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Cerambycidae of Křivoklátsko Biosphere Reserve (Central Bohemia)

(Insecta: Coleoptera)

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Abstract: Faunistic data on 137 Cerambycidae species from Křivoklátsko Biosphere Reserve situated in Central Bohemia is presented. The recorded species are divided into four groups according to their faunistic and ecological significance. Protection methods of the insect populations are discussed. Biology of some less well known species (*Clytus tropicus* (Panzer, 1795), *Leioderes kollari* Redtenbacher, 1849, *Molorchus marmottani* Brisout, 1863, *Corymbia erythroptera* (Hagenbach, 1822), and *Necydalis ulmi* Chevrolat, 1838) is described in more detail. The biology of *Anoplodera rufipes* (Schaller, 1783) is described for the first time.

Key words: Faunistics, life history, host plants, Cerambycidae, Coleoptera, Křivoklátsko Biosphere Reserve, Central Bohemia, Czech Republic, landscape and wildlife conservation, biology of *Anoplodera rufipes* (Schaller, 1783).

Introduction

The Křivoklát landscape (Křivoklátsko) is unique in Central Europe for large and diverse woodlands, and its great variety of azonal ecosystems typically representing the Central European colline belt. At comparable elevations in neighbouring countries, deciduous broad-leaved and mixed forests were either completely eliminated or substituted by plantations of allochtonous tree species. The striking richness of the Křivoklátsko region is particularly amplified by three natural factors: a) the remarkable geological diversity and related differentiation of both the parent rocks and soils, b) the varied topography and related microclimatic

factors, affected by a deeply-cut valley of the Berounka river and its tributaries, and c) the moderate human interference which destroyed natural postglacial biodiversity, but also diversified ecosystem development in the last five centuries. The values of the Křivoklátsko region led Czech experts to propose, and the MAB/UNESCO International Co-ordination Council to declare, a biosphere reserve on March 1, 1977. A year later, in 1978, the same region was designated a Protected Landscape Area, according to the Czech Nature Conservation Act.

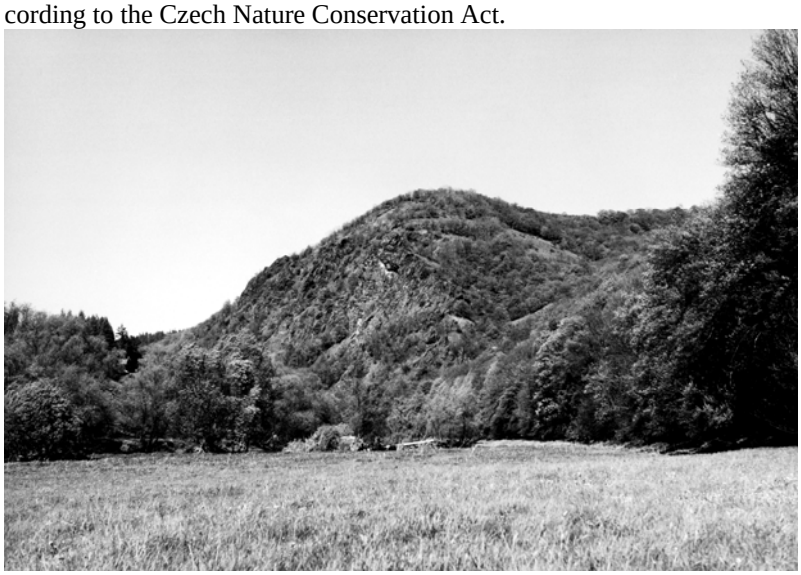


Fig. 1: National Nature Reserve Týřovické skály, *Ropalopus spinicornis* occurs here.

The longhorn beetle fauna of the Křivoklátsko Biosphere Reserve has been studied intensively over the past few decades. The first literature records concerning this area appear in the work of Leopold Heyrovský, the most respected Czech Cerambycidae specialist (HEYROVSKÝ 1930, 1955). The first paper specializing in the longhorn beetle fauna of the Křivoklátsko Biosphere Reserve appeared in 1983 (SLÁMA 1983) in the form of an internal report for the National Society of Nature Conservationists. Unfortunately, this work has never been published in any journal available to the public. Two other specialized contributions have appeared since then (BURDA 1984, PATERA 1987). In the appendix accompanying

the reprint of HEYROVSKÝ's work from 1955, SLÁMA cited many interesting records concerning the area in question (SLÁMA 1992), and last but not least, in 1998 SLÁMA published a monograph on Cerambycidae of the Czech Republic and Slovak Republic giving localities of many interesting species as well as valuable data on their biology. In this work many records concerning the study area also appear.



Fig. 2: An old beech forest in Lánská obora, a typical locality of *Necydalis ulmi* and *Corymbia erythroptera*.

In this paper our present knowledge of the longhorn beetle fauna of Křivoklátsko Biosphere Reserve is summarised. In addition, the ecological role of longhorn beetles in a well-balanced woodland landscape is discussed and the relationship between the insects and their host plants is given particular consideration. The relationship between the number of longhorn beetle species occurring in the study area and the local vegetation diversity is also discussed. In some cases, protection methods of particularly interesting and endangered insect species are discussed with respect to the management of the woodland area.

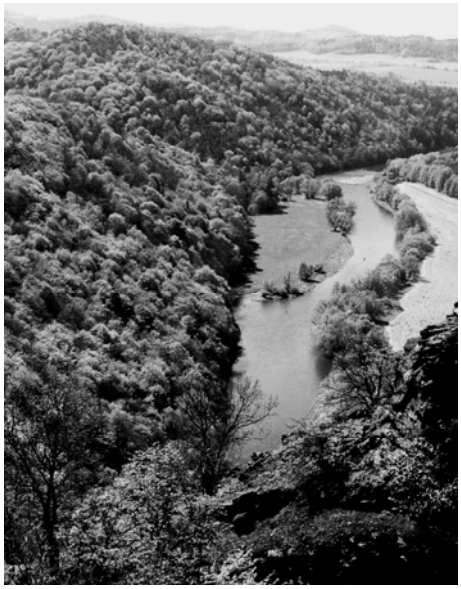


Fig. 3: Castle Týřov and the Berounka river, a locality with *Clytus tropicus.*

Characteristics of the Study Area

The Křivoklátsko Biosphere Reserve is situated on the boundary of central and west Bohemia, about 50 km to the west of Prague. The area of the territory covers 62,792 ha. The main axis of the region is formed by the deep valley of the Berounka river. The most remarkable feature of the region is its woodland cover, which amounts to 60-64% of the area (according to various sources). The reason for this dates back to prehistoric times, when, except for the Older and Middle Neolithic periods, the area was almost devoid of people. No significant increase occurred even in the Middle Ages, when the forests of Křivoklát became a favoured hunting ground of the Czech princes and kings. The forests were therefore protected from the expansion of agriculture and were used principally for hunting. Agricultural land covers about 19,325 ha and grassland only about 4,000 ha. From a geographical point of view, the whole territory belongs to the system of the Berounka river highlands, in which two subsystems are represented, the Brdy highlands and the Plzeň hills, which are further divided into a number of smaller geomorphologic units. The central group of the Vlastec (612m) and Těchovín (616m) hills is the highest part of the region. The characteristic feature of these highlands is the geomorphologic diversity, reflecting the complicated geological structure.

Climatically the Křivoklát region belongs to a moderately warm and moderately dry district, which is characterised by a long, dry and warm summer, a short transition season with a moderately warm spring and autumn, and a short, moderately warm and very dry winter with a short period of snow cover (KOLBEK et al. 1997). The mean annual temperature at

the highest altitudes is below 7°C, while over the greatest part of the territory it is between 7° and 8°C, and in the Berounka valley near the mouth of the Rakovnický potok stream, above 8°C. The number of days with a mean diurnal temperature of 5°C or more fluctuates between 200 and 220 a year. The mean monthly temperature in January is -1.9°C. In the canyon-like parts of the valley where temperature inversions, responsible for the inversion of vegetation zones, occur, temperatures do not correspond with these means. On rocky spurs with thermophilous herb vegetation or with relict pine forests, both evaporation and temperature are markedly higher compared with the surrounding forest. Mean annual precipitation is little higher than in the neighbouring region of the Bohemian Karst and at lower altitudes fluctuates between 500 and 550mm. At higher altitudes it amounts to 600mm. During the vegetative period, which extends over 150 to 160 days, 350mm of precipitation falls, of which 75mm falls in July, the wettest month. Anomalies in the meso- and microclimate are of great importance for the vegetation. In the incised valleys, inversions result in the valley bottoms being cool and moist, whereas the upper parts of the slopes are substantially drier and warmer even on northern exposures.



Fig. 4: Lánská obora, one of the last oaks supporting *Cerambyx cerdo* population in the study area.

The vegetation of the area is very rich and diverse (KOLBEK et al. 1997). The diversity of plant and animal communities and species is the consequence not only of a wide range of various ecological conditions, but in many localities it is also the result of natural and semi-natural stands surviving up to the present day, the species composition remaining largely undisturbed. Thanks to the dissected relief and to certain peculiarities of the management of the landscape (its preservation and conservation), the forests have retained a relatively natural structure

and composition over large areas. Today, the best preserved stands are to be found on the steeper slopes along the Berounka river and its tributaries, as well as in areas of commercial broad-leaved stands of various size in the less dissected parts of the landscape. Natural forest stands have for example been preserved on the right-bank slopes between Branov and Skryje, in the environs of the Zbirožský and Úpořský potok streams, and on the right-bank opposite the village of Častonice.

The dominant vegetation at lower altitudes consists principally of climax oak-hornbeam forests, represented by the alliance *Carpinion*, or more precisely by one, highly differentiated association – the *Melampyro nemorosi-Carpinetum*, which includes the subassociation *Melampyro nemorosi-Carpinetum vincetoxicetosum*, first described from this region. At higher altitudes, or on more northerly exposures, they are replaced by beech forest communities of the alliance *Fagion* (*Tilio cordatae-Fagetum*) or, on more acid substrates, by the alliance *Luzulo-Fagion*. Formerly, silver fir forests were typical of the region and were apparently widely distributed and even today several units still exist. The steep scree slopes and ravines harbour very well-preserved forests of the alliance *Tilio-Acerion* in three associations. Scree slopes with stands of *Taxus baccata* along the Berounka river and in the environs of the Javornice stream are of particular interest. Alluvial forests, to all intents and purposes, have not survived, because the alluvial plain has been converted into meadows or arable land, but the alliance *Alno-Ulmion*, together with *Alnion glutinosae*, is present as alder carrs confined to the vicinity of springs and in waterlogged sites along streams. A rich group of subxerophilous oak forests of the alliance *Quercion pubescenti-petraeae* is represented by three associations, while the acidophilous oak forests of the alliance *Genisto germanicae-Quercion* on acidic, silicate soils are represented by two associations. The primary, relict pine forests of the alliance *Dicrano-Pinion* on silicate rocks and the primary, *Sphagnum*-rich birch woods of the alliance *Betulion pubescentis* are represented by one association each.

The shrub communities represent an organic continuation of the forest vegetation. The communities with *Cornus mas*, *Cerasus fruticosa*, *Cotoneaster integerrimus*, *Sorbus aria*, *Rosa gallica*, *Rosa rubiginosa* and the community with *Ribes alpinum* and *Taxus baccata* should also be mentioned. Primary xerophilous grass-herb vegetation is represented by xerothermic communities of both acidic and basic rocks belonging to the

alliances *Festucion valesiacae*, *Alysso-Festucion pallentis*, *Seslerio-Festucion glaucae*, *Koelerio-Phleion phleoidis*, and also, but less frequently, to the *Bromion erecti*. Saums of thermophilous forests, rich in species, belonging to the alliance *Geranion sanquinei*, occur relatively frequently, whereas those of the mesophilous forests, belonging to the alliance *Trifolion medii*, are relatively rare.

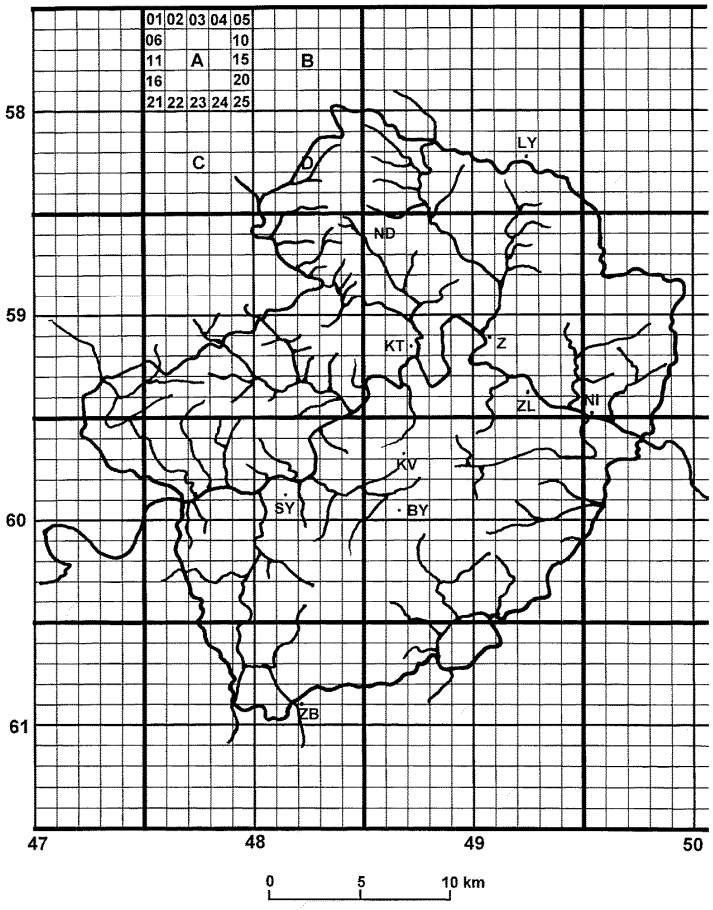


Fig. 5: A schematic map of Křivoklátsko Biosphere Reserve; BY - Broumy, KV - Karlova Ves, KT - Křivoklát, LY - Lány, NI - Nižbor, ND - Nový Dům, SY - Skryje, Z - Zbečno, ZB - Zbiroh, ZL - Žloukovice.

The Berounka valley is a typical site where the distribution of vegetation is influenced by a whole range of factors. A distinct climatic inversion develops here, which manifests itself in pronounced vegetational differences between the moist, cold bottoms of the valleys and lateral gorges and the warm, dry upper parts of the slopes and plateaus. Differences in exposure are also pronounced, particularly between south- and north-aspects, which display a characteristic distribution of vegetation, based on the form of the slopes. Outcrops of Proterozoic and Palaeozoic rocks carry rock crevice communities and, on summits of spillites and palaeoandesite, xerothermic grass-herb stands with open, xerothermic, 'krumholz-like' woods are found (xerothermic oak forests with *Sorbus torminalis* and acidophilous oak forests with *Steris viscaria*). Rock 'bald-head' communities occur on mineral-poor palaeorhyolites. The diversity and richness of the natural vegetation of the Křivoklátsko Biosphere Reserve is also a result of different climatic and phytogeographical factors. Whereas the south-east part adjacent to the Bohemian Karst is the warmest, geologically most variable and richest in vegetation types, containing xerothermic elements, which extend along the Berounka canyon to the west, the north-west, and above all the north part of the territory, which is geologically and geomorphologically more uniform, is dominated by more acidophilous and psychrophilous vegetation types.

For a more detailed description of the natural conditions of the Křivoklátsko Biosphere Reserve, the reader should refer to a recent publication 'Potential Natural Vegetation of the Biosphere Reserve Křivoklátsko' by KOLBEK et al. (1997). This book contains detailed data on geology, geomorphology, hydrology, climate, soils, phytogeography, flora, and vegetation, as well as a detailed list of references related to the Křivoklátsko Biosphere Reserve.

Material and Methods

In co-operation with the Biosphere Reserve management, the fauna of longhorn beetles was studied between the years 1988-1998. In order to give a coherent picture of the local fauna, a literature search and data collection from many private collections preceded this work. This data is cited in square brackets behind each species' ecological specification. The Křivoklátsko Biosphere Reserve is a frequently visited region. Therefore, there is much literary data and even more unpublished material concern-

ing this area. It is unfortunately apparent, that even in the published literature, there are inconsistencies and contradictions between some of the data. In order to be as precise and thorough as possible, all records, even if contradictory have been examined and reported in this paper. It has been left to the discretion of the reader to judge the relevance and accuracy of the reported literature data.

The beetles were collected individually using generally known methods such as beating, sweeping, individual collecting on wood, flowers and leaves. Sometimes, vine traps and UV light were used. Much attention has been paid to larvae collecting. Usually, the larvae were allowed to develop in the original substrate but some of the larvae were removed from the substrate and reared in glass vials containing a paper inset. However, only certain genera and only larvae of later instars collected in late winter and in spring could be reared successfully under these conditions. In some cases only larval material was determined without subsequent rearing. Most of the larval material was determined by P. Švácha. The adults were determined by the authors. To study the life history, certain species were allowed to reproduce under laboratory conditions by providing them with an appropriate substrate and allowing them to copulate and oviposit. The attacked substrate was stored outdoors under conditions as close to the natural ones as possible. In this way the duration of development was determined and many particular details about their biology were discovered. If not stated otherwise, the collected material is stored in the collections of the authors. The authors and other contributors to this work wish to make it clear that the aforementioned methods of collection were only used for species not protected under Czech law. In the case of protected species, only presence in a locality was recorded, and the beetles were left undisturbed where found.

Locality data is accompanied with a number code corresponding to a square of the international faunistic net map. In addition, for the purposes of this study the international square has been sub-divided into four sections A, B, C, and D. Each of these sections has been divided into 25 small squares as is shown in Fig. 5. The area of each small square equals 1 km^2.

List of Abbreviations

Frequency	Abundance	Species conservation
F1 very scarce	A1 very rare	Ex extinct
F2 scarce	A2 rare	Cr critically endangered
F3 fairly frequent	A3 fairly numerous	En endangered
F4 frequent	A4 numerous	Vu vulnerable
F5 very frequent	A5 very numerous	We well established
		Ns not specified

Collectors and collections

JJ / Jiří Januš, Kladno
JP / Jan Pavlíček, Beroun
KR / Karel Rébl, Nové Strašecí
MH / Michal Hoskovec, Praha
MK / Milan Kovařík, Praha
MR / Martin Rejzek, Praha
NMP / National Museum Prague
PH / Petr Horsák, Kladno
ZČ / Zdeněk Černý, Praha

Example: ***Cerambyx scopolii* Füessly, 1775**; (F4, A3,We). [Literature record, BURDA 1984 (literature source); record, MK or leg. J. Roubal in coll. ZČ (collected by Milan Kovařík or by J. Roubal and the specimen is stored in collection of Zdeněk Černý)]; locality, faunistic square, date of finding, number of individuals and host plants, KR or MR (collected by Karel Rébl or Martin Rejzek).

This means that *Cerambyx scopolii* occurs frequently (F4, many localities) within the study area and in localities where it occurs the species is fairly numerous (A3). Within the study area the species is well established (We) and its population is not endangered.

Nomenclature

In this paper nomenclature and classification of the longhorn beetles suggested by BENSE (1995) are strictly followed apart from the following exceptions. *Agapanthia intermedia* Ganglbauer, 1883 is regarded by BENSE (1995) as only a variation of *A. violacea* (Fabricius, 1775). Here, *Agapanthia intermedia* is regarded as a valid species. *Leptura maculata* Poda, 1761 is ranked in this work as a *Rutpela maculata* (Poda, 1761). In

the case of the *Anoplodera* complex of genera which belongs to the tribe *Lepturini*, this work takes into account MIROSHNIKOV's (1998) revision. However, when compared to the system proposed by BENSE (1995), only two species occuring within the study area fall into different genera: *Melanoleptura scutellata* (Fabricius, 1781) and *Paracorymbia maculicornis* (Degeer, 1775); [in BENSE (1995) ranked as *Corymbia scutellata* (Fabricius, 1781) and *Corymbia maculicornis* (Degeer, 1775)].

Results

The recorded species are divided into four groups according to their faunistic and ecological significance.

First group

The first group contains species frequently recorded in agricultural landscapes, tree plantations, woodland areas with intensive forestry and other areas strongly influenced by man. As these species are not important from either faunistic or ecological points of view, and they are generally very common in the study area, detailed data on circumstances of finding and biology were omitted. To prove their occurrence in the study area only three illustrative records were mentioned. In this group 41 species were recorded. In the case of *Saperda scalaris* (Linnaeus, 1758), a list of host plants recorded within the study area is given, and the biology of *Anoplodera rufipes* (Schaller, 1783) is described for the first time.

***Acanthocinus aedilis* (Linnaeus, 1758)**; (F3, A4,We). Žloukovice, Kabečnice, 5949 D13, 2.V.1975, 8 adults on freshly felled Scots pines (*Pinus sylvestris*), MR; Lány, 5849 C23, 27.VIII.1993, larva, pupa and 1 adult in a pine stump, KR; Žloukovice, Ložina, 5949 D19, 1.V.1998, 1 adult on a stump of Scots pine (*Pinus sylvestris*), MR.

***Agapanthia villosoviridescens* (Degeer, 1775)**; (F5, A4,We). Branov, Berounka valley, 6048 B3, 29.VI.1997, 2 adults by sweeping, KR; Broumy, Týřov, 6048 B13, 15.VI.1991, 1 adult sitting on a nettle, MR; Zbečno, Klíčava valley, 5949 D1, 3.VII.1993, 1 adult on a nettle, MR and MH.

***Alosterna tabacicolor* (Degeer, 1775)**; (F5, A5,We). Broumy, Úpoř, 6049 A16, 28.V.1993, many adults on flowers, MR; Zbečno, Klíčava valley, 5949 D1, 6.VI.1993, many adults on flowers, MR; Broumy, Úpoř, 6049 A16, 16.V.1994, 2 adults on flowers, MR and MH.

***Anaglyptus mysticus* (Linnaeus, 1758)**; (F5, A4,We). Zbečno, 5949 D1, 3.XI.1992, 3 adults in dead wood of a wounded beech (*Fagus sylvatica*), MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 16.V.1994, 2 adults on a flowering hawthorn, MR and MH; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, 1 adult in a dead trunk of hornbeam (*Carpinus betulus*), MR.

***Anastrangalia sanguinolenta* (Linnaeus, 1761)**; (F3, A3,We). Lány, 5849 C24, 14.VII.1992, 1 adult on a flowering lime, KR; Broumy, Úpoř, 6049 A16, 28.V.1993, 3 adults on flowers, MR; Zbečno, Klíčava lake, 5949 B17, 6.VI.1993, 23 adults on Umbelliferae, MR.

***Anoplodera rufipes* (Schaller, 1783)**; (F4, A3,We). Nižbor, Suchá mýť, 5950 C11, V.1991, 1 adult reared from a pupa found in dead wood of a wounded oak tree (*Quercus* sp.), MR; Nižbor, Janův vrch, 5949 D20, 1.V.1993, 1 adult found in a pupal cell built in the moist base of a dead oak (*Quercus* sp.) branch on a living tree, MR; Broumy, Úpoř, 6049 A16, 28.V.1993, many adults on Umbelliferae, MR. Although *Anoplodera rufipes* is a common and widely distributed species, no detailed data has been published on its biology. In addition, the larva of this species has not yet been described. For these reasons it would seem valuable to report here on its biology in more detail. In 1992, in a Central Bohemian locality (Dobřichovice, 8.XI.1990, leg. MR) larvae of *Pedostrangalia revestita* (Linnaeus, 1767) were collected in *Quercus petraea*. The material was sent for identification to P. Švácha who recognised one different larva in the material and tentatively identified it as *Anoplodera rufipes*. This was confirmed by the subsequent rearing of an adult beetle. Unfortunately, the larva was discovered too late to be included in ŠVÁCHA & DANILEVSKY (1989, a volume concerning Lepturinae). One year later, in 1993, several further larvae of this species were collected in the same locality by MR and P. Švácha (Dobřichovice, 3.IV.1993, 10 larvae and some pupae found in *Quercus petraea*, leg. MR and P. Švácha). The biology of *Anoplodera rufipes* resembles to some extent that of *Pedostrangalia revestita* and *Anisarthron barbipes* (Schrank, 1781) and larvae of these three species frequently occur together. Larvae of *Anoplodera rufipes* can be found on living oaks and early larval instars feed in dead red-brown relatively moist wood in close contact with living tissue, such as the bases of dead branches surrounded by living callus. Later-instar larvae penetrate into

the drier more distal part of the branch where they also pupate. This area differs visibly from the moist wood in its fungal infestation, and is consequently of a different colour; usually yellow white. The pupal cell generally lies near the surface of the wood, and as a result, the freshly hatched beetle needs to make only a short exit gallery. On the contrary, the entire development of *Pedostrangalia revestita*, including pupation, takes place in the moist red-brown substrate, frequently deep behind the living tissue, and the adult exit gallery is, usually, therefore substantially longer. Moreover, in the case of *Pedostrangalia revestita* the pupal cell as well as the larval galleries are filled with long red wood fibres created by the larvae. Larvae of *Anoplodera rufipes* never create these fibres. Neither of the two species develops in larger tree hollows.

