

Taxonomy of *Rubus* ser. *Radula* in the Czech Republic

Taxonomie série *Radula* rodu *Rubus* v České republice

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Results of a taxonomic study of *Rubus* ser. *Radula* (Focke) Focke in the Czech Republic, based mainly on a comprehensive field survey, are presented. There are ten species in this country. Four of these species were already reported in the last Czech monograph on *Rubus* by J. Holub: *R. epipsilos* Focke, *R. radula* Weihe, *R. rudis* Weihe and *R. salisburgensis* Cafilisch. The fifth species, *R. indusiatus* Focke, is also reported by this author, but not confirmed for the Czech flora because all herbarium specimens previously ascribed to it belong to a new species described herein as *R. perpungens* M. Lepší et al. The same species has been found also in adjacent parts of Bavaria and Austria. Between 2003 and 2009, four other species of bramble originally included in ser. *Radula* were described and also found in the Czech Republic: *R. muhelicus* Danner, *R. bohemo-polonicus* Trávn. et Ziel., *R. perpedatus* Žíla et H. E. Weber and *R. passaviensis* Žíla. We regard the former three species to be members of ser. *Radula* but reclassify *R. passaviensis* to ser. *Vestiti* (Focke) Focke based on its morphological characters, which are typical of that series. In addition, we confirm the original classification of *R. silvae-norticae* M. Lepší et P. Lepší in ser. *Micantes*, which is sometimes placed in ser. *Radula*, and consider it a typical member of ser. *Micantes* Sudre. Finally, we validate two provisional species names already mentioned in the biosystematic literature: *R. jarae-cimrmanii* M. Lepší et al., a species endemic to the Czech Republic, and *R. vatavensis* Žíla et Trávn., which occurs in the Czech Republic and Austria, both of which are members of ser. *Radula*. The morphology, ecology and overall distribution of the three newly described species are described, and a detailed determination key, references to protologues and type material, total distribution maps and morphological descriptions and drawings of all seven previously described species recognized in this study are provided.

Key words: apomictic taxa, central Europe, Czech Republic, chorology, *Rosaceae*, *Rubus*, ser. *Radula*, taxonomy

Introduction

The genus *Rubus* L., which comprises about 750 species (Kurtto et al. 2010), is among the richest groups of vascular plants in Europe. In the Czech Republic, too, this genus is one of the richest in species. Although modern Czech botany (taxonomy of brambles)

has made great progress in recent decades (e.g. Holub 1991, 1993, 1995, Trávníček & Havlíček 2002, Trávníček & Zázvorka 2005, Lepší & Lepší 2006, 2009b), some groups of this genus remain taxonomically unresolved.

Rubus ser. *Radula* (Focke) Focke belongs to subg. *Rubus* (sect. *Rubus*), one of the taxonomically most complicated groups in the genus *Rubus* because of its great morphological diversity, high number of delimited taxa and the formation of new biotypes via hybridization followed by their partial stabilization by apomixis (Maurer 1994, Šarhanová et al. 2012, 2017, Sochor et al. 2015). Within subg. *Rubus*, taxa in ser. *Radula* are characterized by the following morphological features: primocanes usually of low to medium height arching, with medium to rather large and \pm uniform prickles and numerous stalked glands (intermediates between being absent or not numerous), leaves felted with stellate hairs and greyish-green to whitish-grey beneath. Most species in ser. *Radula* are morphologically intermediate between members in ser. *Glandulosi* (Wimm. et Grab.) Focke and ser. *Discolores* (P. J. Müll.) Focke. It was therefore assumed that species in ser. *Radula* often originate from crosses between these two groups, which was later confirmed using modern biosystematic approaches (Šarhanová et al. 2012, 2017, Sochor et al. 2015). In terms of the morphology of species in ser. *Radula*, the traits of those in ser. *Glandulosi* are manifested by the occurrence of scattered to abundant stalked glands on primocanes and inflorescences whereas features of those in ser. *Discolores* are represented by a green-grey to whitish felted indumentum on the undersides of leaves and by primocane prickles of \pm the same size and shape.

Rubus ser. *Radula* is endemic to Europe and includes about 40 species (Kurtto et al. 2010). It is distributed from the British Isles to eastern Romania in a west-eastern direction and from southern Scandinavia to central Spain and central Italy in a north-southern direction. There are three hotspots where the number of recognized brambles reaches up to eight species per mapping grid cell of the Atlas Florae Europaeae. These three areas are (i) the southern half of Great Britain, (ii) Rhineland-Palatinate and adjacent regions in western Germany, and (iii) foothills of the Alps, including the whole range of the Bohemian Forest and its foothills in the south-east of Germany, the north-west of Austria and the south-west of Bohemia (Kurtto et al. 2010). The last mentioned area is important for the diversity and diversification of the group in the Czech Republic. The majority of taxa accepted or newly described in this paper (except for *R. bohemo-polonicus* Trávn. et Ziel., *R. radula* Weihe, *R. rudis* Weihe and *R. salisburgensis* Cafilisch), including two local biotypes (provisionally named as *R. atromarginatus* ined. and *R. perigabretensis* ined., Lepší et al. 2013, see also below), have their Czech centre of distribution in regions adjacent to the Czech part of the Bohemian Forest. This striking diversity is ascribed to a long-term interaction between *R. bifrons* Vest and *R.* ser. *Glandulosi* mediated by early human colonization of the region, in contrast with other later colonized areas (namely the Carpathians), where both parental taxa also commonly co-occur, but the species diversity of ser. *Radula* is low (Šarhanová et al. 2017).

In the 1990s, J. Holub wrote the first critical treatment of the genus *Rubus* for the Flora of the Czech Republic (Holub 1995), which includes four widespread species of ser. *Radula*: *R. epipsilos* Focke, *R. radula*, *R. rudis* and *R. salisburgensis*. Soon after, Krahulcová & Holub (1998b) added the regional species *R. indusiatus* Focke to the list of the Czech flora during research on chromosome number variation in Czech brambles (Krahulcová & Holub 1997a, b, 1998a, b). These karyological studies have shown that all

of the species mentioned above are tetraploid. Further research, which is still ongoing, has led to the descriptions of three new regional species *R. bohemo-polonicus*, *R. perpendicularis* Žíla et H. E. Weber and *R. passaviensis* Žíla (Zieliński & Trávníček 2004, Žíla & Weber 2005, Žíla 2009) and the discovery of *R. muhelicus* Danner in the Czech Republic (Danner 2003, Lepší & Lepší 2009a). However, two long-distinguished brambles, *R. vatavensis* ined. and *R. jarae-cimrmanii* ined., have remained formally undescribed to this day, although they have appeared together with other Czech members of ser. *Radula* in several recently published biosystematic papers (Šarhanová et al. 2012, 2017, Sochor et al. 2015). These works have shown that the Czech *Radula* brambles studied are tetraploid facultative apomicts originating from independent hybridization events between sexual members in ser. *Glandulosi* and apomictic taxa in ser. *Discolores*. The low genetic variation recorded is attributed to mutation rather than multiple origins or recombination (Šarhanová et al. 2017). These results support the assumptions of the species concept adopted by modern botany that *Rubus* species are morphologically well defined apomictic clones with clearly defined distributions (Weber 1996, Holub 1997).

This paper builds on the extensive long-term botanical research outlined above. Its main aim is to present a revision of the list of all species in ser. *Radula* occurring in the Czech Republic and provide basic information about the morphology, distribution and taxonomy of all species on the list, particularly those which are newly described.

Methods

As taxonomic species we regard (in accordance with Weber 1996) only such apomictic bramble biotypes that have a sufficiently wide distribution in the countryside, that is, those that have many mutually distant localities and a distribution area at least 50 km in diameter.

A field survey of *Rubus* ser. *Radula* was conducted between 1995 and 2017 at more than 1500 localities with brambles throughout all regions of the Czech Republic, and also about 300 localities in adjacent parts of Austria and Bavaria. This detailed field survey was complemented by the study of the three largest Czech public herbarium collections of brambles (OL, PR and PRA) and selected public (CB, L) and private collections (K. Čížek, P. Havlíček, P. Lepší, J. Velebil and V. Žíla). Specimens collected by the authors of the papers are deposited in the herbaria mentioned above too. Both revised and collected specimens are the reference herbarium material of this study. Photographs of newly described species are also presented in Electronic Appendix 1. In addition, we studied type material of names of all the taxa revised in this work (Table 1). For widely distributed taxa described in the 19th century, we provide photographs of the type material examined in Electronic Appendix 2.

Morphological descriptions, photographs and distributions are provided only for the newly described species. For the previously described species that are accepted in this study, references to previously published descriptions, illustrations and distribution are given in Table 2.

The determination key was compiled based on descriptions published in protologues, selected monographs (Holub 1995, Trávníček & Havlíček 2002, Zieliński 2004) and herbarium specimens deposited in CB, OL and PR. The description of each of the three new

Table 1. – Overview of *Rubus* species studied and comparison of previous knowledge and information newly presented in this paper. * Photographs of type specimens presented in Electronic Appendix 2. Cs – Czech Republic.

Species	Type material seen – herbarium acronym	Previous intrageneric classification	Taxonomic and other conclusions (changes) reached in this paper
<i>R. bohemo-polonicus</i> Trávn. et Ziel.	isotype – OL	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. epipsilos</i> Focke	lectotype – BREM*	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. induslatus</i> Focke	lectotype (Fig. 4), isolectotype, paralectotype – BREM*	ser. <i>Radula</i>	does not occur in Cs
<i>R. jarae-cimmeranii</i> M. Lepší, P. Lepší, Trávn. et Žíla	holotype – CB (Fig. 10)	ser. <i>Radula</i>	taxonomic novelty
<i>R. muhelicus</i> Danner	holotype – LI	ser. <i>Radula</i>	accepted species, confirmed for Cs → ser. <i>Vestriti</i>
<i>R. passaviensis</i> Žíla	holotype – LI	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. perpedatus</i> Žíla et H. E. Weber	holotype – PR	ser. <i>Radula</i>	taxonomic novelty
<i>R. perungens</i> M. Lepší, P. Lepší et Trávn.	holotype – CB (Fig. 1)	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. radula</i> Weihe	lectotype – KIEL*	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. rudis</i> Weihe	lectotype – BREM*	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. salisburgensis</i> Cafilish	lectotype – BREM*	ser. <i>Radula</i>	accepted species, confirmed for Cs
<i>R. silvae-norticae</i> M. Lepší et P. Lepší	holotype – CB	ser. <i>Radula</i>	accepted species, confirmed for Cs → ser. <i>Micantes</i>
<i>R. vatavensis</i> Žíla et Trávn.	holotype – CB (Fig. 6)	ser. <i>Radula</i>	taxonomic novelty

Table 2. – Previously described species recognized in this study as members of *Rubus* ser. *Radula* in the Czech Republic. The country codes follow Atlas Florae Europaeae (Kurtto et al. 2010).

Species	Description	Illustrations	Total distribution	Distribution in the Czech Republic	Distribution maps
<i>R. bohemo-polonicus</i>	Zieliński & Trávniček 2004: 311 and 313	Zieliński & Trávniček 2004: 312	Cs, Po	N and central Moravia and one locality in central Bohemia	Zieliński & Trávniček 2004: 314, Kurtto et al. 2010: 195
<i>R. epipsilos</i>	Holub 1995: 156 and 158, Weber 1995: 480	Holub 1995: 157, Weber 1995: 480–481	Au, Cs, Ge	scattered in S and S-W Bohemia	Kurtto et al. 2010: 190
<i>R. muhelicus</i>	Danner 2003: 167–168, Lepší & Lepší 2009a: 91 and 93	Lepší & Lepší 2009a: 92	Au, Cs, Ge	scattered in a small area in S Bohemia	Lepší & Lepší 2009a: 94, Kurtto et al. 2010: 191
<i>R. perpedatus</i>	Žíla & Weber 2005: 433–435	Žíla & Weber 2005: 434	Au, Cs, Ge	scattered in S-W Bohemia	Žíla & Weber 2005: 436, Kurtto et al. 2010: 193
<i>R. radula</i>	Holub 1995: 155–156, Weber 1995: 477–478, Zieliński 2004: 154	Holub 1995: 157, Weber 1995: 477, Zieliński 2004: 155–156	Au, B, L, Br, Cs, Ct, Da, Ga, Ge, Hb, He, Ho, Hs, Hu, It, Lu, No, Po, Rm, Sk, Sl, Su	scattered throughout this country except for mountains	Weber 1995: 478, Kurtto et al. 2010: 189
<i>R. rudis</i>	Holub 1995: 158 and 160, Weber 1995: 481–482, Zieliński 2004: 157 and 160	Holub 1995: 159, Weber 1995: 481, Zieliński 2004: 158–159	Au, B, L, Br, Cs, Ga, Ge, He, Ho, Po, U	scattered in E Bohemia and rare in central Moravia and central S Bohemia	Kurtto et al. 2010: 194
<i>R. salisburgensis</i>	Holub 1995: 160–161, Weber 1995: 482–483, Zieliński 2004: 161	Holub 1995: 159, Weber 1995: 483, Zieliński 2004: 162–163	Au, Cs, Ge, Po	mainly in central and E Bohemia, scattered in W and N Moravia, rare in S Bohemia	Kurtto et al. 2010: 195

species (see below) was based on 15 specimens, including holotypes and isotypes. Each morphological character was measured once per specimen. Only mature and well developed individuals were used for the study. Listed herbarium specimens from the Czech Republic were sorted according to the regional-phytogeographical classification system (Skalický 1988) and subsequently according to quadrant numbers of the central-European grid mapping system (Ehrendorfer & Hamann 1965). Revised herbarium specimens from Austria and Bavaria were classified according to administrative regions and subsequently according to quadrant numbers of the central-European mapping grid. The species nomenclature of genera other than *Rubus* was unified according to Danihelka et al. (2012).

