber* (L.)**

One of the largest beetles of Europe, locally still a quite common species in Poland, but mainly in western part of the country. Remains local and rather rare element of fauna within the borders of study area. In the "Red list of longhorn beetles of eastern Poland" listed as rare (Gutowski 1995). Unfortunately, although its rarity, since 2014 it has been excluded from the list of protected species in Poland. Has been recorded from two localities in Lower Bug Valley and Łomża Interfluve. Old evidence of its development (exit holes and larval galleries) had been found in Celestynów and Wieliszew near Warsaw (Gutowski et al. 2012). Nowadays well preserved populations of this species probably exist only in the eastern part of research area, inhabiting old production pine forests where it develops in tree stumps (Fig. 7) on clearing areas.

Localities: Kozłowo near Wyszków, remains of numerous specimens found on 20.08.1995, leg. PG; Kamieńczyk, 1 ex. on 19.08.1999, leg. MJ.

***Euracmaeops marginatus* (F.)**

Very rare, associated with coniferous forests, mainly with *Pinus*. Larvae develop under the bark of thick, burnt and dying pines (Miłkowski 2004). Species has already been reported from the research area from Otwock by Hildt (1917) and Kampinos National Park (Burakowski et al. 1990 - data published without details), on 20.05.1980, 1 ex., leg. KŁ. One new locality is given for the study area.

Locality: Borków ad Kołbiel, one specimen collected on the village road on 21.06.1992, leg. PG.

***Euracmaeops septentrionis* (Thoms.)**

Ecologically associated with collar-roots of coniferous tree trunks, mostly with *Picea*. In previous years considered as rarely collected, boreal-mountain species. Recent observations incline, that it inhabits lowland biotopes as well. Despite the earlier statements (Burakowski et al. 1990; Gutowski 1995; Górski 2004; Plewa 2010) it should not be regarded as a boreal-mountain zoogeographical element across Poland. Recorded from four localities within the study area from which three are given for the first time.

Localities: Sękocin Stary ad Warsaw, larvae in dead *Picea abies* collected on 20.03.2005, imagines on 4.04.2005, leg. et cult. MW; Zalesie Górne ad Warsaw, pupae and larvae collected on 16.04.2005, imagines on 23-24.04.2005, leg. et cult. MW.; Pilawa ad Warsaw, from 5 larvae collected on 3.03.2010 reared 5 exx. on 12-16.03.2010, leg. et cult. JTD; Warsaw – Kabacki Forest, from 8 larvae (Fig. 8) collected on 9.02.2011, 8 exx. imagines (Fig. 9) reared on 26.02.2011, leg. et cult. JTD.

***Grammoptera ustulata ustulata* (Schall.)**

Recorded rarely, already recorded from the study area (Hildt 1917; Burakowski & Nowakowski 1981; Plewka 1981). Larvae develop in the same kind of material as *G. abdominalis* (Stephens 1831), which are oaken branches covered with white fungi.

Localities: Sękocin Stary ad Warsaw, on 15.04.2000 larva collected in branch of oak, 1 ex. reared on 22.04.2000; 2-25.03.2002 larvae in oaken branches, imagines on 13.03-3.04.2002, leg. et cult. MW; Szczaki ad Warsaw, 28.03.2005 larvae in *Quercus* branches, imagines 10-11.04.2005, leg. et cult. MW; oaken branch with larval gallery collected on 24.02.2008, imago on 8.03.2008, leg. et cult. JTD; Wólka Górska ad Nowy Dwór Mazowiecki, from larva collected in *Quercus* branch on 24.02.2009 reared imago (Fig. 10) on 12.03.2009, leg. et cult. JTD.

***Lamia textor* L.**

Wide-spread and seldom encountered species. Larvae mainly develop in *Salix*, as well as *Alnus*, *Betula* and *Populus* in humid places. Already reported from Warsaw (Burakowski & Nowakowski 1981; Górski 2004).

