



BEETLES (COLEOPTERA) OF THE PANSKÝ DIEL MASSIF (STAHOHORSKÉ VRCHY MTS, SLOVAKIA): ADDENDUM

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Abstract: We refer on the additional recent records of beetles from the Panský diel massif (Starohorské vrchy Mts), situated north of the town Banská Bystrica (Slovakia). Despite research that occasionally carried out here for 30 years, we have documented another 327 species of beetles in the last 5 years. Some of them rank among rare and remarkable species, indicating high value of studied territory from gene-pool and environmental point of view. These species include *Hylis simonae*, *Ernobius kiesenwetteri*, *Abdera affinis*, *Melandrya dubia*, *Phymatodes glabratus*, *Choragus horni* and several others. Moreover, strong and stable population of relict and highly threatened species *Eurythyrea austriaca* was proved in summer 2019. Paradoxically, only a small part – Baranovo Nature Reserve is territorially protected. Diverse communities of animals (and also plants) indicate that the whole massif of Panský diel deserves complex territorial protection, or at least a special conservation management.

Key words: beetles, Baranovo Nature Reserve, Sásovská Valley, Jakub Protected Area, Banská Bystrica, faunistics, biomonitoring

INTRODUCTION

The monograph “Selected arthropod groups of the Panský diel massif (Stahohorské vrchy Mts, Slovakia)” was published in 2009 (FRANČ et al. 2009). It was the result of faunistic and ecological investigation, which was carried out in this territory for 30 years (1978–2008). We assumed that this research was sufficiently thorough and that the probability of discovery of the further species is not high. Therefore, in the coming years we did not deal with further detailed research of this area. In the summer of 2016, we went on a field trip with students at the foot of the hill of Baranovo and discovered about 10 species that had not been documented till now; there were mostly scarce and thermophilic species. And that inspired us to start with additional detailed research of this remarkable and often surprising area.

MATERIAL AND METHODS

In this paper we summarize the results of our additional detailed research of beetles of the Panský diel massif, which is situated immediately above the former villages Jakub and Sásová, which became parts of the Banská Bystrica district town more than 30 years ago. This research has been carried out during the years 2016–2020, especially in 2019. The beetles were studied in the following study plots:

- A** – beginning of the Sásovská Valley, Sásovský brook and close surroundings (48°45'48.47" N, 19°8'51.63" E, 429 m a.s.l. – later only "m")
- B** – Jakub Study Site, karst shrubby slopes, xerothermic pastures, field groves and solitary trees (coordinates of the middle of this study plot: 48°46'3.93" N, 19°8'37.11" E, 483 m)
- C** – Baranovo Nature Reserve, mixed, locally pristine forests (*Querceto-Fagetum* and *Abieto-Fagetum* with *Acer* and *Tilia*), on steep rocky slopes and cliffs (coordinates of the middle of this study plot: 48°46'47.16" N, 19°8'11.01" E, 628 m) (Fig. 1a,c,d)
- D** – upper part of the Sásovská Valley, Sásovský brook and close surroundings (48°46'55.13" N, 19°9'16.83" E, 765 m) (Fig. 1b)
- E** – Hrádok Mt, mixed, locally pristine forests (*Abieto-Fagetum*) on steep rocky slopes, forest edges and clearings (coordinates of the middle of this study plot: 48°47'1.14" N, 19°9'32.46" E, 758 m) (Fig. 2c-d)
- F** – Bučičie hill, xerothermic pastures, shrubby and juniper slopes, field groves, forest edges (coordinates of the middle of this study plot: 48°46'21.39" N, 19°9'49.20" E, 581 m) (Fig. 2a-b)

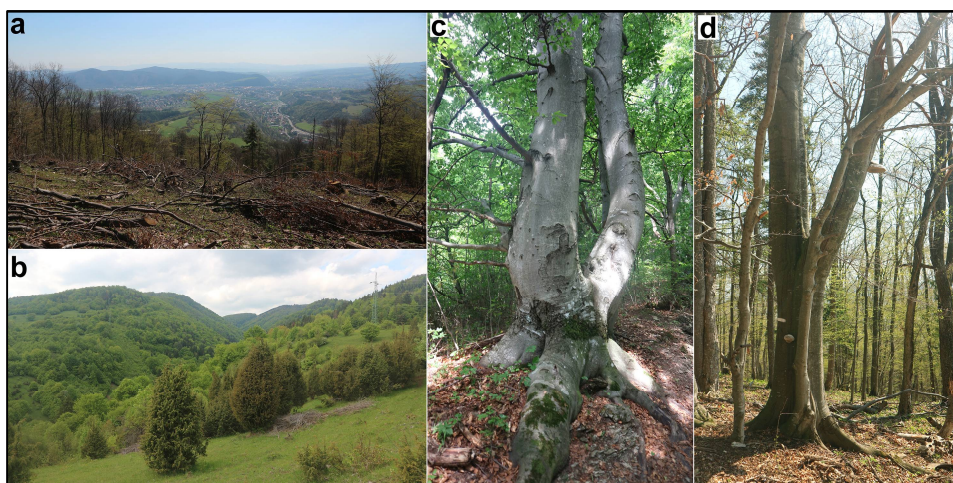


Fig. 1. Habitats in the Panský diel Massif – Baranovo Mt: **a)** view on the Banská Bystrica town from Baranovo Mt; **b)** view to the Sásovská Valley (Baranovo Mt is on the left, Hrádok Mt on the right); **c)** robust beech on the Baranovo Mt; **d)** forests in the Baranovo Mt with high biodiversity. (Photo: V. Hemala).

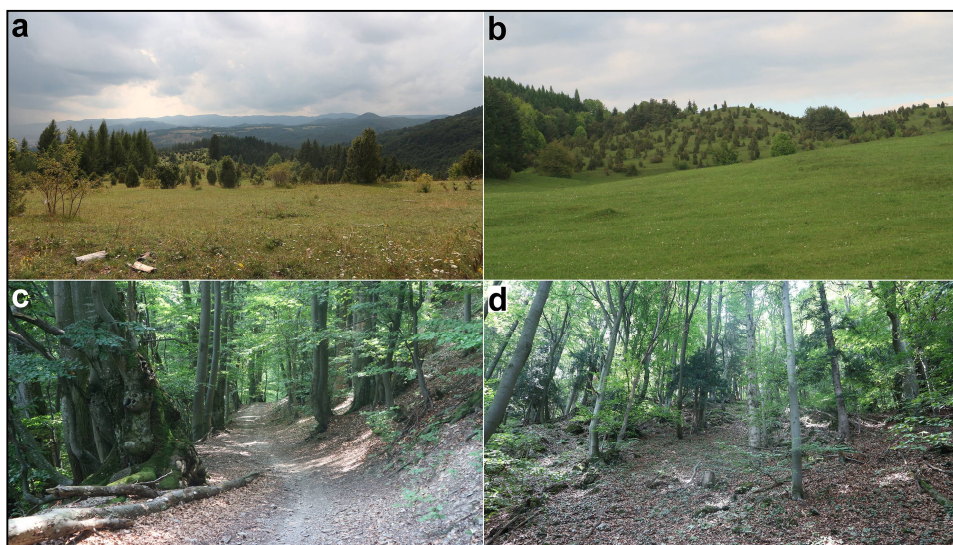


Fig. 2. Habitats in the Panský diel Massif – Bučičie hill and Hrádok Mt: **a)** upper part of the Bučičie hill with approaching storm; **b)** xerothermic pasture on the Bučičie hill (the mass population of *Aphodius scrutator* lives here); **c)** the interior of the ancient forest on the Hrádok Mt; **d)** mixed forest with yew in the Hrádok Mt. (Photo: V. Hemala).

We applied standard sampling methods (including beating the tree branches, sifting of leaf litter and sweeping the vegetation), supplemented by individual exploration on flowers, in faeces, under the stones, under the bark and in rotten wood of old trunks and stumps. We took merely a small number of individuals; easily identifiable species were mostly noted down only. The beetles were identified according to the keys by FREUDE et al. (1964, 1966, 1967, 1969, 1971, 1974, 1979) and another accessible Czech publications (HŮRKA 1996, NOVÁK 2014, PFEFFER 1989, Smetana 1958, STREJČEK 1990, ZAHRADNÍK 2013).

The nomenclature in the original monograph (FRANC et al. 2009) was based on the checklist edited by JELÍNEK (1989) that is now partially obsolete. This supplement is based on the principally revised version, issued by ZAHRADNÍK (2017), but some controversial concepts may not be accepted. Referred species, mainly scarcer ones, are often cited in various Red Lists of European countries. Later (Table 1) will be evaluated and compared their ecosozological status according to the Red List of Slovakia (HOLECOVÁ & FRANC 2001), Czech Republic (HEJDA et al. 2017), Austria (JÄCH 1994), Germany (GEISER 1998) and Poland (PAWŁOWSKI et al. 2002). Some of them are included in the list of relict and “umbrella” species of primeval forests that has been issued in Germany (ECKELT et al. 2017).

RESULTS

Coordinates and altitude of the sites are given only in the case of properly localised records. The complete list of recorded species is reviewed in Table 1. Species with special importance are commented below. Unless otherwise mentioned in the text below, 1 individual was documented.

1. ***Plegaderus dissectus*** Erichson, 1839 (Histeridae) – Hrádok, under the bark of a rotten fir trunk, several individuals (later only “ind.”). A local and scarce saproxylic species of older forests. Several recent records is available: Suché doly Nature Reserve (later only “NR”) (48°40′45.91″ N, 19°53′5.77″ E, 668 m), May 2003, 1 ind. and June 2003, 2 ind. in the rotten wood of an old oak (Majzlan 2010a); Ľutovský Drieňovec NR (48°48′19.41″ N, 18°16′17.97″ E, 485 m), in the rotten wood of an old oak, April 2007, 5 ind. and May 2007, 5 ind. (Majzlan 2008a); Šivetice village – Muteň Mt (48°35′27.52″ N, 20°16′12.00″ E, 320 – 450 m) June 20, 2010, 1 ind., S. Benedikt lgt. et coll., V. Týr det. (BENEDIKT 2014). Note: VYSOKÝ (2011) ranks it among myrmecophilous species, despite it is not a true, obligatory myrmecophile, like *Hetaerius ferrugineus* (Olivier, 1789), for example.

2. ***Triarthron maerkeli*** Märkel, 1840 (Leiodidae) – swept from forest vegetation on the ridge of the Hrádok Mt during evening. A scattered and rare species of warmer woodlands. The first record from Slovakia was published from Štiavnické vrchy Mts – Sitno, June 29, 1935 (ROUBAL 1937–1941). Recently it is found only sporadically (despite is a relatively easily recognizable species): Burdov NR (47°49′32.88″ N, 18°44′54.72″ E, 154 m), xerothermic slope, Malaise trap, June 2011, 2 ind. (MAJZLAN 2016a); Bukovské vrchy Mts – Ruské, Sihla (49°6.229′ N, 22°20.031′ E; 439 m), June 2013, 4 ind. in the Malaise trap (MAJZLAN 2015a); Kamenica nad Hronom village (48°19′48.4″ N, 17°17′28.5″ E, 156 m), open xerothermic oak forest, 2018, undated, 3 ind. (MAJZLAN and GAJDOŠ 2019).

3. ***Dinarda pygmaea*** Wasmann, 1894 (Staphylinidae) – Jakub, xerothermic shrubby pasture, in the colony of *Formica cunicularia* Latreille, 1798 under the stone. A little known and apparently rare species, formerly cited as a subspecies of *D. dentata* (Gravenhorst, 1806) (ROUBAL 1930; SMETANA 1958; FREUDE et al. 1974). This myrmecophilous species lives in soil colonies of ants of the genus *Formica* Linnaeus, 1758, especially under stones. Known only from old sporadic records: Motešice village, April 28, 1929, 1 ind. (ROUBAL 1930). Recent records: Pravica village (48°19′14.39″ N, 19°27′30.48″ E, 340 m), in the colony of *Formica cunicularia* on a xerothermic rocky slope, May 26, 1991 (Franc 1992); Beckovské Skalce village, July 22, 2004 (MAJZLAN 2007a); Suché doly NR (48°40′45.91″ N, 19°53′5.77″ E, 668 m), May 2003, together with ants *Formica* and *Lasius* Fabricius, 1804, 1 ind. and in the hollow oak, 1 ind. (MAJZLAN 2010a); Strážovské

vrchy Mts – Čierna Lehota (48°52'34.74" N, 18°20'15.00" E, 443 m), Malaise trap at the forest edge, April 2011, 2 ind. (MAJZLAN 2020).