***Arhopalus rusticus* (Linnaeus, 1758)**; (F3, A3,We). Lhota, 5949 B4, 24.VII.1988, 2 adults attracted by UV-light, KR; Lány, 5849 C24, 15.VII.1998, 3 adults on a felled pine tree, KR; Zbečno, 5949 D1, 2.XI.1992, 12 adults reared from a dead trunk of Austrian pine (*Pinus niger*), MR.

***Asemum striatum* (Linnaeus, 1758)**; (F2, A3,We). Ruda, 5849 C1, 16.V.1997, 2 adults on spruce stumps, KR; Žloukovice, Ložina, 5949 D19, VI.1980, 5 adults on spruce (*Picea abies*) cordwood, MR; Broumy, Úpoř, 6049 A16, II.1991, 1 adult reared from a larva found in dead trunk of *Larix decidua*, MR.

***Callidium aeneum* (Degeer, 1775)**; (F2, A3,We). [Křivoklátsko, throughout the area, it develops in coniferous trees, especially fir, spruce and larch, SLÁMA 1983; Křivoklát, 5949, 1964, 1 adult, leg. M. Sláma in coll. ZČ; Nižbor, Suchá mýť, 5950, 4.V.1974, 3 adults, ZČ].

***Callidium violaceum* (Linnaeus, 1758)**; (F4, A5,We). Branov, 6048 B9; 24.V.1993, 3 adults on larch stumps, KR; Lány, 5849 C24, 11.VI.1995, 1 adult on spruce cordwood, KR; Žloukovice, Ložina, 5949 D19, 20.VI. 1982, 1 adult, MR.

***Cerambyx scopolii* Füessly, 1775**; (F4, A3,We). [Nižbor, Suchá mýť, 5950, 14.VI.1969, more adults, ZČ]; Lány, 5849 C25, 12.V.1993, 1 adult on a flowering *Crataegus* sp., KR; Karlova Ves, 6048 B8, 24.V.1993, 1 adult by beating from an oak, KR.

***Clytus arietis* (Linnaeus, 1758)**; (F5, A5,We). Zbečno, Zadní Vápenec, 5949 B17, 6.VI.1993, 4 adults on oak (*Quercus* sp.) cordwood, MR;

Zbečno, Klíčava valley, 5949 D1, 3.VII.1993, 2 adults on flowers, MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 16.V.1994, 5 adults on a flowering hawthorn, MR and MH.

***Cortodera humeralis* (Schaller, 1783)**; (F4, A5,We). Lány, 5949 C23, 24.V.1993, 2 adults by beating from flowering shrubs, KR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 1 adult by beating from a living oak (*Quercus* sp.), MR and MH; Karlova Ves, Velká Pleš 496m, 6048 B4, 16.V.1994, 5 adults on a flowering hawthorn, MR and MH.

***Corymbia rubra* (Linnaeus, 1758)**; (F5, A5,We). Žloukovice, Ložina, 5949 D19, 17.VII.1980, 1 adult in flight, MR; Broumy, Úpoř, 6049 A16, V.1991, many larvae found in a rotten stump of *Larix decidua*, MR, det. P. Švácha; Zbečno, 5949 D1, 3.VII.1993, 5 adults on cordwood, MR.

***Dinoptera collaris* (Linnaeus, 1758)**; (F3, A3,We). [Nižbor, Janův vrch and Suchá mýť, 5949 D20 and 5950 C11, for example 9.V.1977, many adults on flowers, ZČ]; Městečko, Ryšava valley, 5949 A17, 20.VI.1995, 1 adult on flower, 21.VI.1997, 1 adult by sweeping, KR; Zbečno, Klíčava valley, 5949 D1, 6.VI.1993, 4 adults on flowers, MR.

***Grammoptera ruficornis* (Fabricius, 1781)**; (F5, A5,We). Nižbor, Žlubinec, 5950 C21, 1.V.1993, many adults by beating from flowering shrubs, MR; Broumy, Úpoř, 6049 A16, 28.V.1993, 13 adults on Umbelliferae, MR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, many adults on a flowering hawthorn, MR.

***Hylotrupes bajulus* (Linnaeus, 1758)**; (F2, A4,We). [Beroun, VI.1982, 1 adult, JP; Broumy, 5.VII.1982, 1 adult, Beroun, 7.VI.1978, 11 adults, BURDA 1984; Skryje, Úpoř valley, 15.VI.1985, PATERA 1987].

***Leiopus nebulosus* (Linnaeus, 1758)**; (F5, A5,We). Broumy, Úpoř, 6049 A16, 15.VI.1991, many adults by beating from oak and hornbeam (*Carpinus betulus*) brushwood, MR; Zbečno, Brdatka, 5949 A25, 6.VI.1993, 4 adults by beating from dead hornbeam (*Carpinus betulus*) branches, MR; Nižbor, Jinčov, 5949 D10, 4.VII.1993, 7 adults by beating from oak (*Quercus* sp.) brushwood, MR.

***Molorchus minor* (Linnaeus, 1758)**; (F5, A5,We). Broumy, Úpoř, 6049 A16, 3.II.1991, 1 adult reared from a dead branch of *Larix decidua*, MR; Broumy, Úpoř, 6049 A16, 15.VI.1991, 2 adults on Umbelliferae, MR;

Nižbor, Ohrádka, 5949 D19, 1.V.1993, 10 adults on a freshly felled spruce (*Picea abies*), MR.

***Oberea oculata* (Linnaeus, 1758)**; (F2, A3,We). [Nižbor, Skalka, 5949 B4, 25.VI.1993, 1 adult on a willow, JJ]; Lány, Klíčava valley, 5849 C18, 4.VII.1979, 1 adult, KR; Žloukovice, Ložina, 5949 D19, 17.VI.1980 and 20.VI.1982, 3 adults sitting on leaves of *Salix caprea*, MR.

***Obrium brunneum* (Fabricius, 1792)**; (F5, A5,We). Městečko, 5949 A8, 5.VII.1995, about 20 adults on *Aruncus* sp., KR; Žloukovice, Kabečnice, 5949 D13, 20.VI.1982, many adults on *Aruncus* sp., MR; Zbečno, Zadní Vápenec, 5949 B17, 30.IV.1994, adults reared from thin twigs of *Pinus sylvestris*, leg. J. Roubal and MR.

***Pachytodes cerambyciformis* (Schrank, 1781)**; (F4, A4,We). Broumy, Úpoř valley, 6048 B19, 15.VI.1991, 7 adults on Umbelliferae, MR; Broumy, Úpoř, 6049 A16, 28.V.1993, many adults on Umbelliferae, MR; Nižbor, Jinčov, 5949 D10, 4.VII.1993, 15 adults on flowers, MR.

***Phymatodes alni* (Linnaeus, 1767)**; (F5, A4,We). Nižbor, 5949 D13, 9.V.1990, 2 adults by beating from an oak (*Quercus* sp.) branch, MR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 1 adult, MR; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, 12 adults reared from oak (*Quercus* sp.) twigs, MR.

***Phymatodes testaceus* (Linnaeus, 1758)**; (F5, A5,We). Žloukovice, Ložina, 5949 D19, 17.VII.1980, 1 adult, MR; Broumy, Úpoř valley, 6048 B20, III.1990, 3 adults reared from larvae found under bark of a dead oak (*Quercus* sp.), MR; Nižbor, Žlubinec, 5950 C21, X.1990, 10 adults reared from larvae found under bark of a dead standing oak tree (*Quercus* sp.), MR.

***Plagionotus arcuatus* (Linnaeus, 1758)**; (F5, A5,We). Nižbor, Žlubinec, 5950 C21, IX.1990, 6 adults reared from larvae found in thick branches of a dead oak (*Quercus* sp.), MR; Zbečno, Kovářův luh, 5949 B22, X.1991, 10 adults reared from larvae found in beech (*Fagus sylvatica*) logs, MR; Zbečno, Zadní Vápenec, 5949 B17, 3.VII.1993, many adults on oak (*Quercus* sp.) cordwood, MR.

***Pogonocherus fasciculatus* (Degeer, 1775)**; (F3, A3,We). [Nižbor, 5949 D12, 8.V.1992, 3 adults by beating from young pine trees, JJ; Nižbor, Luby - Skalka, 8.V.1993, 10 adults on a young dying pine, PH]; Lány,

5849 C24, 28.VI.1998, 2 adults, 5849 C25, 6.VII.1996, 2 adults, by beating from pine trees, KR.

***Pogonocherus hispidus* (Linnaeus, 1758)**; (F5, A5,We). Nižbor, Vůznice, 5949 D25, 29.II.1992, 10 adults reared from dead twigs of *Euonymus europaea*, MR; Nižbor, Žlubinec, 5950 C21, 1.V.1993, 2 adults by beating from a dead hornbeam (*Carpinus betulus*) branch, MR; Nižbor, Jinčov, 5949 D10, 4.VII.1993, 1 adult, MR.

***Pseudovadonia livida* (Fabricius, 1776)**; (F4, A4,We). Ruda, 5849 C7, 24.VI.1995, 1 adult, KR; Zbečno, Zadní Vápenec, 5949 B17, 6.VI.1993, 20 adults on flowers, MR; Zbečno, Kovářův luh, 5949 B22, 3.VII.1993, many adults on flovers, MR.

***Pyrrhidium sanguineum* (Linnaeus, 1758)**; (F4, A5,We). Karlova Ves, 6048 B8, 15.V.1992, 1 immature adult on a flowering *Crataegus* sp., KR; Broumy, Úpoř, 6049 A16, X.1990, 32 adults reared from larvae found in sapwood of a dead standing oak (*Quercus* sp.), MR; Nižbor, Žlubinec, 5950 C21, IV.1991, many adults found in a trunk of a dead oak (*Quercus* sp.), MR.

***Rhagium inquisitor* (Linnaeus, 1758)**; (F5, A4,We). Žloukovice, Ložina, 5949 D19, VI.1980 and VI.1984, 3 adults, MR; Zbečno, 5949 D1, XI.1992, many adults, pupae, and larvae found in rotten stumps of *Pinus niger*, MR; Nižbor, Vůznice, 5949 D20, 1.V.1993, adults on cordwood, MR.

***Rhagium mordax* (Degeer, 1775)**; (F5, A4,We). Zbečno, Zadní Vápenec, 5949 B17, 4.III.1992, 5 adults in pupal cells under bark of an oak (*Quercus* sp.) stump, MR; Broumy, Úpoř, 6049 A16, 28.XI.1992, many adults under bark of *Carpinus betulus*, *Fraxinus excelsior*, and *Acer campestre*, MR; Nižbor, Suchá mýť, 5950 C11, 1.V.1993, 8 adults on cordwood, MR.

***Rutpela maculata* (Poda, 1761)**; (F5, A5,We). Broumy, Úpoř, 6049 A16, 28.V.1993, 3 adults on Umbelliferae, MR; Zbečno, Kovářův luh, 5949 B22, 3.VII.1993, 3 adults, MR; Nižbor, Jinčov, 5949 D10, 4.VII.1993, 1 adult, MR.

***Saperda populnea* (Linnaeus, 1758)**; (F3, A5,We). Lány, 5849 C18, VI.1984, 2 adults on young aspen, KR; Řevničov, 5849 D5, 14.VI.1992, 6

adults on young aspen, KR; Ruda, 5849 C12 and 13, 27.V.1994, 7 adults, 17.V.1998, 2 adults, on young aspen, KR.

***Saperda scalaris* (Linnaeus, 1758)**; (F5, A5,We). Broumy, Úpoř, 6049 A16, 13.X.1990, 6 adults reared from larvae found in *Abies alba*, MR; Karlova Ves, Malá Pleš 451m, 27.II.1994, 1 adult reared from a larva found in *Salix caprea*, MR; Zbečno, Zadní Vápenec, 5949 B17, 30.IV. 1994, 3 adults reared from larvae found in *Picea abies*, leg. J. Roubal and MR. This very common species develops in all sorts of deciduous trees. Larvae of the species were recorded from *Carpinus betulus*, *Betula* spp., *Alnus glutinosa*, *Ulmus* spp., *Fraxinus excelsior*, *Fagus sylvatica*, *Acer campestre*, *Salix caprea*, *Quercus petraea*, and *Tilia* spp. However, quite frequently, this species develops in coniferous trees like *Picea abies* and *Abies alba*.

***Spondylis buprestoides* (Linnaeus, 1758)**; (F4, A4,We). Městečko, 5949 A23, 10.VII.1991, 1 adult, KR; Lány, 5849 C25, 26.VI.1993, 3 adults on pine cordwood, KR; Nižbor, Vůznice valley, 5949 D20, 20.VII.1991, 10 adults were collected when flying around pine cordwood at about 6 p.m., MR.

***Stenurella bifasciata* (Mueller, 1776)**; (F4, A4,We). Lány, 5849 C24, 16.VII.1989, 2 adults, KR; Karlova Ves, 6048 B8, 1.VII.1980, 1 adult, KR; Městečko, 5949 A23, 26.VI.1990, 1 adult, KR.

***Stenurella melanura* (Linnaeus, 1758)**; (F5, A5,We). Lány, 5849 C19, 15.VI.1996, 3 adults, KR; Žloukovice, Ložina, 5949 D19, 20.VI.1982, 2 adults, 13.VI.1981, 4 adults, MR; Zbečno, Kovářův luh, 5949 B22, 3.VII. 1993, many adults on flowers, MR.

***Stenurella nigra* (Linnaeus, 1758)**; (F3, A3,We). Karlova Ves, 6048 B8, 25.VI.1995, 1 adult, KR; Žloukovice, Ložina, 5949 D19, 13.VI.1981, 3 adults, MR; Broumy, Úpoř, 6049 A16, 15.VI.1991, 3 adults on Umbelliferae, MR.

***Tetropium castaneum* (Linnaeus, 1758)**; (F5, A5,We). Ruda, 5849 C1, 16.V.1997, 3 adults on spruce stumps, KR; Žloukovice, Ložina, 5949 D19, VIII.1979, 1 adult, VI.1980, 1 adult, MR; Broumy, Úpoř, 6049 A16, II.1991, 4 adults reared from *Larix decidua*, MR.

***Tetropium gabrieli* Weise, 1905**; (F3, A5,We). Branov, 6048 B9, 24.V.1993, 9 adults on larch stumps, KR; Nižbor, Vůznice, 5949 D20,

1.V.1993, 1 adult on cordwood, MR; Zbečno, Kovářův luh, 5949 B22, 6.VI.1993, 1 adult on a dead trunk of *Larix decidua*, MR.

***Tetrops praeusta* (Linnaeus, 1758)**; (F3, A5,We). Žloukovice, Kabečnice, 5949 D13, X.1991, 5 adults reared from dead twigs of *Fraxinus excelsior*, MR; Nižbor, Žlubinec, 5950 C21, 1.V.1993, 3 adults by beating from fruit trees, MR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 7 adults on flowering shrubs, MR.

Second group

The second group contains species characteristic of the study area, and species interesting from a faunistic or ecological point of view. In this group 73 species are listed.

***Acanthocinus griseus* (Fabricius, 1792)**; (F2, A3,We). [The species was collected by other entomologists, BURDA 1984]; Lhota, 5949 B4, 24.VII. 1988, 1 adult attracted by UV-light, KR; Lány, 5849 C24, 6.VII.1996, 1 adult by beating from a pine tree, KR. This species occurs more frequently in some other areas of Central Bohemia (especially in the Labe river basin lowlands). Within the study area it is restricted to relict pine forests growing on the rocky valley slopes of the river Berounka and a number of its tributaries from where it penetrates into planted pine forests. In the study area the species develops in Scots pine (*Pinus sylvestris*).

***Acanthoderes clavipes* (Schrank, 1781)**; (F4, A4,We). [Broumy, Vlastec, 6049, 1.VII.1986, 6 adults on beech cordwood, ZČ; Klíčava, HEYROVSKÝ 1930; Broumy, 12.VI.1977, 30 adults, Nižbor, 2.VII.1981, 1 adult, BURDA 1984; Kublov - Hiršlíny, VII.1980, Skryje - Kohoutov, VII.1982, Broumy - Úpoř, VI.1983, Karlova Ves - Jelenec, VII.1985, many adults, JP; Lány - Ploskovské polesí, 5849 D23, 4.VI.1989, 6 adults on a beech stump, JJ; Skryje, 5.VII.1991, 2 adults, Nový Dům, 5.VII.1986, 2 adults, MK; Křivoklátsko, 5849, 5948-50, 6048-50, leg. J. Moravec, leg. K. Rébl, leg. A. Burda, leg. M. Rejzek, Zbiroh, 6148, leg. Heyrovský in coll. NMP, SLÁMA 1998]; Lány, 5849 C24 and 25, 26.VI.1981, 1 adult, 5.VI. 1982, 1 adult, 24.V.1988, 4 adults, 7.VI.1988, 6 adults, 16.VII.1988, 1 adult, 20.V.1989, 4 adults, 26.V.1989, 2 adults, 17.VI.1989, 3 adults, 20.V.1990, 1 adult, 19.VII.1991, 1 adult, 26.VI.1992, 2 adults, 27.VII. 1995, 2 adults, 3.VII.1998, 2 adults, by beating from lime and birch trees but also on pine cordwood, KR; Lhota, 5949 B7, 4.VII.1987, 2 adults by beating from a hornbeam, KR; Karlova Ves, 6048 B8, 10.VII.1987, 1

adult by beating from an oak, 6049 A2, 24.V.1992, 1 adult, KR; Městečko, 5949 A23, 10.VII.1991, 2 adults, KR; Ruda, 5849 C11, 24.VII. 1995, 1 adult on a spruce, KR; Lány, 5849 C19, 15.VI.1996, 3 adults on birch cordwood, KR; Broumy, Úpořský potok, 6048 A16, 12.II.1991, 1 larva in a rotten branch of lime (*Tilia* sp.), MR; Zbečno, Zadní Vápenec, 5949 B17, 2.XI.1992, 1 larva in a dead trunk of mountain-ash (*Sorbus aucuparia*), MR; Broumy, Jelenec, 6048 B15, 28.XI.1992, 1 larva in a rotten branch of lime (*Tilia* sp.), the pupation occurred in a shallow pupal cell built in the sapwood, the larva secured itself there by a wad of fibrous frass, MR; Zbečno, Kovářův luh, 5949 B22, 3.VII.1993, 1 adult on a beech (*Fagus sylvatica*) log, MR. Although a sub-mountainous species, *Acanthoderes clavipes* belongs to the typical fauna of the study area. However, in the central and south-western parts of the area its occurrence is usually limited to the moister and colder sections of valleys. These include the narrow valley bottoms, the steep valley slopes without southern exposition, and the lower forested scree slopes (rock debris forests) comprising predominantly lime (*Tilia* spp.), and beech (*Fagus sylvatica*). In the north-eastern part of the study area (environs of Lány) the species is quite common.

***Agapanthia intermedia* Ganglbauer, 1883**; (F2, A3,We). [Sýkořice, 5949 D2, a steppe formation on a slope situated along road connecting Luky - Sýkořice, 11.VI.1989, JJ; Nižbor, 30.VI.1977, 1 adult (the beetle was determined as *A. violacea* although this is unlikely to be the case in this area), BURDA 1984]; Lány, 5849 C24, VI.1976, 2 adults, 12.VII. 1980, 4 adults, KR; Branov, Berounka valley, 6048 B3, 20.VI.1992, 5 adults on *Knautia arvensis*, KR; Městečko, 5949 A17, 20.VI.1995, 1 adult by sweeping, KR; Lány, 5849 C19, 15.VI.1996, 2 adults on *Knautia arvensis*, KR; Ruda, Klíčava valley, 5849 C18, 4.VII.1996, 2 adults by sweeping, KR. Although not a very typical species for the study area, the beetle's occurrence is well supported by a number of records. In some other areas of Central Bohemia the species is more common (Bohemian Karst, Prague basin and in the Labe river basin lowlands) than in the study area. The species develops in *Knautia arvensis* and the adults can easily be found on the host plant.

***Anaesthetis testacea* (Fabricius, 1781)**; (F1, A1, Ns). [Nižbor env., Stará mýť, 5949 D?, 12.VII.1991, 1 adult was beaten from an oak branch, JJ]. Surprisingly, this species has until now only been recorded once in the study area. As in Central Bohemia this species is fairly common, and there are many convenient biotopes in the study area, new records may be expected in the future. The species is polyphagous on deciduous trees, but

prefers dead thin twigs of common walnut (*Juglans regia*) and *Quercus* spp. in our climate. It was collected in the adjacent Bohemian Karst area (Dobřichovice, in thin twigs of sessile oak (*Quercus petraea*) growing on a slope with a southern aspect, a biotope very typical for river valleys within the study area).

***Anastrangalia dubia* (Scopoli, 1763)**; (F4, A4,We). [Nižbor, Stará mýť, 5949 D14 and D18, 11.VI.1989, Chýňava, Karlova bouda, 5950 C7, 25. VII.1991, 1 adult on a spruce log, Nižbor, Luby, 5949 D4, 5.VII.1988, on flowers, JJ; Křivoklátsko, end of VI.-VII., locally very common, SLÁMA 1983; Skryje, Úpoř valley, 26.V.-2.VIII.1985, PATERA 1987; Broumy, 30.V.1978, 50 adults, 8.VI.1980, 32 adults, Nižbor, 25.VI.1981, 20 adults, a common but local species, on flowers, BURDA 1984; Skryje, HEYROVSKÝ 1955; Skryje, Týřov, VI.1974, VI.1979, Skryje, Kohoutov, VII.1982, Hudlice, Krušná hora, VII.1984, VI.1972, Broumy, Úpoř, VI. 1983, Nižbor, Benešův luh, VII.1985, JP; Nižbor, II.1991, 1 adult reared from a larva found in a dead trunk of fir tree, MH; Zbečno, Kovářův luh, 10.-14.VI.1993 and 20.VI.1995, many adults on Umbelliferae, MH]; Hracholusky, 6048 B3, 1.VII.1980, 3 adults, KR; Branov, Berounka valley, 6048 B4, 29.VII.1978, 1 adult, 19.VI.1993, 1 adult on Umbelliferae sp., KR; Skryje, 6048 B13, VII.1974, remnants of a dead adult, KR; Městečko, Ryšava valley, 5949 A23, 26.VI.1990, 1 adult, 10.VII.1991, 1 adult, KR; Roztoky, Klučná valley, 5949 C23, 19.VI.1993, 1 adult on Umbelliferae sp., KR; Nižbor, 5950 C22, II.1991, 1 adult reared from a trunk of a dead European silver fir (*Abies alba*), MR; Broumy, Úpořský potok, 6048 B20, 15.VI.1991, 1 adult on a log of Norway spruce (*Picea abies*), MR; Broumy, Úpořský potok, 6048 B20, 28.V.1993, many adults on Umbelliferae, MR. A species typical for the study area. It represents a more or less mountainous species developing in coniferous trees. In the study area the species prefers European silver fir (*Abies alba*) and Norway spruce (*Picea abies*), however.