Results and discussion

We recognize 10 species within ser. *Radula* in the Czech Republic (Table 1), seven of which were recognized previously (Danihelka et al. 2012). These are *R. radula*, *R. rudis*, *R. epipsilos*, *R. perpeditus*, *R. salisburgensis*, *R. muhelicus* and *R. bohemo-polonicus*. Based on our comparative study, we consider all these species within the Czech Republic taxonomically consistent and congruent with the type material (see Table 1). The morphology and total distribution of these seven species are already described sufficiently in the botanical literature and therefore we provide only references to this information (Table 2). Three species, *Rubus jarae-cimrmanii*, *R. vatavensis* and *R. perpungens*, are described herein as new to science. The last of them we separate from *R. indusiatus*, a species described from southern Bavaria, and, for this reason, we exclude true *R. indusiatus* from the list of the Czech flora (Table 1). We do not accept two local biotypes in the ser. *Radula*, *R. atromarginatus* ined. and *R. perigabretensis* ined. (Lepší et al. 2013) as species because they do not meet the distribution criterion for the species concept employed in this paper (Weber 1996).

Additionally, we propose to exclude *R. passaviensis* Žíla from ser. *Radula* (Žíla 2009, Kurtto et al. 2010) and place it in ser. *Vestiti* (Focke) Focke based on its distinct morphology (Table 1). This species has all the characters diagnostic of this series: primocanes densely hairy with rare stalked glands, leaves grey to whitish and distinctly hairy to the touch beneath. Finally, we do not treat *R. silvae-norticae* M. Lepší et P. Lepší as a part of ser. *Radula* (Kurtto et al. 2010, Krahulcová et al. 2013) and retain it in ser. *Micantes* (Table 1), in line with the original classification proposed in the protologue of this species (Lepší & Lepší 2009b). Abundant acicles, bristles and sometimes also pricklets on primocanes, usually accompanied by an absence of a greyish indumentum on the undersides of leaves, indicate that this species belongs to ser. *Micantes*. Moreover, the morphological similarity (especially in the indumentum) of *R. silvae-norticae* with *R. clusii* Borbás, which is a member of ser. *Micantes*, also supports this classification.

All proposed changes resulting from our research are summarized in Table 1. Descriptions of the new species follow.

***Rubus perpungens* M. Lepší, P. Lepší et Trávn., spec. nova**
(Figs 1–3, Electronic Appendix 1)

Syn.: *R. indusiatus* auct. non Focke

Description: Primocanes mostly of medium height arching, up to 1 m tall, rooting at apex, angled with \pm flat sides, usually (4.5–) 5–6 (–7) mm in diameter, matt green, at sunny sites distinctly suffused brown-red, with (5–)20–60(–70) simple and fasciculate hairs per 1 cm of side of stem, reaching up to the bases of prickles; glands sessile, subsessile and stalked, stalked ones usually (2–) 5–14 (–22) per 1 cm of side of stem, up to (0.5–) 0.6 (–0.7) mm long; glandular acicles abundant and bristles rather rare. Prickles (19–) 24–29 (–34) per 5 cm of stem length, \pm equal, straight, slightly declining, (6.5–) 7–8 (–8.5) mm long, with flattened bases (4–) 4.5–5.5 (–7.5) mm broad, suffused brown-red at the base, with yellowish long tip. Primocane leaves medium-sized, 5-foliolate, indistinctly pedate, usually flat, somewhat leathery, green above, covered with (0–) 1–3 (–7) hairs per 1 cm², green or green-grey to whitish-grey beneath, sparsely felted to felted, with stellate and longer simple hairs (distinctly hairy to the touch). Leaflets \pm contiguous, the terminal one with mid-long petiolule [petiolule (26–) 32–37 (–41)% as long as lamina], broadly elliptical to round, cordate at base, \pm abruptly narrowing into only (12–) 15–17 (–21) mm long apex; leaflet margins rather flat, indentation fine, regular, with incisions (1–) 1.5–2 mm deep. Lateral leaflets usually with cordate base. Petiolules of the basal leaflets (3–) 4–5 mm long. Petioles usually (5.5–) 6–7.5 cm long, longer than the basal leaflets, with scattered hairs, sessile to stalked glands, acicles, bristles and with (14–) 16–22 (–29) hooked prickles; stipules filiform, ca (0.4–) 0.6–0.8 (–0.9) mm wide, with scattered hairs and with sessile to stalked glands. Inflorescence paniculate, truncate at apex, with erecto-patent to (in upper part of inflorescence) \pm patent branches, distal (5–) 7–9 (–16) cm long part leafless. Inflorescence leaves ternate (the uppermost 1 leaf simple), green to grey-green and sparsely felted to felted beneath; terminal leaflets broadly elliptical to broadly obovate, abruptly narrowing into very short apex. Inflorescence axis slightly flexuous, sparsely felted with stellate hairs and with many long simple hairs, with numerous stalked glands, acicles and bristles and with (7–) 10–17 (–18) prickles per 5 cm of axis length; prickles \pm equal, slender, declining, slightly curved, (3.5–) 5–5.5 (–7) mm long. Pedicels \pm densely felted, with numerous, unequal, stalked glands up to (0.5–) 0.6–0.7 (–1) mm long, shorter than the longest hairs and with (5–) 7–9 (–13) acicular, \pm equal, slightly curved and slightly declining, 1.5–2.5 (–3) mm long prickles. Sepals (5–) 6–7.5 (–8.5) mm long (inclusive of the filiform appendix), reflexed after anthesis, green-grey with whitish margin, felted, with scattered long simple hairs, scattered stalked glands and with at most few yellowish pricklets beneath, green or rarely suffused red at base above. Petals light pink, (9–) 11–12 (–13) mm long, elliptical, not touching each other. Stamens somewhat longer than styles, filaments white, anthers glabrous. Carpels \pm densely hairy, styles greenish. Receptacle moderately hairy. Collective fruit semiglobose to globose. Somatic chromosome number $2n = 28$, tetraploid (Krauhlová & Holub 1998b as *R. indusiatus*). Reproduction apomictic (Šarhanová et al. 2012). Flowering VII (–VIII).

H o l o t y p e: Southern Bohemia, distr. Prachatice, Strunkovice nad Blanicí (6950a): ca 0.7 km NW of summit of Spálená hill, forest road edge; 530 m a.s.l.; 49°5'32.8"N, 14°0'19.6"E; 7 VIII 2007, leg. M. Lepší; CB (No. 64723) (Fig. 1). – I s o t y p e: PR (part 1 – No. 921701, part 2 – No. 921702).

Etymology

The epithet “*perpungens*” points to the long and pungent apex of prickles on primocanes. We suggest the epithet “*bodavý*” for the Czech species name.

Diagnostic characters

Prickles on stems abundant, (19–) 24–29 (–34) per 5 cm of length, \pm equal, straight, slightly declining, (6.5–) 7–8 (–8.5) mm long, with a long pungent tip. Primocane leaves usually 5-foliolate, terminal leaflet broadly elliptical to round, cordate at base, \pm abruptly narrowing into a (12–) 15–17 (–21) mm long apex; leaflet margin indentation fine, regular, with incisions (1–) 1.5–2 mm deep; lateral leaflets usually with a cordate base. Inflorescence with terminal leaflets broadly elliptical to broadly obovate, abruptly narrowing into a very short apex.

Taxonomy and similar species

Since 1998, *Rubus perpingens* has been treated as *R. indusiatus* in the Czech Republic (Krahulcová & Holub 1998b, Chán 1999, Holub 1999, Procházka 2001, Trávníček & Havlíček 2002, Dančák et al. 2005, Danihelka et al. 2012, Grulich 2012, Šarhanová et al. 2012, 2017). This species was also not distinguished from *R. indusiatus* in the Atlas Florae Europaeae and its distribution was included in the distribution map of *R. indusiatus* (Kurtto et al. 2010). *Rubus indusiatus* was described from southern Bavaria in the 19th century and restored for modern botany by Weber (1997). To our knowledge, this species does not occur in the Czech Republic and all records for this country pertain to *R. perpingens*. We also checked if this bramble had already been described by Progel (1882, 1889), who dealt with *Rubus* in the Bavarian Forest. However, none of his species is taxonomically identical with *R. perpingens*.

Based on the comparative study of type material deposited in BREM (Fig. 4, Electronic Appendix 2) and information given in Weber (1997), *R. indusiatus*, unlike *R. perpingens*, has shorter, (4–) 5.5–6 mm long prickles on the primocane, only 7–10 prickles per 5 cm of primocane length and different shaped primocane leaves, which have an obovate or elliptical terminal leaflet with a longer, subabrupt sharp apex and sharper, not regular (rather distinctly periodic) indentation.

Ecology

Rubus perpingens grows mainly at the edges of forests, in forests, along forest roads and rarely also in forest clearings, mainly in forests dominated by *Pinus sylvestris* and *Picea abies* plantations or rarely coniferous plantations with an admixture of native broad-leaved trees (*Quercus robur* and *Fagus sylvatica*). Exceptionally it is recorded in non-forest habitats such as among shrubs or road edges. It usually inhabits mesic, acidic soils developed on siliceous bedrocks, but it has also been recorded on basic soils on limestone.

Distribution

Rubus perpingens is a regional species distributed mainly in the foothills and lower parts of the Bohemian Forest (Šumava Mts, Český les Mts and Bayerischer Wald Mts). In addition to this more or less scattered occurrence, this species has several outposts, for example in the Brdy Mts and in the Bohemian-Moravian Highlands (Fig. 5, Appendix 1). This species has been found at more than 200 localities and the distance between the two localities furthest apart exceeds ca 250 km. The centre of the species' distribution in the Czech Republic lies in the Klatovy and Domažlice districts in south-western Bohemia, where it is relatively abundant in the phytogeographical units of Český les, Plzeňská pahorkatina (southern part) and Plánický hřeben. In adjacent regions in western and southern Bohemia it is rather scattered or rare. In Bavaria, this species is common in the northern surroundings of Passau in Lower Bavaria (Niederbayern) and four localities were also recorded in the wide surroundings of the towns of Nabburg, Neunburg vorm Wald, Oberviechtach and Rötz in Upper Palatinate (Oberpfalz). The only two known Austrian localities lie near the villages of Zeilberg and Kopfung im Innkreis in northern Innviertel (Upper Austria). The record of *R. indusiatus* from a locality near the town of Zwettl in Lower Austria (Krahulcová & Holub 1998b) may pertain to *R. perpingens*; however, this



HOLOTYPE!

HERBARIUM MUSEI REGIONALIS BOHEMIAE MERIDIONALIS
ČESKÉ BUDĚJOVICE

Flora: southern Bohemia



HOLOTYPE! – part 1

Rubus perpingens M. Lepší, P. Lepší et B. Trávníček

Strunkovice nad Blanicí (distr. Prachatice), ca 0.7 km NW of summit of Spálená hill, forest road edge

Frequency: several large shrubs

Altitude: 530 m WGS 84: 49°5'32,8"N; 14°0'19,6"E

Quadrant: 6950aaa

Phytogeographical distr.: Prachatické Předsumaví

Date: 7.8.2007 Collected: Martin Lepší

Quadrant – Elstner/et al. Hansen 1963, Bot. Denksch. Bot. Ges., Phytogeographical distr. – Štáblík 1988, Květena ČR 1.

A



Fig. 1. – Holotype of *Rubus perpingens*: A – herbarium sheet 1 (the inflorescence of the holotype) B – herbarium sheet 2 (primocane leaves of the holotype).



HOLOTYPUS!

HERBARIUM MUSEI REGIONALIS BOHEMIAE MERIDIONALIS
ČESKÉ BUDĚJOVICE

Flora: southern Bohemia



HOLOTYPUS! – part 2

Rubus perungens M. Lepší, P. Lepší et B. Trávníček

Strunkovice nad Blanicí (distr. Prachatice), ca 0.7 km NW of summit of Spálená hill, forest road edge

Frequency: several large shrubs

Altitude: 530 m WGS 84: 49°5'32,8"N; 14°0'19,6"E

Quadrant: 6950aaa

Phytogeographical distr.: Prachatické Předšumaví

Date: 7.8.2007 Collected: Martin Lepší

*Quadrant – Ehrenburger et Hermsen 1963, Her. Dusseld. Bot. Ges., Phytogeographical dist. – Slaváký 1968, Kuhnova ČR 1.