4. ***Ontholestes haroldi*** (Eppelsheim, 1884) (Staphylinidae) – Bučičie and Jakub Study Site, often on bull faeces. In the past it was a very rare beetle, considered to be merely an aberration of *Ontholestes murinus* (Linnaeus, 1758) (ROUBAL 1930). This separate, clearly different species recently occurs quite abundantly in the greater part of Slovakia except the higher mountains.

5. ***Quedius lateralis*** (Gravenhorst, 1802) (Staphylinidae) – Baranovo, in the root cavity of an old beech, strikingly large ♂ (15.5 mm). A scarce predatory species of older forests, living in tree hollows especially.

6. ***Xantholinus relucens*** (Gravenhorst, 1806) (Staphylinidae) – Bučičie, sieved from the leaf litter on a shrubby pasture. A little known and apparently rare species of Southern Europe especially. Only a few old records from warm regions of Slovakia are accessible (ROUBAL 1930; Smetana 1958). Only one published recent record is available: Kamenínske slanisko NR (47°52'43.35" N, 18°38'39.22" E, 110 m), 2016 and 2017, 2 ind. (MAJZLAN 2018a).

7. ***Zyras fulgidus*** (Gravenhorst, 1806) (Staphylinidae) – Jakub, under the stone at the edge of open xerothermic forest. A scattered and very rare species, known from a few, especially old records (ROUBAL 1930). It occurs in the surrounding of ant colonies, apparently is a species of beginning myrmecophily. Only five recent published records are accessible: Devínska Kobyla NR, undated (MAJZLAN et al. 2005); Plášťovce (48°10'10.71" N, 19°0'23.47" E, 237 m), near the colony of *Lasius fuliginosus* (Latreille, 1798) at the edge of xerothermic forest, June 3, 1985 (FRANC 1999); Čenkovská lesostep NR (47°46'5.48" N, 18°31'19.32" E, 110 m), sandy grassland and open forest, Malaise trap, August 1998 (MAJZLAN et al. 1999); Šúr NR, salt meadow (48°13'12.72" N, 17°13'20.76" E, 132 m) August 2008 / 2009 (MAJZLAN 2010b); Bučany village, alluvial forest (48°25'4.05" N, 17°43'11.84" E, 140 m), May 2011 (MAJZLAN 2012b); Burdov NR, 3 close sampling sites (47°49'32–35" N, 18°44'44–55" E, 137–172 m), August 2010, 6 ind. and August 2011, 2 ind. (MAJZLAN 2016a). Probably it is a single numerous record in Central Europe.

8. ***Bryaxis monstrosetibialis*** (Stolz, 1923) (Staphylinidae: Pselaphinae) – Bučičie, under a larger stone on the xerothermic pasture. A commemorative species with not quite clear ecology. It is usually found in caves – both karst and pseudokarst (HLAVÁČ 2009), but it is not true troglophilic species, because may occur under larger stones and in deeper layers of detritus as well. The further records outside the cave on the rocky steppe: Sivý Kameň near the village of Podhradie (48°41' N, 18°38' E, approx. 630 m), April 2000 (MAJZLAN 2004); Dolné Vestenice townlet – Záviničie (48°42'1" N, 18°23'17" E, 230 m), 2001, undated (MAJZLAN, 2009); Ostrôžky Mts – Lysec Mt (48°20'56.69" N, 19°27'46.04" E, 650 m), March 21,

2007 and Šuľa village (48°21'30.13" N, 19°25'14.22" E, 410 m), May 8, 2010 (FRANC 2010). Despite it was considered to be extremely rare in the past (ROUBAL 1930), recently is known from more than 20 records (FRANC and MLEJNEK 2000). It is still rated as an endemic species for Slovakia, nevertheless its discovery in surrounding countries (Austria and especially Hungary) is highly expectable; the southernmost records from the Slovenský kras Mts are only several kilometers from the Hungarian border.

9. ***Eucinetus haemorrhoidalis*** (Germar, 1818) (Eucinetidae) – Bučičie, in the detritus of a xerothermic pasture. A rare and little-known species of not quite clear ecology; obviously is bound to detritus infested with fungal mycelium in sandy or gravel soil of warmer habitats. It may quickly jump laterally. Known from several sporadic records, e.g. Sivý Kameň near the village of Podhradie, June and July 2000, 2 ind. (MAJZLAN 2004). Its abundance is probably slightly increasing.

10. ***Aphodius scrutator*** (Herbst, 1789) (Scarabaeidae) – Bučičie, in the cow faeces, July 22, 2016 and August 26, 2016, more than 80 ind. (!) were observed (FRANC & KVASNOVÁ 2016). It was formerly considered to be a rare species (ROUBAL 1936), usually found in a little number of ind. One of the oldest records from Slovakia is cited from close site near the village of Senica, August 4, 1920, 2 ind. J. Roubal lgt., coll. Slovak national museum, Bratislava (TÝR 1999). Recently is known from a number of sites (TÝR 1999) and its population seems to be apparently increasing. Anyway, this trend can be observed only in regions where there has been no significant reduction of grazing (it concerns the following two species as well).

11. ***Euoniticellus fulvus*** (Goeze, 1777) (Scarabaeidae) – Bučičie, on sheep faeces, several ind. Thermophilic species, locally quite abundant in the region of southern Slovakia. Recently documented also in the submountain habitats, including the foot of the Starohorské vrchy Mts. Additional records: Čenkovská lesostep NR (47°46'5.48" N, 18°31'19.32" E, 110 m), sandy grassland and open forest, Malaise trap, June 1998, 2 ind. (MAJZLAN et al. 1999); Uhrovecké Podhradie village – Behúľova (Dúbravy) (48°46'8" N, 18°24'27" E, 520 m) 2009, undated (MAJZLAN 2009). Its population is apparently slightly increasing, probably especially due to the global warming.

12. ***Onthophagus taurus*** (Schreber, 1759) (Scarabaeidae) – Jakub and Bučičie, on sheep faeces, several individuals. A thermophilic species, somewhere living together with *Euoniticellus fulvus* (see the note in the preceding species). Mass occurrence was documented near the village of Šurany, salty grassland (48°5'9.6" N, 18°7'49.29" E, 118 m), summer 2012, 72 ind. (MAJZLAN 2018a).

13. ***Protaetia fieberi*** (Kraatz, 1880) (Scarabaeidae) – Jakub, on blooming hawthorn. A scarce thermophilic species, adults appear on flowering bushes (hawthorn etc.). From Banská Bystrica is cited already by ROUBAL (1936): on flowering hawthorn, June 4, 1928. It is locally quite abundant in southern Slovakia, but its occurrence in the submountain region of Banská Bystrica is remarkable.

14. ***Eurythyrea austriaca*** (Linnaeus, 1767) (Buprestidae) – Hrádok, on old fir trunks during a warm sunny afternoon, 2 females and 1 pair mating. A conspicuous and highly notable species, the jewel of European fauna, unfortunately highly threatened or even extinct in some surrounding countries. Central Slovakia is probably the biocentre of its range in West-Palaeartic area. Recent records from Slovakia are available in paper by FRANC (2016). Additional record: Štiavnické vrchy Mts – Drastvica Mt (8°25'42.46" N, 18°43'34.92" E, 676 m), under the bark of a damaged fir, May 1, 2012 and March 18, 2016, remains of imagoes and a lot of exit holes (FRANC 2016). Unbelievably numerous population was observed in the Ul'anka timber-yard (48°48'24.0" N, 19°05'47.33" E, 445 m), summer 1988–1991, 89 females (!) during oviposition on the trunks of silver fir (ZACH 1992). Stable and strong population of *E. austriaca* (and another rare and threatened species) should be the reason for strict territorial protection, or at least the special conservation management of this area.

15. ***Ampedus elegantulus*** (Schönherr, 1817) (Elateridae) – Hrádok, in the rotten stump of *Abies alba*. A local and rare species of older mixed forests apparently threatened elsewhere.

16. ***Hylis cariniceps*** (Reitter, 1902) (Eucnemidae) – Bučičie, swept from the vegetation at the edge of field grove. It occurs sporadically and rarely in well-preserved woodlands of lower and middle altitudes. More than 10 records is referred in the monograph by MERTLIK (2008). Another record is known from Šúr NR, oak forest (48°13'16.8' N, 17°13'07.02" E, 134 m) May 2008 / 2009, 5 ind. (MAJZLAN 2010b); Bukovské vrchy Mts – Ruské, Sihla, August 2013, 5 ind. in the Malaise trap (MAJZLAN 2015a); Bratislava city – Mikulášsky cemetery (48°08'32.76" N, 17°5'19.50" E, 160 m), 2015, undated, 2 ind. (MAJZLAN 2015b); Bojnice town – the spa area (48°46'16.56" N, 18°34'20.46" E, 297 m), Malaise trap, June 2017 (MAJZLAN 2017). Three undated records from 2001–2009 are referred from the Strážovské vrchy Mts – the massif of the Rokoš Mt (MAJZLAN 2009). We suppose that abundance trend of this species is apparently increasing.

17. ***Hylis simonae*** (Olexa, 1970) (Eucnemidae) – Baranovo, beaten down from older oak branches in the scree forest; the fourth record for Slovakia! A little known and very rare species, described and discovered in Slovakia only recently. Only three recent records from Slovakia are available: Slovenský kras Mts –

Brzotínska Cave env., xerothermic oak forest, shaken down from older branches of an oak June 30, 1999, 1 ♀ T. Kopecký lgt. et coll.; Muránska planina Mts – Šiance NR, similar habitat July 14, 2007, 2 ♂ (without coordinates as well, despite there are the first records for Slovakia) J. Mertlik lgt. et coll. (KOPECKÝ and MERTLIK 2008); Svätý Jur (48°15'38.13" N, 17°12'14.76" E, 228 m), June 26, 2011, O. Majzlan lgt. et coll., J. Mertlik det. (MAJZLAN 2011).

18. ***Microthagus lepidus*** (Rosenhauer, 1847) (Eucnemidae) – Jakub, beaten down from dying branches of a lime tree. A rare saproxylic species, known from several localities from hills to higher mountains. Recent records are available in the paper by FRANC (2001). Additional records: Senec town – Martinský les (48°15'45.49" N, 17°22'51.15" E, 165 m), Malaise trap, July 2006, 1 ind. and August 2007, 2 ind. (MAJZLAN 2012a); Šivetice village – Muteň Mt (48°35'27.52" N, 20°16'12.00" E, 320–450 m), May 16, 2009, 2 ind. V. Benedikt et V. Dongres lgt., det. et coll.; July 4, 2009, J. Lahoda lgt. et coll. (BENEDIKT 2014); NR Burdov, xerothermic slope (47°49'34.92" N, 18°44'45.90" E, 173 m), Malaise trap, July 2010, 4 ind. (MAJZLAN 2016a); Svätý Jur townlet (48°15'38.13" N, 17°12'14.76" E, 228 m), old vineyards, May 2011, 5 ind. in the Malaise trap (MAJZLAN 2011). Remarkable mountain finding was recorded from Veľká Fatra Mts – Skalná Mt (48°55'27.97" N, 19°1'24.39" E, 970 m), on a damaged dying beech, July 1, 1994 (FRANC 2002a).