***Anisarthron barbipes* (Schrank, 1781)**; (F4, A5,We). [Beroun, 5.VI. 1978, 3 adults beaten from an ash tree, BURDA 1984; Rakovník, HEYROVSKÝ 1930; Žilina - Krchůvek, 5949 B14, 24.VII.1991, 1 adult on a fallen beech trunk, JJ; Nižbor env., Stará mýť, 5949 D13, 24.VII.1991, 1 adult sitting on the dead barkless wood of a living oak, JJ; Nový Dům, 12. VII.1998, MK]; Lány, 5849 C24, 27.VI.1992, 1 adult, 30.VI.1992, 1 adult, 21.VI.1998, 1 adult, by beating from oaks and ash, KR; Zbečno, Zadní Vápenec, 5949 B17, 2.XI.1992, 4 adults were reared from larvae found in dead moist wood of a branch base remaining on a living *Acer* sp., MR; Zbečno, Zadní Vápenec, 5949 B17, 3.VII.1993, about 80 adults

sitting on barkless dead wood on trunks of living beech (*Fagus sylvatica*), beetles often observed in copula, Jinčov, MR and MH; Nižbor, Jinčov, 5949 D10, 4.VII.1993, 8 adults on dead wood of living *Acer* sp., *Carpinus betulus*, and *Fagus sylvatica*, MR and MH; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, 2 larvae in dead wood on a living beech (*Fagus sylvatica*), MK and MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 11.III.1995, 1 larva in dead wood on a living beech (*Fagus sylvatica*), MK and MR. Within the study area this is a very typical and common species polyphagous on deciduous trees. It develops in dead red-brown moist wood of wounded living trees (bases of dead branches, wounds in bark of trunks, etc.). The contact of the substrate with living tissue seems to be essential for the development of this beetle.

***Anoplodera sexguttata* (Fabricius, 1775)**; (F4, A5,We). [Nižbor, Janův vrch, 5950, 4.VI.1988, common on flowering hawthorns, ZČ; Nižbor, Stará mýť, 5949 D14 and D18, 11.VI.1989, 11 adults on flowers, Nižbor, Kabečnice, 5949 D13, 9.V.1990, adults on a hawthorn, JJ; Nižbor, Luby - Skalka, 19.V.1990, 4 adults on an oak stump, PH; a common species, BURDA 1984; Beroun, Ostrý, V.1983, Skryje, Strážov, V.1988, JP; Křivoklátsko, VI., on flowers, SLÁMA 1983; Zbečno, Kovářův luh, 12.-14.VI.1993, many adults on flowers, MH; Broumy, 6.VII.1985, more adults, MK]; Lhota, 5949 B8, 4.VI.1987, 1 adult, KR; Karlova Ves, 6048 B8, 1.VII.1980, 1 adult, 11.V.1981, 1 adult, 7.VI.1987, 5 adults, 22.VI. 1987, 1 adult, 11.VI.1989, 2 adults, KR; Karlova Ves, 6048 B14, 24.V.1986, 1 adult, KR; Ostrovec, 6048 D6, 18.V.1989, 1 adult, KR; Žloukovice, 5949 D13, 13.VI.1981 and 20.VI.1982, adults on flowers, MR; Broumy, Úpořský potok, 6048 B20, 28.V.1993, many adults on flowers, MR; Zbečno, Zadní Vápenec, 5949 B17, 6.VI.1993, many adults on flowers, MR; Broumy, Týřov, 6048 B13, 15.VI.1991, many adults on flowers, MR and MH; Zbečno, Zadní Vápenec, 5949 B17, 16.VI.1991, many adults on flowers, MH and MR. In the study area a very typical and common forest species.

***Aromia moschata* (Linnaeus, 1758)**; (F2, A2, Vu). [Beroun, 20.VI.1976, 4 adults on willows, BURDA 1984; Beroun, VII.1988, JP; Nižbor, larvae in a willow, SLÁMA 1983]. A representative of the fauna of willow shrubs growing along the Berounka river. The species becomes more abundant in neighbouring areas down the river (in the adjacent Bohemian Karst and then further down the Berounka river valley). In the study area, however, it is quite rare.

***Callimus angulatus* (Schrank, 1789)**; (F2, A3,We). [Nižbor, 29.V.1979, Zbečno, 30.V.1979, 1 adult, Broumy, 17.VI.1980, 20 adults, usually on logs, or on flowers of Umbelliferae plants, BURDA 1984; Skryje, leg. Lekeš, HEYROVSKÝ 1955; Broumy, VI.1990, Karlova Ves, Velká a Malá Pleš, IV.1990, JP; Týřovické skály, 6049, 8.V.1994, 1 adult on a dry *Carpinus* branch, Skryje, 6049, 8.V.1994, 2 adults on flowers in the undergrowth, Broumy, Úpoř valley, 6049, 29.V.1994, 15 adults sitting on Umbelliferae, MH; Křivoklát, 5949, VI.1955, leg. ? Fára, in coll. Kratochvíl, 27.V.1979, leg. R. Pucholt, Nižbor, 59-6049-50, VI.1984, leg. O. Odvárka, 1985, leg. J. Dalihod, Karlova Ves, 6048, leg. Kastl, Skryje, 6048, 8.VI.1994, leg. M. Zýka, Týřovické skály, 6048, 8.VI.1987, leg. Jelínek in coll. NMP, Broumy, 6049, VI.1990, leg. O. Odvárka, SLÁMA 1998]; Karlova Ves, 6048 B8, 7.VI.1980, 2 adults, 17.V.1989, 5 adults, 21.V. 1989, 6 adults, 24.V.1993, 1 adult, by beating from *Fraxinus* sp. and
flowering *Crataegus* sp., KR; Broumy, Úpořský potok, 6048 B20, 28.V. 1993, 1 adult on a flower of an Umbelliferae plant growing in a shady meadow down the Úpoř brook valley, MR; Broumy, Úpoř, 6049 A16, 31.V.1993, 1 male on a flower of an Umbelliferae plant, MR and MH; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 3 adults on flowers, MR and MH; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, 2 adults in a dead beech (*Fagus sylvatica*) branch, MK and MR. In Bohemia it is a rather rare species requiring thermophilous vegetation growing on slopes with a southern aspect. The beetle develops in recently dead branches of deciduous trees, but prefers oak (*Quercus* spp.) and beech (*Fagus sylvatica*). The larvae feed centrally in the compact, rather dry and fungi-free dead wood, hatch in autumn and the adults overwinter in pupal cells. The beetle is not a typical, but rather an occasional flower visiting species. More frequently it can be found sitting on oak leaves in the top region of the trees. In other regions the development frequently occurs in branches girdled by larvae of *Coroebus* spp. A girdled twig offers exactly the required substrate. However, in the study area, the species must make do with rare alternative substrate sources as *Coroebus* is very rare here.

***Chlorophorus figuratus* (Scopoli, 1763)**; (F3, A2,We). [Nižbor, 5950, 25.VI.1972, 1 adult on a flowering hawthorn, ZČ; a common species throughout the area, BURDA 1984; Zbečno, Vůznice, HEYROVSKÝ 1930; Nižbor, Benešův luh, VI.1986, JP; Nižbor, Křivoklát, Skryje, VI.-VII., adults on various flowers, also reared from oak, SLÁMA 1983; Nižbor, Luby - Řepiště, 27.V.1990, 1 adult by beating from beech branches, PH; Nižbor, Žlubinec, 5950 C16, 17.VI.1990, adults on flowers, JJ; Zbečno, Kovářův luh, 10. and 14.VI.1993, 2 adults on flowers, MH]; Lány, 5849

C18, 30.VI.1978, 1 adult on a flower, KR; Lány, 5849 C24 and 25, 16.VII.1988, 1 adult on flowering *Tilia* sp., 19.VII.1991, 1 adult, 4.VI. 1993, 1 adult by beating from an oak, KR; Žloukovice, Kabečnice, 5949 D13, 13.VI.1981, 2 adults on *Aruncus* sp. growing next to a small brook, MR. Faunistically interesting records of a species seldom found in Bohemia.

***Chlorophorus herbsti* (Brahm, 1790)**; (F3, A3,We). [Nižbor, Suchá mýť, 5950, 11.VII.1970, 5 adults on lime trees, ZČ; Broumy, 21.VI.1978, 10 adults, 16.VIII.1980, 16 adults, Svatá, 2.VII.1981, 3 adults, adults were collected on freshly cut lime and hornbeam cordwood, BURDA 1984; Zbečno, Vůznice, HEYROVSKÝ 1930; Nižbor, Suchá mýť, VI.1983, Strážov, 10.VIII.1997, 1 adult on cordwood, 16.VIII.1997, 1 adult on cordwood, JP; Nižbor, VI.-VII., more adults on freshly cut lime wood and on standing dead hornbeam trunks, SLÁMA 1983; Městečko u Křivoklátu, 5949 A23, 6.VIII.1988, 17.VII.1992, and 25.VII.1991, leg. J. Rosenbaum; Lhota, Ploskov - Žilinský vrch, 5949 B9, 2 adults from a lime log, JJ; Karlov, 16.VI.1986, 2 adults, MK]; Lány, 5849 C24, 10.VI.1988, 1 adult, 26.VI.1988, 1 adult, 30.VI.1988, 2 adults, 25.VII.1988, 1 adult, 16. VII.1988, 2 adults, 6.VI.1989, 1 adult, 20.VI.1989, 2 adults, 15.VII.1989, 3 adults, 29.VII.1991, 2 adults, 6.VII.1996, 1 adult, 12.VII.1997, 1 adult, by beating from lime trees, KR; Lány, 5849 C18, VII.1973, 1 adult, 20.VII.1980, 2 adults, KR; Žloukovice, Kabečnice, 5949 D13, 20.VI. 1982, 1 adult, MR; Broumy, Úpořský potok, 6048 B20, 21.I.1991, 1 dead adult in a dead hornbeam (*Carpinus betulus*) trunk and 1 adult reared from a larva found in the same substrate, MR and MH; Žloukovice, Kabečnice, 5949 D13, I.XII.1991, 3 adults reared from larvae found in a dead branch base on a living hornbeam (*Carpinus betulus*), MR; Zbečno, Zadní Vápenec, 5949 B17, 1.III.1992, 2 adults reared from larvae found in dead wood on a living hornbeam (*Carpinus betulus*), MR; Zbečno, Kovářův luh, 5949 B22, 4.III.1992, 3 adults reared from larvae found in a dead hornbeam (*Carpinus betulus*) trunk, MR; Nižbor, Vůznice, 5949 D20, 26.VI.1993, 1 adult, MR; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, 7 adults reared from larvae found in dead wood of a wounded living branch of lime (*Tilia* sp.), MR; Zbečno, V hrozném, 5949 B12, 8.XI.1997, 1 adult reared from a larva found in dead wood on a living trunk of lime (*Tilia* sp.), MR. From the records it is apparent that this beautiful longhorn beetle is rather common in the study area. It is an occasional flower visitor. Its larvae feed in dead compact wood of lime (*Tilia* spp.), or hornbeam (*Carpinus betulus*) trunks or thicker branches. Frequently, it also develops in dead wood which is in contact with the

living tissue of the same hosts. The species can be considered a typical one for the study area.

***Clytus lama* Mulsant, 1847**; (F3, A4,We). [The species was collected by other entomologists, BURDA 1984; Nižbor, Suchá mýť, 5950, 25.VII. 1979, VII.1970, 2 adults, leg. Šprysl in coll. ZČ; Zbečno, 17.VI.1990, 1 adult, PH; Nižbor, Křivoklát, SLÁMA 1983; Skryje, Vlastec, VII.1974, Beroun, Děd, VII.1984, Karlova Ves, Emilovny, VIII.1984, JP; Zbečno, Kovářův luh, 10. and 14.VI.1993, many adults on Umbelliferae and on stored wood; MH; Skryje, 30.VI.1992, Karlov, 5.VII.1991, Nový Dům, 5.VII.1986, many adults, MK]; Lány, 5849 C24, VII.1969, 3 adults, VI.1975, 1 adult, 12.VII.1978, 6 adults, 12.VII.1980, 2 adults, 5.VI.1993, 4 adults, on freshly felled spruce trees, KR; Roztoky, 5949 C23, 20.VI. 1992, 3 adults on a freshly felled spruce, KR; Městečko, 5949 A8, 5.VII.1995, 6 adults in a pheromone trap, KR; Žloukovice, 5949 D13, 12.VI.1980, 1 adult on a flower, MR; Nižbor, Vůznice, 5949 D20, 3.II.1990, several adults reared from *Abies alba*, MR; Nižbor, 5950 C22, 8.I.1991, many adults reared from larvae found in the trunk of a dead European silver fir (*Abies alba*), MR and MH; Broumy, Úpořský potok, 6048 B20, 15.III.1991, 3 adults reared from *Abies alba*, MR. Although a more or less mountainous species, this beetle is a quite typical representative of the local fauna. Initially, the population of this species must have been strictly bound with the European silver fir (*Abies alba*), as the other possible host plants, Norway spruce (*Picea abies*) and European larch (*Larix decidua*) are not naturally occurring here. However, this species shows a high degree of adaptability and develops in planted spruce and larch forests. It is therefore still very abundant, in spite of the fact that fir trees are disappearing quickly from the study area.

***Clytus tropicus* (Panzer, 1795)**; (F3, A2,We). [The species was collected by other entomologists, BURDA 1984; Křivoklát, 5949, VI.1956, 1 adult, leg. E. Lekeš in coll. ZČ; Zbečno, 5949, 1962, 2 adults, leg. M. Sláma in coll. ZČ; Nižbor, Luby - Skalka, 25.V.1992, 1 adult sitting on a young oak after a storm, PH; Jinčov, in an oak forest opposite the castle ruin, 5949 D10, 5.VII.1988, 1 adult beaten from dead young oak tree, JJ; Nižbor, HEYROVSKÝ 1955; Broumy, Týřov, III.1991, 2 adults reared from larvae found in trunk of a dead standing oak (*Quercus* sp.), MH; Beroun, Ostrý, VI.1997, 1 adult reared from *Quercus* sp., JP; many records from convenient oak forests throughout the area, SLÁMA 1983; Křivoklátsko, 5849, 5948-50, 6048-50, 1961, leg. Prokš, leg. Jedliška, leg. Sláma, leg. Rejzek, leg. Hoskovec, leg. Černý, and others (the year 1961 probably only considers Prokš), SLÁMA 1998]; Karlova Ves, 6048 B8, 26.V.1982, 1 adult, 17.VI.1987, 2 adults, 24.V.1993, 14 adults, 28.V.1995, 6 adults,

1.VII.1995, 3 adults, by beating from dying oaks attacked by a fungus (*Obolarina dryophila*) or by beating from dead oaks, KR; Lány, 5849 C24, 28.VII.1968, 1 adult by beating from dead oak, 26.VI.1988, 1 adult in a vine trap, KR; Broumy, Úpořský potok, 6048 B20, 23.II.1985, 1 adult reared from an oak (*Quercus* sp.) branch lying on ground near to an older oak tree. The oviposition, however, must have occurred in the top region of the tree as the branch had not been lying there for long, MR; Nižbor, Žlubinec, 5950 C21, 7.X.1990 and 16.III.1991, 5 adults reared from larvae found in a standing trunk of a recently dead sessile oak (*Quercus petraea*), MR; Nižbor, Žlubinec, 5950 C21, 6.IV.1991, 3 dead adults and 3 larvae (adults reared subsequently) in pupal cells built in sapwood of an oak (*Quercus* sp.) trunk, MR; Broumy, Týřov, 6048 B13, 25.V.1991, 1 dead adult found in a pupal cell built in the trunk of a dead oak tree (*Quercus* sp.), MR; Nižbor, Vůznice, 5949 D20, 20.VIII.1991, 1 dead adult in a pupal cell built in a log stored in the forest, MR; Žloukovice, Kabečnice, 5949 D13, 21.X.1991, 1 adult reared from larvae found in the trunk of a dead oak (*Quercus* sp.), MR; Skryje, Sirská hora 524m, 6048 D6, 10.IV.1993, 2 adults reared from larvae found in oak cordwood, MR and MH. This beautiful forest species can be considered a very typical representative of the local fauna. The species requires old oak forests and as this biotope occurs most frequently in the study area, the species is quite abundant throughout. The literary data concerning biology of this species is frequently quite variable and often even contradictory, and therefore, a more detailed description of its development follows. The species develops in *Quercus* spp. In the study area *Quercus petraea* is the preferred host plant. Females oviposit on either recently dead thick branches within the tree canopy, or on trunks of recently dead trees growing in extremely exposed localities. These usually comprise the top regions of slopes with more or less southern aspect, or the denser plateau forests which are closely connected with these places. Generally, xerothermic localities are preferred. Oviposition was frequently observed on dying trees attacked by a fungus *Obolarina dryophila*. The substrate convenient for the beetle's development is very compact dry wood with bark tightly clinging to the wood. Generally, minimum moisture is required by the larvae. The freshly hatched larvae start to feed subcortically creating typical galleries, clearly visible when the bark is removed. In the autumn of the year in which the oviposition took place, the larvae enter the sapwood and create a pupal cell at the end of a long narrow gallery. The larva secures itself there with a wad of a fine non-fibrous frass. Pupation proceeds in the spring of the next year. Adult beetles hatch and leave the host plant in May after one year of development. In our climate it has been observed that adult beetles emerge in May as soon as the temperature reaches 25°C.

***Clytus rhamni* Germar, 1817**; (F2, A2, Ns). [Nižbor, 16.VI.1978, 1 adult, BURDA 1984; Křivoklát, 6.VI.1968, 2 adults, leg. E. Lekeš, in coll. MK; Nižbor, 5949-50, 1985, leg. J. Dalihod, 1975, leg. J. Černý, Žloukovice, 5949, 1985, leg. J. Dalihod, Karlova Ves, 6049, VI.1942, leg. Tesař in coll. Kratochvíl, SLÁMA 1998]. There are only a few existing records within the study area but additional ones are quite possible as the species has been found in Bohemia several times already.

***Cortodera femorata* (Fabricius, 1787)**; (F2, A3, Ns). [Nižbor, Janův vrch, 5950, 7.VI.1975, 28.V.1977, 9.V.1977, about 5 adults on a flowering spruce, ZČ; Nižbor, 2.VI.1980, 1 adult, BURDA 1984; Zbiroh, Křivoklátsko, HEYROVSKÝ 1930; Zbečno, Sýkořice - Senecká, 8.VI.1991, 1 adult beaten from a young flowering pine tree, PH]; Ruda, 5849 C18, 5.VI.1978, 1 adult beaten from a maple growing in a secondary mixed forest, KR. It is likely that this beetle was originally an inhabitant of the sporadic relict pine woods found on the slope tops along rivers and brooks. It penetrates frequently into secondary pine forests where it finds alternative biotopes. It frequently visits flowering trees but never visits flowers.

***Paracorymbia maculicornis* (Degeer, 1775)**; (F3, A3,We). [Nižbor, 5950, 14.VI.1969, many adults, ZČ; Skryje, Úpoř valley, 2.VI.-13.VII. 1985, PATERA 1987; a common species, BURDA 1984; Rakovnicko, HEYROVSKÝ 1930; Skryje, VI.1974, Nižbor - Vůznice, VI.1982, Broumy - Úpoř, VI.1983, JP; Křivoklátsko, end of VI.-VII., common throughout the area; SLÁMA 1983; Nižbor - Luby, 24.V.1990, 6 adults on flowers, PH; Zbečno, 17.VI.1990, on flowers of Umbelliferae, PH; Nižbor, 5950 C16, 17.VI.1990, JJ; Broumy, 6.VII.1985, more adults, Karlov, 5.VII.1991, 1 adult, MK; Zbečno, Kovářův luh, 14.VI.1993, more adults on flowers, MH]; Lány, 5849 C24, VII.1973, 2 adults, VII.1974, 1 adult, 7.VII.1978, 1 adult, VI.1979, 1 adult, 28.VII.1991, 6 adults, KR; Městečko, 5949 A23, 26.VI.1990, 1 adult, KR.

***Melanoleptura scutellata* (Fabricius, 1781)**; (F4, A5,We). [Broumy, Vlastec, 6049, 1.VII.1986, 1 adult, ZČ; Skryje, Úpoř valley, 2.VI.-7. VII.1985, PATERA 1987; common throughout the area in oak forests, BURDA 1984; Zbečno, HEYROVSKÝ 1930; Hudlice, Krušná hora, VI.1972, Skryje, Týřov, VII.1974, Skryje, Kohoutov, VII.1982, Skryje, Strážov, VI.1986, Karlova Ves, Jelenec, VII.1984 and VII.1985, JP; Nižbor, Zbečno, VI.-VII., on flowers, develops in deciduous trees, mainly in hornbeam and beech, SLÁMA 1983; Nezabudice, 9.VII.1981, leg.

Vyskočil; Nižbor, Luby, 31.V.1981, leg. Slepička; Zbečno, Stará mýť, 5949 D13, 30.VII.1987, 1 adult, JJ; Lhota Ploskov, 5949 B9, 18.VI.1992, 1 adult on common horse-chestnut (*Aesculus hippocastanum*), JJ; Zbečno, 14.VI.1993, 6 adults on beech cordwood, MH; Broumy, 6.VII.1985, more adults, 25.II.1995, 1 adult ex larva, Nový Dům, 18.VII.1998, 1 adult, MK]; Lány, 5849 C24, VII.1977, 1 adult, 12.VII.1980, 1 adult by beating from a dead beech, 25.VI.1989, 1 adult, 26.VI.1992, 1 adult by beating from a dead beech, 6.VII.1996, 1 adult by beating from a dead birch, KR; Karlova Ves, 6048 B8, VII.1977, 1 adult, 1.VII.1980, 1 adult, 16.VI. 1988, 1 adult by beating from an oak, KR; Branov, 6048 B3 and 4, 29. VII.1978, 1 adult, 20.VI.1992, 1 adult, 19.VI.1993, 1 adult on beech cordwood, KR; Lhota, 5949 B3, 1.VII.1987, 2 adults by beating from a hornbeam, KR; Městečko, 5949 A12, 22.VII.1990, 1 adult on a flower, KR; Žloukovice, Kabečnice, 5949 D13, 20.VI.1982, 1 adult, MR; Nižbor, Suchá mýť, 5950 C11, 26.VI.1983, 1 adult, MR; Zbečno, Kovářův luh, 5949 B22, 3.I.1991, 1 dead adult in a dead standing trunk of beech (*Fagus sylvatica*), MR; Zbečno, Klíčava, 5949 D1, 2.V.1992, 8 adults reared from a rotten hornbeam (*Carpinus betulus*) trunk, MR; Zbečno, Písky, 5949 A20, 19.III.1993, many adults reared from larvae found in a rotten common ash (*Fraxinus excelsior*) trunk, MR; Zbečno, Zadní Vápenec, 5949 B17, 6.VI.1993, many adults in flight around cordwood, MR and MH; Zbečno, Kovářův luh, 5949 B22, 3.VII.1993, many adults on cordwood, MR and MH; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, many larvae in decaying wood of beech (*Fagus sylvatica*), MK and MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 11.III.1995, many larvae in decaying trunks of beech (*Fagus sylvatica*), leg. L. John, O. Sabol, MK and MR; Řevničov, Leontýnino polesí, 5849 C6, 18.III.1995, many larvae in decaying wood of a beech (*Fagus sylvatica*), leg. M. Johanides and MR; Řevničov, Horácká Lísa, 5849 D10, 2.IV.1995, many larvae in beech (*Fagus sylvatica*), MR; Lány, Habrová stráň 452m, 5849 C15, 2.IV.1995, many larvae in beech (*Fagus sylvatica*), leg. M. Johanides, L. Karaus, and MR; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, many larvae in a hornbeam (*Carpinus betulus*) trunk, MR. *Melanoleptura scutellata* can be considered as one of the most typical and very common species of the study area. It is polyphagous on deciduous trees requiring highly moist decaying wood frequently lying on the ground. It prefers shady dense forests, where it sits on host trees or occasionally on flowers.