B



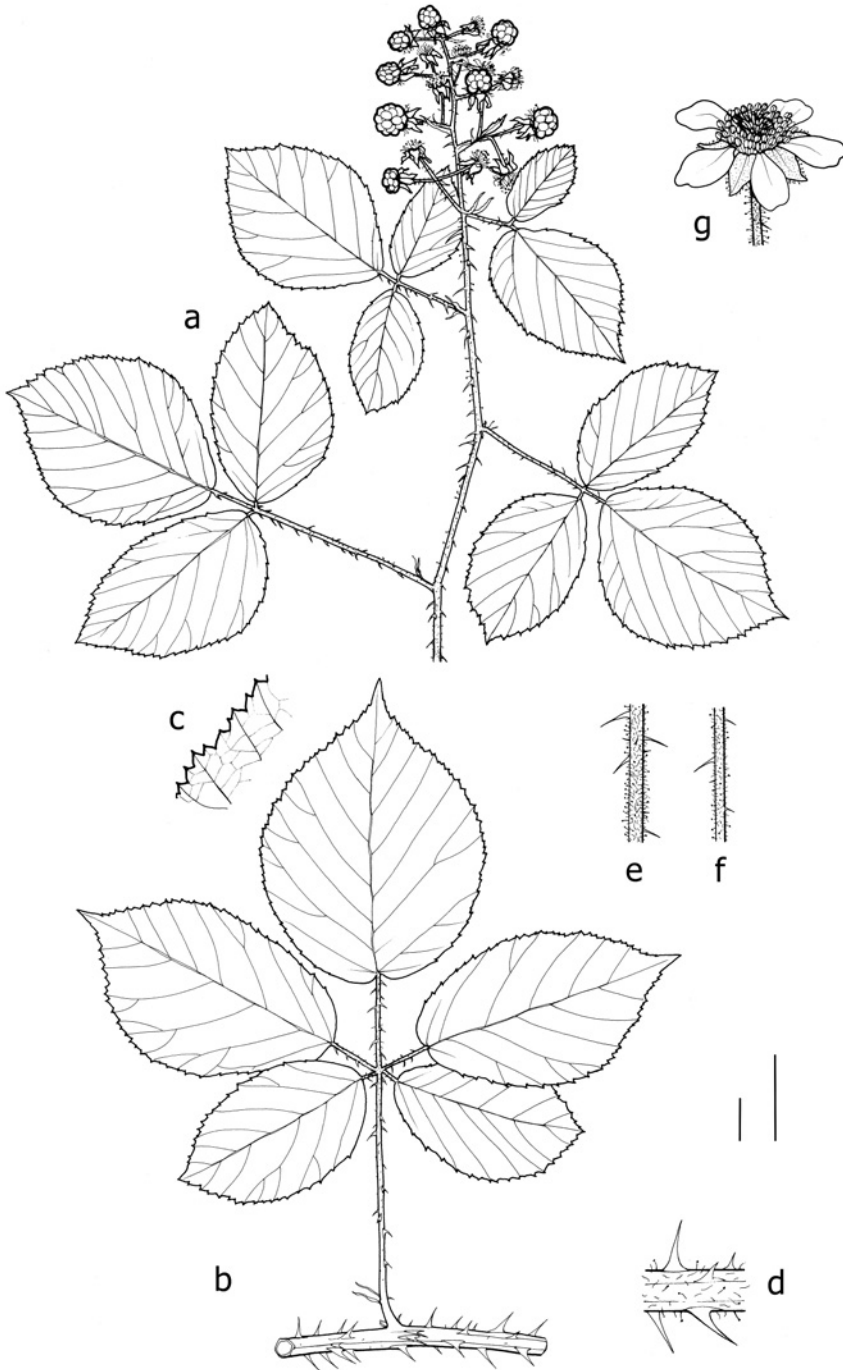


Fig. 2. – *Rubus perungens*: a – inflorescence; b – leaf on primocane; c – detail of terminal leaflet margin (of primocane leaf); d – detail of primocane prickles; e – detail of inflorescence axis; f – detail of peduncle; g – flower. Scale bars 1 cm, shorter – a, b; longer – c–g. Drawing by A. Skoumalová.



Fig. 3. – *Rubus perungens*: infructescence and primocane leaf (Czechia, Strakonice district, Kladruby village, Divoš hill, 49°16'15"N, 13°45'13"E, 31 VIII 2013, photographed by B. Trávníček).

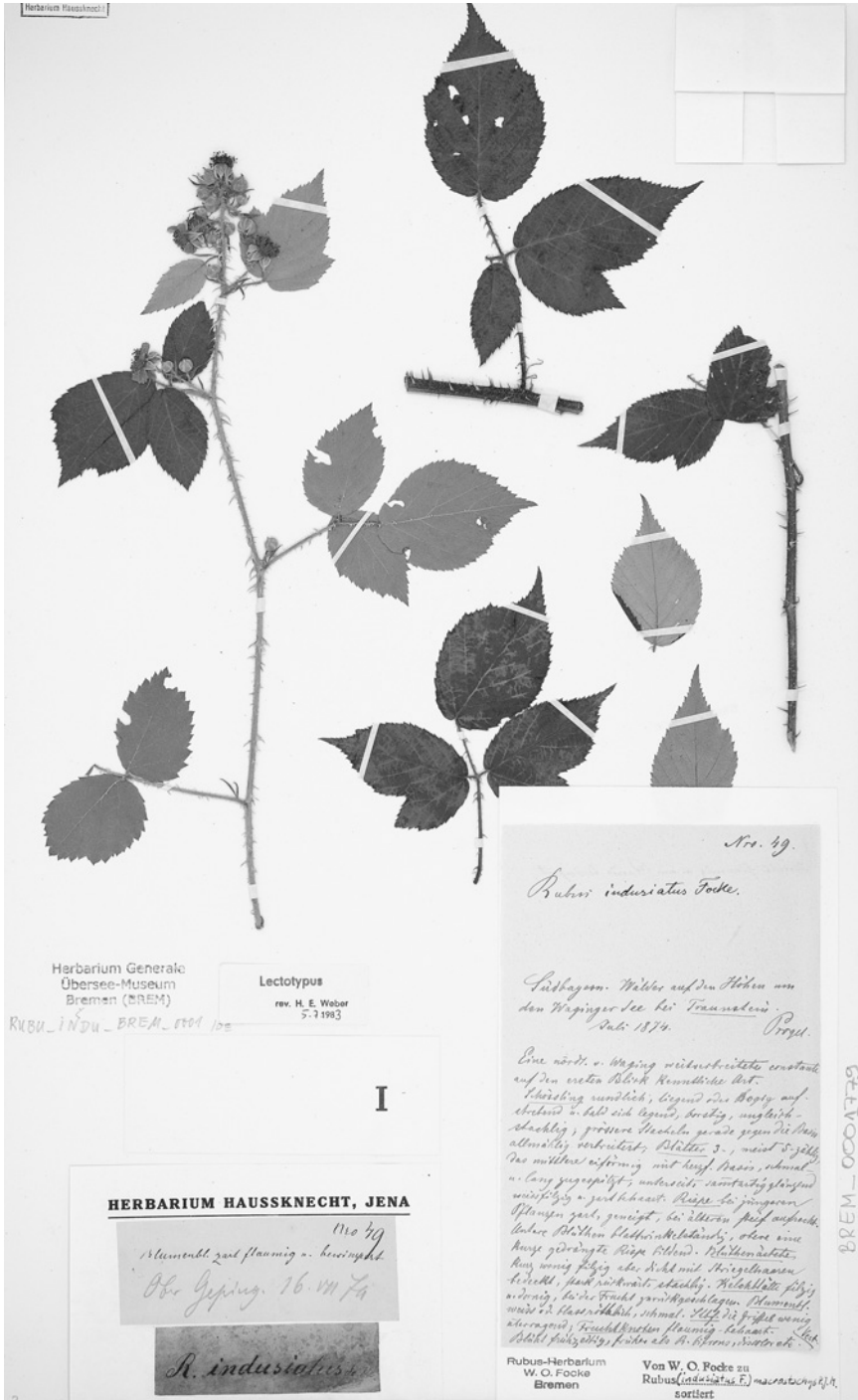


Fig. 4. – Lectotype of *Rubus indusiatus* Focke deposited at Übersee-Museum Bremen, No. BREM_0001779 (Photograph provided by M. Grein, Übersee-Museum Bremen 2018).

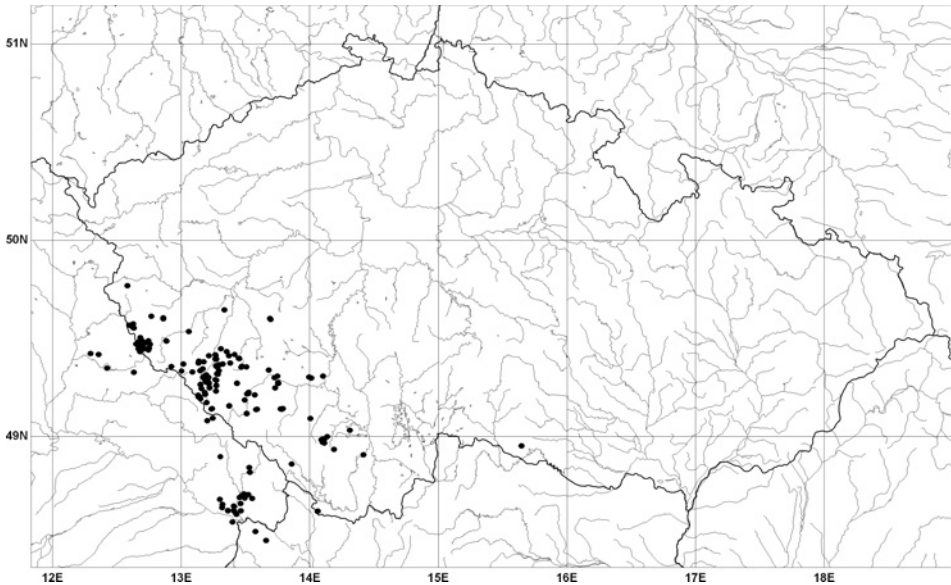


Fig. 5. – Map showing the distribution of *Rubus perpungens*.

occurrence requires revision. The species' distribution in Bavaria, and also in Austria, is little known compared to the Czech Republic and deserves an additional survey, especially within or close to the known area of occurrence of *R. perpungens*. The species has been found in 57 quadrants (10' × 6') of the central-European mapping grid, and in the Czech Republic it occurs in 25 phytogeographical units (districts and sub-districts). The recorded localities are situated in the colline to supramountain vegetation belt between 360 m a.s.l. (Kalteneck, Lower Bavaria) and 1160 m a.s.l. (Železná Ruda, western Bohemia). Most localities lie in the supracolline belt between 400–700 m a.s.l. The oldest known herbarium specimen was collected in 1880 by L. J. Čelakovský near the town of Železná Ruda.

***Rubus vatavensis* Žíla et Trávn., spec. nova** (Figs 6–8, Electronic Appendix 1)

Description: Primocanes of medium height arching, 80–150 cm tall, rooting at apex, bluntly angled with ± flat to slightly convex sides, mostly 5–9 mm in diameter, matt green, at sunny sites distinctly suffused brown-red, with (50–) 90–170 (–240) simple, fasciculate, and stellate hairs per 1 cm of side of stem, reaching up to the bases of prickles; glands scattered, sessile, subsessile and stalked, stalked ones usually (3–) 8–15 (–23) per 1 cm of side of stem and up to (0.4–) 0.5 (–0.7) mm long; rare to scattered glandulous acicles also present. Prickles 6–12 per 5 cm of stem length, equal, straight, slightly declining, rarely patent, 5–8 mm long, with broad and flattened bases 4–6 mm broad, ending in a long tip, usually scattered hairy, yellowish-green, at sunny sites suffused brown-red at the base, with yellowish tip. Primocane leaves medium-sized, usually ternate or 4–5-foliolate, pedate, flat, leathery, matt, dark green and glabrous above, green-grey to whitish-grey beneath, thin-felted, with many stellate and with scattered longer patent simple hairs (not distinctly hairy to the touch). Leaflets remote from one another to contiguous (in 4–5-foliolate leaves), the terminal one with mid-long petiolule (petiolule 25–37% as long as lamina), oblong, obovate to broadly obovate, usually cordate at base, abruptly narrowing into 14–19 mm long, sharp apex; leaflet margins flat or in the upper part slightly undulate, indentation fine, regular to slightly periodic (in the upper part), with incisions 1–2 mm deep. Petiolules of the basal leaflets (in 4–5-foliolate leaves) only 1.5–5.5 mm long. Petioles usually 4–7 cm long, longer than the basal leaflets,



Fig. 6. – Holotype of *Rubus vatavensis*.