Localities: Stara Wieś ad Celestynów, 17.06.1995, 2 exx. on *Salix* sp. shrub, leg. PG; Nowy Dwór Mazowiecki, 06.1995 remains of imago on the bank of river Narew, leg. PG; Jabłonna ad Warsaw, 1 ex. collected on 14.05.2006, leg. PG; Warsaw – Tarchomin, on 06.2006 a dead specimen on the path, leg. PG; on 06.2008 an elytra on Vistula riverbank, leg. PG; Urzut ad Warsaw, 1 ex. (Fig. 10) collected on 17.09.2014, leg. JTD.

***Leiopus nebulosus nebulosus* (L.)**

A new species *Leiopus linnei* (Wallin et al. 2009) has been separated from *Leiopus nebulosus* (Linnaeus 1758) recently. It had previously been regarded as very common and widely spread European longhorn beetle until this time (Wallin et al. 2009). *L. nebulosus* has transpired as much less common or even rare if compared with newly described *L. linnei*. As a result of genital examination of several dozen specimens, 1 ex. was identified as *L. nebulosus*. Localities from Kampinos National Park and from Warsaw – Młociny had already been published by Gutowski et al. (2010). According to the distribution of *L. linnei* and *L. nebulosus nebulosus* the zoogeographical status of both species has been regarded as European.

Locality: Kampinos National Park – Kalisko, 1 ex. collected on 22.05.2004 on dead *Populus tremula*, leg. PG.

***Leiopus punctulatus* (Payk.)**

Rarely collected, ecologically associated with *Populus tremula* (Burakowski et al. 1990; Byk et al. 2013). Development usually takes place in thin branches, however larvae are also found in thick material. Its occurrence has been firstly recorded for Mazovian Lowland by Wełnicki (2001). Thereafter species has been given as new for Warsaw by Górski (2004), where many specimens were observed during the study between May and July. Moreover two new localities are given.

Localities: Szczaki ad Warsaw, 8.05.1995 pupae under the bark of *Populus tremula* branches, imagines 13-14.05.1995, leg. et. cult. MW; Mazovian Landscape Park – Karpiska and Celestynów; 2 exx. on dead *Populus tremula* on 15.07.2004, leg. PG; Warsaw – Kabacki Forest, in thin *Populus tremula* branch 1 larva (Fig. 11) was collected on 13.01.2008 and 1 imago reared on 28.01.2008, leg. et cult. JTD; from thick *Populus tremula* bough collected on 7.01.2015 reared 2 exx. (Fig. 12) on 01.2015, leg. et cult. JTD; many specimens were observed on *Populus tremula* branches between June and July of 2004 and 2014, leg. JTD & PG.

***Molorchus marmottani marmottani* (Bris.)**

Very rare species ecologically associated with coniferous and mixed forests canopies of *Pinus* and *Picea*, where its development takes place. Recorded from one published locality in the study area (Wełnicki 2004; Plewa et al. 2011). Confirmed

with new data on one described locality during the study.

Locality: Sękocin Stary, 1 ex. (Fig. 13) reared on 22.01.2012 from a branch of *Pinus sylvestris* collected on 7.12.2011, leg. et cult. JTD. An accompanying species was *M. minor*.

***Necydalis major* L.**

Polyphagous on deciduous trees, rarely collected species, mostly due to short lifetime of imagines. Two localities described by Górski (2004) were confirmed and five are given as new. *Corylus avellana* is given as a new host plant of *Necydalis major* larvae for the first time.

Localities: Borków ad Kołbiel, 1 ex. collected on 21.06.1992, leg. PG; Zalesie Górne ad Warsaw, dead specimen in the pupal cell of *Populus tremula* on 05.1996, leg. PG; exit holes and larval galleries in *Corylus avellana* on 3.02.2014, leg. JTD; Dziekanów Leśny ad Warsaw, dead imago in the pupal cell of *P. tremula* on 04.2004, leg. PG; Warsaw – Kabacki Forest, 1 ex. in flight on 30.06.2007, leg. JTD; 2 exx. (Fig. 14) reared on 12.05.2008 from *Salix caprea* collected on 4.08.2007, leg. et cult. JTD; 4 exx. reared on 23.04-10.05.2012 from *C. avellana* collected on 1.03.2011, leg. et cult. JTD; Warsaw – Bielański Forest, 20.10.2007, dead specimen under the bark in the exit hole of oak, leg. JTD; Warsaw – Kabaty, old orchard, 1 ex. reared from *Prunus* sp. trunk collected on 23.02.2013, leg. et cult. JTD; Urzut ad Warsaw, 4 exx. reared on 8-17.01.2015 from *S. alba* collected on 5.11.2014, leg. et cult. JTD.