***Exocentrus adspersus* Mulsant, 1846**; (F4, A5,We). [The species was collected by other entomologists, BURDA 1984; Nižbor, Suchá mýť, 5950, 28.III.1980, ex larvae, 11.VII.1970, 5 adults on oak brushwood, ZČ; Nižbor, before 1957, leg. Prokš and Lekeš, SLÁMA 1992; Karlova Ves,

Velká and Malá Pleš, VII.1982, JP; Nižbor, Skalka, 20.VI.1990, more adults by beating from oak brushwood, PH; Nižbor, Stará mýť, 5949 D14 and D18, 11.VI.1989 and 20.VI.1990, many adults by beating from oak brushwood, JJ; Nižbor, 3.VII.1986, many adults ex larvae, MK; a rather common species throughout the area, but the only known locality in Bohemia, SLÁMA 1983; Křivoklátsko, 5849, 59-6049-50, leg. Prokš, leg. Lekeš (cf. SLÁMA 1992), 1962, leg. M. Sláma, leg. J. Pivoňka, leg. Dalihod, leg. Rejzek and others, SLÁMA 1998]; Karlova Ves, 6048 B8, 27.VI.1987, 3 adults, 16.VI.1988, 2 adults, 18.V.1990, 6 adults, 24.VI. 1990, 4 adults, 18.XII.1991, 1 larva (1 adult reared subsequently), 1.VII. 1995, 21 adults, by beating from dead oaks, KR; Lány, 5849 C24 and 25, 26.VI.1988, 1 adult, 20.VI.1989, 1 adult, 28.VII.1990, 2 adults, by beating from dead oaks, 3.VII.1998, 2 adults by beating from a dead birch, KR; Branov, 6048 B4, 16.VII.1991, 3 adults, KR; Městečko, 5949 A17, 27.VII.1996, 1 adult by beating from a hornbeam, KR; Žloukovice, Ložina, 5949 D18, VIII.1980, 1 adult and 13.VI.1981, 6 adults, MR; Nižbor, Suchá mýť, 5950 C11, 26.VI.1983, 2 adults, MR; Zbečno, Brdatka, 5949 A24, 6.VI.1993, 50 adults by beating from hornbeam (*Carpinus betulus*) brushwood, MR and MH; Nižbor, Jinčov, 5949 D10, 4.VII.1993, many adults by beating from hornbeam (*Carpinus betulus*) brushwood, MR and MH. A very typical species for the study area. In the past it has been collected regularly only here, and there were only sparse records from other localities in Bohemia. Recently, probably in connection with the extending tracheomycosis of oaks, there has been a large increase in the incidence of this beetle in Bohemia. It even seems that this species starts to suppress its close relative *Exocentrus lusitanus* (Linnaeus, 1767) which used to be more frequent in the past. The larvae of *Exocentrus adspersus* feed in quite rotten and fungi-rich substrates. It is polyphagous on deciduous trees but prefers oak (*Quercus* spp.) and hornbeam (*Carpinus betulus*) in the study area. It often oviposits on branches lying on the ground.

***Exocentrus lusitanus* (Linnaeus, 1767)**; (F3, A5,We). [The species was collected by other entomologists, BURDA 1984; throughout the area, VI.-VII., develops in dead lime twigs, SLÁMA 1983]; Lány, 5849 C24, 10. VI.1988, 7 adults, 18.VI.1988, 2 adults, 25.VII.1988, 1 adult, 27.VII. 1988, 3 adults, 30.VII.1988, 1 adult, 26.V.1989, 1 adult, 6.VI.1989, 2 adults, 16.VII.1989, 2 adults, 23.VII.1989, 2 adults, 5.VII.1993, 2 adults, 6.VII.1996, 2 adults, 21.VI.1998, 3 adults, 3.VII.1998, 2 adults, by beating from dead lime trees, KR; Branov, 6048 B3, 20.VI.1992, 1 adult by beating from dead lime branches, KR; Nižbor, Ohrádka, 5949 D19, 26.VI.1983, many adults by beating from hornbeam (*Carpinus betulus*)

brushwood, MR; Zbečno, Zadní Vápenec, 5949 B17, 16.VI.1991, 5 adults beaten from oak (*Quercus* sp.) brushwood, MR; Nižbor, Jinčov, 5949 D10, 4.VII.1993, many adults beaten from hornbeam (*Carpinus betulus*) brushwood, MR. Although this species is of common occurrence in Bohemia, within the study area it surprisingly occurs less frequently than the rarer *Exocentrus adspersus.* It is polyphagous on deciduous trees and its larvae nutrition requirements seem to copy the ones of *E. adspersus*. Little preference of lime (*Tilia* spp.) is, however, apparent.

***Exocentrus punctipennis* Mulsant et Guillebeau, 1856**; (F1, A2, Vu). [Nižbor, VII.1967, leg. Prokš, Křivoklát, Nezabudické skály, 24.VII. 1982, leg. Strejček, SLÁMA 1992; Nižbor, 6049, VII.1967, leg. Prokš in coll. NMP (cf. SLÁMA 1992), SLÁMA 1998]; Zbečno, Brdatka, 5949 A24, IX.1990, 1 adult reared from an elm (*Ulmus* sp.) twig, MR; Nižbor, Žlubinec, 5950 C21, 1991, 4 adults reared from elm (*Ulmus* sp.) twigs, MR; Nižbor, Žlubinec, 5950 C21, II.1991, 1 dead adult was found in bark of an elm (*Ulmus* sp.) twig, MR. This species occurs in Bohemia rather locally and can be considered as a rare one. Although few in number, faunistically the records from the study area are quite important. This species is monophagous on *Ulmus* spp. and in contrast to the previous species, it prefers rather dry twigs or branches and the oviposition takes place in the tree rather than on the material already lying on the ground.

***Gaurotes virginea* (Linnaeus, 1758)**; (F3, A2,We). [Broumy, 2.VI.1978, 2 adults, 17.VI.1979, 3 adults, 5.VI.1982, 2 adults, locally in brook valleys on Umbelliferae, BURDA 1984; Nižbor, Vůznice, 15.VI.1993, 2 adults on flowers, MH; Broumy, Týřov, 6.VII.1985, more adults, MK]; Karlova Ves,Velká Pleš 496m, 6048 B4, 16.V.1994, 1 adult on a flowering hawthorn, MH and MR. These faunistically important records document the presence of more or less mountainous species in some isolated parts of the area in question. The larvae of this species feed subcortically on coniferous trees in a substrate very rich in fungi. The pupation takes place in soil. The adults are flower visitors.

***Grammoptera abdominalis* (Stephens, 1831)**; (F3, A3,We). [The species was collected by other entomologists, BURDA 1984; Nižbor, Luby, 13.V.1990, JJ; Křivoklát, Amalín, 5949 C4, 5.V.1990, 1 adult by beating from hawthorn, JJ; Nižbor, 5949 D13 and D14, 13.V.1990, 1 adult from a hawthorn, JJ; Nižbor, 5949 D18, 25.V.1989, JJ]; Lány, 5849 C24, 6.VI.1980, 1 adult, 21.V.1988, 1 adult, 24.V.1988, 1 adult, 6.VI.1989, 1 adult, by beating from flowering *Crataegus* sp. or from oaks, KR; Ostrovec, 6048 D6, 18.V.1989, 1 adult by beating from oak, KR; Karlova Ves,

6048 B8, 7.VI.1980, 2 adults VI.1984, 1 adult, 6.V.1990, 2 adults, 1.VI.1991, 4 adults, by beating from flowering *Crataegus* sp. or from oaks, KR; Karlova Ves, Velká Pleš 496m, 6048 B4, 16.V.1994, 1 adult on a flowering *Crataegus*, MR and MH. A thermophilous species developing in oak (*Quercus* spp.) branches attacked by a fungus creating white coating on the bark surface. The larvae of this species feed in the fungi-rich dead wood and create pupal cells perpendicular to the branch axis with one end leading directly under the bark. When removing the bark the animals can be seen in the pupal cells, as they are never secured by any sort of a wad. The beetles prefer xerothermic localities and can frequently be found in forests along the edge of slopes with a convenient aspect. In the study area the species is frequently accompanied by its close relative *Grammoptera ustulata*.

***Grammoptera ustulata* (Schaller, 1783)**; (F3, A3,We). [Nižbor, Suchá mýť, 5950, Janův vrch, 5950, not very common, ZČ; common throughout the area, on flowers, BURDA 1984; Křivoklátsko, HEYROVSKÝ 1930; Beroun, Ostrý, V.1987, Karlova Ves, Týřovické skály, VI.1987, JP; Nižbor, Luby, 26.V.1992, 2 adults on a flowering hawthorn (*Crataegus* sp.), PH; Nižbor, 5949 D13 and D14, 13.V.1990, adults on flowering hawthorns growing on a slope of Berounka valley, JJ; Nižbor, 5949 D18, 25.V.1989, 1 adult beaten from an oak, JJ; Zbečno, Kovářův luh, 14.VI.1993, 1 adult on a flower, MH]; Lány, 5849 C24 and 25, 5.VI.1978, 1 adult, 20.VI. 1980, 1 adult, 6.VI.1987, 1 adult, 24.V.1988, 3 adults, 20.V.1989, 1 adult, 6.VI.1989, 1 adult, by beating from flowering *Crataegus* sp. or from oaks, KR; Běleč, 5949 B12, 4.VI.1987, 2 adults by beating from flowering *Crataegus* sp., KR; Karlova Ves, 6048 B8, 28.V.1988, 4 adults, 17.V. 1989, 1 adult, 6.V.1990, 1 adult, 7.VI.1980, 1 adult, 1.VI.1991, 1 adult, by beating from flowering *Crataegus* sp. or from oaks, KR; Ostrovec, 6048 D6, 18.V.1989, 1 adult, KR; Městečko, Ryšava valley, 5949 A23, 8.VI.1991, 1 adult, KR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, many adults on flowering shrubs, MR and MH; Karlova Ves, Velká Pleš 496m, 6048 B4, 16.V.1994, many adults on flowering *Crataegus*, MR and MH. A thermophilous species with very similar biotope and nutrient requirements as the above species *Grammoptera abdominalis*.

***Lamia textor* (Linnaeus, 1758)**; (F2, A3, Vu). [Zbečno, 8.V.1992, between 1990-92 about 40 adults were collected, PH; Zbečno, 5949 C5, 15.V.1990, 2.VI.1991, 8.V.1992, and 17.V.1992, adults on leaves and trunks of shrubby willows, JJ; Zbečno, 12.-20.VI.1993, 15 adults on roots of shrubby willows, MH]; Roztoky, 5949 C12, 19.V.1959, 1 adult, leg. Laňka in coll. KR; Újezd nad Zbečnem, 5949 C4, VII.1965, 2 adults, KR;

Zbečno, 5949 A25, 5.IX.1990, 5 adults on willow leaves found on a sunny day, MR; Zbečno, 5949 A25, 10.VIII.1992, 11 adults on roots and trunks of shrubby willows growing along Berounka river, MR; Žloukovice, 5949 D18, 1.V.1998, 1 adult on a shrubby willow, MR. A species typical for the river bank vegetation of the Berounka. It develops in small shrubby willow species. In summer, adult beetles leave the host, overwinter in its vicinity, and appear in the early spring again.

***Leioderes kollari* Redtenbacher, 1849**; (F4, A4,We). [Křivoklát, 5949, 1974, 1 adult, leg. M. Sláma in coll. ZČ; Nový Jáchymov, 6049, 29.VII.1971, 2 adults, ZČ; Městečko u Křivoklátu, 15.VII.1990, 1 adult, leg. Rosenbaum; Nižbor, 10.VI.1979, 1 adult, Broumy, 17.VI.1979, 4 adults on a flowering *Swida sanguinea* and *Spiraea van-houtei*, BURDA 1984; Křivoklát, leg. Prokš and Lekeš, HEYROVSKÝ 1955; Nižbor - Vůznice, Zbečno, Křivoklát, Leontýn - Kamenné vrchy, VI., a very rare and local nocturnal species, development in maples, SLÁMA 1983; Městečko u Křivoklátu, 5949, 1992, leg. Rosenbaum, Křivoklátsko, 5948-49, V.1954, leg. Prokš and leg. Lekeš (cf. HEYROVSKÝ 1955) in coll. Kratochvíl, 1961, leg. M. Sláma, Nižbor, 5949-50, 6049, 1954, leg. Prokš in coll. NMP, 1965-1968, leg. M. Sláma, leg. Lekeš, leg. O. Odvárka, Zbečno, 5949, 1962, leg. M. Sláma, 1991, JP, Žloukovice, 5949, leg. J. Moravec, Skryje, Strážov, 6048, VIII.1988, JP, Leontýn, 6049, 1975, leg. M. Sláma, SLÁMA 1998]; Broumy, Týřov, 6048 B13, 4.II.1991, 26 adults reared from a dead branch of field maple (*Acer campestre*), MR and MH; Broumy, Úpoř, 6049 A16, 23.II.1991, 1 adult reared from field maple (*Acer campestre*), MR; Zbečno, Zadní Vápenec, 5949 B17, 20.III.1991, 10 adults reared from larvae found in dead branches and trunks of field maple (*Acer campestre*), MR and MH; Broumy, Úpořský potok, 6048 B19, 10.IV.1991, 10 larvae in a sycamore (*Acer pseudoplatanus*) branch, MR; Nižbor, Žlubinec, 5950 C21, 15.IV.1991, 7 adults reared from *Acer campestre*, MR; Zbečno, Zadní Vápenec, 5949 B17, 4.III.1992, 5 larvae in a field maple (*Acer campestre*), MR; Zbečno, V hrozném, 5949 B12, 20.V.1992, 8 adults reared from *Acer campestre*, leg. Z. Švec and MR; Broumy, Úpoř, 6049 A16, 28.XI.1992, larvae in field maple (*Acer campestre*), MR; Zbečno, Klíčava, 5949 B17, 6.VI.1993, 4 adults sitting on *Aruncus* sp. during a sunny day, MR; Zbečno, Klíčava, 5949 B17, 10.VI.1993, 10 adults sitting on *Aruncus* sp. and *Viburnum lantana*, MH and MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 11.IX.1993, many larvae in field maple (*Acer campestre*), MR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 10 adults reared from a field maple (*Acer campestre*) branch, MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 10.X.1998, many early-instar larvae in *Acer campestre*, leg. Roman Rejzek and MR. Al-

though very rare and occurring only locally in Bohemia, in the study area this remarkable beetle is common and a very characteristic species of the local fauna. The beetle develops in maples preferring *Acer campestre*. Thicker branches and trunks are usually attacked. Its larvae feed subcortically and later in sapwood creating a very characteristic frass pattern filled with fine sawdust. When entering the wood the larvae never block the entrance holes. They secure the pupal cells by a wad of frass deeper in the wood. The beetles can occasionally be found on flowers but they probably gather on them during the night and stay there a substantial part of the next day, analogous to their close relative *Leioderes tuerki* (Ganglbauer, 1885), a typical nocturnal species. *Leioderes tuerki* is not active before dusk and during the night it flies around cordwood and comes to flowering plants, shrubs and trees. During the next morning it can for example be found sitting on flowering hawthorn, but it disappears before noon. Most of the beetles spend the day sitting on leaves of the host plants (*Juglans regia* and others in case of *Leioderes tuerki*).

***Leptura aethiops* Poda, 1761**; (F2, A2,We). [Nižbor, Suchá mýť, 5950, 14.V.1983, 1 adult, ZČ; Nižbor, 17.VII.1978, 2 adults, Beroun, 10.VI. 1980, 3 adults, adults visit flowering *Crataegus* and Umbelliferae, a quite rare species, BURDA 1984; Nižbor, Skryje, VI., sporadically on flowers, SLÁMA 1983]. A quite rare species within the study area.

***Leptura arcuata* Panzer, 1793**; (F2, A2,We). [Zbečno, HEYROVSKÝ 1930 and 1955; Nižbor, Suchá mýť, 5950, for example 4.VI.1988, many adults collected many times, ZČ; Zbečno and Skryje, end of VI., in Bohemia a rare species not recorded from many other localities, SLÁMA 1983; Zbečno, 5949, leg. Láznička, VI.1979, leg. M. Sláma, SLÁMA 1998 (both localities Skryje and Zbečno, were confirmed by the author, Sláma personal communication 1998)]; Zbečno, Klíčava, 5949 B17, 27.VI.1993, 1 adult on a flower, MR and MH. Faunistically very important records as this species seems to be quite rare in the rest of Bohemia. From these records it is apparent that in the past the species was more frequent in the study area. However, it now seems to be disappearing slowly.

***Leptura quadrifasciata* Linnaeus, 1758**; (F4, A4,We). [Broumy, 15.VI. 1978, 1 adult, 9.VII.1982, 1 adult, a rare species, BURDA 1984; Karlova Ves, Velká and Malá Pleš, VII.1982, Karlova Ves, Jelenec, VI.1986, Karlova Ves, Červený vrch, VI.1988, Skryje, Týřov, VII.1983, Beroun, Ostrý, VII., 1989, JP; Nižbor, VII., sporadically on flowers, SLÁMA 1983; Zbečno, 17.VII.1990, 3 adults in flight, PH; Lány, Píně, 5849 C19, 6. VII.1989, adults on grass, JJ; Zbečno, Kovářův luh, 10.-14.VI.1993, many

adults on Umbelliferae, MH; Nový Dům, 22.VII.1995, 1 adult, Broumy, Týřov, 30.VI.1992, 1 adult, MK]; Lány, 5849 C18, 9.VIII.1991, 1 adult on a flower, 14.VIII.1991, 1 adult, 15.IX.1991, 1 adult, KR; Lány, 5849 C19, 25.VII.1980, 3 adults, KR; Lány, 5849 C24 and 25, VI.1979, 1 adult, 10.VI.1988, 1 adult by beating from an oak, 16.VII.1988, 1 adult on a flowering lime, 1.VII.1989, 1 adult, 29.VII.1991, 4 adults on a flowering lime, 9.VIII.1991, 2 adults, 26.VI.1992, 1 adult on beech cordwood, 5.VII.1993, 2 adults by beating from a lime, KR; Lány, 5849 D11, 23.VII. 1978, 2 adults, KR; Lány, 5949 A4, 15.VIII.1989, 1 adult, 9.VIII.1991, 1 adult on a flower, KR; Městečko, 5949 A8, 5.VII.1995, 2 adults, KR.

***Mesosa curculionides* (Linnaeus, 1761)**; (F2, A1, Ns). [Nižbor, VI., adults on dry lime branches, a rare species, SLÁMA 1983]; Lhota, 5949 B2, 18.VIII.1989, 1 adult was reared from a pupa found under the bark of a dead lime, KR. Within the study area this species develops under the bark of standing thicker dead lime and oak trees (and probably other deciduous trees) creating a pupal cell directly under the bark. Although, it has highly suitable habitats within the study area, and in spite of the fact that it is rather common in the Labe river basin lowlands for instance, this species seems to occur here sporadically. New records are desirable in this case.

***Mesosa nebulosa* (Fabricius, 1781)**; (F4, A3,We). [Nižbor, Suchá mýť, 5950, 15.V.1967, 8.V.1970, 2 adults, ZČ; Broumy, 12.VI.1977, 1 adult, Nižbor, 5.V.1976, 1 adult, collected on stored elm and oak wood, BURDA 1984; Nižbor, VII., on dry hornbeam (*Carpinus betulus*) and oak branches, not very common, SLÁMA 1983; Nižbor, Luby - Skalka, 27.V. 1990, 3 adults on oak branches, PH; Nižbor, Stará mýť, 5949 D13 and D14, 9.V.1990, 1 adult on a dry oak branch, JJ]; Karlova Ves, 6048 B8, 27.VI.1987, 3 adults, 28.V.1988, 1 adult, 18.V.1990, 1 adult, 15.V.1992, 1 adult, by beating from dead oaks, KR; Lány, 5849 C24, 8.VI.1986, 1 adult, KR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 1 adult on oak (*Quercus* sp.), MR and MH. In contrast to the previous species *Mesosa nebulosa* is a rather common species in the study area. It develops in dead and rather rotten twigs and branches of various deciduous trees. In the study area it develops especially in hornbeam (*Carpinus betulus*), beech (*Fagus sylvatica*), oak (*Quercus* spp.) and lime (*Tilia* spp.). Adults hatch in the autumn and overwinter in the pupal cells.

***Molorchus marmottani* Brisout, 1863**; (F1, A1, Ns). [Beroun, Ostrý, Talich valley, V.1995, 1 adult reared from a thin Scots pine (*Pinus sylvestris*) twig, JP]. The mentioned locality of the only record is situated just

beyond the border of the study area. However, it was included in this work as similar habitats are quite frequent within the area, and therefore it is likely that the species will soon also be recorded here. *Molorchus marmottani* is generally a very rare species and there only exist a few records from Bohemia. However, since the discovery of its biology, the species has been collected more frequently. There are records from localities situated along the Vltava river (Zbraslav, leg. Hrdý and MR; Políčany, leg. Švácha) and in 1995 Pavlíček confirmed the theory that the species also penetrates up the stream of the Berounka river, which is a left tributary of the Vltava. In Central Bohemia the beetle inhabits relict pine forests growing on the tops of steep river valley slopes. Its larvae feed in relatively dry, very thin twigs of *Pinus sylvestris*. It usually does not feed in twigs attacked by bark beetles and *Pogonocherus* spp. that prefer a moister substrate. However, the beetle is frequently accompanied by *Obrium brunneum*. Sometimes, but quite rarely, *Molorchus minor* can be found in a similar substrate, however, it usually prefers thicker twigs. The best method for finding a larva of *Molorchus marmottani* is to collect dry thin twigs in the canopy regions of living pine trees. The larvae feed subcortically creating a deep and long gallery with a tiny elliptical entrance hole across the axis of the twig which is filled with a fine sawdust. The pupal cell is built in sapwood. The development lasts two years and last larval instars can be found in twigs which already have quite a loose bark. The larvae are very frequently attacked by parasitic insects for the thin twigs do not offer sufficient protection. The adults emerge in May and do not live more than fourteen days. They never visit flowers.

***Molorchus umbellatarum* (Schreber, 1759)**; (F3, A3,We). [Nižbor, 5950, 6.VI.1973, 1 adult on a flowering hawthorn, ZČ; not very common, on flowers, BURDA 1984; Zbečno, HEYROVSKÝ 1930; Broumy, Úpoř valley, 29.V. and 2.VI.1994, many adults on Umbelliferae, MH; Zbečno, Kovářův luh, 14.VI.1993, 4 adults on flowering *Aruncus* sp., MH; Zbečno, Pěnčina, 15.VI.1993, 2 adults by beating from a flowering shrub, MH]; Lány, 5849 C24,VI.1975, 5 adults on a flowering *Crataegus* sp., KR; Žloukovice, Kabečnice, 5949 D13, 20.VI.1982, 2 adults on *Aruncus* sp., MR; Broumy, Týřov, 6048 B13, 16.VI.1991, 2 adults by beating from dry apple (*Malus sylvestris*) twigs, MR. This species is typically collected on *Aruncus* in narrow shady valleys together with *Obrium brunneum* and *Molorchus minor* and in the study area it is not rare but frequently overlooked. Its larvae feed in various deciduous trees and shrubs [apple (*Malus sylvestris*), hawthorn (*Crataegus* spp.), rose (*Rosa* spp.), blackthorn (*Prunus spinosa*), etc.].

***Monochamus galloprovincialis pistor* (Germar, 1818)**; (F2, A3,We). [Nižbor, 5.VIII.1979, many adults in a pine wood, relatively common in the surroundings of Nižbor, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Nižbor - Vůznice, Leontýn, VII. - VIII., a relatively sporadic species, on pine trees, SLÁMA 1983; Nižbor, 5.VIII.1988, 3 adults, leg. K. Přibyl; Křivoklát, Písky, 26.VI.1993, 1 adult on a pine log, PH]; Žloukovice, Ložina, 5949D19, 26.VI.1983, 1 adult on a freshly felled trunk of Scots pine (*Pinus sylvestris*), MR. This species like the other pine wood dwellers is rather sporadic as its habitat does not occur frequently in the study area.