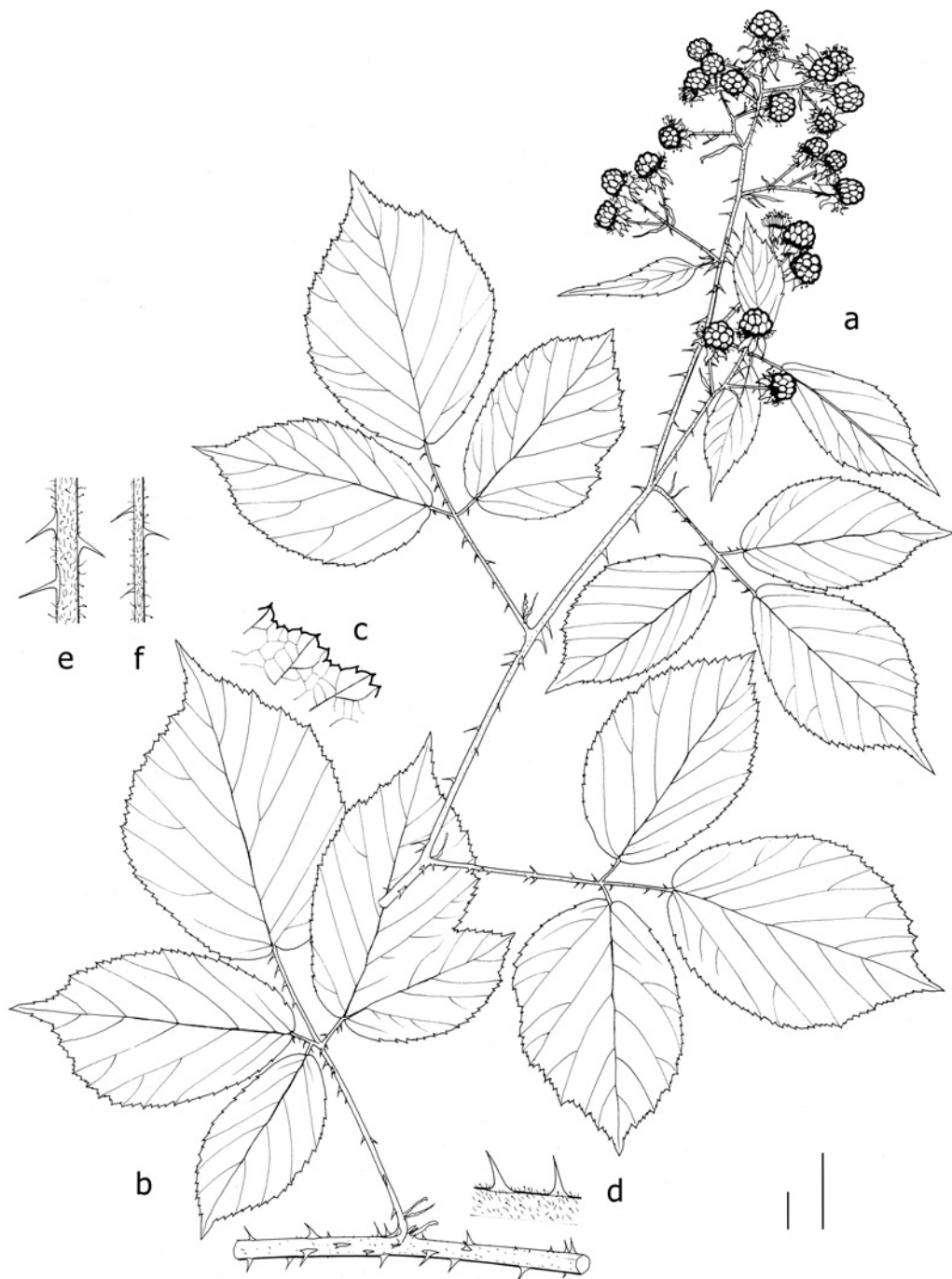


Fig. 7. – *Rubus vatavensis*: a – infructescence; b – leaf on primocane; c – detail of margin of terminal leaflet (primocane leaf); d – detail of primocane prickles; e – detail of inflorescence axis; f – detail of peduncle. Scale bars 1 cm, shorter – a, b, longer – c–f. Drawing by A. Skoumalová.



Fig. 8. – *Rubus vatavensis*: inflorescence and 4-foliolate primocane leaf (Czechia, Strakonice town, locus classicus, 49°14'32"N, 13°57'13"E, 9 VII 2010, photographed by B. Trávníček).

scattered to densely hairy, with scattered stalked glands and with 6–10 slightly curved prickles; stipules filiform, ca (0.4–) 0.6–0.8 (–0.9) mm wide, with scattered hairs and with stalked glands. Inflorescence paniculate, broadly pyramidal, rounded at apex, often voluminous, with erecto-patent, rarely patent branches, distal 6–14 cm long part leafless. Inflorescence leaves predominantly ternate (the uppermost 1–2 leaves simple), sparsely hairy above, grey-green to whitish-grey felted beneath. Inflorescence axis straight to slightly flexuous, densely patent hairy, with scattered to numerous stalked glands shorter than hairs and with 7–11 prickles per 5 cm of axis length; prickles slender, straight and slightly declining to curved, 3–6 mm long. Pedicels sparsely felted, with scattered patent hairs, with scattered to numerous sessile and unevenly long stalked glands, up to (0.2–) 0.3–0.4 (–0.5) mm long, shorter than hairs and with 5–12 acicular, straight and \pm patent, 1–1.5 mm long prickles. Sepals 7–10 mm long (inclusive of the filiform appendix), reflexed after anthesis, green-grey, with a whitish felted margin, felted, with scattered long simple hairs, with scattered stalked glands and with few yellowish pricklets beneath, suffused red at base above. Petals white or (especially in flower-buds) slightly pink, 10–13 mm long, broadly elliptical to broadly ovate, not touching each other. Stamens longer than styles, filaments white, anthers glabrous. Carpels \pm densely hairy, styles greenish. Receptacle scattered hairy. Collective fruit \pm globose. DNA ploidy level: tetraploid (inferred using FCM, Šarhanová et al. 2012). Reproduction apomictic (Šarhanová et al. 2012). Flowering (VI)–VII(–VIII).

H o l o t y p e: Southern Bohemia, distr. Strakonice, Strakonice (6749d); ca 1.3 km SE of centre of Podsrp settlement, forest edge; 510 m a.s.l.; 49°14'32"N, 13°57'13"E; 9 VII 2010, leg. B. Trávníček & V. Žíla, collection No. R111/10; CB (No. 85488) (Fig. 6). – **I s o t y p e s:** OL (No. 35743), PR (No. 917761), BRNM (No. 806152).

Etymology

The epithet “*vatavensis*” refers to the Czech river Otava, the historical name of which is Vatava. This species occurs frequently in the drainage basin of this river and was recognized there for the first time. We propose the epithet “*pootavský*” for the Czech species name. The Holub’s provisional name for this species was *R. adalberti* ined. (see Holub 1999, Procházka 2001).

Diagnostic characters

Primocanes distinctly suffused brown-red at sunny sites, scattered to medium densely hairy, with scattered stalked glands; leaves on primocanes ternate to 4–5-foliolate, thin-felted, not distinctly hairy to the touch beneath; indentation fine, regular to slightly periodic with incisions 1–2 mm deep (in the upper part); terminal leaflet oblong obovate to broadly obovate, abruptly narrowing into a sharp apex. Inflorescence often voluminous, with many flowers.

Taxonomy and similar species

Rubus vatavensis is a typical member of ser. *Radula*. Of the species recorded in the Czech Republic, it most resembles *R. radula*, which differs in having primocanes with longer stalked glands, leaves with elliptical, ovate or slightly rhomboid terminal leaflets gradually narrowing into an apex and a narrowly paniculate inflorescence. Another similar species, *Rubus rudis*, has primocanes almost glabrous, with more (short) stalked glands and smaller, (3–)4–6(–7) mm long prickles, elliptical to almost obovate or rhomboid terminal leaflets and a not so distinctly voluminous inflorescence.

Rubus platycephalus Focke, an endemic of south-eastern Germany, can also resemble *R. vatavensis* in having ternate leaves and narrowly obovate terminal leaflets. However, it has smaller, 3–5 mm long prickles, leaves hairy above and hairy to the touch beneath, with incisions 2–2.5 mm deep and a cylindrical to slightly pyramidal inflorescence.

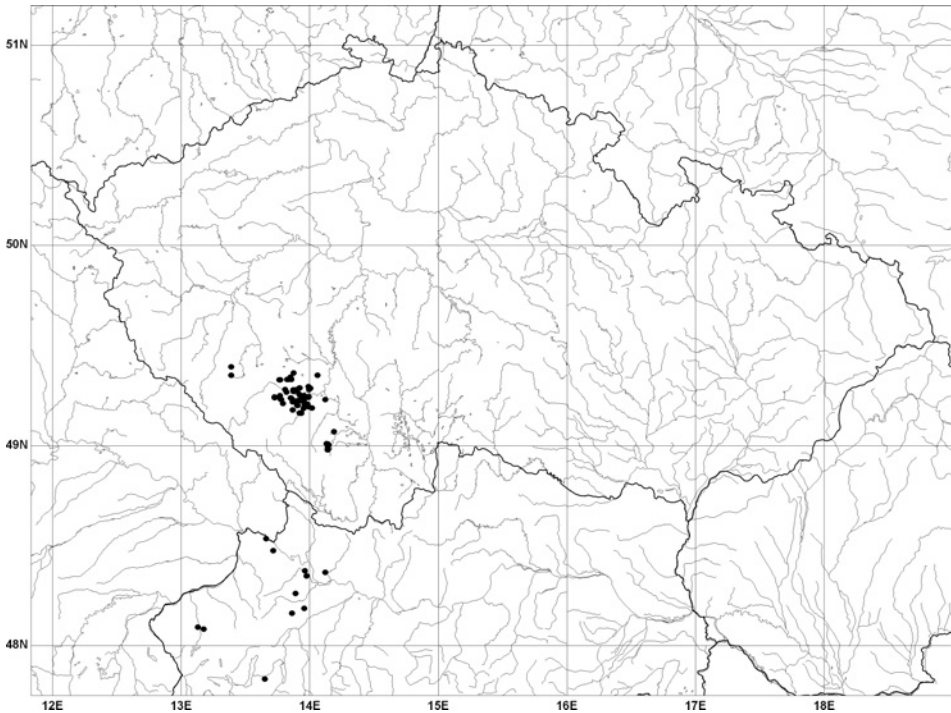


Fig. 9. – Map showing the distribution of *Rubus vatavensis*.

Ecology

Rubus vatavensis most frequently grows in forest habitats such as open plantations (mainly of *Pinus sylvestris* and *Picea abies*), along forest margins, edges of forest roads, and in forest clearings and gaps. It is rarely recorded in non-forest vegetation, along roads and in shrubland. It usually inhabits mesic to mildly dry and slightly acidic to base-rich soils developed on siliceous and calcareous bedrocks.

Distribution

This species has been found at more than 100 localities in Bohemia and Upper Austria. The centre of its known distribution range lies in the wide surroundings of the town of Strakonice in southern Bohemia (Czech Republic). In addition, there are two isolated occurrences outside of this area: several localities are situated near the village of Lhenice in southern Bohemia and one east of the town of Klatovy in western Bohemia. Eleven localities are scattered in the north-western part of Upper Austria in all of the four traditional regions (Innviertel, Mühlviertel, Hausruckviertel and Traunviertel). The low number of records for Upper Austria probably reflects unsatisfactory field research rather than the actual abundance of the species in this region (see Fig. 9, Appendix 1). The distance between the two localities furthest apart exceeds 175 km. This species has been recorded in 22 quadrants (10'×6') of the central-European mapping grid. In the Czech Republic it occurs in eight phytogeographical units (districts and sub-districts). The

recorded localities are situated in the colline, supracolline and rarely montane vegetation belt and between 280 m a.s.l. (Hartkirchen, Hausruckviertel) and 740 m a.s.l. (Ebensee, Traunviertel). The oldest known herbarium specimen was collected in 1987 by V. Chán and V. Žíla near the village of Řepice.