19. ***Caenocara affinis*** (Sturm, 1837) (Ptinidae) – Jakub, swept from the vegetation at the edge of open shrubby forest. A little known and rare mycetophilic species of warm regions with a hidden way of life. Accessible recent records: Čenkovská lesostep NR (47°46'5.48" N, 18°31'19.32" E, 110 m), sandy grassland and open forest, Malaise trap, August 1998 (MAJZLAN et al. 1999); Dolné Vestenice townlet – Záviničie (48°42'1" N, 18°23'17" E, 230 m), 2001, undated and Milotina (48°42'43" N, 18°23'27" E, 320 m), 2007, undated (MAJZLAN 2009); Viničné village – Šenkvice les (48°16'35.55" N, 17°19'31.21" E, 215 m), July 2005, August 2005, 2 ind. and September 2005; Senec town – Martinský les (48°15'45.49" N, 17°22'51.15" E, 165 m), May 2006 (MAJZLAN 2007b); Svätý Jur (48°15'38.13" N, 17°12'14.76" E, 228 m), Malaise trap, May 2011, 4 ind. (MAJZLAN 2011). Burdov NR, oak forest (47°49'31.80" N, 18°44'55.02" E, 137 m), vinegar trap, May 2010, 5 ind., and xerothermic slope (47°49'32.88" N, 18°44'54.72" E, 154 m), Malaise trap, June 2011, 2 ind. (MAJZLAN 2016a); Bučany village, alluvial forest (48°25'4.05" N, 17°43'11.84" E, 140 m), Malaise trap, May 2011, 5 ind. and June 2011, 15 ind. (MAJZLAN 2012b); Bojnice town – the spa area (48°46'16.56" N, 18°34'20.46" E, 297 m), Malaise trap, May 2017, 1 ind. and September 2017, 3 ind. (MAJZLAN 2017); Tomášikovo village (48°5'8.70" N, 17°40'23.54" E, 112 m), sand dune, pitfall trap, March 2019, 1 ind. and April 2019, 5 ind. (MAJZLAN 2019a). It seems to be that the abundance of this species is apparently increasing.

20. ***Ernobius kiesenwetteri*** Schilsky, 1899 (Ptinidae) – Hrádok, beaten down from the fir branches in the pristine scree forest, probably the second record for Slovakia. A little known and apparently very rare species of mixed and conifer forests. It is missing in the catalog of beetles (ROUBAL 1936) and in the Checklist of Czechoslovak beetles (JELÍNEK 1993). The first record from Slovakia has been published from Západné Tatry Mts – Salatín Mt, apparently accidentally in pitfall trap above the upper forest line (1900 m), probably blown by the wind, September 10, 2007 (MAJZLAN 2008b). There are some ambiguities in the ecology of this little-known species. In a few publications there is a mention that host tree of *E. kiesenwetteri* is pine (KOCH 1989, ZAHRADNÍK 2013). But the second author with co-author later refer mass occurrence – “dozens of individuals” of this species in Western Bohemia (TÝR & ZAHRADNÍK 2017), beaten down from lower branches of fir. It is possible that the reason of this discrepancy was misidentification with another species of this genus.

21. ***Glischrochilus quadripustulatus*** (Linnaeus, 1761) (Nitidulidae) – correction: incorrect name “*Glischrochilus quadripunctatus* (Linnaeus, 1758)” was given in the monograph (FRANC et al. 2009).

22. ***Notolaemus castaneus*** (Erichson, 1845) (Laemophloeidae) – Jakub, beaten down from the branches of an oak. A scarce thermophilic species of open deciduous forests and forest steppes, known from several localities in the southern regions of Slovakia. Its occurrence at the foot of the Starohorské vrchy Mts is notable.

23. ***Scymnus femoralis*** (Gyllenhal, 1827) (Coccinellidae) – Jakub, on the bark of a solitary oak. A little-known rare species of warm habitats including open deciduous forests, forest steppes, ecotones and grasslands with solitary trees. It is missing in the catalog of beetles (ROUBAL 1936) and in the supplement (HAVELKA 1964). Only a few recent records is available: Chotínske piesky NR (47°48'43.05" N, 18°12'50.81" E, 114 m), June 2004 (MAJZLAN 2005); Šivetice illage – Muteň Mt (48°35'36.46" N, 20°16'22.74" E, 466 m), forest steppe, undated (BENEDIKT 2014); Mlyňany Arboretum (48°19'9.73" N, 18°22'17.00" E, 210 m), sweeping from the vegetation, May 17, 2014 (KOLLÁR & CUNEV 2019); Tvrdošovce village – salt grassland (48°5'59.68" N, 18°1'55.22" E, 113 m), 2016–2017, undated, 3 ind. (MAJZLAN 2018a); Tvrdošovce, Panské lúky (48°6'59.68" N, 18°2'3.98" E, 110 m), salt grassland, 2018, undated, 6 ind. (MAJZLAN 2019b).

24. ***Mycetophagus decempunctatus*** Fabricius, 1801 (Mycetophagidae) – Baranovo, under the bark of a beech infested by fungi (*Pleurotus pulmonarius*, *Trametes* sp., *Schizophyllum commune*), more than 10 ind. A rare species of well-preserved deciduous forests. Known from several recent records (FRANC 2002b). Additional records: Poľana Mts – Hrochotská valley (48°39'41.69" N,

19°22'43.42" E, 775 m), pristine mixed forest (*Abieto-Fagetum* with *Quercus*), July 17, 1993 (FRANC 2006); Senec town – Martinský les (48°15'45.49" N, 17°22'51.15" E, 165 m), Malaise trap, June 2006, 1 ind. and July 2007, 3 ind. (MAJZLAN 2012a); Šúr NR, oak forest, June 2008 / 2009, 2 ind. (MAJZLAN 2010b); Svätý Jur townlet, abandoned vineyard (48°15'41.27" N, 17°12'21.28" E, 261 m), vinegar trap, May 2010 (MAJZLAN 2011); Šuľa village (48°21'30.13" N, 19°25'14.22" E, 410 m), May 8, 2010, 4 ind. (FRANC 2010); Dolné Vestenice (48°42'52.91" N, 18°23'19.78" E, 382 m), under the fungus *Ganoderma resinaceum* growing on an older oak, July 12, 2010, V. Franc lgt. (previously unpublished); Bučany village, alluvial forest (48°25'4.05" N, 17°43'11.84" E, 140 m), Malaise trap, May 2011 (MAJZLAN 2012b); Mlyňany Arboretum (48°19'9.73" N, 18°22'17.00" E, 210 m), pitfall trap, June 21, 2013 (KOLLÁR and CUNEV 2019); Bratislava city – Jewish cemetery (48°8'35.52" N, 17°5'19.50" E, 180 m), 2015, undated, 2 ind. (MAJZLAN 2015b). It always indicates the high-biodiversity sites, like *Mycetophagus ater* (Reitter, 1879) as well.

25. ***Abdera affinis*** (Paykull, 1799) (Melandryidae) – Baranovo, on oak stump infected by mycelium. Apparently a very rare species of warm well-preserved deciduous forests. Known from very sporadic recent records: Boky NR (48°33'49.86" N, 19°1'26.25" E, 330 m), old oak stump with the fungus *Inonotus andersonii*, May 16, 2009, lgt., det. et coll. M. Wiezik (WIEZIK et al. 2015); Štiavnické vrchy Mts – Drastvica Mt (48°26'3.48" N, 18°42'41.23" E, 430 m), xerothermic oak forest, on the fungus *Ganoderma resinaceum*, June 7, 2012, several ind., V. Franc lgt. et coll. (previously unpublished); Brekov village – the castle hill (48°54'9.07" N, 21°50'0.14" E, 245 m), Malaise trap, June 2015 (MAJZLAN 2016b); the Horšianska valley (48°15'07.54" N, 18°41'56.44" E; 221 m), June 2017 (MAJZLAN 2018b); Domaníky, xerothermic slope above the village (48°15'38.63" N, 18°58'47.90" E, 243 m), dying oak stump, May 4, 2020, more than 10 ind., V. Franc et V. Hemala lgt. et coll. (previously unpublished).

26. ***Abdera quadrifasciata*** (Curtis, 1829) (Melandryidae) – Bučičie, beaten down from dying branches of *Corylus avellana*, several ind. A scarce species of warm open deciduous forests, forest steppes and ecotones, formerly considered to be very rare (ROUBAL 1936). Recently it is known from a large number of sites; in the woodlands of the southern part of Slovakia (excluding secondary conifer and agate forests) it occurs almost continuously. Its occurrence on old hazelnut branches is remarkable, though it was occasionally registered (KOCH 1989).

27. ***Dolotarsus lividus*** (C. Sahlberg, 1834) (Melandryidae) – Hrádok, under the bark of a rotten fir trunk. A local and rare species of well-preserved mountain mixed forests. Recent records are available in the paper by FRANC (1994). Additional records are very sporadic: Ľutovský Drieňovec NR (48°48'19.41" N, 18°16'17.97" E, 485 m), June 2006, 4 ind. (MAJZLAN 2008a); Vysoké Tatry Mts:

Studené valleys – ‘Jamy’ NR (49°09’47.10” N, 20°15’57.06” E, 941 m), Malaise trap, June 2006 (MAJZLAN 2008c).

28. ***Melandrya dubia*** (Schaller, 1783) (Melandryidae) – Baranovo, under the bark of a fallen old beech in pristine forest. The occurrence of this species was expected here (FRANC et al. 2009). Recent records are referred in paper by Franc (1994). Additional records: Poľana Mts – Hrochotská valley (48°39’41.69” N, 19°22’43.42” E, 775 m), pristine mixed forest (*Abieto-Fagetum* with *Quercus*), under the bark of a fallen beech, June 6, 1993, 2 ind. and on dying branches of a hazel nut, June 2, 1996, 2 ind. (FRANC 2006); Strážovské vrchy Mts – Strážov NR (48°56’57.83” N, 18°27’6.47” E, 842 m) remains of imago (elytrae) under the bark of a fallen beech, June 26, 2003 (FRANC 2004); Ostrôžky Mts – Lysec Mt (48°20’56.69” N, 19°27’46.04” E, 650 m), old fallen beech with remains of fungi, July 7, 2006 (FRANC 2010); Brekov village – the castle hill (48°53.998’ N, 21°49.929’ E, 274 m), Malaise trap, June 2015 (MAJZLAN 2016b). It always indicates the high-biodiversity sites.

29. ***Nacerdes carniolica*** (Gistel, 1832) (Oedemeridae) – Hrádok, swept from the vegetation at the edge of mixed forest. A notable and conspicuous species, which had been considered to be extremely rare in the past – for a long time only one historical finding from Sitno (Štiavnické vrchy Mts) was known: July 10, 1889, Petrogalli lgt. (ROUBAL 1936). The second finding was recorded up to 87 (!) years later: Humenné town, July 1976, Hladil lgt. (ŠVIHLA 1978). Recently it is known from big amount (more than 40) records from southern and central Slovakia as well. It suggests that this species, the former rarity, actually may be much more abundant. *Nacerdes carniolica* has apparently escaped attention for many years due to a hidden way of life (nocturnal activity). Now it may be ranked among relatively frequent species.

30. ***Salpingus aeneus*** (Olivier, 1807) (Salpingidae) – Jakub, open shrubby forest, beaten down from dying oak branches. Local and apparently thermophilic species, known from a larger number of localities in the region of southern Slovakia. ROUBAL (1936) cites the northernmost finding from Hronská Breznica village; it surely concerns the contemporary Boky NR. Its occurrence in the submountain region of Banská Bystrica is remarkable. He probably did not occur here in the past because he's unlikely to escape the attention of entomologists like Roubal.

31. ***Corticeus pini*** (Panzer, 1799) (Tenebrionidae) – Baranovo, under the bark of older fir stem. A scattered and very rare species of well-preserved mixed forests of lower mountain altitudes. Known from very sporadic recent records: Malacky town – Vampil, oak-and-pine forest “*Pineto-Quercetum zahoricum*” (48°24’2.48” N, 17°0’10.70” E, 174 m) 2 ind., undated (MAJZLAN and ŠTEPANOVIČOVÁ 1999);

Sekule village – Mláky (DFS 7368c), undated, formaldehyde trap (MAJZLAN 2003); Štiavnické vrchy Mts – Drastvica Mt (48°25'42.46" N, 18°43'34.92" E, 676 m), under the bark of dead fir, together with bark beetles *Pityokteines curvidens* (Germar, 1824), March 21, 2014, 2 ind. (FRANC 2016); Gajary village, June 2014, 2 ind., P. Kurina lgt. (MAJZLAN 2014a). This species with a hidden way of life may be overlooked and confused with the other rare species of this genus.