***Necydalis major* Linnaeus, 1758**; (F2, A3, Vu). [Nižbor, 31.XII.1995, 1 adult reared from a larva found in a dead hornbeam (*Carpinus betulus*) trunk, MH; Broumy, 13.VII.1982, 1 adult, BURDA 1984; Rakovník, HEYROVSKÝ 1930; Nižbor, Zbečno, Skryje, end of VI.-VII., develops especially in hornbeam and lime trunks, preferring the lower moister parts, adults fly on warm days, SLÁMA 1983; Rakovník, 5848, 1914, leg. Procházka in coll. Silesian Museum Opava, Lány, 5849, VIII.1965, leg. Trávníček, Rakovník, 5948, 26.VI.1914, leg. Procházka in coll. National Museum Bratislava, Křivoklátsko, 5849, 59-6048-50, leg. Prokš, leg. Sláma, leg. Burda, leg. Rejzek, and others, SLÁMA 1998]; Broumy, Úpořský potok, 6048 B20, 21.I.1991, 2 dead adults and 4 larvae in a dead hornbeam (*Carpinus betulus*) trunk, MR and MH; Zbečno, Klíčava, 5949 B17, 1.III.1992, 1 adult reared from a larva found in a partially dead standing oak (*Quercus* sp.) trunk, leg. O. Sabol and MR; Zbečno, V hrozném, 5949 B12, 4.III.1992, 2 adults reared from larvae found in a dead hornbeam (*Carpinus betulus*) trunk, MR; Zbečno, Klíčava, 5949 B17, 2.V.1992, 6 larvae found in a dead hornbeam (*Carpinus betulus*) trunk, 1 adult reared, the remaining larvae were parasitised, MR; Broumy, Úpořský potok, 6048 B20, 20.III.1993, fragments of an adult found in a pupal cell built in a dead alder (*Alnus glutinosa*) trunk, MR; Broumy, U Háků, 6049 A21, 10.IV.1993, 1 adult reared from a larva found in a dead alder (*Alnus glutinosa*) trunk, MR; Broumy, Úpoř, 6049 A16, 28.V.1993, 10 adults reared from a dead alder (*Alnus glutinosa*) trunk, MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, 3 larvae in a thick dead branch of lime (*Tilia* sp.), MK and MR; Nižbor, Janův vrch, 5949 D20, 24.X.1997, 3 larvae in a dead hornbeam (*Carpinus betulus*) trunk, MR. A very typical representative of the local forest fauna. The species develops in all sorts of deciduous trees and in the study area it has been recorded from hornbeam (*Carpinus betulus*), sessile oak (*Quercus petraea*), lime (*Tilia* spp.), and alder (*Alnus glutinosa*). The larvae require dead standing trunks of trees, of large diameter. In the decaying wood, the larvae are

always accompanied by a species of fungus which creates a yellow to red-brown circle surrounding the larvae gallery. On the white substrate background, this circle is well recognisable and serves as a clear hallmark of the species presence. The larvae feed in the sapwood and later centrally in the trunks of the hosts. The pupal cell is built deep in the trunk, often in the very centre. Before pupating, the larvae bore a curved passage leading from the pupal cell directly under the surface of the trunk. They prefer moister habitats, especially the bottoms of valleys or denser forests, for the required fungus does not occur in dry dead wood.

Nivellia sanguinosa **(Gyllenhal, 1827*)***; (F2, A4, Vu). [Broumy, 6049, 22.VI.1980, 1 adult, leg. Burda in coll. ZČ; Týřov, 27.V.1989, leg. Z. Švec; Broumy, Úpoř, 2.-3.VI.1990, 20 adults, leg. K. Přibyl; Úpoř valley, Týřovice, 28.VI.1943, leg. Rataj, Broumy, Skryje, Branov, Nižbor, Karlova Ves, Karlov, VII.1966, leg. Burda, J. Macek, and others, SLÁMA 1992; Broumy, 2.VI.1980, 111 adults, 31.V.1981, 92 adults, Nižbor, 7.VI.1982, 3 adults, Broumy, 7.VI.1982, 89 adults, adults appear in a time period of about three days, very locally, frequently visit flowers growing along small brooks, BURDA 1984; Vosov, HEYROVSKÝ 1955; Skryje, Úpoř, VI.1975, Karlova Ves, VI.1986, JP; Broumy, Úpořský potok, 29.V.1994, 15 adults on flowers, MH; Broumy, 19.VI.1986, leg. A. Burda, in coll. MK; Nižbor, 5949, (?) Mlejnek, Skryje, 6048, 22.VI.1980, 17.VI.1980, leg. A. Burda, 1984, in coll. Franke, Úpoř, 6048, 28.VI.1942, leg. Rataj, Broumy, 6049, VI.1986, leg. M. Mikát and O. Odvárka, VI. 1983, leg. M. Nikodým, Branov, 6049, 2.VI.1984, leg. P. Pouznar, Karlova Ves, 6049, 29.V.1985, leg. P. Pouznar, SLÁMA 1998]; Broumy, 6048 B19, 27.V.1986, 3 adults, leg. O. Odvárka in coll. KR; Broumy, Úpoř, 6049 A16, 15.VI.1991, 3 adults on flowers, MR and MH; Broumy, Úpořský potok, 6048 B20, 28.V.1993, 50 adults on flowers, MR; Broumy, Úpořský potok, 6048 B20, 16.V.1994, 7 adults on flowers, MR and MH. This mountainous species is generally of very restricted occurrence in Bohemia, but in the study area it is regularly recorded in a number of different localities. The adults gather on flowers growing in the narrow brook valleys and can be collected in numbers at the right time. In the study area, attempts to find larvae of this species were not successful, and therefore it still remains unclear what the actual host plant of this remarkable species is. Within the study area, *Nivellia sanguinosa* is perhaps the only species that could be seriously endangered by individual collecting.

Oberea erythrocephala **(Schrank, 1776)**; (F3, A4,We). [Zbečno, Křivoklát, Klíčava, HEYROVSKÝ 1930]; Lány, 5949 A4, VII.1974, 4 adults, 5.VII.1993, 1 adult, 18.VI.1994, 2 adults, 27.VII.1995, 1 adult, 12.

VIII.1995, 2 adults, by sweeping on a xerothermic slope with steppe vegetation, KR; Karlova Ves, 25.VI.1995, 1 adult, KR; Žloukovice, Kabečnice, 5949 D13, 23.XI.1991, 5 adults reared from larvae found in roots of *Euphorbia cyparissias*, MR; Zbečno, 5949 D1, 2.XI.1992, 1 larva in a root of *Euphorbia cyparissias***,** MR and MH. In the study area this species inhabits extremely exposed localities with steppe vegetation. Although these habitats are not very typical, the species is rather common throughout the study area on convenient biotopes. It develops in stems and roots of *Euphorbia cyparissias*. The pupal cell is built in the roots, and the plant is cut off by the larva about 1 cm above the ground. The larvae secure themselves by a wad of fibrous frass.

***Oberea linearis* (Linnaeus, 1761)**; (F3, A2,We). [Broumy, 2.VI.1979, 1 adult, 17.VII.1981, 1 adult, on *Corylus avellana* but quite rare, BURDA 1984; Zbečno, HEYROVSKÝ 1930; Broumy, VI.1990, 1 adult, leg. K. Přibyl]; Městečko, 5949 C13, 25.VI.1971, 6 adults, leg. Polák in coll. KR; Žloukovice, Kabečnice, 5949 D13, 23.XI.1991, 1 adult reared from a larva found in a thin twig of *Corylus avellana*, MR; Zbečno, Klíčava, 5949 B17, 1.III.1992, 1 larva in *Corylus*, leg. O. Sabol and MR. This species develops in thin living twigs of hazel (*Corylus avellana*). Typical habitats of the species are warm slopes with sparse vegetation. It hardly ever chooses shrubs growing in shady valleys. The larva first mines in the top of a thin living twig. Later, it creates a pupal cell, cuts off the distal part of the twig and secures itself with a wad of frass. Adults emerge in VI.-VII., sit on leaves of the host plant and quickly fly away when disturbed.

***Oberea pupillata* (Gyllenhal, 1817)**; (F2, A1, Vu). [The species was collected by other entomologists, BURDA 1984; Skryje, HEYROVSKÝ 1955; Nižbor, Vůznice, VI., development in *Lonicera*, SLÁMA 1983; Čeperka, 5950, leg. J. Sobota, Nižbor, 5950, VI.1959, (?), 1958, (?), Týr personal communication, Skryje, 6048, leg. Vlach, SLÁMA 1998]; Broumy, Týřov, 6048 B13, VI.1992, 2 adults on leaves of a *Lonicera* sp., MR. A submountainous species developing in living branches of *Lonicera* shrubs. In the study area it is rare and can only be found in shady brook valleys on the host plants. However, it is autochton in this area. The species used to be more rare in Bohemia in the past, but it has found an alternative habitat in parks and hedges where *Lonicera* shrubs are frequently grown for decorative purposes. Here, it sometimes occurs on mass (environs of Prague for example).

***Obrium cantharinum* (Linnaeus, 1767)**; (F2, A3,We). [North of Leontýn on a north facing slope of the Berounka valley, larvae found in a dead as-

pen, probably the fifth record from Bohemia, SLÁMA 1983; Křivoklát, 5949, 1971, leg. M. Sláma, SLÁMA 1998 (the species was collected frequently in a number of localities situated between Křivoklát and Leontýn as well as in the environs of these villages, Sláma personal communication 1998); Zbečno, 14.VI.1993, 1 adult, MH; Beroun, Děd, VI.1994, 6 adults reared from *Populus tremula*, JP]. This species has lately become quite common in certain localities of Central Bohemia. It occurs not only in the forests of the Berounka river valley of the neigh-bouring Bohemian Karst area (Srbsko, Řevnice), and in the Prague basin (Malešice, Klánovice), but is even more abundant in the Labe river basin lowlands. Therefore, it is quite probable that the species will also soon be recorded more frequently within the study area. It develops in aspen (*Populus tremula*). In other areas it also develops in *Populus alba* and *Populus nigra*. The larvae feed subcortically in the thicker branches and trunks of dead trees. The species requires less moisture than *Saperda* spp. for instance. The surface of the wood where the larvae feed is yellow in colour, rather than black. Pupation occurs in sapwood. In other areas this species is frequently accompanied by *Saperda perforata* (Pallas, 1773) (and sometimes by *Saperda carcharias*) which however usually attacks the lower, moister parts of the trunk.

***Oplosia fennica* (Paykull, 1800)**; (F4, A4,We). [Křivoklát, Vůznice, HEYROVSKÝ 1930; Broumy, 21.VI.1980, 1 adult on a lime log, a rare species, BURDA 1984; Nižbor, Křivoklát, development in dry lime branches, an infrequently occurring species, SLÁMA 1983]; Lány, 5849 C25, 23.V. 1986, 1 adult by beating from a dead lime, KR; Nižbor, Žlubinec, 5950 C21, IV.1984, 3 adults reared from larvae found in a rotten branch of lime (*Tilia* sp.), lying on the ground, MR; Zbečno, Brdatka, 5949 A24, II.1990, 3 adults reared from a decaying branch of lime (*Tilia* sp.), MR and MH; Zbečno, V hrozném, 5949 B12, IV.1991, 1 adult reared from a pupa found in a rotten branch of lime (*Tilia* sp.), MR; Zbečno, Písky, 5949 A20, 4.III.1992, 4 adults reared from larvae collected in a rotten branch of lime (*Tilia* sp.), MR; Broumy, Úpoř, 6049 A16, 28.XI.1992, 1 adult reared from a larva found in a branch of lime (*Tilia* sp.), MR; Zbečno, Klíčava, 5949 B17, 19.III.1993, 2 adults reared from a decaying branch of lime (*Tilia* sp.), MR; Broumy, Úpořský potok, 6048 B8, 20.III.1993, 7 adults reared from a decaying branch of lime (*Tilia* sp.), MR; Skryje, Sirská hora 524m, 6048 D6, 10.IV.1993, 2 adults reared from larvae collected in a moist decaying branch of lime (*Tilia* sp.), MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 27.II.1994, 2 adults reared from a twig of lime (*Tilia* sp.), MR; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, 2 larvae in a rotten branch of lime (*Tilia* sp.), MR. *Oplosia fennica* is defi-

nitely one of the most characteristic and quite common species within the study area. It develops in old decaying branches of lime (*Tilia* spp.), usually lying on the ground. The larvae feed subcortically and partially in the bark. Later they create a shallow pupal cell in the moist substrate and secure themselves there with a wad of fibrous frass resembling that of *Saperda* spp. Sometimes, within the same substrate, the species is accompanied by *Acanthoderes clavipes*, which is however rarer in the study area.

***Pachytodes erratica* (Dalman, 1817)**; (F3, A4,We). [Nižbor, 5950, 28.V. 1973, 1 adult, ZČ; a common species in warmer localities of the area, BURDA 1984; Křivoklát, HEYROVSKÝ 1930; Nižbor and Zbečno, VI., on warm exposed slopes on flowers, SLÁMA 1983; Zbečno, 10.-14.VI.1993, many adults on Umbelliferae, MH; Broumy, 6.VII.1985, many adults, MK]; Karlova Ves, 6048 B8, 3.VI.1988, 2 adults, 11.VI. 1989, 1 adult, VII.1977, 6 adults, 24.VI.1990, 1 adult, KR. A thermophilous species which is quite rare in the study area. Additional data would be desirable to confirm permanent occurrence of this unjustly neglected species.

***Phymatodes pusillus* (Fabricius, 1787)**; (F5, A5,We). [Nižbor, Suchá mýť, 5950, 4.V.1974, 9.V.1974, 19.V.1974, and 1.V.1976, many adults on oak brushwood, ZČ; Nižbor, 4.VI.1978, 15 adults, Beroun, 30.V.1980, not a very common species, occurs only locally, adults on oak branches, BURDA 1984; Nižbor, leg. Prokš, HEYROVSKÝ 1955; Skryje, Vlastec, V. 1975, Zbiroh, Kohoutov, V.1985, Beroun, Děd, V.1989, VI.1994, about 50 adults reared from *Quercus* sp., JP; Nižbor, Luky - Skalka, 23.V.1992, quite common in oak branches, PH; Ostrovec, Sirská hora, 8.V.1988, 2 adults, leg. Wachtl; Nižbor, 5949 D13 and D14, 9.V.1990, adults collected by beating from oak brushwood, JJ; Nižbor, 5949 D13 and D14, 13.V.1990, 38 adults were collected by beating from oak brushwood, JJ; Lhota, Ploskov, 5849 B9, 14.V.1992, JJ; Nižbor, Stará mýť, 5949 D9, D12, and D13, 17.V.1992, adults collected in mass, JJ; Nižbor, 22. IV.1993, many adults and larvae in an oak branch, MK; from Nižbor to Křivoklát in oak forests, this area is the only known locality of the species in Bohemia, development in oak branches, SLÁMA 1983; Křivoklát, 5948-49, 1969, leg. M. Sláma, 25.V.1987, leg. P. Zahradník, Rakovník, 5948, V.?, leg. Lorenc, Nižbor, 59-6049-50, VI.1952-53, leg. Prokš (cf. HEYROVSKÝ 1955), 1953, JP, 1964-9, leg. M. Sláma, 1.V.1975, leg. Škorpík, 1975, leg. Hrozinka, Skryje, 6048, 1964, leg. M. Sláma, leg. Bílý, leg. J. Vávra, Vlastec, 6048, 15.VI.1978, leg. Herget, Beroun, 6050, VI.1983, leg. M. Nikodým, SLÁMA 1998]; Karlova Ves, 6048 B8, 17.V.1989, 1 adult, 6.V.1990, 3 adults, 18.V.1990, 1 adult, 19.XII.1991, 4 adults reared from an oak twig, 15.V.1992, 1 adult, Vysoký vrch, 6048 B9, 23.V.1987,

2 adults by beating from oak, KR; Lány, 5849 C24, 24.V.1988, 1 adult by beating from an oak, KR; Nižbor, Žlubinec, 5950 C21, I.1983, 9 adults reared from an oak (*Quercus* sp.) branch, MR; Broumy, Úpořský potok, 6048 B20, II.1991, 53 adults reared from dead oak (*Quercus* sp.) branches collected on the ground, MR; Broumy, Úpořský potok, 6048 B20, III. 1991, 28 adults reared from oak (*Quercus* sp.) branches lying on the ground, MR; Nižbor, Žlubinec, 5950 C21, XII.1991, 120 adults reared from oak (*Quercus* sp.) brushwood, MR and MH; Zbečno, V hrozném, 5949 B12, 4.III.1992, larvae found in oak (*Quercus* sp.) branches, MR; Zbečno, Turkův luh, 5949 B11, 2.V.1992, adults found in pupal cells, MR; Broumy, Na budkách 512m, 6048 B14, 20.III.1993, many larvae found in oak (*Quercus* sp.) branches, MR; Skryje, Sirská hora 524m, 6048 D6, 10.IV.1993, 2 adults reared from oak (*Quercus* sp.) branches, MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 11.IX.1993, 1 pupa found in an oak (*Quercus* sp.) branch, the first time a pupa was found already in autumn in these climatic conditions, MR; Karlova Ves, Emilovna, 6048 B10, 27.II.1994, many larvae in an oak (*Quercus* sp.) branch, MR; Zbečno, Zadní Vápenec, 5949 B17, 30.IV.1994, adults on an oak (*Quercus* sp.) twig, MR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 40 adults by beating from oak (*Quercus* sp.) brushwood, MR and MH; Karlova Ves, Velká Pleš 496m, 6048 B4, 16.V.1994, many adults by beating of oak (*Quercus* sp.) brushwood, MR and MH; Zbečno, Zadní Vápenec, 5949 B17, 8.XI.1997, several adults reared from oak (*Quercus* sp.) branches, MR and M. Švarc; Žloukovice, Řepiště, 5949 D8, 1.V. 1998, 11 adults in copula and ovipositing were collected on an oak (*Quercus* sp.) branch lying on the ground, MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 10.X.1998, many larvae and one pupa in dead *Quercus* sp. twigs, leg. Roman Rejzek and MR. *Phymatodes pusillus* is definitely one of the most characteristic and well established species in the study area. Surprisingly, this species has never been recorded from any other locality in Bohemia except for the study area. Here, however, it is very common. All examined beetles belonged to the subspecies *Phymatodes pusillus pusillus* (Fabricius, 1787). No single record of *Phymatodes pusillus barbipes* Küster, 1847 is known. In the study area the species develops in dead thicker branches of *Quercus* spp. Larvae feed first subcortically but soon enter the wood and feed centrally in the dead branches. Pupal cells are also built in the central parts of the branches. Larvae overwinter in the pupal cells in this climate. Early in the spring (end of IV. to beginning of V.) in the second year of development the adults hatch and leave the branches. Frequently, branches with larvae of *Phymatodes pusillus* are attacked by insectivorous birds. A branch lying on the ground with bark partially stripped by birds, frequently contains larvae of this species. In the same

substrate this species is sometimes accompanied by *Phymatodes alni*, but the latter beetle seems to prefer thinner branches.

***Phymatodes rufipes* (Fabricius, 1776)**; (F1, A1, Ns). [Nižbor, 5949-50, (number of individuals not stated), in coll. NMP, V.1983, leg. O. Odvárka, SLÁMA 1998; Nižbor, Dřevíč, 5949 D?, 21.V.1983 (cf. SLÁMA 1998), 2 adults by beating from *Quercus robur* and *Sorbus torminalis*, 3.VI.1984, 1 adult by beating from *Quercus robur*, leg. O. Odvárka (Odvárka personal communication 1998)]. A very rare species in the study area collected only twice by Oldřich Odvárka.

***Phytoecia coerulescens* (Scopoli, 1763)**; (F3, A4,We). [Nižbor, Křivoklát, V., adults on *Echium*, SLÁMA 1983; Sýkořice, 5949 D2 or D7, 11. VI.1989, by sweeping of vegetation, JJ; Beroun, 5.VI.1980, 1 adult, BURDA 1984; Zbečno, HEYROVSKÝ 1930; Skryje, Týřov, VI.1974, JP; Zbečno, 14.VI.1993, 4 adults on *Echium vulgare*, MH]; Lány, 5949 A4, 4.VII.1977, 2 adults, 22.VII.1997, 5 adults, by sweeping of vegetation on a steppe formation, KR; Sýkořice, 5949 D3, 19.VI.1993, 1 adult, KR; Městečko, 5949 A22, 20.VI.1995, 1 adult, KR; Broumy, Týřov, 6048 B13, XI.1990, 5 adults reared from larvae found in roots of *Echium vulgare*, MR. Although steppe formations are not very typical, this species is relatively common in the study area. Here, it develops mainly in *Echium vulgare*, but also in other plants.

***Phytoecia cylindrica* (Linnaeus, 1758)**; (F2, A2, Ns). [Beroun, 25.V. 1978, not common, 6 adults on Umbelliferae, BURDA 1984; Zbečno, HEYROVSKÝ 1930; Beroun, V.1976, JP].

***Phytoecia nigricornis* (Fabricius, 1781)**; (F3, A4,We). [Skryje, Úpoř, 2.VI.-7.VII.1985, PATERA 1987; Beroun, 29.V.1978, 3 adults, 6.VI.1980, 1 adult, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Brdatka, V.1977, JP; Zbečno, 19.V.1990, 8.VI.1991, and 8.V.1993, 6 adults on *Tanacetum vulgare*, PH; Zbečno, 5949 C15, 15.V.1990, adults by sweeping of vegetation, JJ; Sýkořice, 5949 D12, 17.V.1992, by sweeping, JJ; Zbečno, 12. and 14.VI.1993, 10 adults on *Tanacetum vulgare* and *Artemisia vulgaris*, MH; Nižbor, Žloukovice, Branov, Kouřimec, VI.-VII., this species has only been recorded from about five other localities in Bohemia, SLÁMA 1983; Křivoklát, 5948-49, leg. Dvořák, VI.1962, leg. M. Sláma, Zbečno, 5949, leg. Kučera, Nižbor, 59-6049-50, 10.VII.1960, leg. M. Sláma, 5.VI. 1960, Týr personal communication, 1.VI.1985, leg. R. Čermák, 1982, leg. O. Odvárka, (?), leg. Prokš in coll. NMP, 10.VII.1960, leg. M. Sláma, V.1977, leg. V. Šilha, Skryje, 6048, 19.VI.1962, leg. M. Sláma, Nová

Huť, 6049, (?) (Heyrovský unpublished results), Beroun, 6050, V. 1977, JP, SLÁMA 1998]; Lány, 5949 A4, 12.VI.1987, 2 adults, 18.VI. 1994, 2 adults, 18.VI.1995, 2 adults, on *Artemisia* sp., KR; Žloukovice, 5949 D18, 20.VI.1982, 3 adults on *Artemisia vulgaris*, MR; Žloukovice, 5949 D18, XII.1991, 6 adults reared from larvae found in roots of *Artemisia vulgaris*, MR; Zbečno, Klíčava, 5949 D1, 3.VII.1993, 1 adult on *Tanacetum vulgare*, MR. A rather typical species for the study area. In the rest of Bohemia it is however, very rare. It develops in roots of *Artemisia vulgaris* and *Tanacetum vulgare*. It usually occurs in meadows along the Berounka river.

***Pidonia lurida* (Fabricius, 1792)**; (F4, A4,We). [Nižbor, Janův vrch, 5950, for example VII.1970, common in brook valleys ZČ; Skryje, Úpoř, 2.VI.-2.VIII.1985, PATERA 1987; a common species, BURDA 1984; Skryje, Úpoř, VI.1976, Beroun, Brdatka, VII.1982, Nižbor, Benešův luh, V.1983, VI.1986, JP; Křivoklátsko, VI.-VII., on flowers, a common species, SLÁMA 1983; Nižbor, Luby, 27.VI.1990, 3 adults on flowers, PH; Zbečno, 5949 C25, 15.V.1990, 2 adults on flowers, JJ; Zbečno, Kovářův luh, 10.-14.VI.1993, many adults on flowers, MH; Broumy, Týřov, 6.VII. 1985, more adults, MK]; Lány, 5849 C24, 9.VII.1978, 2 adults, VI.1979, 1 adult, 24.V.1988, 1 adult, 20.VI.1989, 2 adults, on flowers, KR; Branov, 6048 B8, 1.VII.1980, 1 adult on a flower, KR; Městečko, Ryšava valley, 5949 A17 and 23, 8.VI.1991, many adults on flowering *Crataegus* sp., KR; Žloukovice, Kabečnice, 5949 D8, 20.VI.1982, 1 adult, MR; Broumy, Úpořský potok, 6048 B20, 15.VI.1991, many adults on flowers, MR; Broumy, Úpořský potok, 6048 B20, 28.V.1993, many adults on flowers, MR; Broumy, Úpořský potok, 6048 B20, 16.V.1994, many adults on flowers, MR and MH. A sub-mountainous species quite characteristic of the study area. It occurs especially on flowers growing in shady valleys of small brooks.