Rubus jarae-cimrmanii M. Lepší, P. Lepší, Trávn. et Žíla, **spec. nova** (Figs 10–12, Electronic Appendix 1)

Description: Primocanes mainly low-arching, up to 70 cm tall, rooting at apex, sharply angled with usually concave sides, mostly (3.5–) 4–6 (–7) mm in diameter, matt green, at sunny sites somewhat suffused brown-red, with (30–) 40–100 (–250) mainly fasciculate and stellate hairs per 1 cm of side of stem, reaching up to the bases of prickles; sessile and subsessile glands abundant, stalked glands rare to scattered, unevenly long, up to (0.3–) 0.6–0.7 (–0.8) mm long, usually 0–6 per 1 cm of side of stem; acicles, bristles and pricklets scattered. Prickles (10–) 11–14 (–25) per 5 cm of stem length, unequal, slender, straight, almost patent, (4–) 4.5–5 (–6) mm long, with flattened bases (2–) 3–3.5 (–4) mm broad, suffused brown-red at the base, with yellowish tip. Primocane leaves rather small, palmate or slightly pedate, (4–) 5-foliolate, rarely ternate, usually slightly convex, somewhat leathery, green above, covered with (4–) 14–50 (–152) hairs per 1 cm², green-grey beneath, felted, with stellate and longer simple hairs (distinctly hairy to the touch). Leaflets ± contiguous, the terminal one with mid-long petiolule [petiolule (25–) 29–34 (–39)% as long as lamina], obovate to broadly obovate, shallowly cordate at base, ± abruptly narrowing into (11–) 17–20 (–22) mm long apex; leaflet margins only slightly undulate, indentation not fine, slightly periodic, with incisions (2–) 2.5–3 (–3.5) mm deep. Petiolules of the basal leaflets (1.5–) 2.5–4 (–5) mm long. Petioles usually (4.5–) 5.5–6.5 (–8) cm long, very often longer than the basal leaflets, with scattered hairs, subsessile and stalked glands, acicles, pricklets and (13–) 15–20 (–21) slightly curved prickles; stipules filiform, ca (0.4–) 0.6–0.8 (–0.9) mm wide, with scattered hairs and with sessile and stalked glands. Inflorescence paniculate, truncate at apex, with relatively few flowers, with erecto-patent to (in upper part of inflorescence) ± patent branches, distal (4–) 6–7 (–11) cm long part leafless. Inflorescence leaves predominantly ternate (the uppermost 1 leaf simple), grey-green and felted beneath. Inflorescence axis slightly flexuous, densely hairy, with numerous stalked glands and acicles, scattered pricklets and with (9–) 13–16 (–19) prickles per 5 cm of axis length; prickles ± unequal, slender, slightly declining, (2.5–) 3.5–4.5 (–5) mm long. Pedicels densely felted, with numerous, unequal, stalked glands up to (0.5–) 0.7–0.8 (–1) mm long, the longest ones longer than hairs, and with rare to scattered glandular acicles and (10–) 14–18 (–22) acicular, ± unequal, straight, slightly declining to patent (1–) 1.5–2 (–2.5) mm long prickles. Sepals (4–) 5–6.5 (–7.5) mm long (inclusive of the filiform appendix), first spreading to slightly reflexed, reflexed after anthesis, green-grey with a whitish felted margin, felted, with scattered long simple hairs, with numerous stalked glands and short yellowish pricklets beneath, suffused red at base above. Petals white, (8–) 10–11 (–12) mm long, elliptical to broadly elliptical, not touching each other. Stamens longer than styles, filaments white, anthers glabrous. Carpels sparsely hairy, styles greenish. Receptacle sparsely hairy. Collective fruit semiglobose to globose. DNA ploidy level: tetraploid (inferred using FCM, Šarhanová et al. 2012). Reproduction apomictic (Šarhanová et al. 2012). Flowering VII(–VIII).

H o l o t y p e: Southern Bohemia, distr. Český Krumlov, Kuklov (7050d): forest clearing ca 1.2 km WNW of centre of village, forest road edge; 740 m a.s.l.; 48°56'8"N, 14°9'59"E; 14 VII 2009, leg. M. Lepší, P. Lepší; CB (No. 73449) (Fig. 10). – **I s o t y p e s:** PR (No. 921703), OL (No. 35744), PRA (No. 13920), W (No. 2018–0002918).

Etymology

The epithet '*jarae-cimrmanii*' is derived from the name of the fictitious Czech genius Jára Cimrman, who was, without a shadow of doubt, deeply interested, among all other branches of science, also in batology. The authors propose the epithet "Járy Cimrmana" for the Czech species name. Several animals and an asteroid have already been named in honour of this revered character (Vohralík 2002, Kovařík 2004, MPC 2018). The Holub's provisional name of this species was *R. ktišensis* ined., under which it may be filed in some herbaria.



HERBARIUM MUSEI REGIONALIS BOHEMIAE MERIDIONALIS
ČESKÉ BUDĚJOVICE

Flora: southern Bohemia



HOLOTYPE!

Rubus jarae-cimrmanii M. Lepší, P. Lepší, B. Trávníček et V. Žižla

Kuklov (distr. Český Krumlov), forest clearing ca 1.2 km WNW of centre of village, forest road edge

Frequency: scattered

Altitude: 740 m WGS 84: 48°56'8"N; 14°9'59"E ID GPS: 281

Quadrant: 7050dbd

Phytogeographical distr.: Blanský les

Date: 14. 7. 2009 Collected: Martin Lepší, Petr Lepší

Quadrant – Dřevohřbet at Hranice 1963, Her. Dřevohřbet. Bot. Gen., Phytogeographical distr. – Stádky 1988, Kollens Čk. 1.

Fig. 10. – Holotype of *Rubus jarae-cimrmanii*.

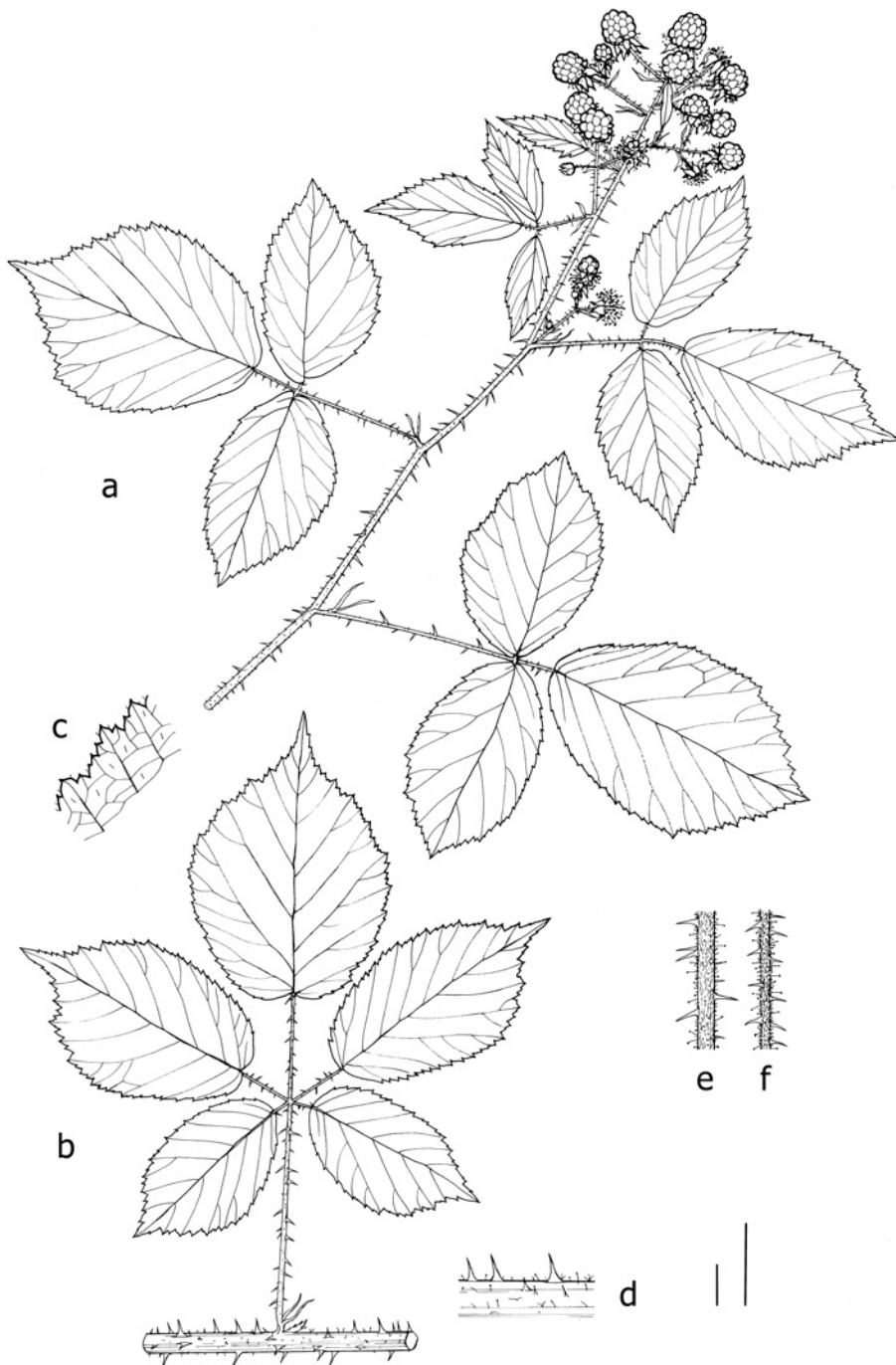


Fig. 11. – *Rubus jarae-cimrmanii*: a – infructescence; b – leaf on primocane; c – detail of margin of terminal leaflet (primocane leaf); d – detail of primocane prickles; e – detail of inflorescence axis; f – detail of peduncle. Scale bars 1 cm, shorter – a, b, longer – c–f. Drawing by A. Skoumalová.



Fig. 12. – *Rubus jarae-cimrmanii*: inflorescence and primocane leaf at the beginning of the growing season (Czechia, Český Krumlov, Kuklov village, locus classicus, 48°56'08"N, 14°09'59"E, 14 VII 2009, photo by P. Lepší).

Diagnostic characters

Primocanes low-arching and distinctly angled, with scattered sessile to subsessile glands, rare short stalked glands, scattered acicles, bristles and pricklets. Primocane prickles (10–) 11–14 (–25) per 5 cm of stem length, quite unequal, slender, straight, almost patent, (4–) 4.5–5 (–6) mm long. Primocane leaves rather small. Inflorescence narrowly paniculate, truncate at apex, with relatively few flowers.

Taxonomy and similar species

The classification of *Rubus jarae-cimrmanii* into ser. *Radula* based on morphology is not as self-evident as in the cases of *R. vatavensis* and *R. perpungens*, because the species exhibit some transitional characters towards the series *Micantes* and/or *Hystrix* Focke (rare short stalked glands, transitions between stalked glands and prickles, and uneven prickles on primocanes). On the other hand, the distinctly grey indumentum on the underside of leaves is a diagnostic feature of ser. *Radula* and occurs rarely in ser. *Micantes* and ser. *Hystrix*. Moreover, *R. jarae-cimrmanii* probably originated from the same taxa or gene pool (the first parent was apparently a member of *R. ser. Discolores*, probably *R. bifrons*, and the second parent presumably belonged to *R. ser. Glandulosi*) as the other species of ser. *Radula* also occurring and originating in its distribution area. We therefore also place *R. jarae-cimrmanii* in ser. *Radula*. As is apparent, series *Radula* is not morphologically clearly defined especially towards ser. *Micantes*, which indicates that delimitation of these two series is rather artificial. The fusion of these series would probably be more natural, however, this issue is beyond the scope of this study.

Rubus jarae-cimrmanii often occurs together with the similar species *R. epipsilos*, which can be distinguished by its indistinctly angled stems with scattered short stalked glands and more declining, slightly curved and equal prickles, leaves darker beneath and flower pedicels with simple hairs longer than stalked glands.

Ecology

Rubus jarae-cimrmanii is a typical forest species that occurs most frequently along forest roads and in open *Pinus sylvestris* and *Picea abies* plantations. Less often it grows in gaps in forest and clearings and at edges of forests. This species has rarely been recorded in non-forest vegetation such as road edges or stands of early-successional woody vegetation (*Salix caprea*, *Betula pendula*). It usually inhabits mesic, acidic soils on silicate bedrocks.

Distribution

Rubus jarae-cimrmanii is endemic to the Czech Republic. So far it has been found at 53 localities between the towns of Strakonice and České Budějovice in South Bohemia (see Fig. 13, Appendix 1). The distance between the two localities furthest apart exceeds ca 50 km. Most of its localities are in seven phytogeographical subdistricts in the south-eastern part of the Šumavsko-novohradské podhůří district and a few are located in the adjacent Budějovická pánev district. The centre of its known distribution range lies in the surroundings of the villages of Lhenice, Brloh, Ktiš and Chroboly, south-east of the town of Prachatice. This species occurs in 12 quadrants (10'×6') of the central-European mapping

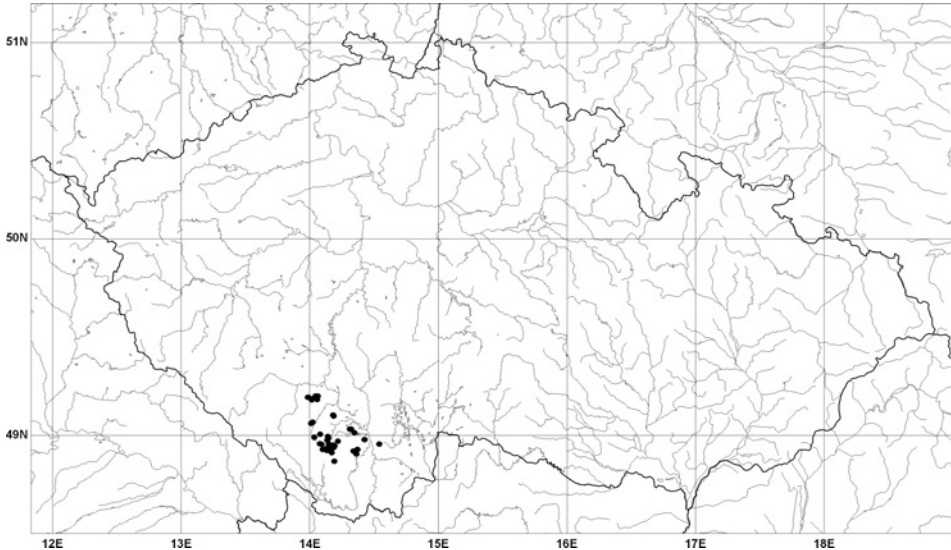


Fig. 13. – Map showing the distribution of *Rubus jarae-cimrmanii*.

grid. The recorded localities are situated in the colline to submountain vegetation belt between 410 m a.s.l. (Němčice, Budějovická pánev basin) and 780 m a.s.l. (Březovík, Blanský les Mts). The oldest known herbarium specimen was collected in 1990 by J. Holub near the village of Lhenice.