32. ***Platydema dejeani*** Laporte de Castelnau & Brullé, 1831 (Tenebrionidae) – Bučičie, a field grove between the pasture and the road towards the Šachtický saddle (48°46'14.20" N, 19°10'4.29" E, 533 m), under the bark of broken hornbeam (this locality is relatively atypical). A scarce species of older deciduous forests. Recent records are available in the paper by FRANC (2008). Additional records: Ostrôžky Mts – Lysec Mt (48°20'56.69" N, 19°27'46.04" E, 650 m), on a broken beech with fungi *Pleurotus dryinus*, June 19, 2006 (FRANC 2010); Šivetice village – Muteň Mt (48°35'27.52" N, 20°16'12.00" E, 320–450 m), September 29, 2006 (BENEDIKT 2014); the Horšianska valley (48°15'07.54" N, 18°41'56.44" E; 221 m), June 2017, (MAJZLAN 2018b). Slovakia is probably the biocentre of its range in West-Palaeartic area, because it is highly threatened in surrounding countries and Germany.

33. ***Prionychus ater*** (Fabricius, 1775) (Tenebrionidae) – Baranovo, flew to an old damaged beech before the storm. A scarce species of well-preserved deciduous forests.

34. ***Monochamus galloprovincialis*** (Olivier, 1795) (Cerambycidae) – Bučičie, dead, but almost complete beetle in the web of *Tegenaria ferruginea* (Panzer, 1804) between the sticks of a forest camp. A scattered and rare species of well-preserved conifer and mixed forests of submountain altitudes. Known especially from old records (ROUBAL 1936). Recent records are very sporadic: Čenkovská lesostep NR (47°46'5.48" N, 18°31'19.32" E, 110 m), sandy grassland and open forest, Malaise trap, August 1998 (MAJZLAN et al. 1999).

35. ***Phymatodes glabratus*** (Charpentier, 1825) (Cerambycidae) – Bučičie, xerothermic pasture, beaten down from dying trunk of a juniper. A memorable thermophilous species, occurring locally and rarely. Known from a few old records (ROUBAL 1936). Only one recent record is available, but it is quite paradoxical: In the popular publication "Yearbook 2006" (JASÍK et al. 2006) in the chapter "Interesting and significant findings in 2006 in the Low Tatras National Park and its protection zone" is mentioned only the name of this beetle, without any details, despite the territory of National Park is very large and this discovery is highly notable.

36. ***Phytoecia nigripes*** (Voët, 1778) (Cerambycidae) – Jakub, swept from the vegetation at the edge of xerothermic shrubby forest. A scarce species of warmer regions, known from several older and recent records. Highly remarkable

mountain finding was recorded from Veľká Fatra Mts – Majerova skala Mt (48°51'37.99" N, 19°6'24.79" E, 1180 m), swept from the vegetation on the top cliff terrace August 24, 1994 (FRANC 2002a).

37. ***Diabrotica virgifera*** Le Conte, 1868 (Chrysomelidae) – in flight on the ruderal habitat near the road to the Bučičie hill. An invasive species, native to the American continent, where it may be a serious maize pest. During the first decade of this century it has spread to almost the whole Europe including Slovakia (CAGÁŇ et al. 2016).

38. ***Choragus horni*** Wolfrum, 1930 (Anthribidae) – Hrádok, beaten down from older branches of a beech. Sporadic and very rare species of warmer forest and forest-steppe habitats. ROUBAL (1937–1941) refers only one record: Oravský Podzámok village, on dry branches of *Padus racemosa*, July 24, 1930. Recent records are available in the paper by FRANC (1997). Additional records: Pohanský hrad NR (48°12'29.53" N, 19°55'48.15" E, 450 m), beaten down from branches of *Acer campestre*, June 11, 1995, V. Franc lgt. et coll.; Košecké podhradie village – Podhradská lesotep (48°58'5.90" N, 18°21'28.04" E, 415 m), on oak branches, June 21, 1993, V. Franc lgt. et coll.; Strážovské vrchy Mts – the Hradištnica valley (48°43'46.80" N, 18°22'59.79" E, 412 m), June 10, 2009, 6 ind. beaten down from oak branches, V. Franc lgt. et coll., previously unpublished (FRANC 2010); Šuľa village (48°21'30.13" N, 19°25'14.22" E, 410 m), beaten down from dying oak branches, May 8, 2010 (FRANC 2010); Burdov NR, open xerothermic oak forest (47°49'31.80" N, 18°44'55.02" E, 137 m), May 2010 and xerothermic rocky grassland (47°49'32.88" N, 18°44'54.72" E, 154 m), May 2011, both ind. in Malaise trap (MAJZLAN 2016a).

39. ***Doydirhynchus austriacus*** (Olivier, 1807) (Nemonychidae) – Bučičie, beaten down from the branches of *Pinus sylvestris*. A scattered and rare species, known from a few, especially old records, including the region of Banská Bystrica (ROUBAL 1937–1941). Recently is mentioned only sporadically: Pernek village (210 m, coordinates are unavailable), Malaise trap, 1994 (MAJZLAN 1998); Tríbeč Mts – Zobor, April 30, 2006; Dolné Vestenice townlet, May 8, 2008 (CUNEV 2013); Ostrov Kopáč NR (48°5'39.09" N, 17°10'1.49" E; 132 m), undated (MAJZLAN 2007c); Šúr NR, salt meadow with solitary trees (48°13'12.72" N 17°13'20.76" E, 132 m), May 2008 / 2009 (MAJZLAN 2010b); Závod village – Šišoláky (48°32'36.24" N, 17°40'45.42" E, 170 m) May 2012, 4 ind. (MAJZLAN 2014a). Known also from Devínska Kobyla NR, undated (MAJZLAN et al. 2005). It is notable that the first record from Ukraine has been carried out yet recently: the surroundings of Kyiv, May 3, 2005 (KIZUB & NAZARENKO 2005).

40. ***Gymnetron rotundicolle*** (Gyllenhal, 1838) (Curculionidae) – Bučičie, swept from xerothermic vegetation. This apparently thermophilic species is missing in referred

checklists and catalogues. The distribution of this species includes Ukraine, southern Russia, Bulgaria, Turkey, Georgia, Armenia, Iran, Turkmenistan, Uzbekistan, Kazakhstan, the Czech Republic and it was recently established in Italy (CALDARA 2008). Its development is unknown, adults feeding on *Veronica chamaedrys* was observed and documented by J. Krátký, pers. comm. (BENEDIKT et al. 2010). Since the beginning of this century it has spread to Central Europe; in Slovakia is known since 2013 (STEJSKAL & KRÁTKÝ 2017), it occurs in 8 grid mapping squares hitherto. Its occurrence at the foot of the Starohorské vrchy Mts is notable. Additional recent records: Kamenica nad Hronom village (48°19'48.4" N, 17°17'28.5" E, 158 m), 2018, undated, 5 ind. (MAJZLAN 2019c); Tomášikovo village (48°5'8.70" N, 17°40'23.54" E, 112 m), sand dune, pitfall trap, March 2019, 1 ind. and May 2019, 4 ind. (MAJZLAN 2019a).

41. ***Larinodontes obtusus*** Gyllenhal, 1836 (Curculionidae) – Bučičie, swept from xerothermic vegetation. A rare thermophilous species living on the starthistle, especially *Centaurea solstitialis*. Known from several records, e.g. the valley of the Hunták brook, summer 1994, several ind. (CUNEV 1997). Remarkable findings were published also from mountain regions, including the surroundings of the village of Nová Sedlica, June 16 and 17, 1996, several ind. (HOLECOVÁ et al. 1997); and from Liptovská Teplička village, Malaise trap, June and July 2005, 2 ind. (MAJZLAN 2006).

42. ***Leucosomus pedestris*** (Poda, 1761) (Curculionidae) – Bučičie, walking on the soil surface of a xerothermic pasture. A wingless beetle, formerly known from many sites in warmer regions of Slovakia (ROUBAL 1930), its population has markedly decreased due to the procedures of intensive agriculture and traffic. Recent record is known from vineyards near the townlet of Svätý Jur (48°15'41.27" N, 17°12'21.28" E, 271 m), June 2010 and 2011, 2 ind. in the pitfall trap (MAJZLAN 2011); Gajary village (48°28'00.94" N, 16°55'08.75" E, 149 m), May 2014 (MAJZLAN 2014a); and Kamenica nad Hronom village (48°19'48.4" N, 17°17'28.5" E, 156 m), xerothermic slope, 2018, undated, 5 ind. (MAJZLAN & GAJDOŠ 2019).

43. ***Minyops variolosus*** (Fabricius, 1775) (Curculionidae) – this species was incorrectly cited as *M. carinatus*, nevertheless STEJSKAL and TRNKA (2012) mentioned that this species does not occur in the former Czechoslovakia. Recent record: Bučičie, the same circumstances than "42". Another conspicuous wingless epigeic species, formerly mentioned from larger number of sites in warmer regions (ROUBAL 1930). Formerly it occurs rather locally and rarely, its population has decreased as well. Recent record is known from Devínska Kobyla NR, undated (MAJZLAN et al. 2005); Burdov NR (47°49'32.88" N, 18°44'54.72" E, 154 m), xerothermic slope, May 2011, V. Hošek lgt. (MAJZLAN 2016a) and from surroundings of the townlet of Hriňová, undated (MAJZLAN 2010c). Anyway, this wingless species is one of the remarkable faunal elements indicating the high-biodiversity sites, and it also concerns the preceding one.

44. ***Hylastes linearis*** Erichson, 1836 (Curculionidae: Scolytinae) – Bučičie, beaten down from old pine branches. This rare and little-known species occurring in southern Europe, extends into the warm regions of Central Europe as well. Only a few old data is available, including the surroundings of the town of Banská Bystrica: Šalková village, undated, J. Čejka lgt. (ROUBAL 1937–1941). Recent records are very sporadic: Krasňany village near the city of Bratislava, pine forest (48°12'5.58" N, 17°7'11.88" E, 275 m), pheromone trap, 2013, undated, 2 ind. (MAJZLAN 2014c); Gajary village (48°28'0.94" N, 16°55'8.75" E, 149 m), August 2014, 2 ind. and September 2014, 2 ind., P. Kurina lgt. (MAJZLAN 2014a).

45. ***Lymanator coryli*** (Perris, 1855) (Curculionidae: Scolytinae) – Bučičie, beaten down from old branches of a hazel nut. A scattered and apparently very rare species of deciduous forests and ecotones. Old records are cited also from the surroundings of Banská Bystrica: Horná Mičiná village, *Fagetum* with *Corylus avellana*, April 25, 1920, J. Roubal lgt.; and Zvolen town, on *Carpinus betulus*, June 29, 1931, J. Roubal lgt. (ROUBAL 1937–1941). Only one recent record is accessible: Svätý Jur townlet (48°15'38.13" N, 17°12'14.76" E, 228 m), old vineyards, May 2011, 1 ind. in the Malaise trap (MAJZLAN 2011). Despite the name, its host trees include *Corylus avellana*, *Carpinus betulus*, *Frangula alnus*, infected with fungi *Diaporthe nigricolor* and *D. conjuncta*; in Ukraine is referred from *Acer platanooides*, *A. campestre*, *C. avellana*, *F. alnus* and also found on *Tilia cordata* (NIKULINA et al. 2015).

46. ***Xylosandrus germanus*** (Blandford, 1894) (Curculionidae: Scolytinae) – Hrádok, on old beech stumps, several ind. This species is missing in the catalog of beetles (ROUBAL 1937–1941) and the Checklist of Czechoslovak beetles (JELÍNEK 1993). PFEFFER (1989) mentions that it has not been hitherto documented from Czechoslovakia. It is a native species in the eastern Asia (Japan, China, Korea). In Europe it was firstly detected in Germany in 1951 and then has spread to many western and central European countries. The first record from Slovakia is published from Duchonka (48°40'30.59" N, 18°5'17.13" E, 328 m), Lindgren funnel traps, 2010–2012, totally 136 imagoes (GALKO 2013). Documented also from Ruské village – Starina (49°2.729' N, 22°14.944' E, 374 m), Malaise trap, May 2013, 5 ind. and June 2013, 5 ind. (MAJZLAN 2015a); xerothermic forests near the city of Bratislava: Rača, Malaise trap, July 2013 (MAJZLAN 2014b); Mlyňany Arboretum (48°19'9.73" N, 18°22'17.00" E, 210 m), beating from tree branches, May 5, 2015 (KOLLÁR & CUNEV 2019); the Horšianska valley (48°15'07.54" N, 18°41'56.44" E; 221 m), June and July 2017, 2 ind. (MAJZLAN 2018b); and Kamenica nad Hronom village (48°19'48.4" N, 17°17'28.5" E, 156 m), open xerothermic oak forest, 2018, undated (MAJZLAN & GAJDOŠ 2019). It is extremely polyphagous and apparently invasive species.