***Plagionotus detritus* (Linnaeus, 1758)**; (F3, A5, Vu). [Nižbor, Suchá mýť, 5950, 20.VI.1973, 15.V.1969, 2 adults on oak cordwood, ZČ; Nižbor, 20.VI.1981, 1 adult on an oak log, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Broumy, Nižbor, 1991, 2 adults reared from larvae, MH; Nižbor, Vůznice, 20.VII.1991, 1 adult on an oak log, leg. L. John; Křivoklátsko, VI.-VII., throughout the area but not very common, SLÁMA 1983; Nižbor, Luby, 8.V.1993, many adults on a lying oak trunk, PH]; Lány, 5849 C24, 30.VI.1978, 1 adult, 10.VII.1982, 2 adults, 10.VI.1988, 6 adults, 18.VI.1988, 1 adult in a vine trap, 16.VII.1988, 1 adult, 25.VII. 1988, 2 adults in a vine trap, 25.VII.1989, 1 adult in a vine trap, 19.VII. 1991, 1 adult, 28.VII.1991, 1 adult, 26.VI.1992, 11 adults, 27.VII.1995, 6

adults, 5849 C19, 15.VI.1996, 2 adults, on freshly felled oaks, oak cordwood, and flowering limes, KR; Zbečno, Zadní Vápenec, 5949 B17, 4. III.1991, 5 adults reared from larvae collected in the thick bark of a dead standing oak tree (*Quercus* sp.), MR; Zbečno, Zadní Vápenec, 5949 B17, IV.1991, 10 adults reared from larvae collected under the bark of a dead standing oak tree (*Quercus* sp.), MR and MH; Žloukovice, Ložina, 5949 D19, X.1991, 2 adults reared from larvae collected in the thick bark of a dead standing oak tree (*Quercus* sp.), MR; Zbečno, Zadní Vápenec, 5949 D19, 1.III.1992, many larvae under the bark of an oak (*Quercus* sp.) trunk, MR. A very characteristic and relatively common species in the study area. In particular, the old oak forests of Lánská obora offer an excellent habitat and the species is very common here. It develops under, or in thick bark of dead standing oak trees (*Quercus* spp.) and pupates in, or under the bark, depending on the bark thickness. It prefers lower trunk regions with more moisture.

***Pogonocherus decoratus* Fairmaire, 1855**; (F3, A4, We). [Nižbor, Janův vrch, 5950, 28.V.1977, 1 adult, ZČ; the species was collected by other entomologists, BURDA 1984; Nižbor, Stará mýť, 5949 D13, 8.V.1992, on a pine, JJ; Zbečno, Zadní Vápenec, IV.1994, 5 adults reared from dead twigs of Scots pine (*Pinus sylvestris*), MH]; Lány, 5849 C24, 8.VI.1986, 2 adults, 15.VIII.1986, 3 adults, 9.VIII.1991, 12 adults, 6.IX.1991, 16 adults, 23.IV.1995, 2 adults, 6.VII.1996, 3 adults, 17.VIII.1996, 2 adults, 3.VIII.1997, 2 adults, 27.VI.1998, 1 adult, by beating from dead pine trees, and on dry pine twigs lying on the ground, KR; Zbečno, Zadní Vápenec, 5949 B17, III.1993, 6 adults reared from twigs of Scots pine (*Pinus sylvestris*) collected on a slope supporting a relict pine forest, MR and MH; Zbečno, Zadní Vápenec, 5949 B17, 30.IV.1994, 3 adults reared from a *Pinus sylvestris* twig, MR. This species seems to prefer exposed slopes with relict pine forests where it develops in thin twigs of Scots pine (*Pinus sylvestris*) that are relatively moist under the bark. In the north-eastern part of the area (environs of Lány) the beetle can often be found in a plateau mixed forest with scattered pine trees. Adults emerge in autumn and overwinter in detritus.

***Pogonocherus hispidulus* (Piller, 1783)**; (F5, A3,We). [Nižbor, 5.V. 1977, 1 adult, Beroun, 4.VI.1978, quite rare, leg. Bárta; Vůznice, HEYROVSKÝ 1930; Nižbor, VI., quite rare on dry twigs of oaks and hornbeams, SLÁMA 1983; Nižbor, Luby - Skalka, 16.V.1992, 40 adults reared from oak twigs, PH; Nižbor, 5949 D13 and D14, 11.V.1990, adults on oak twigs, JJ; Nižbor, Stará mýť, 5949 D9, D12, and D13, 8.V.1992, 10 adults by beating from oak brushwood, JJ; Nižbor, Stará mýť, 5949 D9,

D12, and D13, 17.V.1992, 6 adults, JJ]; Lhota, 5949 B7, 4.VII.1987, 1 adult by beating from a hornbeam, KR; Ostrovec, Sirská hora, 6048 D6, 8.V.1988, 2 adults, KR; Karlova Ves, 6048 B8, 1 adult by beating from an oak, KR; Žloukovice, Ložina, 5949 D19, 20.V.1982, 3 adults, MR; Nižbor, 5949 D25, 24.X.1997, 12 adults reared from old branches of spindle (*Euonymus europaea*), MR. A typical and common species in the study area. It develops in quite moist twigs of deciduous trees and shrubs, but preferentially in oak (*Quercus* spp.). Frequently, substrate already lying on the ground is attacked.

***Pogonocherus ovatus* (Goeze, 1777)**; (F2, A4, En). [Hudlice, U děravé skály, II.1977, JP; Broumy, Úpoř, 4.II.1994, 19 adults on the foot of *Abies alba*, leg. O. Sabol; Broumy, Úpoř, 17.I.1992, 40 adults in bark crevices of a living *Abies alba*, leg. O. Hovorka, Z. Švec, and MH; Nižbor, Dřevíč, 16.IX.1991, 20 adults in bark crevices of *Abies alba*, PH; Jinčov, 5949 D10, 16.XI.1991, 11 adults in bark crevices of *Abies alba*, JJ]; Lány, 5849 C14, 28.II.1983, 41 adults found in bark crevices of old living fir trees, KR; Ruda, 5849 C2, XII.1986, 2 adults, found in bark crevices of old living fir trees, KR; Broumy, Úpořský potok, 6048 B19, 28.XI.1992, 8 adults on the foot of an old living *Abies alba*, leg. O. Hovorka and MR; Zbečno, Zadní Vápenec, 5949 B17, 30.IV.1994, 1 adult in flight, leg. J. Roubal and MR. *Pogonocherus ovatus* is quite a common species in areas with old living European silver fir trees (*Abies alba*) which are its host plant. The species develops in thin living twigs of the host. Adults overwinter in bark crevices in the foot region of old living host trees.

***Prionus coriarius* (Linnaeus, 1758)**; (F3, A3,We). [Nižbor, 13.VIII. 1976, 1 adult, Broumy, 13.VII.1978, 2 adults, Beroun, 14.IX.1980, 1 adult, BURDA 1984; Rakovnicko, HEYROVSKÝ 1930; Beroun, Děd, VIII. 1982, IX.1982, Beroun, Ostrý, VII.1986, JP; Křivoklátsko, VII., quite rare in oak forests, SLÁMA 1983; Nový Dům, 12.VII.1998, 1 adult, MK; Nižbor, Nový Jáchymov, 6049, 29.VII.1971, 1 adult, ZČ]; Lhota, 5949 B7, 14.VIII.1987, 2 adults, 27.VIII.1989, 1 adult, KR; Lány, 5849 C25, VIII.1970, 1 adult, 16.VIII.1987, 1 adult in a pheromone trap, 14.VIII. 1988, 1 adult in a pheromone trap, 27.VIII.1993, 1 dead adult, 27.VII. 1996, 1 adult by beating from a lime, KR; Karlova Ves, 6048 B8, 6.VIII. 1984, 1 adult, 16.VII.1991, 1 dead adult, 11.IX.1993, 1 dead adult, KR; Řevničov, 5849 C1, 23.VIII.1996, 1 adult, KR. A common species in the study area, developing in the roots of various coniferous and deciduous trees.

***Pronocera angusta* (Kriechbaum, 1844)**; (F2, A2,We). [The species was collected by other entomologists, BURDA 1984; Nižbor, Vůznice, several adults reared from a spruce branch (*Picea*), SLÁMA 1983; Nižbor, 5950, 1972, leg. M. Sláma, SLÁMA 1998; Beroun, Děd, V.1995, 1 adult reared from a larva found in *Picea* sp., Broumy, Úpoř, V.1995, 2 adults reared from *Picea* sp., JP]; Broumy, Úpořský potok, 6048 B20, 13.II.1985, 6 adults reared from larvae found in a branch of *Abies alba*, MR; Zbečno, Marjánčina, 5949 B11, 4.III.1992, 1 adult reared from a Norway spruce (*Picea abies*) branch, MR; Zbečno, Klíčava, 5949 B17, 2.V.1992, 1 adult reared from a Norway spruce (*Picea abies*) branch, MR and MH; Zbečno, Lánská obora, 5949 B17, II.1993, 2 adults reared from a Norway spruce (*Picea abies*) branch, MR; Zbečno, Zadní Vápenec, 5949 B17, 30.IV. 1994, many larvae in a Norway spruce (*Picea abies*) branch, 4 adults reared, MR. A very rare species in the study area developing in Norway spruce (*Picea abies*), *Abies alba* and probably also in *Larix decidua*. The larvae feed subcortically in recently dead branches of living trees. The pupal cell is built in the sapwood. Development lasts two years. Adults never visit flowers.

***Rhagium bifasciatum* Fabricius, 1775**; (F4, A4,We). [Nižbor, Suchá mýť, 5950, 18.VI.1986, 16.V.1993, many adults, ZČ; a common species, BURDA 1984; Hudlice, Krušná, 4.III.1979, Karlova Ves, Velká and Malá Pleš, V.1983, JP; Leontýn, III., adults and larvae found in spruce stumps and a dead lying trunk of alder (*Alnus*), SLÁMA 1983; Broumy, Úpoř valley, 28.XI.1992, more adults under bark of a spruce, MH; Zbečno, Klíčava, 5949 B, 21.XI.1992, more adults in a spruce stump, PH; Lány, 6.VI.1987, adults in spruce, JJ; Lány, 5849 D17, 6.VI.1987, adults on a beech trunk, JJ; Broumy, Úpořský potok, 17.I.1992, 6 adults in a decaying log of *Alnus glutinosa*, MH; Broumy, Týřov, 24.XI.1996, 1 adult in rotten wood, Lány, Píně, 6.XII.1997, 1 adult in a rotten log, MK]; Lužná, 5848 B24, 10.III.1991, 1 adult in a dead birch, KR; Řevničov, 5848 D5, 9.V.1993, 2 adults, KR; Ruda, 5849 C6, 12, and 19, 1.V.1991, 1 adult, 3. V.1992, 1 adult, 6.VI.1992, 2 adults, 8.V.1994, 2 adults, KR; Lány, 5849 C24, V.1976, 1 adult, 20.V.1980, 1 adult, 6.VI.1980, 1 adult, 24.V.1988, 7 adults, 26.V.1989, 3 adults, 24.IV.1993, 1 adult, KR; Městečko, 5949 A23, 5.VI.1991. 1 adult, KR; Lhota, 5949 B2, 27.VIII.1989, 1 adult ex pupa, KR; Karlova Ves, 6048 B8 and 9, 18.V.1988, 1 adult, 11.VI.1989, 4 adults, 1.VI.1991, 1 adult, KR; Broumy, Úpořský potok, 6048 B19, 15.VI.1991, 1 adult on a flower, MR; Nižbor, Vůznice, 5949 D20, 1.V. 1993, adults under the bark of a Norway spruce (*Picea abies*) stump, MR; Zbečno, Zadní Vápenec, 5949 B17, 6.VI.1993, adults on cordwood, MR. A species common throughout the study area.

***Rhagium sycophanta* (Schrank, 1781)**; (F3, A4,We). [Nižbor, Suchá mýť, 5950, Janův vrch, 5950, in spring many adults on oak stumps, ZČ; a common species, BURDA 1984; Skryje, Strážov, VI.1986, Karlova Ves, Jelenec, VI.1986, JP; Nižbor, Skryje, Zbečno, V.-VI., very common on fresh oak stumps, SLÁMA 1983; Nižbor, Luby - Skalka, 9.V.1990, more adults on oak stumps, PH; Nižbor, Stará mýť, 5949 D14, 9.V.1989, 2 adults, JJ; Zbečno, Kovářův luh, 14.VI.1993, 2 adults by beating from flowering shrubs, MH]; Lány, 5849 C24 and 25, 17.V.1986, 2 adults, 24. V.1988, 1 adult, 20.V.1989, 2 adults, KR; Lhota, 5949 B3, 22.V.1989, 1 adult, KR; Karlova Ves, 6048 B8 and A2, VI.1979, 1 adult on an oak stump, 1.VII.1980, 1 adult, 15.V.1992, 1 adult on oak cordwood, 24.V. 1992, 1 adult, 24.V.1993, 2 adults, KR; Žloukovice, Ložina, 5949 D19, 23.VI.1980, 1 adult on an oak (*Quercus* sp.) stump, MR; Nižbor, Ohrádka, 5949 D19, 1.V.1993, adults on oak (*Quercus* sp.) stumps, MR. A species common throughout the study area.

***Rhamnusium bicolor* (Schrank, 1781)**; (F3, A3, Vu). [The species was collected by other entomologists, BURDA 1984; Rakovník, Nový Dům, 14.6.1997, 3 immature adults in pupal cells, leg. O. Sabol]; Broumy, Úpoř, 6049 A16, 23.II.1993, 2 adults reared from larvae found in a hollow of a living beech (*Fagus sylvatica*), MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, larvae found in hollow trunks of beech (*Fagus sylvatica*), MK and MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 11.III.1995, many larvae in hollow beech (*Fagus sylvatica*) trees, leg. O. Sabol and MR; Řevničov, Leontýnino polesí, 5849 C6, 18.III.1995, 1 adult reared from a larva found in a hollow beech (*Fagus sylvatica*) tree, leg. M. Johanides and MR; Řevničov, Horácká Lísa, 5849 D10, 2.IV.1995, 2 larvae in a hollow trunk of a beech (*Fagus sylvatica*), leg. M. Johanides and MR. Although not frequently recorded, this species is quite typical for old beech forests within the study area and is relatively frequent here.

***Ropalopus femoratus* (Linnaeus, 1758)**; (F3, A1,We). [Nižbor, Suchá mýť, 10.VI.1978, 1 adult, ZČ; Skryje, Vlastec, VII.1974, JP; Nižbor, VI., 1 adult on an oak log, SLÁMA 1983]; Lány, 5849 C24, 10.VI.1988, 1 adult by beating from an oak, KR; Karlova Ves, 6048 B8, 28.V.1988, 2 adults, 6.V.1990, 1 adult, 15.V.1992, 1 immature adult, 28.V.1995, 1 adult, by beating from oaks, KR; Broumy, Týřov, 6048 B13, 15.VI.1991, 1 adult on a dead oak (*Quercus* sp.) twig, MR and MH; Karlova Ves, Velká Pleš 496m, 6048 B4, 11.IX.1993, 5 adults reared from larvae found in a dead *Sorbus torminalis*, MR; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 2 adults reared from a field maple (*Acer campestre*) twig, MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 10.X.1998, 2 vacated *Quercus* sp. twigs

previously attacked by *Ropalopus femoratus*, MR. For unknown reasons *Ropalopus femoratus* seems to be rather rare in the study area, although it is very common in some adjacent areas (Bohemian Karst), and in some other areas of Central Bohemia (especially in the Labe river basin lowlands and the Prague basin). The beetle develops in dry thin twigs of various deciduous trees and shrubs. Very frequently in this climate it attacks dead twigs of *Corylus avellana* and *Quercus* spp. Larvae feed subcortically creating broad galleries and later they build a shallow pupal cell in the sapwood. The development lasts one year.

***Saperda carcharias* (Linnaeus, 1758)**; (F4, A3,We). [The species was collected by other entomologists, BURDA 1984; Nižbor, larvae found in *Populus tremula*, SLÁMA 1983]; Nižbor, Šnárova hora, 5949 D20, 1.V.1993, 5 larvae collected in living aspen (*Populus tremula*), MR and MH. Attacked young aspen trees are found frequently within the study area.

***Saperda octopunctata* (Scopoli, 1772)**; (F3, A4,We). [Broumy, 12.VI. 1978, 3 adults on stored lime wood, BURDA 1984; Nižbor, Křivoklát, HEYROVSKÝ 1955; Křivoklát, HEYROVSKÝ 1930; Kublov, Hiršlíny, VII. 1980, Skryje, Strážov, VI.1986, JP; Lhota, Ploskov, 5949 B4, 8.V.1992, 2 adults ex larva and pupa, JJ; Nižbor, Dřevíč, Žloukovice, develops under bark of dead lime trees, adults sit on wood or leaves of the host tree, they are active in the late afternoon, in Bohemia it is a very rare species, SLÁMA 1983; Křivoklátsko, 59-6049-50, leg. Prokš, leg. Lekeš, leg. Sláma, leg. Rejzek, leg. Hoskovec, leg. Burda, and others, SLÁMA 1998]; Lány, 5849 C24 and 25, 28.V.1974, 1 adult, 20.VII.1980, 1 adult, 9.VI.1987, 6 adults, 24.V.1988, 7 adults, 7.VI.1988, 2 adults, 6.VI.1989, 1 adult, by beating from lime trees, KR; Nižbor, Vůznice, 5949 D20, IV.1991, 10 adults reared from larvae collected in dead lime wood (*Tilia* sp.), MR and MH; Zbečno, Klíčava, 5949 B17, 2.V.1992, 12 adults reared from larvae collected in pupal cells created in the sapwood of a dead lime (*Tilia* sp.), MR; Broumy, Úpoř, 6049 A16, 28.XI.1992, 2 adults ex larvae, MR; Zbečno, Písky (Lánská obora), 5949 A20, 19.III.1993, 9 adults reared from larvae collected in a dead lime (*Tilia* sp.), MR; Skryje, Kohoutov 596m, 6048 D22 and Sirská hora 524m, 6048 D6, 10.IV.1993, 40 adults reared from larvae collected in dead limes (*Tilia* spp.), leg. L. Čelikovský, MR and MH; Broumy, Týřovické skály, 6048 B8, 8.V.1994, 6 adults reared from larvae found in a trunk of lime (*Tilia* sp.), MR; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, 3 larvae in a dead lime (*Tilia* sp.), MR; Zbečno, Zadní Vápenec, 5949 B17, 8.XI.1997, 1 larva in a dead

lime (*Tilia* sp.), MR. In Bohemia this is quite a rare species, but occurs frequently within the study area. It is monophagous in *Tilia* spp.

***Saperda similis* Laicharting, 1784**; (F1, A1, Ns). [Rakovník, HEYROVSKÝ 1930 and 1955; Rakovník; 58-5948, leg. Tichý and others, Malé Kyšice, 5950, leg. Obenberger in coll. NMP, Zbiroh, 6148, leg. Hanousek and Hron, SLÁMA 1998]. Rakovník, Malé Kyšice as well as Zbiroh are situated directly on the border of the study area. Still, the occurence of this species within the study area is supported quite well by these records.

***Saphanus piceus* (Laicharting, 1784)**; (F3, A3,We). [Beroun, 6050, 6. VI.1977, 4.VII.1977, 2 adults, Hermann leg. in coll. ZČ; Nižbor, 5.VII. 1981, 1 adult, BURDA 1984; Křivoklát, HEYROVSKÝ 1930; Beroun, Brdatka, VIII.1987, JP; Křivoklát, Nezabudice, VI., in dead hornbeam stumps, a quite rare species, SLÁMA 1983]; Nižbor, Žlubinec, 5950 C22, II.1991, 9 adults reared from larvae collected in small stumps of *Corylus avellana*, MR; Broumy, Úpoř, 6049 A16, III.1991, 8 adults reared from larvae collected in small stumps of *Corylus avellana* and *Carpinus betulus*, MR and MH; Nižbor, Žlubinec, 5950 C22, IV.1991, 5 adults reared from larvae found in *Corylus avellana* stumps and roots, MR; Zbečno, Písky, 5949 A20, 19.III.1993, 6 larvae in a hornbeam (*Carpinus betulus*) stump, 5 adults reared, MR; Karlova Ves, Emilovna, 6048 B10, 27.II. 1994, 4 larvae in a hornbeam (*Carpinus betulus*) stump, MR; Broumy, Úpoř, 6049 A16, 16.V.1994, 3 pupae in *Corylus*, MR and MH. This is a very typical and locally quite common species within the study area. It prefers the shady and moist valleys of small brooks and develops in the dead roots of various deciduous trees. It is frequently recorded from *Corylus avellana*, *Carpinus betulus* but also from *Betula pendula* for instance. The larvae feed in decaying roots of the host trees and pupation takes place in a pupal cell built at the end of a vertical gallery reaching the ground surface. The emerge holes appear several centimetres above ground level.

***Stenocorus meridianus* (Linnaeus, 1758)**; (F4, A3,We). [Skryje, Úpoř valley, 30.VI.-7.VII., PATERA 1987; A common species in oak forests, BURDA 1984; Karlova Ves, Jelenec, VI.1986, JP; Nižbor, Zbečno, Skryje, VI., SLÁMA 1983; Nový Dům, 5949 A, 22.VI.1993, adults on Umbelliferae, JJ; Zbečno, Kovářův luh, 10.-14.VI.1993, 10 adults on flowering shrubs, MH; Broumy, Týřov, 6.VII.1985, more adults, MK]; Lány, 5849 C24, 17.VI.1989, 1 adult, 16.VII.1989, 1 adult, 26.VI.1992, 1 adult, KR; Lhota, 5949 B7, 4.VII.1987, 1 adult by beating from a beech tree, KR; Karlova Ves, 6048 B8, 18.V.1988, 1 adult, 21.V.1989, 1 adult, 1.VII.

1980, 16 adults on flowers, KR; Zbečno, Klíčava, 5949 B17, 6.VI.1993, 2 adults on a flowering shrub, MR.

***Stenocorus quercus* (Goetz, 1783)**; (F3, A2,We). [Beroun, 5.VIII.1980, 1 adult, BURDA 1984; Nižbor, Zbečno, Skryje, VI., a rather rare species, 1 completely black female was found in Vůznice valley, SLÁMA 1983]; Karlova Ves, 6048 B8, 27.VI.1987, 1 adult by beating from an oak, 21.V. 1989, 1 adult by beating from a flowering *Crataegus* sp., KR.

***Stenostola dubia* (Laicharting, 1784)**; (F4, A4,We). [This species is more frequent than *S. ferrea*, BURDA 1984; Kublov, Hiršlíny, VI.1982, Nižbor, Seče, V.1989, Karlova Ves, Velká and Malá Pleš, IV.1990, JP; Dvůr Požáry, 5949 A20, 5.V.1990, 1 adult by beating from a willow, JJ; Broumy, 6.VII.1985, more adults, 1985; Karlova Ves, 18.VI.1988, 1 adult, MK]; Lány, 5849 C24 and 25, V.1982, 1 adult, 24.V.1988, 4 adults by beating from a lime, 10.VII.1991, 1 adult attracted to UV-light, 12.V. 1993, 3 adults by beating from limes, KR; Lány, 5949 A4, 12.V.1993, 2 adults, by beating from limes, KR; Branov, 6048 B4, 11.V.1981, 1 adult, KR; Karlova Ves, 6048 B8, 16.VI.1988, 1 adult, 6.V.1995, 1 adult, by beating from limes, KR; Nižbor, Vůznice, 5949 D20, II.1991, more adults reared from twigs of lime (*Tilia* sp.), MH and MR; Žloukovice, Ložina, 5949 D19, X.1991, 2 adults reared from lime (*Tilia* sp.), MR; Nižbor, Žlubinec, 5950 C22, XI.1991, 3 adults reared from dead twigs of *Fraxinus excelsior*, MR; Broumy, Úpořský potok, 6048 B20, XII.1991, 6 adults reared from dead twigs of *Fraxinus excelsior*, MR. In contrast to *Stenostola ferrea* this species seems to develop in a broad variety of deciduous trees including lime (*Tilia* spp.). It is frequent in the study area.