The species of *Rubus* ser. *Radula* in the Czech Republic recognized in this study can be identified using the following key supplemented with concise descriptions.

- 1a** Indentation on terminal leaflet of primocane leaves regular, crenate-serrate **2**
1b Indentation on terminal leaflet of primocane leaves periodical, serrate **3**
2a Prickles 3–10 per 5 cm length of primocane and 3–4 (–5) mm long; apex of terminal leaflet of primocane leaves 5 (–8) mm long. – Primocanes usually prostrate to low-arching, distinctly suffused brown-red at sunny sites, thin, angled to round, medium densely hairy, with scattered rather short stalked glands, with subequal, straight or indistinctly curved, slightly declining, slender prickles; primocane leaves usually rather small, ternate or 4–5-foliolate, pedate, with 0–5 (–10) hairs per 1 cm² above, greyish-green and softly hairy to the touch beneath; terminal leaflet round to broadly ovate, subabruptly narrowing into a short apex and with cordate base, indentation shallow, crenate-serrate, regular, with straight main teeth and with incisions 1–2 mm deep; lateral leaflets with cordate base; inflorescence short, usually with few flowers, with prickles on rachis 3–4 mm long; pedicels with abundant, unequal, stalked glands somewhat longer than simple hairs; carpels almost glabrous, petals pink, 5–7 (–9) mm long ***R. salisburgensis***
2b Prickles (19–) 24–29 (–34) per 5 cm length of primocane, (6.5–) 7–8 (–8.5) mm long; apex of terminal leaflet of primocane leaves (12–) 15–17 (–21) mm long. – Primocanes mostly of medium height arching, distinctly suffused brown-red at sunny sites, angled, sparsely hairy, with abundant short to long stalked glands, with prickles subequal, straight, slightly declining, with long pungent tip; primocane leaves usually 5-foliolate, indistinctly pedate, with (0–) 1–3 (–7) hairs per 1 cm² above, green or green-grey to whitish-grey and distinctly hairy to the touch beneath; terminal leaflet broadly elliptical to round, ± abruptly narrowing at apex, cordate at base, indentation fine, with straight or curved main teeth and with incisions (1–) 1.5–2 mm deep; lateral leaflets usually with cordate base; prickles on inflorescence rachis (3.5–) 5–5.5 (–7) mm long; pedicels with abundant, unequal, stalked glands shorter than the longest hairs; carpels densely hairy; petals pale pink ***R. perungens***

- 3a** Primocanes with many transitions between stalked glands and prickles, i.e. unequal stalked glands, acicles, bristles and sometimes also pricklets present; leaves distinctly hairy to the touch beneath and hairy or glabrous above **4**
- 3b** Primocanes usually without transitions between stalked glands and prickles, stalked glands usually short; leaves usually not distinctly hairy to the touch beneath (except for *R. muhelicus*, see 8a) and glabrous above **7**
- 4a** Prickles on primocanes declining, often slightly curved; pedicels with stalked glands shorter than the longest simple hairs; leaves glabrous or almost glabrous above **5**
- 4b** Prickles on primocanes \pm patent, straight; pedicels with stalked glands longer than the longest simple hairs; leaves usually with scattered hairs above **6**
- 5a** Primocane leaves (very) distinctly pedate, with ovate or obovate terminal leaflet abruptly narrowing into (15–) 20 (–25) mm long apex, with slightly cordate (rarely rounded) base, and with distinctly periodical indentation; petals pale pink. – Primocanes mostly of medium high arching, suffused brown-red at sunny sites, bluntly angled, scattered hairy, with scattered stalked glands, acicles and bristles, with 8–18 subequal, declining, straight or slightly curved, rather slender, up to 5–6 mm long prickles per 5 cm length of primocane; primocane leaves (3–) 4–5-foliolate, almost glabrous above, greyish-green to greyish-white and hairy to the touch beneath, indentation not fine, sharp, and with main teeth often slightly recurved, with incisions 2–4 mm deep; prickles on inflorescence rachis up to 6–6.5 mm long; pedicels with abundant, unequal stalked glands shorter than the longest hairs; the petiole of lateral leaflets of the ternate inflorescence leaves often remarkably long; carpels hairy ***R. perpedatus***
- 5b** Primocane leaves not distinctly pedate, with broadly ovate to broadly obovate terminal leaflet abruptly narrowing into 10–15 (–20) mm long apex, with distinctly cordate base, and with slightly periodical indentation; petals white. – Primocanes of low to medium height arching, suffused brown-red at sunny sites, angled, sparsely hairy, with scattered stalked glands, acicles and bristles, with 15–22, subequal, declining and often slightly curved, not slender, 4–6 (–8) mm long prickles per 5 cm length of primocane; primocane leaves 5-foliolate, glabrous above, greyish-green to almost green and hairy to the touch beneath, indentation not fine and with straight main teeth, with incisions 1.5–2 (–2.5) mm deep; prickles on inflorescence rachis up to 3–4 (–6) mm long; pedicels with abundant, unequal stalked glands shorter than the longest hairs; carpels sparsely hairy ***R. epipsilos***
- 6a** Primocanes glabrous or rarely with scattered hairs; primocane leaves distinctly pedate; leaf indentation fine, with variously directed teeth, incisions up to 2 mm deep. – Primocanes low arching, suffused brown-red at sunny sites, obtusely angular, with \pm abundant stalked glands, with or without acicles and bristles, with 8–12, subequal, subpatent or somewhat declining, straight or indistinctly curved, rather slender, 5 (–6) mm long prickles per 5 cm length of primocane; ternate or 4–5-foliolate, with (8–) 18–32 (–68) hairs per 1 cm² above, greyish and not hairy to the touch beneath; terminal leaflets broadly ovate to subrounded, abruptly narrowing into (5–) 8–12 (–15) mm long apex, with cordate or truncate base, indentation slightly periodic; prickles on inflorescence rachis up to 4 (–5) mm long; pedicels with abundant, unequal stalked glands longer (or sometimes shorter) than simple hairs; carpels sparsely hairy, often glabrescent; petals white ***R. bohemo-polonicus***
- 6b** Primocane with scattered hairs; primocane leaves palmate or slightly pedate; leaf indentation not fine, with evenly directed teeth, incisions (2–) 2.5–3 (–3.5) mm deep. – Primocanes mainly low arching, suffused brown-red at sunny sites, distinctly angled, with rare to scattered short stalked glands, also with scattered acicles, bristles and pricklets, with (10–) 11–14 (–25) quite unequal, almost patent, straight, slender, (4–) 4.5–5 (–6) mm long prickles per 5 cm length of primocane; primocane leaves (4–) 5-foliolate, quite small, with (4–) 14–50 (–152) hairs per 1 cm² above, green-grey and distinctly hairy to the touch beneath; terminal leaflets obovate to broadly obovate, \pm abruptly narrowing into (11–) 17–20 (–22) mm long apex, with shallowly cordate base, indentation slightly periodic; prickles on inflorescence rachis (2.5–) 3.5–4.5 (–5) mm long; pedicels with abundant, unequal, stalked glands mostly longer than hairs; carpels sparsely hairy; petals white ***R. jarae-cimrmanii***
- 7a** Primocane leaves 3–4 (–5)-foliolate, terminal leaflet oblong obovate to broadly obovate; primocanes bluntly angled; carpels densely hairy; petals white to slightly pinkish. – Primocanes of medium height arching, distinctly suffused brown-red at sunny sites, scattered to medium densely hairy, with sparsely scattered stalked glands, with 6–12 equal, slightly declining, rarely patent, straight, not slender, 5–8 mm long prickles per 5 cm length of primocane; leaves ternate or rarely pedate, glabrous above, green-grey to whitish-grey and not distinctly hairy to the touch beneath; terminal leaflet abruptly narrowing into sharp, 14–19 mm long apex, with cordate base, indentation fine, regular to slightly periodic (in the upper part), with straight or rarely recurved main teeth, incisions 1–2 mm deep; prickles on inflorescence rachis 3–6 mm long; pedicels with scattered sessile and unequal stalked glands shorter than hairs; inflorescence often voluminous, with many flowers ***R. vatavensis***

- 7b** Primocane leaves (3–) 5-foliolate, terminal leaflet of different shape; primocanes angled to sharply angled; carpels glabrous or with few hairs; petals pale pink to pink **8**
- 8a** Primocane leaves ± palmate, terminal leaflet broadly ovate to round with distinctly undulating margin; prickles (9–) 11–20 (–22) per 5 cm length of primocane. – Primocanes of low to medium height arching, distinctly suffused brown-red at sunny sites, angled, with scattered hairs, with abundant short stalked glands, with ± equal, slightly declining, straight, ± slender, (4.6–) 5.6–6.5 (–7.6) mm long prickles; leaves 5-foliolate, almost glabrous, with 0 (–1) hairs per 1 cm² above, greyish-green to grey and distinctly hairy to the touch beneath; terminal leaflet abruptly narrowing into (10–) 13–15 (–16) mm long apex, with truncate to slightly cordate base, indentation fine, periodical, with straight or rarely slightly recurved main teeth, incisions 2–3 (–3.5) mm deep; prickles on inflorescence rachis (4.3–) 4.6–5.3 (–6.2) mm long; pedicels with scattered stalked glands distinctly shorter than simple hairs; carpels with few hairs; petals pale pink **R. muhelicus**
- 8b** Primocane leaves distinctly pedate, terminal leaflet elliptical to broadly elliptical, ovate or rhombic with rather flat margin; prickles 5–12 (–16) per 5 cm length of primocane **9**
- 9a** Pedicels with stalked glands shorter than the long simple hairs; primocanes sparsely to medium densely hairy, with slightly declining prickles; prickles on inflorescence rachis 7–8 mm long; inflorescence narrowly conical, its branches rather thick. – Primocanes most often of medium height and arching, distinctly suffused brown-red at sunny sites, angled, with abundant long stalked glands, with 5–11 (–16) ± equal, straight, not slender, 5–9 (–10) mm long prickles per 5 cm length of primocane; primocane leaves (3–) 5-foliolate, glabrous above, greyish-green to whitish-grey and not distinctly hairy to the touch beneath; terminal leaflet elliptical, usually ovate, ± not abruptly narrowing into 10–20 mm long apex, with truncate or rounded base, indentation sharp, periodical, with straight or recurved main teeth, incisions 2–3 mm deep; carpels glabrous or almost glabrous; petals pale pink **R. radula**
- 9b** Pedicels with stalked glands as long as the short simple hairs; primocanes glabrous or with very few hairs, with distinctly declining prickles; prickles on inflorescence rachis 3–4 mm long; inflorescence broadly conical, diffuse, with rather thin branches. – Primocane of low to medium height and arching, distinctly suffused brown-red at sunny sites, sharply angled, with abundant short stalked glands, with 7–12 ± equal, straight, not slender, (3–) 4–6 (–7) mm long prickles per 5 cm length of primocane; primocane leaves (3–) 5-foliolate, glabrous above, greyish-green to grey and not distinctly hairy to the touch beneath; terminal leaflet broadly elliptical to almost obovate or rhombic, subabruptly narrowing into 10–20 mm long apex, with rounded or cuneate base, indentation sharp, periodical, with straight or recurved main teeth, incisions 1.5–2.5 (–3) mm deep; carpels glabrous or almost glabrous; petals pale pink to pink **R. rudis**

See www.preslia.cz for Electronic Appendices 1–2.