Table 1. Beetles (Coleoptera) of the Panský diel Massif. The species distinguished by the symbol “◀” and number in upper index after their name are commented in Results.

Family / Species	COR	THP	OOH	Ecosozological status				
				SK	CZ	AT	PL	DE
Carabidae								
<i>Acupalpus meridianus</i> (Linnaeus, 1761)	Fk1	T M	C SN D					
<i>Amara convexior</i> Stephens, 1828	Fr1 Bu1	T M	C SN					
<i>Amara familiaris</i> (Duftschmid, 1812)	Fl1	T M O	C SN					
<i>Bembidion</i> (<i>Peryphus</i>) <i>decorum</i> (Panzer, 1800)	De1	M O	C SN					
<i>Bembidion</i> (<i>Synechostictus</i>) <i>millerianum</i> Heyden, 1883	De2+	M O	C SN					CD
<i>Bembidion</i> (<i>Metallina</i>) <i>properans</i> (Stephens, 1828)	Ae1	T M	C SN					
<i>Bembidion</i> (<i>Daniela</i>) <i>tibiale</i> (Duftschmid, 1812)	Ae1	T M	C SN					
<i>Brachinus crepitans</i> (Linnaeus, 1758)	Fh1 u2+	T M	C SN				NT	
<i>Calathus fuscipes</i> (Goeze, 1777)	Fp3+	M O	C SN D					
<i>Carabus nemoralis</i> O. F. Müller, 1764	Bc1 Eu1	T M	C SN					
<i>Carabus ulrichi</i> Germar, 1824	Bl1+	T M	C SN D					VU
⊕ <i>Cylindera</i> (= <i>Cicindela</i>) <i>germanica</i> (Linnaeus, 1758)	Fe1	T M	C SN		NT			CR
<i>Cymindis humeralis</i> (Geoffroy, 1785)	Fj1	T M	C SN					
<i>Dromius linearis</i> (Olivier, 1795)	Fl1	T M	C SN					
<i>Calodromius</i> (= <i>Dromius</i>) <i>spilotus</i> (Illiger, 1798) [= <i>quadrinotatus</i> auct.]	Fd3+	T M	C SN					
<i>Harpalus distinguendus</i> (Duftschmit, 1812)	Fd1	T M	C SN D					
<i>Harpalus flavicornis</i> Dejean, 1829	Fd1	T (M)	C SN					
<i>Harpalus quadripunctatus</i> Dejean, 1829	Bu1	M O	C SN					CD
<i>Harpalus roubali</i> Schauburger, 1928	Fl1	T M	C SN					
<i>Harpalus rubripes</i> (Duftschmid, 1812)	Fj1	T M	C SN					
<i>Metabletus foveatus</i> (Fourcroy, 1785)	Fh1	T	C SN					
<i>Metabletus truncatellus</i> (Linnaeus, 1761)	Fl1	T M	C SN					
<i>Ophonus</i> (= <i>Harpalus</i>) <i>azureus</i> (Fabricius, 1775)	Fj2+	T M	C SN					
<i>Pterostichus</i> (<i>Poecilus</i>) <i>cupreus</i> (Linnaeus, 1758)	Fep2+	T M O	C SN D					
<i>Trechus pilisensis</i> Csiki, 1918	De1	M	C SN					CD
Haliplidae								
<i>Haliplus heydeni</i> Wehncke, 1875	Ae1	M	C SN					
Gyrinidae								
<i>Gyrinus substriatus</i> Stephens, 1828 ^{JH}	Ae1	M	C SN					
Hydraenidae								
<i>Hydraena belgica</i> d'Orchymont, 1930	Ae2+	M	C SN		NT			VU
Hydrophilidae								
<i>Anacaena globulus</i> (Paykull, 1798)	De1	M O	C SN	EN				
<i>Cercyon quisquilius</i> (Linnaeus, 1761)	Fs5+	T M	C SN D					
<i>Cercyon terminatus</i> (Marsham, 1802)	Fs3+	M	C SN					
<i>Cryptopleurum minutum</i> (Fabricius, 1775)	De1	M	C SN					
<i>Helophorus brevipalpis</i> Bedel, 1881	De1	M	C SN					
<i>Laccobius minutus</i> (Linnaeus, 1758)	De1	M	C SN					
<i>Sphaeridium lunatum</i> Fabricius, 1792	Fal++	T M	C SN					
<i>Sphaeridium scarabaeoides</i> (Linnaeus, 1758)	Fal++	T M	C SN					

Histeridae								
<i>Abraeus globosus</i> (Hoffmann, 1803)	Cj1	T M	C					
<i>Acritus minutus</i> (Herbst, 1792)	Cj1	T M	C SN					VU
<i>Atholus</i> (= <i>Hister</i>) <i>duodecimstriatus</i> (Schränk, 1781)	Fk1 u1	T M	C SN					
<i>Chalcionellus</i> (= <i>Saprinus</i>) <i>decemstriatus</i> (Rossi, 1792)	Fj2 ⁺	T M	C SN					RE
<i>Paromalus flavicornis</i> (Herbst, 1792)	Cj2 ⁺	M	C SN					
<i>Paromalus parallelepipedus</i> (Herbst, 1792)	Fl1	T M	C SN					
<i>Platysoma</i> (= <i>Eblisia</i>) <i>minor</i> (Rossi, 1792)	Fj1	M	C SN					
<i>Plegaderus dissectus</i> Erichson, 1839 ⁴¹	Ej2 ⁺	M	C (SN)		VU		EN	VU
Leiodidae								
<i>Anisotoma castanea</i> (Herbst, 1792)	Cc2 ⁺	M	C SN					
<i>Catops fuscus</i> (Panzer, 1794)	De1	M	C SN A					
<i>Leiodes dubia</i> (Kugelann, 1794)	Eo1	T M	C SN					
<i>Ptomaphagus sericatus</i> (Chaudoir, 1845)	Fu1	M	C SN					
<i>Triarthron maerkeli</i> Märkel, 1840 ⁴²	Eo1	M	C SN	NT				VU
Scydmaenidae								
<i>Stenichnus godarti</i> (Latreille, 1806)	Cl1	T M	C (SN)					
<i>Stenichnus pusillus</i> (Müller et Kunze, 1822)	Fj1	T M	C SN					VU
Staphylinidae (s. str.)								
<i>Acrulia inflata</i> (Gyllenhal, 1813)	Fj1	M O	C SN					
<i>Aleochara curtula</i> (Goeze, 1777)	Fj2 ⁺	T M	C SN D					
<i>Aleochara ripicola</i> Mulsant & Rey, 1874 [= <i>A. crassicornis</i> Lacordaire, 1835]	Ae1	M	C SN					
<i>Anotylus tetracarinatus</i> (Block, 1799)	Fr2 ⁺	M	C SN					
<i>Astenus gracilis</i> (Paykull, 1789)	Fk1	T	C SN					
<i>Bolitochara bella</i> Märkel, 1844	Cl2	T M	C SN					
<i>Bolitochara lucida</i> (Gravenhorst, 1802)	Cj1	M	C SN					
<i>Dinarda pygmaea</i> Wasmann, 1894 ⁴³	Bu1	T	C SN					
<i>Elonium striatulum</i> (Fabricius, 1792)	Fk1	M	C SN D					
⊕ <i>Euryusa sinuata</i> Erichson, 1837	Cl1	M	C		EN			VU
<i>Lesteva monticola</i> Kiesenwetter, 1847	De1 ⁺	M	C					
<i>Lordithon</i> (<i>Carphacis</i>) <i>striatus</i> (Olivier, 1795)	Cm1	T	C (SN)		EN			EN
<i>Lordithon</i> (<i>Lordithon</i>) <i>trimaculatus</i> (Paykull, 1800)	Cl2 ⁺	T M	C SN		EN			CR
<i>Lyprocorrhe anceps</i> (Erichson, 1837)	Ft4 ⁺	M	C SN					
<i>Metopsia clypeata</i> (P. W. J. Müller, 1821)	Ck1 ⁺	T M	C SN					
<i>Mycetoporus nigricollis</i> Stephens, 1835 [= <i>M. splendens</i> (Marshall, 1802)]	Fl1	T M O	C SN					
<i>Mycetoporus splendidus</i> (Gravenhorst, 1806)	Fl1 ⁺	T M	C SN					
<i>Ocypus fulvipennis</i> Erichson, 1840	Bl1	T M	C SN					
<i>Ocypus melanarius</i> (O. Heer, 1839)	Bu1	T M	C SN					
<i>Ocypus picipennis</i> (Fabricius, 1792)	Fo1 ⁺	T M	C SN					
⊕ <i>Ontholestes haroldi</i> (Eppelsheim, 1884) ⁴⁴	Ba1 ⁺	T	C SN					VU
<i>Philonthus atratus</i> (Gravenhorst, 1802)	Ae1	M O	C SN					
<i>Philonthus corruscus</i> (Gravenhorst, 1802)	Fk2 ⁺	T M	C SN					
<i>Philonthus decorus</i> (Gravenhorst, 1802)	Ee1 u1	M O	C SN					
<i>Philonthus fimetarius</i> (Gravenhorst, 1802)	Fl1	M O	C SN D					
<i>Philonthus laevicollis</i> (Lacordaire, 1835)	De1	M O	C SN					
<i>Philonthus lepidus</i> (Gravenhorst, 1802)	Fo1	T M	C SN					

<i>Philonthus spinipes</i> Sharp, 1874	F11	T M	C S N D					
<i>Philonthus varius</i> (Gyllenhal, 1810)	F11	T M O	C S N					
<i>Platydacus stercorarius</i> (Olivier, 1795)	B11	T (M)	C S N					
<i>Platystethus arenarius</i> (Fourcroy, 1785)	Fo1	T M O	C S N					
<i>Pronomaea rostrata</i> Erichson, 1837	De1	M O	C (S N)					EN
<i>Quedius (Microsaurus) brevicornis</i> (C. G. Thomson, 1860)	Cm1	T M	C (S N)		CR			VU
<i>Quedius (Microsaurus) brevis</i> Ericson, 1840	Ft1	M	C S N	NT	NT			
<i>Quedius (Microsaurus) cruentus</i> (Olivier, 1795)	Cc1	T M	C S N					
<i>Quedius (Quedius) curtippennis</i> Bernhauer, 1908	Fk1	M	C S N					
⊕ <i>Quedius (Microsaurus) lateralis</i> (Gravenhorst, 1802) ⁴⁵	Cn1	T M	C (S N)		NT			
<i>Quedius (Microsaurus) mesomelinus</i> (Marshall, 1802)	Cm1	M O	C S N A					
<i>Quedius (Quedionuchus) plagiatu</i> Mannerheim, 1843	Er1	M O	C S N					VU
<i>Siagonium humerale</i> Germar, 1817	Ch2+	M	C S N	VU	CR	NT		
<i>Staphylinus fossor</i> Scopoli, 1771	Fc1	T M	C S N					
<i>Sunius melanocephalus</i> (Fabricius, 1792)	Fk1	T M	C S N					
<i>Tachinus signatus</i> (Gravenhorst, 1802) [= <i>T. rufipes</i> (De Geer, 1774)]	Ej1	T M	C S N D					
<i>Thiasophila angulata</i> (Erichson, 1837)	Ft4+	M	C S N					
<i>Xantholinus relucens</i> (Gravenhorst, 1806) ⁴⁶	Ff1	T	C S N					
<i>Xantholinus tricolor</i> (Fabricius, 1787)	Cl1	M	C S N					
<i>Zyras fulgidus</i> (Gravenhorst, 1806) ⁴⁷	Bk1	T	C		CR			EN
Staphylinidae: Pselaphinae								
<i>Batrissodes delaporti</i> (Aubé, 1833)	Ck1	T	C (S N)					
<i>Brachygluta fossulata</i> (Reichenbach, 1816)	Fj2	T M	C S N					
<i>Bryaxis monstrosotibialis</i> (Stolz, 1923) ⁴⁸	Fk1	T M	C	VU				
Eucinetidae								
<i>Eucinetus haemorrhoidalis</i> (Germar, 1818) ⁴⁹	Fc1	T	C S N		NT			VU
Scarabaeidae								
<i>Aphodius (Orodalus) coenosus</i> (Panzer, 1798)	Fh1	T	C S N					
<i>Aphodius (Melinopterus) consputus</i> Creutzer, 1799	Fs2+	T M	C S N	VU	VU			EN
<i>Aphodius (Colobopectus) erraticus</i> (Linnaeus, 1758)	Fa1+ Bl1+	T M	C S N					
<i>Aphodius (Aphodius) fimetarius</i> (Linnaeus, 1758)	Bb++ Ff++	T M	C S N					
<i>Aphodius (Teuchestes) fossor</i> (Linnaeus, 1758)	Fc+	T M	C S N					
<i>Aphodius (Calamosternus) granarius</i> (Linnaeus, 1767)	Ff2+	T M	C S N D					
<i>Aphodius (Orodalus) pusillus</i> (Herbst, 1789)	Fj2+ k2+	T M	C S N					
⊕ <i>Aphodius (Colobopectus) scrutator</i> (Herbst, 1789) ¹⁰	Fb4+ (+ later)	T M	C S N	VU		NT	LC	EN
<i>Aphodius (Chilothorax) sticticus</i> (Panzer, 1798)	Fh1	T M	C S N					
<i>Aphodius (Agrilinus) uliginosus</i> Hardy, 1847 [= <i>A. fasciatus</i> (Olivier, 1789)]	Cr2+	M	C S N					
<i>Euoniticellus fulvus</i> (Goeze, 1777) ¹¹	Fb1 l1+	T	C S N		VU	NT	VU	CR
<i>Onthophagus taurus</i> (Schreber, 1759) ¹²	Ba1 Fj1+	T	C (S N)		DD	VU		VU
<i>Onthophagus vacca</i> (Linnaeus, 1767)	Fj1+	T (M)	C S N		DD	NT	VU	VU
<i>Pleurophorus caesus</i> (Panzer, 1796)	Fj2+	T	C S N		NT			EN
<i>Protaetia</i> (= <i>Potosia</i>) <i>fieberi</i> (Kraatz, 1880) ¹³	Bj1	T	C	VU	EN	EN	EN	EN
<i>Rhizotrogus (Rhizotrogus) aestivus</i> (Olivier, 1789)	Bi1+	T M	C S N					VU
<i>Rhizotrogus (Amphimallon) solstitialis</i> (Linnaeus, 1758)	Fn1+	T M	C S N D					
Byrrhidae								