***Oberea linearis* (L.)**

Occurs all over Poland. Larvae develop in branches of living *Corylus avellana*, as well as in *Juglans regia*, *Alnus* and *Ulmus*. Species has already been reported from the study area from Warsaw – Bielany and Natolin (Hildt 1917; Burakowski & Nowakowski 1981), Kabacki Forest (Górski 2004) and Pruszków (Burakowski et al. 1990). Three new localities are given.

Localities: Zalesie Górne ad Warsaw, 2 exx. collected on 6.06.1996, leg. PG; Sękocin Stary ad Warsaw, several specimens collected on 20.06.2004, leg. MW; Warsaw – Skarpa Ursynowska, 2 exx. collected on *Juglans regia* on 20.05.2014, leg. JTD & PG.

***Obrium cantharinum cantharinum* (L.)**

Inhabits tree stands with *Populus*. Imagines lay eggs in the boughs of canopies. It has already been recorded from the study area from two localities (Burakowski et al. 1990). Four new localities of this species are given.

Localities: Chojnów ad Warsaw, from larvae collected in pupal cells in *Populus tremula* on 12.05.1994 reared imagines on 26-31.05.1994, leg. et cult. MW; Sękocin Stary ad Warsaw, larvae in pupal cells in a *P. tremula* trunk collected on 8.04.2001, imagines reared on 28.04-1.05.2001, leg. et cult. MW; Chrzczanka, 14 exx. reared between 08.2002 and 07.2003 from larvae collected in *P. x canadensis* on 1.07.2002, leg. et cult. PG; Warsaw – Kabacki Forest, 6 exx. (Fig. 15) reared on 4-11.03.2015 from a thick *P. tremula* bough found in its canopy on 7.01.2015, leg. et cult. JTD, an accompanying species was *L. punctulatus*.

***Phymatodes pusillus pusillus* (F.)**

Very rare species inhabiting forests with its character close to natural (Burakowski et al. 1990). Ecologically associated with *Quercus* (Gutowski & Hilszczański 1997). New species for the study area, found twice during the research.

Localities: Warsaw – Kabacki Forest, from *Quercus* thick bough with larval galleries collected on 24.02.2011 5 exx. (Fig. 16) reared on 8-29.03.2011, leg. et cult. JTD; Sękocin Stary ad Warsaw, from larval gallery collected on 2.03.2014 reared imago on 12.03.2014, leg. et cult. MW.

***Phytoecia coerulescens coerulescens* (Scop.)**

Ecologically associated with herbaceous plants from family *Boraginaceae* (Fig. 17). Species recorded from Warsaw about 70 years ago

Fig. 14. *Necydalis major* L. mating on one of its host plants, *Salix caprea*. (Photo: JTD)

Fig. 15. *Obrium cantharinum cantharinum* (L.) on its host plant, *Populus tremula*. (Photo: JTD)

Fig. 16. *Phymatodes pusillus pusillus* (F.) – imago and larval gallery on its host plant, *Quercus*. (Photo: JTD)

Fig. 17. *Phytoecia caerulescens coerulescens* (Scop.) mating on its host plant, *Echium*. (Photo: JTD)

Fig. 18. *Stenocorus meridianus* (L.) in its habitat – riparian forest. (Photo: JTD)