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Souhrn

Článek přináší výsledky studia série *Radula* (Focke) Focke z rodu *Rubus* L. založené primárně na rozsáhlém terénním výzkumu této skupiny na celém území České republiky. Pro toto území a tuto skupinu bylo potvrzeno celkem 10 druhů. Čtyři z těchto druhů byly uváděny již v monografickém zpracování zmíněné skupiny pro Květenu České republiky (Holub 1995): *R. epipsilos* Focke, *R. radula* Weihe, *R. rudis* Weihe a *R. salisburgensis* Cafilisch. Později Holub (in Krahulcová & Holub 1998b) uvedl z území ČR ještě jeden druh: *R. indusiatus* Focke. Studium v terénu, revize herbářů i porovnání českých rostlin s typovým materiálem uvedeného jména pocházejícího z jižního Bavorska ukázaly, že místo pravého *R. indusiatus* se v ČR vyskytuje odlišný druh, který je v článku popsán jako *R. perungens* M. Lepší et al. Tento nový druh byl nalezen také v přilehlém území

Bavorska a Rakouska. V letech 2003 až 2009 byly popsány další 4 druhy ostružiníků původně zařazené do ser. *Radula*: *R. muhelicus* Danner, *R. bohemo-polonicus* Trávn. et Ziel., *R. perpedatus* Žíla et H. E. Weber a *R. passaviensis* Žíla. První tři z těchto druhů lze považovat za příslušníky ser. *Radula*, avšak poslední druh (*R. passaviensis*) vykazuje typické znaky ser. *Vestiti* (Focke) Focke, proto je navrženo jeho přearžení do této skupiny. Do ser. *Radula* bývá někdy také zařazován (Kurtto et al. 2010) druh *R. silvae-norticae* M. Lepší et P. Lepší. Protože však většina jeho důležitých znaků (zejména v odění listů a stonkových částí) tomuto zařazení neodpovídá, je tento druh ponechán v ser. *Micantes* Sudre, jak bylo ostatně původně navrženo při jeho popisu. V biosystematické literatuře (Šarhanová et al. 2012, 2017, Sochor et al. 2015) byly pod provizorními jmény zmíněny ještě další 2 druhy ser. *Radula* nalezené autory tohoto článku v ČR. Tato jejich provizorní jména jsou nyní uvedena do platnosti jako *R. jarae-cimrmanii* M. Lepší et al. (druh je endemitem České republiky) a *R. vatavensis* Žíla et Trávn. (druh je znám z ČR a Rakouska). Článek přináší detailní morfologické charakteristiky všech 3 nově popisovaných druhů (tj. *R. jarae-cimrmanii*, *R. perpedatus* a *R. vatavensis*) a základní informace o jejich ekologii a rozšíření, včetně map znázorňujících jejich celkový známý areál. V závěru článku je uveden detailní klíč k určení všech 10 druhů ser. *Radula*, které jsou nyní známé z území České republiky.

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Appendix 1. – Herbarium specimens of the new species examined. Information not included on labels (e.g. coordinates and elevation) was obtained from electronic maps (www.mapy.cz) and is presented in square brackets. Names of the most frequent collectors are abbreviated as follows: AJ = A. Jírová, BT = B. Trávníček, JH = J. Holub, JV = J. Velebil, KB = K. Boublík, KČ = K. Čížek, MK = M. Král, ML = M. Lepší, PH = P. Havlíček, PL = P. Lepší, VCh = V. Chán, VŽ = V. Žíla. For acronyms of public herbaria see Thiers (2018).

Rubus perpongens (Fig. 5)

Austria, Upper Austria, Innviertel, 7547b: Kopping im Innkreis, vicus Simling, ad marginem silvae, ca 1,5 km situ merid.-merid.-occid. a vico, 48°28'13,6"N, 13°39'44,2"E, 735 m s.m., leg. VŽ 7 IX 2003 PR 883762–63, herb. Žíla. – **Mühlviertel, 7447c:** Münzkirchen, pagus Zeilberg, ad marginem silvae ad viam publicam, inter pagos Zeilberg et Wetzendorf, 48°31'00,2"N, 13°34'41,4"E, 560 m s.m., leg. VŽ 6 IX 2013 PR 886836, PR 886837.

Czech Republic, 26. Český les, 6241a: Tachov, pagus Studánka: in silva ad viam silvestrem, ca 2 km situ merid.-occid. a pago, 49°46'10"N, 12°35'00"E, leg. VŽ 6 IX 1998 PR 886784–85. – **6441b:** Pleš (Bělá nad Radbuzou), vrch [Velký] Zvon, údolí sz. od [Velkého] Zvonu, 49°33'14"N, 12°37'56"E, leg. JH 15 VIII 1995 PRA. – Železná Huť (Bělá nad Radbuzou), vých. od osady, 49°34'02"N, 12°35'54"E, leg. JH 15 VIII 1998 PRA. – Železná Huť (Bělá nad Radbuzou), záp. od Bělé nad Radbuzou vých. za obcí, 49°34'02"N, 12°35'52"E, leg. JH 17 IX 1994 PRA. – Domažlice, silnice směrem na býv. Waldorf, vých. od Železná Hutě, záp. od Bělé nad Radbuzou, 49°34'28"N, 12°37'40"E, leg. JH 15 VIII 1995 PRA. – Domažlice, silnice v údolí potoka jižně od býv. osady Waldorf, sz. od vrchu Velký Zvon, jz. od Bělé nad Radbuzou, 49°33'25"N, 12°37'36"E, leg. JH 15 VIII 1995 PRA. – **6442c:** Domažlice, silnice mezi obcemi Závist a Rybník u odbočky silnice na Poběžovice, 49°30'14"N, 12°41'03"E, leg. JH 18 VIII 1995 PRA. – **6541b:** Hraničná (Domažlice), obec [bývalá obec jz. od osady Závist], 49°28'13"N, 12°39'29"E, leg. JH 16 VIII 1995 PRA. – Domažlice, býv. osada Hraničná záp. od Pivoně, 49°28'16"N, 12°39'32"E, leg. JH 16 VIII 1995 PRA. – Hraničná (Domažlice), (bývalá obec, jz. obce Závist), lesy a křoviny u silničky 0,4 km zjz. až 0,8 km sz. od bývalé obce, 49°28'18"N, 12°39'02"E, 630–670 m n. m., leg. BT 6 VII 2010 OL. – **6542a:** Závist (Domažlice), při silnici na vých. okraji obce, 49°29'29"N, 12°41'16"E, leg. JH 18 X 1997 PRA. – Pivoň, údolí záp. od hory Lysá, 49°29'09"N, 12°41'51"E, leg. JH 26 VII 1990 PRA. – Závist (Domažlice), záp. od Poběžovic, při silnici na vých. okraji Závisti, 49°29'29"N, 12°41'24"E, leg. JH 18 X 1997 PRA. – Pivoň, les u silnice na vých. okraji obce, u rybníků, 49°29'16"N, 12°44'43"E, leg. JH 18 X 1997 PRA. – Lískovec (Klenčí pod Čerchovem), mezi [bývalými] obcemi Lískovec a Křížová Huť, 49°27'59"N, 12°41'12"E, leg. JH 17 VIII 1995 PRA. – Závist (Domažlice), sev. okraj obce, 49°29'32"N, 12°41'01"E, leg. JH 16 VIII 1995 PRA. – Vranov, silnice pod hradem Starý Herštejn, 49°28'36"N, 12°43'21"E, leg. JH 16 IX 1994 PRA. – Závist (Domažlice), (záp. od Pivoně) les při silnici jz. od obce, 49°29'19"N, 12°40'40"E, leg. JH 18 IX 1994 PRA. – Nemanice, býv. obec Lískovec, les vých. nad nivou Nemanického potoka u Lískovce, 49°27'43"N, 12°41'31"E, leg. JH 18 IX 1994 PRA. – Závist (Domažlice), (záp. od Pivoně) silnice jz. u obce (mimo les), 49°29'10"N, 12°40'32"E, leg. JH 18 IX 1994 PRA. – Domažlice, sv. okraj obce Závist, záp. od Pivoně, 49°29'31"N, 12°41'10"E, leg. JH 16 VIII 1995 PRA. – Domažlice, Koží vrch sev. od bývalé obce Lučina, záp. od Nemanic, 49°27'05"N, 12°40'12"E, leg. JH 16 VIII 1995 PRA. – Domažlice, silnice nad býv. obcí Mýtnice (mezi obcemi Nemanice a Rybník), 49°27'02"N, 12°42'29"E, leg. JH 17 VIII 1995 PRA. – Domažlice, silnice mezi býv. obcemi Lískovec a Křížová Huť (mezi obcemi Nemanice a Rybník), 49°28'09"N, 12°41'15"E, leg. JH 17 VIII 1995 PRA. – **6542b:** Domažlice, pagus Nový Kramolín, vicus Valtřov, ad marginem silvae apud viam publicam, situ occid. a vico, 49°28'14,9"N, 12°45'30,3"E, 680 m s.m., leg. VŽ 27 VIII 2004 PR 886824–25. – Nemanice, hřeben Haltrava, již. svah, silnice pod horou Škarmanka, 49°27'01"N, 12°45'04"E, leg. JH 18 IX 1994 PRA. – **6542c:** Nemanice (Domažlice), již.–jz. úpatí Haltravy, 49°26'54"N, 12°44'30"E, leg. JH 16 VIII 1995 PRA. – Mýtnice (Klenčí pod Čerchovem), silnice nad [bývalou] obcí (Nemanice-Rybník), 49°26'58,9"N, 12°42'30,1"E, leg. JH 17 VIII 1995 PRA. – Lučina (Domažlice), bývalá obec, 49°25'58"N, 12°40'50"E, leg. JH 16 VIII 1995 PRA. – Lučina (Domažlice), Koží vrch sev. od [bývalé] obce, 49°26'51"N, 12°40'09"E, leg. JH 16 VIII 1995 PRA. – Nemanice, býv. obec Mýtnice, jz. od mostku přes Nemanický potok, 49°26'39"N, 12°42'05"E, leg. JH 14 IX 1994 PRA. – Nemanice, lesík na místě býv. osady Mýtnice sz. od Nemanic, 49°26'57"N, 12°42'26"E, leg. JH 14 IX 1994 PRA. – Klenčí pod Čerchovem, již.–jz. úpatí Haltravy, silnice, 49°26'31"N, 12°44'45"E, leg. JH 16 VIII 1995 PRA. – Klenčí pod Čerchovem, jz. úpatí Škarmanky, silnice, 49°26'53"N, 12°44'35"E, leg. JH 16 VIII 1995 PRA. – Domažlice, býv. obec Lučina, záp. od Nemanic, 49°25'59"N, 12°40'50"E, leg. JH 16 VIII 1995 PRA. – **28g. Sedmihofí, 6343c:** Mířkov, přírodní park Sedmihofí, pod vrcholem vrchu Rozsocha (při žluté turist. značce), [49°36'16"N, 12°51'42"E], leg. KČ 15 VIII 2009 herb. Čížek. – **6443a:** Mířkov, les sz. od obce, 49°35'59"N, 12°51'44"E, leg. JH 1 VIII 1989 PRA. – **31a. Plzeňská pahorkatina vlastní, 6342d:** Horšovský Týn, pagus Bělá nad Radbuzou, vicus Dehetná, margo silvae ad viam publicam, ca 1,2 km situ merid. a vico lesy u silnice