***Stenostola ferrea* (Schrank, 1776)**; (F4, A5,We). [Nižbor, 9.VI.1978, 12 adults, 12.VI.1980, 4 adults, by beating from oak brushwood, BURDA 1984; Kublov, Hiršlíny, VII.1980, Nižbor, Suchá mýť, VI.1982, Skryje, Strážov, V.1988, JP; Zbečno, Křivoklát, V., development in dead lime twigs, SLÁMA 1983; Nižbor, 25.IV.1994, many adults ex larvae, MK]; Lány, 5849 C24 and 25, VI.1984, 1 adult, 23.V.1986, 1 adult, 6.VI.1987, many adults, 21.V.1988, many adults, 8.V.1989, 2 adults, 20.V.1989, 3 adults, 8.V.1989, 1 adult, 20.V.1989, 1 adult, 6.VI.1989, 1 adult, 17.VI. 1989, 1 adult, 20.V.1990, 1 adult, 19.VII.1991, 1 adult, 26.VI.1992, 2 adults, by beating from limes, KR; Lány, 5949 A4, 12.V.1993, 6 adults, by beating from limes, KR; Pustověty, 5948 B20, 20.VI.1987, many adults, KR; Městečko, 5949 A17, 20.VI.1995, 1 adult, KR; Zbečno, Zadní Vápenec, 5949 B17, XI.1991, 1 adult reared from a twig of lime (*Tilia* sp.), MR; Karlova Ves, Emilovna, 6048 B10, 27.II.1994, 1 adult reared

from a twig of lime (*Tilia* sp.), MR; Nižbor, Janův vrch 387.1m, 5949 D20, 24.X.1997, many adults reared from dead twigs of lime (*Tilia* sp.), MR; Zbečno, Klíčava, 5949 B17, 8.XI.1997, many adults reared from dead twigs of lime (*Tilia* sp.), MR. A typical and very common representative of the local fauna. It develops in dead twigs and smaller branches of lime (*Tilia* spp.).

***Strangalia attenuata* (Linnaeus, 1758)**; (F2, A2,We). [Zbečno, HEYROVSKÝ 1930; Nižbor, VI., sporadically on flowers, SLÁMA 1983; Strážov, 16.VIII.1997, 1 adult on a flower, JP].

***Pedostrangalia revestita* (Linnaeus, 1767)**; (F4, A2,We). [Nižbor, 1964, 1968, 4 adults, leg. Prokš in coll. ZČ; Nižbor, 3.VI.1979, 3 adults, 5.VII. 1981, 1 adult, Svatá, 13.VI.1980, 1 adult, a rare species within the study area, BURDA 1984; Křivoklát, HEYROVSKÝ 1930; Nižbor, VII.1991, 1 adult on a flower, leg. K. Přibyl; Dvůr Požáry, 25.V.1993, 5949 A20, 3 adults on flowering shrubs, JJ; Nižbor, 27.V.1994, 50 adults collected in flight, leg. O. Odvárka; Nižbor, VI., SLÁMA 1983; Nižbor, 5949-50, 6049-50, 1964, leg. Prokš, leg. Fára, leg. Odvárka, leg. Sláma and others (the date 1964 probably only refers to Prokš), Žloukovice, 5949, 1985, leg. J. Dalihod, Čeperka, 5950, leg. J. Sobota, Unhošť, Kačák, 5950, in coll. NMP, leg. Štěrba, Heyrovský unpublished results, Nová Huť, 6049, leg. Petrbok in coll. NMP, Svatá, 6049, 13.VI.1980, leg. A. Burda, Beroun, 6050, 16.VI.1977, leg. M. Škorpík, SLÁMA 1998]; Lány, 5849 C24, 5.VI.1982, 1 adult by beating from an oak, 11.VI.1995, 1 adult by beating from a lime, KR; Karlova Ves, Emilovna, 6048 B10, 27.II.1994, 1 adult reared from a dead branch base of a living beech (*Fagus sylvatica*), MR. A typical species for the study area although not very common generally. It develops in deciduous trees. Larvae feed in dead, moisture rich dark red wood in contact with the living tissue (cf. *Anoplodera rufipes*). Its typical habitat comprises river valley slopes with sparse vegetation. Here, it develops preferentially in sessile oak (*Quercus petraea*).

***Tetropium fuscum* (Fabricius, 1787)**; (F3, A2,We). [Nižbor, 28.VI.1980, 2 adults, Beroun, 12.VI.1980, 5 adults, not a common species, BURDA 1984; Nižbor, V., 1 adult on a spruce, SLÁMA 1983; Beroun, Ostrý, 20.V. 1995, 1 adult on spruce cordwood, JP]; Lány, 5949 A4, 30.V.1981, 2 adults on spruce cordwood, KR.

***Tetrops starkii* Chevrolat, 1859**; (F3, A3,We). [Nižbor, 10.V.1978, 1 adult on a flowering *Crataegus*, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Zbečno, Kovářův luh, 10.-14.VI.1993, 20 adults on *Fraxinus excelsior*,

MH; Skryje, Zbirožský potok, V.1974, JP; Žloukovice, V., development in branches of *Fraxinus excelsior*, SLÁMA 1983; Nižbor, 5949-50, 6049, 5.VI.1960, leg. Prokš in coll. NMP, 1962, leg. M. Sláma, Nová Huť, 6049, 19.VI.1930, leg. Klička, Žloukovice, 5949, leg. M. Sláma (cf. SLÁMA 1983), Beroun, 6050, 24.VI.1984, leg. Z. Švec (the exact locality was Beroun - Koněprusy, a place which belongs already to adjacent Bohemian Karst, Švec personal communication), SLÁMA 1998]; Branov, Berounka valley, 6048 B3, 20.VI.1992, 2 adults by beating from an ash, KR; Karlova Ves, 6048 B8, 20.VI.1992, 14 adults, 1.VII.1995, 2 adults, 25.VI.1995, 1 adult, by beating from ash trees, KR; Zbečno, Kovářův luh, 5949 B22, 6.VI.1993, 12 adults by beating from leaves of common ash (*Fraxinus excelsior*), MR and MH. *Tetrops starkii* is a rather typical representative of the local fauna although it is even more common in the adjacent Bohemian Karst area (Srbsko, Koněprusy, etc.). This species develops in tiny dead twigs of common ash (*Fraxinus excelsior*). In June, the adults sit on the leaves of the host.

***Toxotus cursor* (Linnaeus, 1758)**; (F2, A2,We). [Nižbor, Vůznice valley, 24.VI.1986, 1 adult, MH; Broumy, 5.VII.1980, 1 adult, Beroun, 6.VI. 1982, 1 adult, a rare species, BURDA 1984; Skryje, Strážov, VI.1986, JP; Nižbor, larvae in a decaying spruce log, SLÁMA 1983; Lány, 5849 D12, 6.VI.1987, 1 adult on grass, JJ; Nižbor, Vůznice, 15.VI.1986, 3 adults sitting on leaves, MH]; Ruda, 5849 C12, 27.V.1994, 1 adult, KR; Řevničov, 5848 D5, 11.VI.1994, 1 adult, KR.

***Xylotrechus antilope* (Schönherr, 1817)**; (F5, A5,We). [Nižbor, 5950, VII.1970, more adults, ZČ; Svatá, 10.VI.1978, 60 adults, Nižbor, 20.VI. 1980, 5 adults, a locally common species, on oaks, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Nižbor, Suchá mýť, VII.1983, Broumy, Bušohrad, VII.1986, Skryje, Úpoř, VII.1983, Svatá, Zelený Kříž, IX.1984, Beroun, Ostrý, VI.1982, Beroun, Brdatka, VI.1988, JP; Křivoklátsko, VI., a common species throughout the whole area, development in oak but also beech, SLÁMA 1983; Nižbor, Luby - Skalka, 30.V.1992, more adults on oak wood, PH; Nižbor, 5949 D20, 17.VI.1990, adults on oak wood, JJ; Nižbor, Stará mýť, 5949 D, 12.VII. on oak wood, JJ; Nižbor, 22.IV.1993, MK]; Lány, 5849 C24 and 25, 9.VII.1978, 6 adults on beech cordwood, 5.VI.1982, 1 adult, 10.VI.1988, 3 adults, 26.VI.1988, 2 adults in a vine trap, 24.V.1988, 1 adult, 16.VII.1988, 1 adult, 19.VII.1991, 1 adult, 9.VIII. 1991, 1 adult by beating from a lime, 26.VI.1992, 1 adult, 27.VI. 1992, 1 adult on a dead beech, 5.VII.1993, 27 adults, 27.VII.1995, 13 adults, 15.VII.1998, 1 adult, on oak cordwood, KR; Nezabudice, 5948 D20, 12.VII.1989, 7 adults, on oak cordwood, KR; Branov, 6048 B4,

19.VI.1993, 23 adults, on oak cordwood, KR; Karlova Ves, 6048 B8, 7.VIII.1988, 1 adult, 19.VII.1989, 1 adult, 24.VI.1990, 1 adult, 24.V. 1993, 8 adults, 1.VII.1995, 16 adults, on oak cordwood, KR; Lužná, 5848 D14, 17.VII.1994, 1 adult, on a flowering lime, KR; Nižbor, Žlubinec, 5950 C21, 26.VI.1983, 4 adults, MR; Nižbor, Suchá mýť, 5950 C11, III.1991, adults reared from a dead oak (*Quercus* sp.) trunk, MR; Zbečno, Kovářův luh, 5949 B22, XI.1991, 3 adults reared from a dead oak (*Quercus* sp.) branch, MR; Zbečno, Zadní Vápenec, 5949 B17, 6.VI.1993, many adults on oak (*Quercus* sp.) cordwood, MR and MH; Zbečno, Zadní Vápenec, 5949 B17, 3.VII.1993, many adults on oak (*Quercus* sp.) cordwood, MR and MH; Nižbor, Jinčov, 5949 D10, 4.VII.1993, MR. A very typical and common species throughout the whole study area. It develops in dead trunks and thicker branches of oak (*Quercus* spp.) and beech (*Fagus sylvatica*). Larvae first feed subcortically. Later they enter the sapwood and create a pupal cell at the end of a long gallery.

***Xylotrechus arvicola* (Olivier, 1795)**; (F4, A3,We). [Nižbor, 1962, 1 adult, leg. M. Sláma in coll. ZČ; Broumy, 17.VII.1982, 1 adult on a beech log, BURDA 1984; Nižbor, Skryje, HEYROVSKÝ 1955; Zbečno, Klíčava, HEYROVSKÝ 1930; Nižbor, II.1991, 1 dead adult in a hornbeam trunk, MH; Strážov, 10.VIII.1997, 1 adult on cordwood, JP; Nižbor, Luby, 14.V. 1990, PH; Zbečno, Klíčava, 5949 B16, 3.VII.1993, hornbeam, JJ; Nižbor, 5949 D13, 24.VII.1991, 1 adult on oak wood, JJ; Nižbor, 31.XII. 1995, 5 adults reared from a hornbeam trunk, MH; Nižbor, Křivoklát, Skryje, VI., in oak and hornbeam forests throughout the area, a rare species, SLÁMA 1983; Křivoklátsko, 5948-50, 6048-50, 6148, leg. Purkyně, leg. Štícha, leg. Prokš, leg. Klička, leg. Sláma, and many others, Beroun, 6050, VI.1982, JP, SLÁMA 1998]; Broumy, Úpořský potok, 6048 B20, 21.I. 1991, 1 dead adult in a dead hornbeam (*Carpinus betulus*) trunk, MR and MH; Zbečno, Zadní Vápenec, 5949 B17, 4.III.1992, 1 adult reared from a hornbeam (*Carpinus betulus*) trunk, MR; Zbečno, Zadní Vápenec, 5949 B17, IV.1991, 1 adult reared from a larva found in a dead hornbeam (*Carpinus betulus*) trunk, MR; Broumy, Týřov, 6048 B13, V.1991, 2 dead adults in a hornbeam (*Carpinus betulus*) trunk, 1 dead adult in a *Crataegus* trunk, MR and MH; Nižbor, Žlubinec, 5950 C21, V.1991, 1 adult reared from a dead hornbeam (*Carpinus betulus*) trunk, MR; Broumy, Týřov, 6048 B13, V.1991, 1 adult reared from a hornbeam (*Carpinus betulus*), MR; Žloukovice, Kabečnice, 5949 D13, XII.1991, 1 adult reared from a larva found in hornbeam (*Carpinus betulus*), MR; Nižbor, Janův vrch, 387.1m, 5949 D20, 24.X.1997, 6 adults reared from larvae found in a dead hornbeam (*Carpinus betulus*) trunk, MR. *Xylotrechus arvicola* is a typical and locally common species throughout the study area. It occurs in

xerothermic habitats, especially on the valley slopes of brooks and the Berounka river. It is polyphagous on deciduous trees, but in the study area it prefers hornbeam (*Carpinus betulus*). Occasionally it develops in *Crataegus* or oak (*Quercus* spp.). Larvae feed in dead, relatively dry and compact wood of trunks or thicker branches. The development lasts at least two years. The larvae feed in central parts of the trunks. Before pupating they bore a long passage leading directly under the surface of the wood. Adults hatch in May.

***Xylotrechus rusticus* (Linnaeus, 1758)**; (F2, A2,We). [The species was collected by other entomologists, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Rakovník, 5948, (?), in coll. NMP, Křivoklát, 5949, VI.1970, leg. Lekeš in coll. Kratochvíl, Nová Huť, 6049, leg. Klička, SLÁMA 1998]. In the study area this species is very rare although in other areas of Central Bohemia it is fairly common (Prague basin and especially in the Labe river basin lowlands). Together with *Saperda perforata*, *Obrium cantharinum*, *Monochamus galloprovincialis pistor*, *Ropalopus femoratus*, and *Saperda carcharias*, this beetle is another example of a species relatively common in the Labe river basin lowlands which penetrate to the vicinity of Prague, but which is rather rare in the wooded and hilly area of the Křivoklátsko Biosphere Reserve.

Third group

The third group contains species that are interesting from a faunistic point of view and are generally rare. This group includes species occurring only in relict forests or requiring other highly preserved biotopes. Their presence usually indicates the degree of biotope preservation. Methods of protection of these species are discussed in detail. This group contains 7 species.

***Acanthocinus reticulatus* (Razoumowsky, 1789)**; (F1, A1, Cr). [Broumy, 5.VII.1980, 1 adult on European silver fir (*Abies alba*), BURDA 1984; north from Leontýnský zámek, for example 10.II. (year not stated), 1 adult in a bark crevice of European silver fir (*Abies alba*), SLÁMA 1983; Křivoklát, 5949, 1970, 10.II.1974, leg. M. Sláma, Broumy, 6049, 10.VI.1908 (collector not stated) in coll. NMP, Skryje, 6048, 1981, leg. M. Sláma, Leontýn, 6049, 1970, 1975, leg. M. Sláma, SLÁMA 1998 (the species was collected between Leontýn and Křivoklát many times and in a number of specimen, 32 adults are still stored in coll. M. Sláma but even

more were found, the locality Skryje was confirmed by the author, Sláma personal communication 1998)]. The occurence of this species within the study area is well documented although it seems to be very localised. The species is only present in places with a relict occurrence of *Abies alba*. In Bohemia it is very rare, and records from the study area are therefore very interesting. However, adult fir trees are quickly dying out in the study area, and therefore the population continuity of the monophagous *Acanthocinus reticulatus* is very questionable. Protection of the remaining adult fir trees and the planting of young ones, is the only suitable method of avoiding its total extinction.

***Akimerus schaefferi* (Laicharting, 1784)**; (F1, A2, Cr). [Beroun, 17.VII. 1980, 1 adult in the undergrowth of an oak forest, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Zbirov (the author probably meant Zbiroh), HEYROVSKÝ 1930; Lány, 5849, leg. A. Olexa, Nová Huť, 6049, leg. Nickerl, Zbiroh, 6148, leg. Preissler (cf. HEYROVSKÝ 1930), SLÁMA 1998]; Lány, 5849 C24, 25.VII.1988, 1 adult in a vine-trap placed in the top region of an oak tree, 19.VII.1991, 6 adults by beating from living oak branches and a flowering lime, 9.VIII.1991, 1 adult by beating from an oak, 4.VIII. 1996, 1 adult by beating from an oak, KR. This species is only present in relict oak forests and therefore its presence is a good hallmark of a high quality and uninterrupted afforestation of the above mentioned localities. These rare places belong to the most valued biotopes and their protection should be of prime importance. Any forestry in these areas should be abandoned and additionally, no removal of dying out old trees should be undertaken. The larvae of *Akimerus schaefferi* feed on roots of dead standing oaks of large diameter. Therefore, for their populations to be retained, a presence of dead trees is essential. Felling of dead or dying trees and their removal from the forests in these small areas may lead to a total and irreversible extinction of the species. Individual collecting of the beetle by entomologists is unlikely to endanger its population.

***Cerambyx cerdo* Linnaeus, 1758**; (F1, A2, Cr). [The species was collected by other entomologists, BURDA 1984; Lánská obora, Píně - Plátěná zahrada, 10.X.1982, fragments of a dead adult under an old oak tree, leg. V. Hron; a protected species, no adult was found but a number of exit holes on several oak trees were found on oaks growing on a slope with a south-western aspect situated in the Berounka valley close to Křivoklát - Brdatka, it is probably the only record from the Křivoklátsko region, SLÁMA 1983; Křivoklát, 5949, 1962, SLÁMA 1998 (no adults collected, but exit holes of the species were observed, cf. SLÁMA 1983, Sláma personal communication 1998)]; Lány, 5849 C24 and 25, VII. 1977, 2 adults,

2.VI.1988, 2 adults, 18.VI.1988, 1 adult, 20.VI.1989, 1 adult, 1.VII.1989, 1 adult, 4.VI.1993, 7 adults, 10.VIII.1993, 1 adult, 18. VII.1993, 2 adults, 20.VII.1995, 1 adult, 27.VII.1995, 1 adult, KR. The presence within the study area of this beetle which is protected by law, was confirmed by K. Rébl and V. Hron (personal communication). In Bohemia this species is only present in a few other small localities and is highly endangered. The beetles develop in dying or recently dead and frequently hollow oak trees of large diameter. These trees are frequently removed when falling branches might endanger human lives or property. In some cases they are removed merely because they are dead, or because regulations may directly order their removal. This type of action can potentially lead to a total destruction of not only this beautiful species but endanger others too. It should be mentioned that not only the adult beetle is the subject of protection by law, but also its larvae, pupae and even dead adults. Once an oak tree is attacked by a number of larvae, the tree should also be subject to protection, as felling of the attacked tree inevitably leads to destruction of the larvae. To punish individual collecting of this species is not sufficient. More attention must be paid to the protection of the beetle's natural biotopes. In particular, within the study area the above mentioned localities of *Cerambyx cerdo*, should be excluded from any felling activities. Fortunately, both the localities are already protected to a very high degree; one of them is a Nature Reserve, and the second one belongs to a larger area called Lánská obora with strictly regulated access.

***Corymbia erythroptera* (Hagenbach, 1822)**; (F2, A3, Cr). [The species was collected by other entomologists, BURDA 1984; Křivoklát, Nižbor, Skryje, Zbečno, HEYROVSKÝ 1955; Křivoklát, Zbečno, HEYROVSKÝ 1930; Rakovník, Nový Dům, 14.6.1997, 13 pupae and many larvae in a hollow beech, several adults reared subsequently, leg. O. Sabol; Křivoklátsko, 5948, 29.VI.1909, leg. Roubal in coll. NMP (cf. HEYROVSKÝ 1930 and 1955), Zbečno, 5949, leg. Láznička, (cf. HEYROVSKÝ 1930 and 1955), Skryje, 6048, 19.VIII.1942, leg. Prokš in coll. NMP, (cf. HEYROVSKÝ 1955), Nová Huť, 6049, (?), in coll. NMP, leg. Schiffner, (cf. HEYROVSKÝ 1930), SLÁMA 1998]; Karlova Ves, 6048 B8, VII.1977, 1 adult by beating from an oak tree growing in a xerothermic oak forest, 24.V.1993, 1 adult on a flower, KR; Lány, 5849 C24, 16.VII.1989, 1 adult by beating from a flowering lime tree, KR; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, 3 larvae found in a hollow beech (*Fagus sylvatica*), 1 adult reared, MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 11.III.1995, 1 larva in a hollow beech (*Fagus sylvatica*) tree, MR; Řevničov, Horácká Lísa, 5849 D10, 2.IV.1995, 3 larvae in beech (*Fagus sylvatica*), 1 adult reared, MR; Lány, Píně, 5849 C19, 22.IV.1995, many lar-

vae in beech (*Fagus sylvatica*), 15 adults reared, leg. L. Karaus, J. Vlasák, and MR. This very rare species develops in hollow trunks or thick branches of various living deciduous trees where there is a convenient substrate within the trunk. This substrate comprises a 1-5 cm thick layer of a dead and extremely tenacious red-brown wood, which is in close contact with the living water-rich tissue. Many larvae can usually be found in such a place, but the convenient substrate appears quite infrequently. This species is sometimes accompanied by another rare inhabitant of hollow trunks, *Necydalis ulmi* Chevrolat, 1838. In the study area, beech (*Fagus sylvatica*) is preferred, but finds from other trees such as oak (*Quercus* spp.) or the common horse-chestnut (*Aesculus hippocastanum*) are probable, for these trees serve as hosts in other areas of Czech Republic. The protection of this highly interesting species should again include the very considerate treatment of old trees, especially the beech. It is only in old trees, that convenient hollows are created. Again, in places where it occurs, felling of old trees should be reduced to a minimum in order to give the species a chance to find convenient habitats. The occurrence of this species in any area indicates a very rich and preserved environment.

***Necydalis ulmi* Chevrolat, 1838**; (F2, A3, Cr). [The species was collected by other entomologists, BURDA 1984; Broumy, Týřov, 6049, 16.VII.1983, 1 adult in flight in a beech forest, ZČ; Zbiroh, Strážov, VII.1990, 1 adult, JP; Rakovník, Nový Dům, 14.6.1997, 3 young larvae in a hollow beech (*Fagus sylvatica*), leg. O. Sabol; Nový Dům, 22.VII.1995, 1 adult, 12.VII.1998, 1 adult, MK; Broumy, Úpoř, 20.VI.1998, 3 pupae and 10 young larvae were found in a hollow trunk of a living beech, 2 adults were reared subsequently, leg. R. Rejzek and J. Plocha; Nižbor, 1 adult reared from hornbeam, a very rare species, there are only a few other localities in Bohemia, SLÁMA 1983; Nižbor, 5950, VII.1974, leg. M. Sláma (cf. SLÁMA 1983), SLÁMA 1998]; Lány, 5849 D11, 23.VII. 1978, 2 adults reared from pupae collected in a hollow trunk of a felled beech tree, KR; Broumy, 6048 B20, 23.II.1991, 1 adult reared from a larva found in a hollow trunk of beech (*Fagus sylvatica*), MR; Broumy, 6048 B20, 4.III.1991, 3 young larvae found in a hollow trunk of a living beech (*Fagus sylvatica*), MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 25.II.1995, 6 larvae found in a hollow beech (*Fagus sylvatica*), 3 adults reared, MK and MR; Ruda, Dlouhý hřeben 470m, 5849 C17, 11.III.1995, 4 dead adults and 32 larvae found in a hollow trunk of beech (*Fagus sylvatica*), several adults reared, leg. O. Sabol, MK and MR; Řevničov, Leontýnino polesí, 5849 C6, 18.III.1995, 4 larvae found in hollow trunks of beech (*Fagus sylvatica*) trees, 2 adults reared, MR; Lány, Habrová stráň 452m, 5849 C15, 2.IV.1995, 5 larvae in beech (*Fagus sylvatica*), MR;

Lány, Píně, 5849 C19, 22.IV.1995, 14 larvae in beech (*Fagus sylvatica*), 10 adults reared, leg. L. Karaus, J. Vlasák, and MR. Although a very rare species, *Necydalis ulmi* can be considered a typical one for the study area. The beetles develop in the hollows of living trunks of deciduous trees. In the study area, however, it has only been recorded from *Fagus sylvatica*. The larvae require a very typical and special substrate. This substrate is only created inside hollow trunks or branches of living deciduous trees of great diameter. Probably, the necessary contact with the living tissue, a source of moisture, is the limiting factor. The inside of a typical hollow is covered by a thin dry black layer. Beneath it, there is a thick layer of relatively moist red-brown to yellow decayed wood, followed by the living tissue. Similarly to *Necydalis major*, larvae of this species are always accompanied by fungi which create a yellow to red-brown circle surrounding the larvae galleries. This circle is well recognisable on the substrate background and serves as a clear hallmark of the species presence. The substrate is not only present inside the hollow, but is often present inside a substantial part of the living trunk. Younger larvae instars feed in these parts. However, the pupal cell is always built in the vicinity of the hollow entrance, sometimes even in a quite different, harder, and drier substrate. The adults can frequently be found inside the hollow trunks. Under certain circumstances this species is accompanied by *Corymbia erythroptera*, although both species develop in a completely different substrate. With regard to the protection of this highly interesting species, similar conclusions can be drawn as in the case of *Corymbia erythroptera.*

***Purpuricenus kaehleri* (Linnaeus, 1758)**; (F3, A1, Cr). [Nižbor, Suchá mýť, 5950, 11.VII.1970, 1 adult, ZČ; Nižbor, Suchá mýť, 5950, 18.VII. 1970, 3 adults, leg. Caldr in coll. ZČ; Nižbor, 20.VI.1981, 1 adult, BURDA 1984; Nižbor, HEYROVSKÝ 1955; Skryje, Týřov, VI.1979, JP; Zbečno, 1 adult reared from a larva found under the bark of a dead standing oak tree, Nižbor, Dřevíč, beginning of VII., 1 adult on a dead oak. In 1983 the study area was probably the last locality where the species still occurred, however, only very rarely. The species used to be much more frequent in the past, now it seems that the species is quickly perishing throughout Central Europe, SLÁMA 1983; Zbečno, 5949, 1961, leg. Sláma, Nižbor, Dřevíč, 5949, VII.1979, leg. Sláma and Berger, Nižbor, 5950, 7.VII.1957, leg. Prokš in coll. NMP, VI.1968, leg. Berger, VII.1973, leg. Moravec, 13.VII.1982, JP in coll. M. Kybal, 4.VIII.1984, leg. M. Kybal, 1989, leg. J. Klícha, 1991, Hron, Skryje, 6048, VI.1979, JP, Týřov, 6048, 16.VII. 1983, leg. ZČ, Nová Huť, 6049, 29.VI.1930, leg. Pohnert in coll. NMP, SLÁMA 1998]. Last record of this species from the study area is now 7

years old and it seems unlikely that new records will appear in the close future. For unknown reasons the species is disappearing quickly from Central Europe. Experience from other areas shows that the species develops in deciduous trees and shrubs, but prefers oak (*Quercus* spp.) in our climate. Larvae feed centrally in relatively thin recently dead twigs of the host plants. Sometimes, however, the larvae might feed subcortically in the trunks of dead standing deciduous trees.