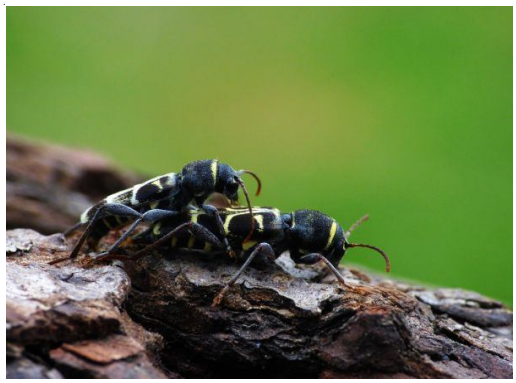

Fig. 19. *Xylotrechus ibex* (Gebl.) mating on the bark of *Alnus*, its host plant. (Photo: JTD)

(Burakowski & Nowakowski 1981, Burakowski et al. 1990). Thereafter discovered in 1980's very close to Bielański Forest nature reserve in Warsaw (K. Łoś pers. com.) – locality confirmed with new data during the study. Additionally two new localities of this species are given.

Localities: Warsaw – Bielański Forest environs, imagines on *Anchusa* sp. on 22.05.2006, leg. PG; Warsaw – Choszczówka, on *Echium* sp. more than 20 exx. on 2.06.2013 and 7.06.2014, leg. PG; Legionowo ad Warsaw, on *Echium* sp., 2.06.2013 and 7.06.2014, 10 exx. leg. PG.

***Pyrrhidium sanguineum* (L.)**

Occurs in deciduous and mixed forests, ecologically associated mainly with *Quercus* but also *Aesculus*, *Betula*, *Carpinus*, *Cerasus*, *Corylus*, *Fagus*, *Ulmus*, *Prunus* and very occasionally *Pinus* (Starzyk 1999). Considered rare in the previous century (Burakowski et al. 1990), occurs frequent in recent years. Already reported from Warsaw and its environs (Burakowski & Nowakowski 1981; Burakowski et al. 1990). Nine new localities for *P. sanguineum* are given.

Localities: Zalesie Górne ad Warsaw, on 16.05.2004 1 ex. collected on a dead oak, leg. MW; Knurowiec ad Wyszków, on 26.04.2007 1 ex. collected on a dead oak, leg. PG; Sokołówek ad Radzymin, on 11.05.2007 1 ex. collected on a dead oaken branches, leg. PG; Chojnów Landscape Park, from a branch of oak collected on 29.08.2007 reared 1 imago on 3.12.2007, leg. et cult. JTD; Wólka Górska ad Nowy Dwór Mazowiecki, from 2 pupae under a thick bough of dead oak collected on 22.03.2010 reared 2 exx. on 29.03.2010, leg. et cult. JTD; many larvae and pupae under a bark of a thick oaken branch collected on 17.12.2013, imagines on 24.12.2014-12.01.2015, leg. et cult. JTD; Warsaw – Kabacki Forest, from 2 pupae in pupal cells in thick oaken bough collected on 24.02.2011 reared 2 exx. on 13-15.03.2011, an accompanying species was *P. pusillus*, leg. et cult. JTD; Podkowa Leśna – Młochowski Forest, from pupae collected on 26.12.2013 reared 6 exx. on 6.01.2014, leg. et cult. JTD; Sękocin Stary ad Warsaw, 2.03.2014 larval galleries on oaken branches, imagines 7-14.03.2014, leg. et cult. MW; Urzut ad Warsaw, 2 exx. in flight on 23-24.04.2015, leg. JTD.

***Rhagium sycophanta* (Schr.)**

Rarely collected, associated with *Quercus*. Recorded from two localities in Warsaw – Bielany (Stobiecki 1939; Burakowski & Nowakowski 1981) and Warsaw – Skarpa Ursynowska (Borowski 1993), additionally found in Piaseczno (Burakowski & Nowakowski 1981). Its occurrence in Warsaw has been confirmed with new data on one new locality.

Locality: Warsaw – Natolin nature reserve, approximately 70 specimens were observed and 4 exx. were collected on 23.05.2003, leg. DK.

***Ropalopus clavipes* (F.)**

Extremely polyphagous on deciduous trees within the temperate climate of Poland. Last published data regarding this species within the study area concern the beginning of 20th century (Burakowski et al. 1990; Gutowski 1995). At that time, *R. clavipes* was collected within the present boundaries of Warsaw. Recorded from one locality in Lower Narew Valley during the study. Some specimens had been collected alive in order to breed them in captivity. Few generations were successfully bred and had been continuously rearing for three years until 2005.