<i>Byrrhus pilula</i> (Linnaeus, 1758)	Fk1+	M	C SN D					
<i>Curimus erichsoni</i> Reitter, 1881	Ch1 j1	M	C					
<i>Simplocaria acuminata</i> Erichson, 1847	Df1	M O	C					
Elmidae								
<i>Riolus subviolaceus</i> (P. W. J. Müller, 1817)	Df2	M	C					
Buprestidae								
<i>Agrilus laticornis</i> (Illiger, 1803)	Bk1	T	C SN					
<i>Dicerca berolinensis</i> (Herbst, 1779) R2	Cm1	T M	C		VU			EN
⊕ § <i>Eurythyrea austriaca</i> (Linnaeus, 1767) ◀ ¹⁴ R1	Eo4	M	C		VU	RE	RE	VU
<i>Phaenops cyanea</i> (Fabricius, 1775)	Fn1	T	C SN					
Elateridae								
<i>Ampedus elegantulus</i> (Schönherr, 1817) ◀ ¹⁵ R2	Ea1	M	C		VU			CR
<i>Ampedus pomorum</i> (Herbst, 1784)	Bi1	M	C SN					
<i>Ampedus praeustus</i> (Fabricius, 1792)	Fi1	T M	C SN		VU			EN
<i>Drasterius bimaculatus</i> (Rossi, 1790)	Bi1+	T	C SN		EN		EN	RE
⊕ <i>Hypoganus inunctus</i> (Panzer, 1794)	Cj2	M	C		NT		DD	VU
<i>Idolus picipennis</i> (Bach, 1852) ^{JM}	Cj1	M O	C SN					VU
<i>Melanotus tenebrosus</i> (Erichson, 1841)	Fj1	T	C SN		CR	VU?		
<i>Melanotus villosus</i> (Fourcroy, 1785) [= <i>M. rufipes</i> (Herbst, 1784)]	Fl1+	M	C SN					
Eucnemidae								
<i>Hylis cariniceps</i> (Reitter, 1902) ◀ ¹⁶ JM rev.	Fo1	T M	C		VU	CR	EN	DD
<i>Hylis foveicollis</i> (Thomson, 1874) ^{JM}	Ep1	M	C		VU	EN	EN	
<i>Hylis simonae</i> (Olexa, 1970) ◀ ¹⁷ JM rev.	Ce1	T M	C		+EN	CR		
⊕ <i>Microrhagus lepidus</i> (Rosenhauer, 1847) ◀ ¹⁸	Bj1	T M	C		VU	EN	EN	DD
Cantharidae								
<i>Cratosilis</i> (= <i>Pygidia</i>) <i>denticollis</i> (Schummel, 1844)	Ej1	M O	C SN					
Dermestidae								
<i>Attagenus schaefferi</i> (Herbst, 1792)	Bn1	T M	C SN A					
<i>Ctesias serra</i> (Fabricius, 1792)	Ck1	T M	C					
<i>Dermestes lanarius</i> Illiger, 1801	Fj1	T M	C SN D					
<i>Dermestes murinus</i> Linnaeus, 1758	Fj2+	T M	C SN A					
<i>Dermestes undulatus</i> Brahm, 1790	Fj2+	T M	C SN					
Bostrichidae								
<i>Bostrichus capucinus</i> (Linnaeus, 1758)	Ej1	T (M)	C (SN)					VU
Ptinidae								
<i>Anobium emarginatum</i> Duftschmid, 1825	Ej1	M O	C SN					VU
<i>Anobium punctatum</i> (De Geer, 1774)	Ei1	M	C SN A					
<i>Caenocara affinis</i> (Sturm, 1837) ◀ ¹⁹	Bc1	T M	C SN		VU	NT	EN	EN
<i>Dorcatoma robusta</i> Strand, 1938	Cj1 e1	M	C		VU		EN	
<i>Ernobius abietinus</i> (Gyllenhal, 1808)	Eh1	M O	C SN		VU			
<i>Ernobius kiesenwetteri</i> Schilsky, 1899 ◀ ²⁰ R2	Ej1	M	C		EN			RE
<i>Gastrallus immarginatus</i> (P. W. J. Müller, 1821)	Cm1	T M	C				DD	VU
<i>Gastrallus laevigatus</i> (Olivier, 1790)	Fm2	T M	C (SN)				DD	EN
<i>Oligomerus brunneus</i> (Olivier, 1790)	Cf3	T	C (SN)					VU
<i>Priobium carpini</i> (Herbst, 1793)	Ck1+	M	C (SN)					
<i>Ptinus dubius</i> Sturm, 1837	Ce1	T	C (SN)					
<i>Ptinus latro</i> Fabricius, 1775	Fe1	T M	C SN A					

<i>Ptinus raptor</i> Sturm, 1837	Ek1	T M	C SN A					
<i>Ptinus rufipes</i> Olivier, 1790	Fj1	T M	C SN					
<i>Ptinus schlerethi</i> (Reitter, 1884)	Cc1	T	C (SN)		EN		DD	
<i>Stegobium paniceum</i> (Linnaeus, 1758)	Bj1	M	SN A					
Cleridae								
⊕ <i>Tillus elongatus</i> (Linnaeus, 1758) (mating)	Ck2	M	C					VU
<i>Trichodes favarius</i> (Illiger, 1801)	Bk1+	T	C (SN)			CR	DD	
Dasytidae								
<i>Dolichosoma lineare</i> (Rossi, 1794)	Bo2+	T	C SN					
Malachiidae								
<i>Axinotarsus pulicarius</i> (Fabricius, 1776)	Bj1	T M	C SN					
<i>Axinotarsus ruficollis</i> (Olivier, 1790)	Fc1	T	C (SN)					
<i>Celidus</i> (= <i>Anthocomus</i>) <i>equestris</i> (Fabricius, 1781)	Bj1	T M	C SN					
<i>Hypebaeus flavipes</i> (Fabricius, 1787)	Bj2+	T M	C SN					VU
Kateretidae								
<i>Kateretes pedicularius</i> (Linnaeus, 1758)	Bi2+	T M	C SN					
Nitidulidae								
<i>Epuraea depressa</i> (Illiger, 1798)	Bi2+	T M	C SN					
<i>Epuraea variegata</i> (Herbst, 1793)	Ek1	M O	C SN					
<i>Glischrochilus hortensis</i> (Fourcroy, 1785)	Ce1	T M	C (SN)					
⊕ <i>Glischrochilus quadripustulatus</i> (Linnaeus, 1761) ²¹	Eo1	M O	C SN					
<i>Omosita depressa</i> (Linnaeus, 1758)	Fe1	T M	C SN					
<i>Omosita discoidea</i> (Fabricius, 1775)	Fe3+	M	C SN D					
<i>Stelidota geminata</i> Say, 1825	Fe2+	T M	SN D A					
Rhizophagidae								
<i>Monotoma longicollis</i> (Gyllenhal, 1827)	Fc1	T M	SN D A					
<i>Monotoma picipes</i> Herbst, 1793	Fs1	T M	C SN					
<i>Rhizophagus parvulus</i> (Paykull, 1800)	Ej1	T M	C SN					
<i>Rhizophagus picipes</i> (Olivier, 1790)	Es1	M O	C SN					
Laemophloeidae								
<i>Leptophloeus</i> (= <i>Laemophloeus</i>) <i>clematidis</i> (Erichson, 1846)	Fk1	T M	C SN		VU			
<i>Notolaemus</i> (= <i>Laemophloeus</i>) <i>castaneus</i> (Erichson, 1845) ²²	Bi2	T	C		VU	EN		CR
<i>Placonotus</i> (= <i>Laemophloeus</i>) <i>testaceus</i> (Fabricius, 1787)	Bn3+	T M	C SN					
Phalacridae								
<i>Olibrus affinis</i> (Sturm, 1807)	Fl1	T M	C SN					
<i>Olibrus bisignatus</i> (Ménétries, 1849)	Fm1	T	C (SN)					VU
Cryptophagidae								
<i>Pteryngium crenatum</i> (Fabricius, 1798)	Ej2+	M	C					VU
Erotylidae								
<i>Triplax rufipes</i> (Fabricius, 1787)	Ck3+	T M	C (SN)			VU		CR
Coccinellidae								
<i>Adonia variegata</i> (Goeze, 1777)	Fk2+	T M O	C SN D					
<i>Chilocorus renipustulatus</i> (Scriba, 1850)	Ef1	T M	C SN					
<i>Hyperaspis campestris</i> (Herbst, 1783)	Fr1	T	C (SN)					
<i>Myzia oblongoguttata</i> (Linnaeus, 1758)	Fk1	M O	C SN					
<i>Platynaspis luteorubra</i> (Goeze, 1777)	Fj1	T	C (SN)					
<i>Rhyzobius chrysomeloides</i> (Herbst, 1792)	Fi2	T M	C SN			VU		
<i>Scymnus apetzi</i> Mulsant, 1846	Fk1	T	C SN			VU		CR