***Ropalopus spinicornis* (Abeille, 1869)**; (F2, A3, We). [The species was collected by other entomologists, BURDA 1984; Nižbor, Suchá mýť, 5950, 19.V.1974, 1 adult, leg. et coll. K. Caldr; Nižbor, 5950, 1975, leg. Škorpík, Vlastec, 6048, 2.VI.1979, leg. Herget, Nová Huť, 6049, 19.VI.1894, leg. ? in coll. NMP, SLÁMA 1998]; Karlova Ves, 6048 B8, 27.VI.1987, 1 adult by beating from an oak, KR; Lány, 5849 C24, 10.VI.1988, 1 adult by beating from an oak, KR; Karlova Ves, Velká Pleš 496m, 6048 B4, 4.IV.1998, 5 adults reared from larvae collected in thin sessile oak (*Quercus petraea*) twigs, MR; Nižbor, Žlubinec, 5950 C21, 12.IV.1998, 7 adults reared from larvae collected in thin sessile oak (*Quercus petraea*) twigs, MR; Žloukovice, Kabečnice, 5949 D13, 1.V.1998, 4 adults reared from larvae found in thin sessile oak (*Quercus petraea*) twigs, MR; Karlova Ves, Velká Pleš 496m, 6048 B4, 10.X.1998, 3 vacated *Quercus* sp. twigs previously attacked by *Ropalopus spinicornis*, MR. *Ropalopus spinicornis* is a typical representative of the local fauna. It is also present in neighbouring areas (Srbsko, Dobřichovice, Karlické valley, Zbraslav, Prague), especially on xerothermic slopes of the Vltava and Berounka river valleys. In the study area the species occurs in relict oak forests growing on extremely exposed slopes of the Berounka river valley, and it also penetrates into some of the side valleys where it also finds convenient habitats. The species develops in *Quercus* spp. In the study area it has, however, only been recorded from *Quercus petraea*. The biology of this species has already been described in detail (VLASÁK & REJZEK 1998). This generally rare species deserves the highest possible protection through preservation of its habitats.

Fourth group

The fourth group contains problematic species whose presence in the study area is supported insufficiently by reliable data and/or these species were recorded many years previously, and recent data on their presence is not available. The occurrence of these species must, therefore, be confirmed by new records. This group contains 16 species. *Phytoecia icterica*

(Schaller, 1783), *Rosalia alpina* (Linnaeus, 1758), *Agapanthia pannonica* Kratochvíl, 1985, and *Stenurella septempunctata* (Fabricius, 1792) are mentioned in this section but they are excluded from the total number of species occurring in the study area.

***Acmaeops marginatus* (Fabricius, 1781)**; (F1, A2, Ns). [Rakovník, 5948, leg. Lorenc, Čeperka, 5950, leg. J. Sobota, SLÁMA 1998]. Although both the mentioned localities do not fall in the study area they are directly adjacent to it (Čeperka is a place situated near Malé Kyšice in the west of the study area). The species is difficult to collect and might easily have escaped the attention of the entomologists. Therefore, future records from the study area are likely as this species is known to occur in relict pine forests, a habitat quite common within the study area.

***Agapanthia dahli* (Richter, 1821)**; (F1, A1, Ex). [Roztoky u Křivoklátu, leg. Pucholt, HEYROVSKÝ 1955; Roztoky u Křivoklátu, 5949, VI.1944, leg. R. Pucholt (cf. HEYROVSKÝ 1955), SLÁMA 1998]. This species has been recorded several times in Bohemia. However, the last record dates back to 1958 (Rač, 23.V.1958, leg. J. Strejček, SLÁMA 1998). In the study area it has been recorded only once. Whether its occurrence in the study area was (or is) autochthon or only introduced individual(s) was (were) recorded remains uncertain.

***Agapanthia kirbyi* (Gyllenhal, 1817)**; (F1, A1, Ex). [Klíčava, 5949, leg. Jindřich, Heyrovský unpublished data, SLÁMA 1998]. In the past, this interesting species used to occur along the Vltava and Berounka rivers. Since 1962, however, (Zbraslav, Závist, VI.1962, leg. Dostál, SLÁMA 1998) no new finds in Central Bohemia have been recorded. New records from the study area are unlikely.

(*Agapanthia pannonica* Kratochvíl, 1985); [*Agapanthia cardui* auct. non (Linnaeus, 1767)], [The species was collected by other entomologists, BURDA 1984]. BURDA (1984) records *Agapanthia cardui* (Linnaeus, 1767). In 1985, *Agapanthia pannonica* was separated as a new taxon from the above mentioned species, and our experience shows that only *Agapanthia pannonica* is present in Bohemia. However, it is apparent that Kratochvíl did not check the type material of *Agapanthia cardui* when describing *Agapanthia pannonica*, and therefore its description needs to be revised in order to overcome the present confusion. No reliable record of *Agapanthia pannonica* exists from the study area. The species is only mentioned in BURDA's (1984) work as 'collected by other entomologists'. We were unable to find any other literary record of this species from the

study area, or find the species in other entomologist's collections. Therefore, it is presumed that Burda's record (BURDA 1984) is incorrect. This beetle is not included in the total number of species occurring in the study area.

***Callidium coriaceum* Paykull, 1800**; (F1, A1, Ns). [Křivoklát, HEYROVSKÝ 1930]. There is only one very old record of this species. Since 1930, the species has not been collected again, and therefore, its occurrence in the study area is highly doubtful.

***Corymbia cordigera* (Füessly, 1775)**; (F1, A1, Ns). [Křivoklát, 5949, VI. 1927, 3 adults, leg. R. Pucholt, SLÁMA 1998]. A very old record probably based on a find of introduced beetles. New records from the study area are very unlikely.

***Ergates faber* (Linnaeus, 1767)**; (F1, A1, Cr or Ex). [Rakovnicko, Křivoklát, HEYROVSKÝ 1930; Rakovník, 58-5948, VII.1918, in coll. Čermák, VIII.1977, leg. O. Odvárka, VII.1914, leg. Procházka in coll. Sláma, VII.1983, leg. V. Zeman, Městečko, 5949, 12.VIII.1907, NMP, Nižbor, 5949, leg. O. Odvárka, SLÁMA 1998]. Most of the records concern the immediately neighbouring area (Rakovník). Only two old records concern directly the study area. It is very doubtful that such a strikingly impressive animal could possibly escape the attention of entomologists in this frequently visited area, and, therefore, the presence of a well established population of this beetle is unlikely.

***Gracilia minuta* (Fabricius, 1781)**; (F1, A1, Ns). [Nižbor, 6049, VI.1976, leg. M. Sláma, Bojčuk is the source of this record, SLÁMA 1998]. The animal is definitely not autochton in the study area and was most probably introduced.

***Isotomus speciosus* (Schneider, 1787)**; (F1, A1, Ns). [Křivoklát, VII. 1968, 1 adult, leg. B. Vacek in coll. Z. Košťál; Nižbor, 5949, 1985, leg. Hron and Hanousek, SLÁMA 1998]. These two records are faunistically very important. The latter one is even quite recent. Still, it remains questionable whether the species is autochton in the study area or whether only introduced beetles were recorded. Additional data would be desirable.

***Lepturobosca virens* (Linnaeus, 1758)**; (F1, A1, Ns). Žloukovice, Kabečnice, 5949, VII.1983, 1 adult on a flowering *Aruncus* sp. growing in a shady valley, MR. There is only one other old record of this species from Central Bohemia (Slapy, 6152, HEYROVSKÝ 1955). It is considered likely

that both the records are based on beetles which were introduced with timber. New records of this species in the study area are, therefore, not likely.

***Phymatodes glabratus* (Charpentier, 1825)**; (F1, A1, Ns). [Rakovník, HEYROVSKÝ 1930 and 1955; Rakovník, 5948, leg. Duchoň in coll. NMP (cf. HEYROVSKÝ 1930 and 1955), SLÁMA 1998]. Rakovník lies outside the borders of the study area but in close proximity to it. Moreover, juniper (*Juniperus communis*) communities (the host plant of this species), exist within the study area and therefore, it is possible that this species will also be recorded here in the future.

(*Phytoecia icterica* (Schaller, 1783)); [The species was collected by other entomologists, BURDA 1984]. This species occurs in the adjacent Bohemian Karst (Srbsko, SLÁMA 1998). However, there is no reliable record from the study area. The species is only mentioned in Burda's work (BURDA 1984) as 'collected by other entomologists'. We were unable to find any literary record of this species from the study area, nor find the species in any other entomologist's collection. Therefore, we assume that this record is incorrect. This beetle is not included in the total number of species occurring in the study area.

***Phytoecia pustulata* (Schrank, 1776)**; (F1, A1, Ns). [The species was collected by other entomologists, BURDA 1984; Beroun, HEYROVSKÝ 1930]. Faunistically important records that, however, need confirmation.

***Phytoecia uncinata* (Redtenbacher, 1842)**; (F1, A1, Ns). [Personal communication, S. Bílý]. This species has only once been recorded in the study area by S. Bílý. In the context of its quite common occurrence in an adjacent area (Most), its presence in the study area is very probable.

***Ropalopus clavipes* (Fabricius, 1775)**; (F1, A1, Ex). [Nový Jáchymov, 6049, before 1960, leg. Průša, SLÁMA 1998]. Prior to 1960 *Ropalopus clavipes* was collected in several localities in Bohemia. Since then, however, there are no new records from either the study area or the rest of Bohemia (with one exception concerning a locality in north-eastern Bohemia), and therefore, the continued presence of this species in the study area is not likely.

***Ropalopus macropus* (Germar, 1824)**; (F1, A1, Ex). [Rakovník, SLÁMA 1992; Rakovník, 5948, before 1960, 3 ex, NMP, before 1960, 1 ex, leg. Fleischer in coll. NMP, SLÁMA 1998]. Before 1960 this species seemed to

occur more frequently in Bohemia, and there are even old records from the study area. In 1979 the species was collected near Prague (leg. Žirovnický, SLÁMA 1998). Therefore, its presence in the study area is still not totally out of the question.

***Ropalopus ungaricus* (Herbst, 1784)**; (F1, A1, Ns). [Křivoklát, Klíčava, 5949, VI.1964, leg. Skýpala, SLÁMA 1998]. This highly interesting record needs further confirmation but it is not totally out of question that this species is present within the study area. The adult beetles are not easy to find as they usually sit on leaves or bark in the canopy region of the host trees, and the larvae too, can be difficult to find. The only hallmark of the beetle's presence is a wounded region in the living bark of the host, clearly visible shortly after the beetle has hatched. However, even this can disappear quite quickly, as a result of the the tree's ability to heal these wounds to some extent. Therefore, it is likely that the species continues to escape the attention of entomologists within the study area.

(*Rosalia alpina* (Linnaeus, 1758)); [Several adults were collected in 1963 in Písky, due to the decrease in beech stands its present occurrence is questionable, leg. Burda (?), BURDA 1984]. Burda cited this record in a paragraph concerning his own results (BURDA 1984), and it is assumed that the species was collected by him personally. The mentioned record does not, however, occur in any other available literature source, nor were we able to find more detailed data on the circumstances of this find. Therefore, this record is not considered to be relevant, and the species is excluded from the total number of species occurring in the study area.

***Saperda perforata* (Pallas, 1773)**; (F1, A2, Ns). [Lány, 5849, VI.1977, leg. O. Odvárka, SLÁMA 1998]. Faunistically a very important record. The species has become more frequent in Central Bohemia and therefore new records from the study area are very probable. The species develops in *Populus* spp. In Central Bohemia, however, it prefers aspen (*Populus tremula*). The larvae feed subcortically in thick branches and the lower trunk parts of dead hosts. The larvae require very moist substrate.

(*Stenurella septempunctata* (Fabricius, 1792)); (F1, A1, Ns). [Křivoklát, HEYROVSKÝ 1930]. This is the only existing record of the species from the study area, but is most probably based on an error (Sláma personal communication 1998). The record concerned *Stenurella septempunctata a. notaticollis* Pic. The occurrence of this species in the study area is highly questionable, and therefore, the species is excluded from the total number of species occurring in the study area.

Discussion

According to SLÁMA (1993), there are 183 Cerambycidae species in Bohemia. However, 6 of them are quoted with a question mark and are not well established in the region. Therefore, the total number should more accurately equal 177. SLÁMA (1998) gives 184 as the number of Bohemian longhorns, but 7 of them are, to an extent, problematic. Ten year's experience in studying the area, a thorough literature search, and an examination of a number of collections, has revealed 137 species recorded from the Křivoklátsko Biosphere Reserve. This amounts to 77% (or 75% respectively, if 183 were the total) of Bohemian longhorns. However, from the total number of longhorn beetles in the study area, the occurrence of 16 species was recorded insufficiently. Therefore, the number of well established longhorn beetle species in the study area can more accurately be placed at 121 rather than 137. This then amounts to 68% (or 66% respectively, if 183 were the total) of Bohemian longhorns. To conclude, the study area contains 66-77% of all Bohemian longhorn beetles.

These impressive numbers document clearly the high species diversity of the study area. The reason for the over-average richness in species relates primarily to the extent of woodland preservation in the area in question. However, the remarkable diversity of vegetation types, as well as the climatic and geomorphologic diversity, contribute decidedly to this fact. Last but not least, the fauna of the Křivoklátsko Biosphere Reserve is also influenced by adjacent areas which differ considerably in their natural characteristics.

It is interesting to note that some species occurring in the Křivoklátsko Biosphere Reserve are less common, rare or even totally absent in other areas of Bohemia. The most striking example is *Phymatodes pusillus* which for unknown reasons, does not penetrate to the directly adjacent Bohemian Karst, and moreover, is totally absent in the rest of Bohemia. In the study area, however, the species is very common. Examples of species that frequently occur in the study area but are more or less rare in the rest of Bohemia are *Saperda octopunctata*, *Leptura arcuata*, and *Nivellia sanguinosa*.

Conversely, several species which occur rarely in the Křivoklátsko Biosphere Reserve are more frequent in other areas of Bohemia. For example, species typical for the forests of the Labe river basin lowlands

have been shown to occur less frequently in the hilly area of the Křivoklátsko Biosphere Reserve. This includes primarily the inhabitants of both hard- and softwood flood plain forests (*Xylotrechus rusticus*, *Mesosa curculionides*, *Ropalopus femoratus*, *Saperda perforata*, *S. carcharias* and *Obrium cantharinum*). The reason for their infrequent occurrence is the fact that most alluvial forests in the study area were converted into meadows and arable land. In addition it also includes the inhabitants of the lowland pine forests that form extensive woodland areas in the Labe river basin lowlands. Species such as *Monochamus galloprovincialis pistor*, *Acmaeops marginatus*, and *Acanthocinus griseus*, which within the study area are primarily restricted to the relict pine forests, may serve as an example. These species, and also others developing in *Pinus sylvestris*, may nowadays find alternative habitats in planted pine forests, and therefore, may occur relatively more frequently in the study area.

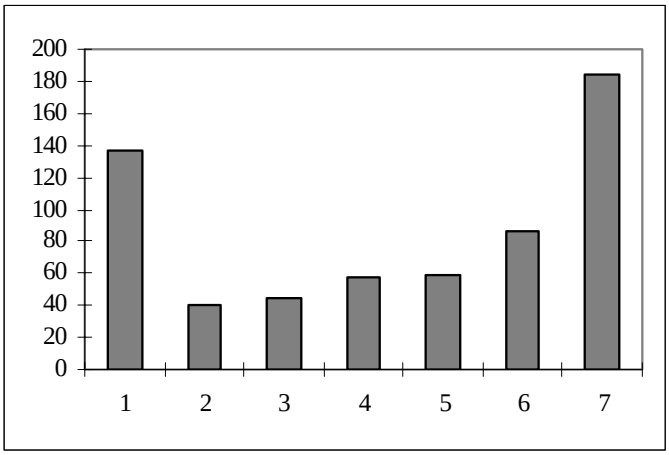
Another group of species occurring more frequently in other areas of Bohemia comprises the inhabitants of steppe formations. These include *Agapanthia intermedia*, *Phytoecia uncinata*, *Phytoecia icterica* and *Phytoecia pustulata* which are more frequently recorded from the Prague basin, the environs of Most, the Bohemian Karst or the Labe river basin lowlands. Although there are some primary xerophilous grass-herb communities in the study area, they are restricted to relatively small localities. Within the study area, these steppe inhabitants sometimes find alternative habitats in places with ruderal vegetation.

The most striking differences occur, however, when the longhorn beetle fauna of the Křivoklátsko Biosphere Reserve is compared to that of the directly adjacent Bohemian Karst. Some of the species occurring rarely in the Křivoklátsko Biosphere Reserve frequently occur in the Bohemian Karst. These include *Ropalopus femoratus*, *Oberea linearis*, *Tetrops starkii*, *Phytoecia pustulata*, *Anaesthetis testacea*, *Agapanthia intermedia*, *Saperda perforata*, *Obrium cantharinum*, but also *Aromia moschata*. Some species occurring in the Bohemian Karst have never been recorded in the Křivoklátsko Biosphere Reserve. These include primarily *Axinopalpis gracilis* (Krynicki, 1832) recorded from Dobřichovice village (Karlické údolí valley, leg. M. Johanides), *Dorcadion fulvum* (Scopoli, 1763), (Koda, leg. Pradáč, SLÁMA 1998, although this is probably an introduced species) and *Chlorophorus sartor* (Mueller, 1766) collected in Karlík and Černošice (leg. Všetečka, SLÁMA 1998). These facts demonstrate the impressive differences in geological and vegetational character-

istics of these two directly adjacent areas.

Another example of a striking difference is presented by the fauna of forests in the environs of Řevnice village. The locality is situated on the slopes of the Brdy hills which form the right-hand side of the Berounka river valley and have a primarily northern aspect. *Saperda perforata* and *Obrium cantharinum* frequent this locality. In addition, *Saperda similis* occurs here, although quite rarely, and *Xylotrechus pantherinus* (Savenius, 1835) and *Chlorophorus varius* (Mueller, 1766), species never recorded in the study area, have been recorded from this locality.

1 Křivoklátsko BR – 628 km^2 137
2 Krkonoše and Jizerské hory (ČERMÁK et al. 1977) - 735 km^2 41
3 Blatná environs (SIMANDL 1987) - 707 km^2 45



4 Labské pískovce (PIŽL 1979) - 300 km^2 58
5 Novohradecké lesy (ŠIMEČEK 1977) - 50 km^2 59
6 Mladá Boleslav district (ZÚBER 1983) - 1 058 km^2 87
7 Bohemia in total (SLÁMA 1998) - 52 062 km^2 184

Fig. 6: Number of species recorded in the Křivoklátsko Biosphere Reserve in comparison with several Bohemian territories and with Bohemia in total

In 1935 Sobota found *Chlorophorus varius* in Rabštejn nad Střelou, a locality situated not far to the east of the study area. Together with the record from Řevnice village, this record seems to indicate that this inter-

esting species might be found in Křivoklátsko Biosphere Reserve in the future.

Last but not least, *Pachyta quadrimaculata* (Linnaeus, 1758) is a species which is quite frequently recorded from regions situated close to the south and west of the study area (SLÁMA 1998). Although there is no reliable record in the study area, it is probable that this species might be found in the future.

The number of species recorded in the Křivoklátsko Biosphere Reserve in comparison with several Bohemian territories and with Bohemia in total is shown in Figure 6. Although the compared territories differ substantially in their area (cf. Figure 6) it is apparent that the Křivoklátsko Biosphere Reserve supports much more species than any of the other selected territories of Bohemia studied previously. The results of this work show clearly the immeasurable value of the study area as one of the rarest refuges for wildlife in Bohemia, and Europe in general.

Conclusion

The longhorn beetles of the family Cerambycidae constitute one of the largest groups of wood-boring insects, and as such are primarily forest insects. They play a beneficial role there in helping to reduce dead and dying trees, broken branches, etc., to humus. Their specific place in the succession of insects found in a gradually disintegrating tree varies from species to species, depending upon their life history and habits, and also from host to host, and from region to region. Death and decomposition are vital to the health of the woodland ecosystem, for they enable the recycling of nutrients which would otherwise be permanently locked up in wood and leaves. Although dead wood is an obvious component of most woodlands, and those within the study area are no exception, its significance as an important micro-habitat is often overlooked. Dead and dying wood has been described as one of the greatest resources for animal species in a natural forest, and as many as a fifth of these animal species, chiefly invertebrates, could be lost if all the dead wood were removed. The chief agents of tree decay are fungi, often aided by a rich variety of longhorn beetles. Dead wood, particularly the larger standing timber, is also valuable to many other forms of woodland life. Hollow trees may shelter bats; crevices in the timber and galleries bored by the beetle larvae may also be used by solitary bees and wasps. Many insects hibernate in

holes in dead wood. This wealth of insect life makes dead wood a favourite hunting ground for many woodland birds, particularly woodpeckers. The immense value of this resource to both longhorn beetles and other animals is often neglected in woodland management, even in nature reserves, where dead wood is too often tidied up and burnt.

Only a few longhorn beetles have found alternative habitats in areas strongly influenced by man. These species are usually common, and in some instances they might even become serious pests in tree plantations, orchards and parks. However, the majority of longhorn beetles do not show such adaptability and survive primarily in areas which have escaped any form of management or exploitation by man. This includes the last remnants of virgin forest but also ancient woodlands. These are areas which are likely to have been subjected to some sort of management in the past, but which have never been completely cleared and have been forested throughout historical time. Occurrence of a broad variety of longhorn beetle species such as is demonstrated within the study area is, therefore, a good hallmark of the biotope quality. Unfortunately, insects in general are often overlooked and neglected by wildlife conservationists. The protection of longhorn beetles in particular, should involve the protection of their natural habitats by a reduction in the felling of old and dying trees, and a reduction in the removal of dead wood from the woodland. This would be more beneficial than current methods which concentrate only on the protection of particular beetle species from individual collecting by entomologists. In most cases this does not endanger the insect populations to any extent. It is especially important that our few remnants of protected virgin and ancient forests should be excluded from any felling activity, or at least some percentage of native trees should be allowed to reach their maturity, natural death, and decomposition. Otherwise a broad variety of wildlife is likely to become extinct and the natural food chain could be interrupted irreversibly. The incidence of longhorn beetles in Central Europe has decreased during the last century, as forest hygiene has made life extremely difficult for many wood-eating insects. Populations of many once abundant forest species have dwindled almost to the point of disappearing, while a number of beautiful longhorn beetles are also verging on extinction.

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