Locality: Chrzczanka, on 1.07.2002 more than 100 exx. hatching from trunks and branches, mating and lying eggs in *Betula pendula*, *Alnus glutinosa* and *Populus x canadensis*, leg. PG.;

***Ropalopus femoratus* (L.)**

Polyphagous on deciduous trees, however prefers *Quercus*. One of the rarest longhorn beetles in Poland and seldom observed in the research area in Podkowa Leśna, south-west from Warsaw (Kinelski & Szujecki 1959). One new locality south from Warsaw between Paszków and Wolica villages is given.

Localities: Paszków, 1 ex. reared from larvae found on 4.05.2005, leg. et cult. KŁ; on 24.04.2005 one pupa was found in oak branch, imago reared on 28.04. 2005, leg. et cult. MW; Wolica, 26.06.2006, dead imago in pupal cell in oaken branch, leg. MJ; 05.2006, remains of imago in pupal cell in oaken branch, leg. JH.

***Stenocorus meridianus* (L.)**

Characteristic for forests with its character close to natural, very local and rather rare across Poland (Gutowski et al. 2011). Development takes place in thick roots of *Acer*, *Alnus*, *Betula*, *Fagus*, *Fraxinus*, *Malus*, *Populus*, *Prunus*, *Quercus*, *Salix* and *Ulmus* (Starzyk 1999; Sama 2002; Barševskis & Savenkov 2013). *S. meridianus* (Fig. 18) has already been recorded from the study area (Burakowski et al. 1990; Górski 2004). All known existing localities are located within the administrative boundaries of Warsaw. One known locality (Warsaw – Tarchomin) was confirmed with new data and one new is given.

Localities: Warsaw –Tarchomin, 1 ex. on 5.07.2010, leg. PG; Warsaw – Bielański Forest nature reserve, 1 ex. on 4.06.2011., leg. PG.

***Tetropium gabrieli* Weise**

Seldom encountered, strictly connected with its host plant – *Larix*. Already reported from several localities. These are Bielański Forest nature reserve in Warsaw (18.05.1986 leg. MW, data published by Burakowski et al. in 1990 without details), Kabacki Forest nature reserve in Warsaw (Górski 2004) and Modrzewina nature reserve near Grójec (Burakowski et al. 1990). The occurrence of *T. gabrieli* has been recently confirmed on the last localization and its presence was discovered on another two localities.

Localities: Modrzewina nature reserve ad Grójec, larva collected under a thick bark of dead *Larix* on 14.04.2009, imago reared 2.05.2009, leg. et cult. JTD; Chojnów Landscape Park – Pilawa and Zalesie Górne environs, 5 exx. reared from larvae collected in dead *Larix* on 18.10.2003, leg. et cult. MW; larval galleries and pupal cells in and under the bark of dying *Larix* found in 2.03.2014, leg. JTD & PG; Sękocin Stary ad Warsaw, imagines on a dead *Larix* collected on 30.04.2000, leg. MW.

***Tetrops starkii* Chev.**

Rather uncommon species often found in urban areas, strictly connected with its only known host plant - *Fraxinus*. Recently reported from study area from Warsaw (Górski et Miłkowski 1998; Górski 2004) and Falenty ad Warsaw (Plewa et al. 2011).

Localities: Warsaw – Rakowiec, from a dead branch of *Fraxinus* collected on 31.01.2001 reared 6 exx. on 1-6.02.2001, leg. et cult. MJ; Warsaw – Kabacki Forest, 1 specimen and 5 exx. reared from a dead branch of *Fraxinus* found on 20.05.2005, leg. et cult. MW; Warsaw – Pole Mokotowskie, from larvae found in a dead branch of *Fraxinus* on 11.04.2010, reared 25.04.2010, 10 exx., leg. et cult. MW.