<i>Scymnus femoralis</i> (Gyllenhal, 1827) ²³	Bi1	T (M)	C (SN)					EN
<i>Scymnus quadrimaculatus</i> (Herbst, 1783)	Fk1	T M	C SN					VU
<i>Scymnus redtenbacheri</i> Mulsant, 1846	Ac1	T M	C SN					
<i>Scymnus rubromaculatus</i> (Goeze, 1777)	Fi1	T M	C SN					
<i>Scymnus suturalis</i> Thunberg, 1795	Fh1+	T M O	C SN					
<i>Stethorus punctillum</i> (Weise, 1891)	Ej1+	T M	C SN					
Corylophidae								
<i>Sericoderus lateralis</i> (Gyllenhal, 1827)	Ej1	M	C SN					
Ciidae								
<i>Cis boleti</i> (Scopoli, 1763)	Ek1	M	C SN					
<i>Cis quadridens</i> Mellié, 1849	Eo1+	M	C SN					EN
Latridiidae								
<i>Enicmus brevicornis</i> (Mannerheim, 1844)	En1	T (M)	C (SN)			NT		VU
<i>Latridius alternans</i> (Mannerheim, 1844)	Ck1	T M	C SN					
<i>Latridius angusticollis</i> Gyllenhal, 1827	Ck1	T M O	C SN					
<i>Latridius</i> (= <i>Enicmus</i>) <i>hirtus</i> Gyllenhal, 1827	En1	T M	C SN					VU
Zopheridae (= Colydiidae)								
<i>Colydium elongatum</i> (Fabricius, 1787)	Ef1	M	C		NT	VU		VU
⊕ <i>Synchita variegata</i> Hellwig, 1792	Cj2+	M	C	VU	EN			VU
Mycetophagidae								
⊕ <i>Mycetophagus ater</i> (Reitter, 1879) R2	Ce2+	T M	C	VU	EN		EN	CR
<i>Mycetophagus decempunctatus</i> Fabricius, 1801 ²⁴ R2	Cl3+	T M	C	VU	EN			CR
<i>Mycetophagus quadriguttatus</i> P.W. J. Müller, 1821	Bu1	T M	C SN					
Melandryidae								
<i>Abdera affinis</i> (Paykull, 1799) ²⁵	Cl1	T	C	VU	NT	EN		EN
⊕ <i>Abdera quadrifasciata</i> (Curtis, 1829) ²⁶	Fn1 p3+	T (M)	C (SN)	VU		CR		VU
⊕ <i>Anisoxya fuscula</i> (Illiger, 1798)	Cl3+	T M	C (SN)		VU	NT	DD	VU
⊕ <i>Conopalpus testaceus</i> (Olivier, 1790)	Bj1 Ce1	M	C	VU	NT			
⊕ <i>Dolotarsus lividus</i> (C. Sahlberg, 1834) [= <i>Xylita livida</i> (C. Sahlberg, 1834)] ²⁷	Ej1	M	C		EN	VU		CR
<i>Hypulus bifasciatus</i> (Fabricius, 1792)	Bi1	T M	C		NT	VU		CR
⊕ <i>Melandrya caraboides</i> (Linnaeus, 1761)	Ck1	T M	C		NT	EN		VU
<i>Melandrya dubia</i> (Schaller, 1783) ²⁸	Cl1	M	C	VU	EN	EN		EN
Mordellidae								
<i>Mordella holomeleana</i> Apfelbeck, 1914	Ff1	T M	C SN					
<i>Mordellochroa abdominalis</i> (Fabricius, 1775)	Fi1	T M	C SN					
<i>Variimorda basalis</i> (Costa, 1854)	Bc1	T M	C SN					VU
Oedemeridae								
<i>Chrysanthia nigricornis</i> Westhoff, 1881 [= <i>Ch. viridis</i> (Schmidt, 1846)]	Bc2+	T M	C SN					
<i>Ischnomera sanguinicollis</i> (Fabricius, 1787)	Eo1	M	C (SN)		VU			VU
<i>Nacerdes</i> (= <i>Xanthochroa</i>) <i>carniolica</i> (Gistel, 1832) ²⁹	Eo1	T M	C (SN)		NT			VU
<i>Sparedrus testaceus</i> (Andersch, 1797)	Bj1	T	C (SN)		VU			
Anthicidae								
<i>Anthicus floralis</i> (Linnaeus, 1758)	Fr2+	T M	C SN					
<i>Formicomus pedestris</i> (Rossi, 1790)	Fk1	T	C SN				DD	CR
Aderidae								
<i>Anidorus</i> (= <i>Aderus</i>) <i>nigrinus</i> (Germar, 1842)	Fp2	T	C (SN)			VU		

Salpingidae								
<i>Cariderus</i> (= <i>Salpingus</i> , <i>Rhinosimus</i>) <i>aeneus</i> (Olivier, 1807) ⁴³⁰	Fi2+	T	C (SN)		VU	EN	DD	CR
<i>Salpingus</i> (= <i>Rhinosimus</i>) <i>ruficollis</i> (Linnaeus, 1761)	Ck2+	M	C SN	VU				
<i>Sphaeriestes</i> (= <i>Salpingus</i>) <i>castaneus</i> (Panzer, 1796)	Fk2+	T M	C SN					
Tenebrionidae								
⊕ <i>Corticeus</i> (= <i>Hypophloeus</i>) <i>pini</i> (Panzer, 1799) ⁴³¹	Cl1	M	C	VU	CR	NT		CR
<i>Crypticus quisquilius</i> (Linnaeus, 1761)	Bl1	T M	C SN D					
<i>Mycetochara maura</i> (Fabricius, 1792) [= <i>M. linearis</i> (Illiger, 1794)]	Co1	M	C		NT			
⊕ <i>Platydemus dejeani</i> Laporte de Castelnau & Brullé, 1831 ⁴³² R2	Fo4+	M	C		CR	CR		CR
<i>Prionychus ater</i> (Fabricius, 1775) ⁴³³	Cn1	T M	C		NT			VU
<i>Stenomax aeneus</i> (Scopoli, 1763)	Bc1	T (M)	C SN					
Cerambycidae								
<i>Acanthocinus aedilis</i> (Linnaeus, 1758)	Fi1	M	C SN					
<i>Anaesthetis testacea</i> (Fabricius, 1781)	Df1	T	C (SN)					VU
<i>Anisorus</i> (= <i>Stenocorus</i>) <i>quercus</i> (Götz, 1783)	Cl1	T (M)	C (SN)			NT	VU	EN
<i>Calamobius filum</i> (Rossi, 1790)	Bj1+	T	C SN			NT		
<i>Cortodera femorata</i> (Fabricius, 1787)	Fi1	T M	C SN					VU
<i>Corymbia</i> (= <i>Leptura</i>) <i>dubia</i> (Scopoli, 1763)	Fm1+	M O	C SN					
<i>Leptura</i> (= <i>Strangalia</i>) <i>quadrifasciata</i> Linnaeus, 1758	Bp1	M O	C SN					
<i>Monochamus galloprovincialis</i> (Olivier, 1795) ⁴³⁴	Er1	T M	C SN					VU
<i>Phymatodes alni</i> (Linnaeus, 1767)	Ba1 Fj1	T M	C SN					
<i>Phymatodes glabratus</i> (Charpentier, 1825) ⁴³⁵	Fi1	T	C SN	VU	CR	NT		VU
<i>Phymatodes rufipes</i> (Fabricius, 1776)	Bi1	T	C SN				RE?	EN
<i>Phytoecia nigripes</i> (Voët, 1778) ⁴³⁶	Bj1	T M	C SN					VU
Chrysomelidae								
<i>Cassida sanguinosa</i> Suffrian, 1844	Fe1	T	C SN					
<i>Chrysolina geminata</i> (Paykull, 1799)	Fe1	T M	C SN					
<i>Cryptocephalus chrysopus</i> Gmelin, 1790	Bj1+	T M	C SN					
<i>Cryptocephalus octacosmus</i> Bedel, 1891	Fi1+	M	C SN			VU		EN
<i>Diabrotica virgifera</i> Le Conte, 1868 ⁴³⁷	Ff1	T	D A					
<i>Galeruca pomonae</i> (Scopoli, 1763)	Bj1+	T M	C SN					
<i>Galerucella lineola</i> (Fabricius, 1781)	Fj2+	M	C SN					
<i>Gonioctena pallida</i> (Linnaeus, 1758)	Eo1+	M O	C SN					
<i>Gonioctena viminalis</i> (Linnaeus, 1758)	Fi1	M	C SN					
<i>Hypocassida subferruginea</i> Schrank, 1776	Fm2+	T M	C SN D					
<i>Mniophila muscorum</i> (Koch, 1803)	Cj4+	M	C SN					
<i>Pyrrhalta viburni</i> (Paykull, 1799)	Fi2+	T	C SN					
Bruchidae								
<i>Bruchidius marginalis</i> (Fabricius, 1776)	Bm2+	T M	C SN					
<i>Bruchidius varius</i> (Olivier, 1795)	Fi2+	T	C SN		EN			CR
<i>Bruchus luteicornis</i> Illiger, 1794	Fi1	T M	C SN A					
<i>Spermophagus calystegiae</i> (Lukjanović & Ter-Minasjan, 1957)	Bi1	T	C SN					
Anthribidae								
<i>Choragus horni</i> Wolfrum, 1930 ⁴³⁸	Eo1	M	C	VU	VU	CR	DD	EN
<i>Dissoleucas niveirostris</i> (Fabricius, 1798)	Bm1	T M	C SN					
Nemonychidae								
<i>Doydirhynchus</i> (= <i>Diodyrrhynchus</i>) <i>austriacus</i> (Olivier, 1807) ⁴³⁹	Fk1	T M	C (SN)					VU

Curculionidae (s. lat., sine Scolytinae)								
<i>Acalles commutatus</i> Dieckmann, 1982	Ck1	M	C (SN)					VU
<i>Amalus scortillum</i> (Herbst, 1795)	Fl1	T M	C SN					
<i>Anthonomus phyllocola</i> (Herbst, 1795)	Fh1 ⁺	M O	C SN					
<i>Apion</i> (<i>Trichopterapion</i>) <i>holosericeum</i> Gyllenhal, 1833	Fi2 ⁺	T M	C SN					
<i>Apion</i> (<i>Catapion</i>) <i>seniculus</i> Kirby, 1808	Fj1	T M	C SN					
<i>Apion</i> (<i>Kalcapion</i>) <i>urticarium</i> (Herbst, 1784)	Fj1 l1 ⁺	M	C SN					
<i>Barypeithes chevrolati</i> (Boheman, 1843)	Fi1	M	C (SN)				LC	
<i>Brachonyx pineti</i> (Paykull, 1792)	Fl2 ⁺	T M	C SN					
<i>Bytiscus betulae</i> (Linnaeus, 1758)	Fj1 ⁺	M	C SN					
<i>Ceutorhynchus cochleariae</i> (Gyllenhal, 1813)	Fj1 ⁺	T M	C SN					
<i>Ceutorhynchus parvulus</i> Brisout, 1869	Fi1	T M	C SN		NT			VU
<i>Ceutorhynchus puncticollis</i> (Boheman, 1845)	Fj1	T	C SN			EN		
<i>Cionus scrophulariae</i> (Linnaeus, 1758)	Fk1 ⁺	T M	C SN					
<i>Cionus thapsus</i> (Fabricius, 1792)	Fk1	T	C SN					
<i>Cionus tuberculosus</i> (Scopoli, 1763)	Fk1	T M	C SN					
<i>Coeliastes lamii</i> (Fabricius, 1792)	Fk1 ⁺	T M	C SN					
<i>Coeliodes erythroleucus</i> (Gmelin, 1790) [= <i>C. cinctus</i> (Geoffroy, 1785)]	Cn1	T	C SN					
<i>Coryssomerus capucinus</i> (Beck, 1817)	Fk1	T (M)	C SN					
<i>Donus tessellatus</i> Boheman, 1834	Fl1	T M	C SN					
<i>Foucartia squamulata</i> (Herbst, 1795)	Fj1 ⁺	T	C (SN)			NT		
<i>Furcipes rectirostris</i> (Linnaeus, 1758)	Fk1 ⁺	T (M)	C SN					
<i>Gymnetron rotundicolle</i> (Gyllenhal, 1838) ⁴⁰	Fj2	T (M)	C SN					
<i>Hadroplontus trimaculatus</i> (Fabricius, 1775)	Fk2	T	C SN					VU
<i>Hypera venusta</i> (Fabricius, 1781)	Fj2	T M	C SN					
<i>Hypera zoilus</i> (Scopoli, 1763)	Fk1	T M	C SN D					
<i>Isochnus</i> (= <i>Rhynchaenus</i>) <i>foliorum</i> (O. F. Müller, 1764)	Df1	M	C SN					
<i>Larinodontes obtusus</i> Gyllenhal, 1836 ⁴¹	Fc1	T	C (SN)				LC	EN
<i>Larinodontes turbinatus</i> Gyllenhal, 1836	Fk1	T	C SN					
<i>Leucophyes</i> (= <i>Leucosomus</i>) <i>pedestris</i> (Poda, 1761) ⁴²	Fk1	T	C (SN)		CR	NT	EN	CR
<i>Liophloeus lentus</i> Germar, 1824	El1	M O	C SN					
<i>Lixus bardanae</i> (Fabricius, 1787)	Fk1	T M	C SN			EN		VU
<i>Magdalis fuscicornis</i> Desbrochers, 1870	Fj1	T	C SN					VU
<i>Magdalis rufa</i> Germar, 1824	Fj2 ⁺	T	C SN					EN
<i>Minyops variolosus</i> (Fabricius, 1775) ⁴³ [confused with <i>M. carinatus</i> (Linnaeus, 1767)]	Fk1	T M	C (SN)		CR	EN	EN	EN
<i>Otiorhynchus</i> (<i>Dorymerus</i>) <i>austriacus</i> (Fabricius, 1801)	Eo1	M	C SN					
<i>Otiorhynchus</i> (<i>Tournieria</i>) <i>fullo</i> (Schränk, 1781)	Fk1	T M	C SN					
<i>Otiorhynchus</i> (<i>Otiorhynchus</i>) <i>fuscipes</i> (Olivier, 1807)	Eo1	M O	C SN					
<i>Otiorhynchus</i> (<i>Dodecastichus</i>) <i>inflatus</i> Gyllenhal, 1834	De1	T M O	C SN					
<i>Otiorhynchus</i> (<i>Otiorhynchus</i>) <i>niger</i> (Fabricius, 1775)	Ek1 ⁺	M O	C SN					
<i>Otiorhynchus</i> (<i>Tournieria</i>) <i>pauillus</i> Rosenhauer, 1847	Ek1	M O	C (SN)					
<i>Otiorhynchus</i> (<i>Otiorhynchus</i>) <i>raucus</i> (Fabricius, 1776)	Fk1	T M	C SN					
<i>Otiorhynchus</i> (<i>Otiorhynchus</i>) <i>scaber</i> (Linnaeus, 1758)	Cl1	M	C SN					
<i>Otiorhynchus</i> (<i>Dorymerus</i>) <i>sulcatus</i> (Fabricius, 1775)	Fk1	T (M)	C SN					
<i>Pissodes castaneus</i> (De Geer, 1775)	Ei1	M	C SN					
<i>Pissodes piceae</i> (Illiger, 1807)	Eo1	M	C SN					

<i>Polydrusus viridicinctus</i> Gyllenhal, 1834	Fe1	T	C SN		NT	EN		
<i>Rhinoncus pericarpus</i> (Linnaeus, 1758)	Fl1	T M	C SN					
<i>Rhynchaenus pilosus</i> (Fabricius, 1781)	Bj1+	T M	C SN					
<i>Rhynchaenus rusci</i> (Herbst, 1795)	Fk1+	T M	C SN					
<i>Sciaphilus asperatus</i> (Bonsdorff, 1785)	Fi2+	T M	C SN					
<i>Scleropterus serratus</i> (Germar, 1824)	Eo1	M O	C SN			CR		VU
<i>Scythropus mustela</i> (Herbst, 1797)	Fh1	T M	C SN					
<i>Sitona crinitus</i> (Herbst, 1795)	Bj1	T M	C SN					
<i>Stereonychus fraxini</i> (De Geer, 1775)	Cn1+	M	C SN					
<i>Tychius aureolus</i> Kiesenwetter, 1851	Ff1	T	C (SN)					
<i>Tychius medicaginis</i> Brisout de Barneville, 1862	Ff1	T	C (SN)					VU
<i>Trachodes hispidus</i> (Linnaeus, 1758)	Cn1	T M	C SN					
<i>Trachyploeus alternans</i> Gyllenhal, 1834	Fk1	T M	C SN					
<i>Zacladus exiguus</i> (Olivier, 1807)	Fj1	T M	C SN			EN		
Curculionidae: Scolytinae								
<i>Dryocoetes autographus</i> (Ratzeburg, 1837)	Fk2	M	C SN					
<i>Ernoporicus caucasicus</i> (Lindemann, 1876)	Cn1	M	C SN				DD	VU
<i>Hylastes brunneus</i> Erichson, 1836	El1	T M	C SN					
<i>Hylastes linearis</i> Erichson, 1836 ⁴⁴	Fk1	T	C SN			VU		VU
<i>Hylastes opacus</i> Erichson, 1836	El1	M O	C SN					
<i>Hylesinus crenatus</i> (Fabricius, 1787)	Cn1	T M	C SN					
<i>Ips typographus</i> (Linnaeus, 1758)	Eor6++	M O	C SN D					
<i>Leperisinus fraxini</i> (Panzer, 1799)	Cn1	M	C SN					
<i>Lymanator coryli</i> (Perris, 1855) ⁴⁵	Fk1	M	C SN					VU
<i>Phloeosinus thujae</i> (Perris, 1855)	Fk1	T	C SN					
<i>Pityogenes chalcographus</i> (Linnaeus, 1761)	Ek4+	M O	C SN D					
<i>Scolytus carpini</i> (Ratzeburg, 1837)	Elr2+	T M	C SN					
<i>Scolytus rugulosus</i> (P. W. J. Müller, 1818)	Fm1	T M	C SN					
<i>Xyleborus dispar</i> (Fabricius, 1792)	Fj1 k1	T M	C SN					
<i>Xylocleptes bispinus</i> (Duftschmid, 1825)	Fi2+	M	C SN					
<i>Xylosandrus</i> (= <i>Xyleborus</i>) <i>germanus</i> (Blandford, 1894) ⁴⁶	Ej3+	M	C SN D					

Explanation: ⊕ – scarce and/or notable species already cited in the monograph FRANC et al. (2009); JH – Jiří Hájek det.; JM – Josef Mertlik det.; § – protected species in Slovakia; **R1** – in Germany is considered to be an ancient forest relict of the first grade; **R2** – of the second grade (Eckelt et al. 2017); **COR** – Codes of Records: **A–F** – see “Material and Methods”; petite letters reflect the date of sampling, numbers indicate the number of individuals: a – May 21, 2016; b – July 22, 2016; c – June 3, 2017; d – June 16, 2017; e – June 25, 2017; f – July 2, 2017; g – July 21, 2017; h – April 14, 2019; i – May 10, 2019; j – May 18, 2019; k – May 21, 2019; l – May 26, 2019; m – June 22, 2019; n – July 1, 2019; o – July 8, 2019; p – July 13, 2019; r – August 24, 2019; s – October 6, 2019; t – February 8, 2020; u – April 17, 2020; + – observed more individuals. **OOH** (originality of habitat): **C** – climax, **SN** – semi-natural, **D** – disturbed, **A** – artificial. **THP** (thermo-preference): **T** – thermophyticum, **M** – mesophyticum, **O** – oreophyticum. Ecosozological status: **SK** – Slovakia, **CZ** – Czech Republic, **PL** – Poland, **AT** – Austria, **DE** – Germany; **RE** – regionally extinct, **CR** – critically endangered, **EN** – endangered, **+EN** – it ought to be added to the referred red list, **VU** – vulnerable, **NT** – (lower risk) near threatened, **LC** – (lower risk) least concern, **CD** – care demanding, **DD** – data deficiency.

DISCUSSION

There were 656 beetle species documented in the studied territory (Franc et al. 2009). Despite this research was carried out by a team of authors (even though irregularly) for a period of 30 years, our research supplemented the list of species by 327 species over a period of five years. Some of them rank among rare and often relict species, include *Protaetia fieberi*, *Hylis cariniceps*, *Hylis simonae*, *Caenocara affinis*, *Ernobius kiesenwetteri*, *Mycetophagus decempunctatus*, *Abdera affinis*, *Melandrya dubia*, *Phymatodes glabratus*, *Choragus horni*, *Leucosomus pedestris*, *Minyops variolosus*, etc. The final number of species thus reached 983 species. We assume that after further research it will definitely exceed the number 1000 considerably.

Although it is a mountain area, predominantly covered by forest and reaching 1100 m a.s.l., thermophilous species made up more than one half (55.30%), while oreophilous species were represented by less than 8% (see Fig. 3).

The measure of habitat disturbance by anthropogenic activities is prevailingly low. The species of well-preserved or merely little-disturbed (semi-natural) habitats are highly prevailing in the studied area (see Fig. 4), together it is more than 93%. It indicates the relatively highly satisfactory state of the habitat conservancy in this territory and in the Starohorské vrchy Mts generally.

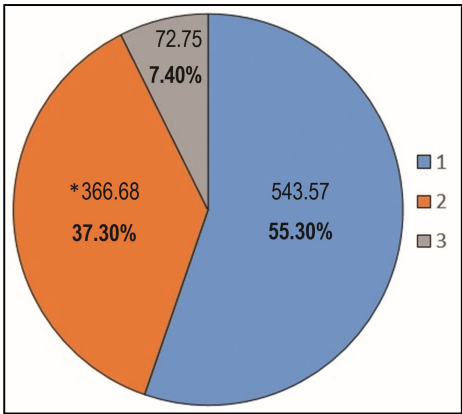


Fig. 3. Beetle faunal composition according to thermo-preference: 1 – thermophilous, 2 – mesophilous, 3 – oreophilous species * – sp[e] calculated species equivalent.

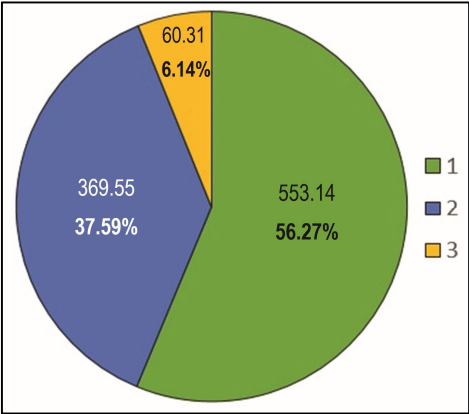


Fig. 4. Beetle faunal composition according to well-preserved habitat stage: 1 – climax, 2 – semi-natural, 3 – disturbed and artificial.

CONCLUSIONS

In this supplement we have documented the occurrence of the further scarce or even very rare beetles. Despite this territory is situated in the core area of the mountain complex, more-or-less thermophilous species are apparently prevailing, mainly in lower 'boundary' altitudes and on the southerly (SW, less SE) exposed slopes. It is especially allowed by warm limestone substratum and the dissected karst relief. Some of the species reach the northern boundary of their range here; it especially concerns *Euoniticellus fulvus*, *Onthophagus taurus*, *Hyperaspis campestris* (Herbst, 1783), *Phymatodes glabratus* and several further species referred earlier (FRANC et al. 2009). The list of species ferferred in these papers is still not definitive, of course.

Both papers prove that the massif of the Panský diel Mt ranks among the richest "biodiversity areas" at least in Slovakia and perhaps in Central Europe as well.

The measure of habitat disturbance by anthropogenic activities is prevalingly low, but the situation is perspectively not so stable and favourable. Effective nature conservation of this territory will not be easy and lacking conflicts, because it will be necessary to deal with the following problems seriously:

- progressive forest succession in many xerothermic sites. Occasional sheep and bovine grazing (on less steep slopes) would be the best solution, despite that it is prevalingly reduced in Slovakia);
- application of one-sided 'exploitable' forestry with all the consequences, mainly clean-cutting timber extraction and conversion of natural variegated forests towards monocultures in the studied area. The massif of the Panský diel Mt situated on the touch zone of two national parks deserves special conservation management based on the principles of the sustainable development;
- burning out the vegetation of xerothermic grasslands (fortunately, it is not so frequent here as in South Slovakia);
- expansion of both cottage and suburban 'garden colonies' in the border suburban area;
- conversion of meadows and woodlands towards urban environment (it is especially actual in the marginal, suburban zone of the whole massif);
- purposeless widening of ski tracks, especially in the surroundings of the Šachtičky saddle and the central massif of the Panský diel Mt itself. Winters of the last two decades are getting milder and the period of snow cover is shorter, and then the conditions for winter sports (or "winter snobbish activities") are not favourable in 'lower' mountain altitudes (below 1500 m a.s.l.) in Slovakia.

Finally, it is necessary to emphasize that only a little Nature Reserve Baranovo and a weakly guaranteed Protected Site Jakub (currently threatened by its immediately suburban location) are “officially” protected. By the way especially the side ridge called Hrádok with pristine forests and strong population of rare relict beetle *Eurythyrea austriaca* (extinct in surrounding countries) has all the prerequisites to be declared a strict reservation. It is urgently necessary to deal seriously with the nature protection management of the whole massif of the Panský diel Mt, being one of the widely known symbols of the developing regional capital in the heart of Slovakia.

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