***Xylotrechus ibex* (Gebl.)**

Very rare, ecologically associated with *Alnus* and *Betula* (Sama 2002). Listed on Red List of Threatened Animals in Poland (Głowaciński 1992). Recorded once from Warsaw – Bielański Forest nature reserve (from larva found on 10.05.1983 in *Alnus* branch reared one specimen, leg. KŁ - data published without details by Burakowski et al. (1990)). After over 30 years its occurrence has been confirmed and new data is given.

Locality: Warsaw – Bielański Forest, from larvae and bark collected on 7.03.2015 from dead *Alnus glutinosa* reared 21 exx. (Fig. 19) on 20.04-5.05.2015, leg. et cult. JTD & PG. Some of larvae were still in its galleries whereas some had already created pupal cells. At least one generation of imagines had emerged from the host material the previous year.

CONCLUSIONS

Over 22 year lasting study resulted in recording more than 50% of polish Cerambycidae fauna from relatively small, urbanized area of central Mazovia. Despite huge changes in the landscape, longhorn beetle fauna is still rich in the region. Protection of the remains of forests with its character close to natural contributes to preserving the richest species composition in the study area. Nature reserves and national parks are the last refuges of many rare species. Increasing species diversity in commercial forests is also possible. Removing a bark from logs preserves wood from being infested by wood-boring insects. Thus, leaving dead wood within the commercial forests as a future host material of Cerambycidae and other saproxylic insects should be considered.

The occurrence of *Cerambyx cerdo* in Bielański Forest nature reserve, where it remains an object of protection and special care has been confirmed. Nevertheless, the area is still very far from being a proper habitat for this species. There is a great need of conducting exact protection activities in this only existing locality of *C. cerdo* in Mazovian Lowland. Those actions should include clearing underbrush and young trees in order to create free space around age-old oaks and, thus, provide daylight access. Removing alien, invasive plant species (e.g. *Acer negundo, Prunus serotina, Robinia pseudoacacia, Quercus rubra*) is of particular importance. Young oak trees should be retained as a future host plants of *C. cerdo*. Preserving host trees of this rare and impressive longhorn beetle is the only way to save the species itself.

Rearing Cerambycidae in laboratory conditions allows obtaining species that are difficult or almost impossible to find in the field. Discovering new trophic connections between imagines and its host plants inclines that further researches on longhorn beetles breeding should be conducted. As a result, common hazel (*Corylus avellana*) has been given as a new host plant of *Necydalis major* for the first time whereas *Ropalopus macropus* has been firstly recorded from sumac (*Rhus typhina*) which is also a new host plant of this species.

Pyrrhydium sanguineum, previously regarded as rare turned out to be frequent and expansive species. *Phymatodes pusillus* turned out to be northern expansive and still infrequent species. Recent northward expansion of *P. pusillus* and *P. sanguineum* may be a result of climate changes. However, confirmation of this theory needs further monitoring which would include subsequent breeding and observations.

Zoogeographical status of *Euracmaeops septentrionis* was verified and it transpired that it is an Euro-Siberian element across Poland. Both *L. linnei* and *L. nebulosus* were regarded as an European element of Polish fauna.

There is a high probability of finding a number of new species within the study area, e.g. *Anoplodera sexguttata* (Fabricius 1775), *Leioderes kollari kollari* Redtenbacher 1849, *Leptura annularis* Fabricius 1801, *Nothorhina punctata* Redtenbacher 1845, *Phymatodes rufipes rufipes* (Fabricius 1777), *Saperda similis* (Laicharting, 1784), *Semanotus undatus* (Linnaeus 1758), *Xylotrechus pantherinus* (Savenius 1825) being recorded both from the northern and southern parts of Mazovian Lowland (Gutowski 1995; Miłkowski 1997, 2004; Miłkowski et al. 2008; authors – unpublished data). Authors believe that recording an extremely rare *Exocentrus stierlini* Ganglbauer 1883 is also possible. Species had already been recorded from Warsaw and its environs (Burakowski et al. 1990) and a determination of material collected in Warsaw – Saska Kępa had been positively verified by Gutowski (1995). Species is ecologically associated with *Salix* in all its range (Danilevsky 2014). Taking into account that willows are one of the most common trees in the river valleys within the borders of the study area, it is highly possible to find this species again after many years of absence.

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