1,3 km již.(-jiz.) od obce, 49°36'46,2"N, 12°46'5,6"E, 550 m s.m., leg. VŽ 14 IX 2008 PR 886737–38, herb. Žíla. – **6346c**: Dobřany, margin of little grove between roads 3.1 km ESE from centre of the village, 49°38'45.1"N, 13°20'09.3"E, 410 m s.m., leg. JV 2 VIII 2016 herb. Velebil 160807. – **6444c**: Staňkov, pagus Hlohová, in silva ad viam publicam, ca 1 km situ occid. a pago, 49°32'7,1"N, 13°03'36,6"E, 380 m s.m., leg. VŽ 21 VIII 2001 PR 886808–09, herb. Žíla. – **6543a**: Horšovský Týn, pagus Březi: ad marginem silvae ad marginem orient. pagi, 49°29'12,6"N, 12°53'09,8"E, leg. VŽ 3 VIII 1999 PR 886798–99. – Březi (Domažlice), les u silnice při jv. okraji obce, 49°29'17"N, 12°53'04"E, leg. BT 3 VIII 1999 OL. – **6545d**: Klatovy, jv. část lesního komplexu při silnici na Svrčovec, 49°24'48"N, 13°16'05"E, leg. BT 2 VIII 1999 OL. – Točnick (Klatovy), les Špitál sev. od obce, kóta 0,5 km vých. od obce Vícenice, [49°26'54"N, 13°18'33"E], leg. KČ 27 VI 2008 herb. Čížek. – Klatovy, in parte merid. silvae mixta Klatovský bor apud opp. Klatovy, [49°24'48"N, 13°16'07"E], 410 m s.m., leg. MK 23 VII 2006 herb. Král. – Klatovy, Klatovský bor sz. od města, [49°25'00"N, 13°16'00"E], leg. KČ 7 VIII 2004 herb. Čížek. – Klatovy, v lese ca 2 km jiz. od osady, u muničního skladu, 49°24'49"N, 13°16'08"E, leg. BT 2 VIII 1999 OL. – **6546c**: Bolešiny, Na vrších jv. od obce, 49°24'42"N, 13°22'20"E, leg. JH 14 X 1997 PRA. – Předslav, les při silnici na Ostřetice, 49°25'57"N, 13°21'17"E, leg. BT 2 VIII 1999 OL. – Předslav, okraj lesa u silnice do Ostřetic, 49°25'57"N, 13°21'17"E, leg. BT 2 VIII 1999 OL. – **6644d**: Úborsko, pastviny a okraje lesa při polní cestě 0,6 km zsz. až 1,2 km ssz. obce, 49°20'11"N, 13°08'57"E, 500–520 m n. m., leg. BT 5 VII 2010 OL. – **6645b**: Klatovy, Loreta, les záp. od osady, u muničního skladu, 49°21'42"N, 13°16'16"E, leg. JH 18 X 1997 PRA. – Klatovy, pagus Sobětice: ad marginem silvae ca 1 km situ merid.-orient. a pago, 49°22'09,4"N, 13°19'30,5"E, leg. VŽ 7 X 2000 PR 886800–01, herb. Žíla. – Klatovy, zalesněný vrch Svatý Jan, 4 km jiz. od obce, [49°21'36"N, 13°16'21"E], leg. KČ 31 VII 1984 PRA. – Klatovy, Luby, okraj lesa Výchovice 1,5 km již.-jz. od obce, u drubežárny na již. úpatí vrchu, 49°21'42"N, 13°17'34"E, 485 m n. m., leg. JH 18 X 1997 PRA. – Luby (Klatovy), u drubežárny, 49°21'59"N, 13°17'45"E, leg. JH 2 IX 1998 PRA. – Klatovy, Hůrka (498 m), již. expozice, [49°23'40"N, 13°16'19"E], leg. KČ 2005 herb. Čížek. – Klatovy, Hůrka, záp. část blízko vrcholu, [49°23'46"N, 13°16'08"E], leg. KČ 2006 herb. Čížek. – Klatovy, lesnatý vrch Výchovice jz. od obce Luby, u drubežárny na již. úpatí vrchu, 49°21'42"N, 13°17'34"E, leg. JH 5 IX 1998 PRA. – Klatovy, les Výchovice 3,5 km již. od náměstí, vpenec, vrcholová část, [49°21'53"N, 13°17'20"E], leg. KČ 25 VI 2008 herb. Čížek. – Klatovy, les mezi obcemi Loreta a Vacovy, 4,5 km jiz. od náměstí, již. expozice, při vrstevnicové cestě u koty 538,9 m, [49°21'22"N, 13°16'32"E], leg. KČ 15 VII 2008 herb. Čížek. – Klatovy, Klatovská hůrka, vých. okraj, [49°23'42"N, 13°16'29"E], leg. KČ 16 VI 2007 herb. Čížek. – Klatovy, Klatovská hůrka, pěšina vých. od býv. kostela na vrcholu, pěšina, [49°23'41"N, 13°16'20"E], leg. KČ 6 VII 2007 herb. Čížek. – Klatovy, in silva mixta in declive orientali collis Hůrka, [49°23'41"N, 13°16'25"E], 460 m s.m., leg. MK 16 VI 2007 herb. Král. – Klatovy, Klatovská hůrka, jz. část, blízko kostela svatého Martina, [49°23'43"N, 13°16'04"E], leg. KČ 4 VII 2006 herb. Čížek. – Klatovy, Klatovská hůrka, okraj lesa blízko stadionu, [49°23'38"N, 13°16'29"E], leg. KČ 10 VII 2006 herb. Čížek. – Klatovy, in silva (*Pinus*, *Quercus*) in declive occidentali collis Hůrka apud opp. Klatovy, [49°23'41"N, 13°16'08"E], 470 m s.m., leg. MK 21 VII 2005 herb. Král. – Klatovy, Klatovská hůrka, vrcholová již. část, [49°23'40"N, 13°16'17"E], leg. KČ 8 X 2004 herb. Čížek. – Klatovy, vrch Výchovice 3,5 km již. od náměstí, [49°21'53"N, 13°17'19"E], leg. KČ 17 VII 2007 herb. Čížek. – Klatovy, Klatovská hůrka (Hůrka) hill (ca 490 m) on the W margin of the town, E slope, [49°23'42"N, 13°16'28"E], 450 m a.s.l., leg. KČ 16 VI 2007 herb. Velebil 160317. – Týnec, a ditch by the road from Lomec to Loreta 300 m NW from centre of the village, 49°21'42.1"N, 13°16'46.2"E, 460 m a.s.l., leg. JV 2 VIII 2016 herb. Velebil 160814. – **6645c**: Starý Láz (Nýrsko), okraj lesa u cesty 0,6 km již. od obce, 49°18'09"N, 13°10'20"E, 515 m n. m., leg. BT 11 IX 2010 BRNM, OL. – Klatovy, pagus Nýrsko, vicus Starý Láz, margo silvae ad viam, ca 0,65 km situ merid. a vico Starý Láz, 49°18'09,2"N, 13°10'20,2"E, 515 m s.m., leg. VŽ 11 IX 2010 PR 886708–09, herb. Žíla. – Běhařov, les Kaletínka 0,6 km jv. až 0,6 km vsv. obce, 49°20'44"N, 13°10'06"E, 460–480 m n. m., leg. BT 5 VII 2010 OL. – **31b**, **Koubská kotlina**, **6643b**: Domažlice, pagus Česká Kubice, vicus Maxov, ad marginem silvae apud viam publicam, ca 0,5 km situ bor.-occid. a vico, 49°21'23,4"N, 12°55'29,4"E, 550 m s.m., leg. VŽ 28 VIII 2004 PR 886826–27, herb. Žíla. – **6644c**: Nýrsko, pagus Všeruby, vicus Pomezí, ad marginem silvae apud viam publicam, ca 1 km situ bor.-occid. a vico Pomezí, 49°20'00,9"N, 13°00'13,8"E, 485 m s.m., leg. VŽ 28 VIII 2004 PR 886828–29. – **33**, **Branžovský hvozd**, **6545c**: Tupadly (Klatovy), vrch Bezí (kóta 582,4 m), sv. část lesa, [49°24'42"N, 13°12'56"E], leg. KČ 8 VIII 2012 herb. Čížek, OL (dupl.). – **6644a**: Kdyně, pagus Starec, vicus Brůdek, ad marginem silvae ca 0,75 km situ orient. a vico Brůdek, 49°22'09,2"N, 13°01'6,6"E, leg. VŽ 3 VIII 1999 PR 886796–97. – **6644b**: Klatovy, pagus Libkov, in silva ad viam publicam inter pagos Libkov et Slavíkovice, 49°23'03,3"N, 13°08'14,0"E, leg. VŽ 5 VIII 1999 PR 886794–95. – Libkov (Kdyně), les u silnice směr Slavíkovice, 49°22'29"N, 13°08'13"E, leg. BT 5 VIII 1999 OL. – **6644d**: Orlovice, Orlovická hora jz. od obce, vých. svahy, okraj lesa, 49°19'45"N, 13°05'21"E, leg. JH 4 X 1996 PRA. – **6645a**: Struhadlo, u lesní cesty vedoucí okrajem lesa 0,9 km jiz. od obce, 49°22'54"N, 13°10'34"E, leg. BT et PL 13 IX 2009 herb. P. Lepší. –

34. Plánický hřeben, 6546c: Zbyslav, při lesní cestě z obce Zbyslav do obce Pečetín, [49°25'09"N, 13°24'58"E], leg. KČ 2011 herb. Čížek. – **6645c:** Strážov, lesní silnice mezi obcemi Opálka a Blata, 49°18'08"N, 13°12'54"E, leg. JH 13 VIII 1996 PRA. – Strážov, mezi obcemi Strážov Opálka a Blata, 49°18'03"N, 13°12'44"E, leg. JH 4 X 1996 PRA. – Petrovice nad Úhlavou, les na vrchu Na Porovnání, 49°18'54"N, 13°11'44"E, leg. JH 3 VIII 1989 PRA. – Opálka (Strážov), Opálka-Blata, 49°18'03"N, 13°12'44"E, leg. JH 4 X 1996 PRA. – Petrovice nad Úhlavou, les Na Porovnání (kóta 639,1 m), již. od obce, při lesní cestě, zelená turist. značka, [49°18'43"N, 13°11'23"E], leg. KČ 1 VII 2008 herb. Čížek. – **6645d:** Klatovy, pagus Strážov, vicus Kněžice: ad viam silvestrem, ca 0,5 km situ occid. a vico, 49°19'10"N, 13°16'45"E, 575 [625] m s.m., leg. VŽ 28 VII 2011 PR 886733–34. – Klatovy, pagus Vrhavěč, ad marginem silvae, ca 1,2 km situ merid.-merid.-occid. a pago, 49°20'10,8"N, 13°17'39,9"E, 475 m s.m., leg. VŽ 29 VIII 2000 PR 886806–07, herb. Žíla. – Kněžice (Běšiny), cesta na jz. okraji obce, [49°19'02"N, 13°17'12"E], leg. KČ 2011 herb. Čížek. – **6646a:** Hoštice (Klatovy), les vých. od obce, při cestě po vrstevnici, záp. svah, [49°22'30"N, 13°22'58"E], leg. KČ 4 IX 2004 herb. Čížek. – **6646b:** Plánice, les u silnice na Vítkovice, 1 km od okraje obce, 49°23'51"N, 13°27'06"E, leg. BT 2 VIII 1999 OL. – Plánice, u lesní cesty při silnici ca 1 km zsz. od záp. okraje obce, 49°23'54"N, 13°26'55"E, leg. BT 2 VIII 1999 OL. – Skránčice, vrch Skalka (kóta 634,6 m) již. úpatí vrchu, [49°21'11"N, 13°28'01"E], leg. KČ 4 VII 2010 herb. Čížek. – Skránčice, vrch Skalka (kóta 634,6 m) sz. obce, sv. výběžek lesa, [49°21'28"N, 13°28'21"E], leg. KČ 5 VIII 2010 herb. Čížek. – Skránčice, vrch Skalka (kóta 634,6 m) sz. obce, již. od Skalky, [49°21'11"N, 13°28'01"E], leg. KČ 5 VIII 2010 herb. Čížek. – **6744b:** Klatovy, lesní okraj u úpravny vody vých. od obce Stará Lhota již. od obce Milence (Nýrsko), 49°15'56"N, 13°09'06"E, leg. JH 18 X 1997 PRA. – Stará Lhota (Nýrsko), lesní okraj vých. od obce, 49°15'52"N, 13°09'06"E, leg. JH 18 X 1997 PRA. – **6744d:** Nýrsko, pagus Zelená Lhota, ad marginem silvae ad viam publicam, ca 1 km situ merid.-occid. a pago, 49°14'41,3"N, 13°09'27,3"E, 635 [530] m n. m., leg. VŽ 21 X 2001 PR 886818–19. – **6745a:** Strážov, Blata – Hodousice, 49°17'59"N, 13°10'59"E, leg. JH 4 X 1996 PRA. – Dešenice (Nýrsko), při silnici směrem k obci Žiznětice, 49°17'02"N, 13°11'20"E, leg. KB 23 VII 2000 CB. – Dešenice (Nýrsko), Želivský vrch vých. od obce, u hájovny na záp. úpatí, [49°16'41"N, 13°11'48"E], leg. KČ 1 VII 2008 herb. Čížek. – Nýrsko, pagus Dešenice: ad marginem silvae ad viam publicam, ca 1,5 km situ orient. a pago, 49°16'41,9"N, 13°11'36,6"E, 556 m n. m., leg. VŽ 21 X 2001 PR 886816–17. – Děpoltice (Nýrsko), lesní cesta od obce na Želivský vrch, po zelené turist. značce, 49°16'27"N, 13°12'57"E, leg. JH 3 VIII 1989 PRA. – Děpoltice (Nýrsko), nad obcí, směrem k lesu na Želivském vrchu, 49°16'11"N, 13°13'03"E, leg. JH 3 VIII 1989 PRA. – Nýrsko, Blata, lesní cesta směrem na Želivský vrch, zelená turist. značka, 49°17'31"N, 13°12'19"E, leg. JH 3 VIII 1989 PRA. – **6745b:** Klatovy, pagus Strážov, vicus Božetěšice, margo silvae ad viam publicam, ca 0,7 km situ orient. a vico, 49°17'13"N, 13°16'24"E, 545 m s.m., leg. VŽ 11 IX 2010 PR 886714–15. – Viteň, silnice vých. od obce u odbočky k osadě Brtí, 49°17'23"N, 13°16'03"E, leg. JH 13 VIII 1996 PRA. – Viteň (Strážov), u lesní cesty 1,2 km vých. od obce, 49°17'13"N, 13°16'24"E, 545 m n. m., leg. BT 11 IX 2010 OL. – Bradné (Čachrov), les sev. od kóty 813,8 m, 1 km záp. obce (při modré turistické značce), [49°15'37"N, 13°16'27"E], leg. KČ 8 VIII 2013 herb. Čížek, OL (dupl.). – **6745c:** Datelov (Strážov), okraj lesa 0,25 km záp. od obce, [49°14'56"N, 13°13'20"E], leg. KČ 19 VIII 2007 herb. Čížek. – Datelov (Strážov), okraj lesa 0,3 km záp. od obce, [49°14'58"N, 13°13'21"E], leg. KČ 19 VIII 2007 herb. Čížek. – Datelov (Strážov), les na vých. úpatí Malého Prenetu, 400 m záp. od obce, [49°14'55"N, 13°13'15"E], leg. KČ 19 VII 2007 herb. Čížek. – Klatovy, silnice mezi obcí Hojsova Stráž a osadou Na Sedle, 49°13'32"N, 13°11'00"E, leg. JH 18 X 1997 PRA. – **6746b:** Hory Matky Boží, les u křížové cesty při sev. okraji obce, 49°16'13"N, 13°26'06"E, 695 m n. m., leg. PL, BT et VŽ 13 IX 2008 OL, herb. P. Lepší. – Hory Matky Boží, vrch Kalvárie, 0,5 km sev. od kostela v obci, [49°16'23"N, 13°26'05"E], leg. KČ 30 IX 2012 herb. Čížek, OL (dupl.). – **35d. Březnické Podbrdsko, 6649d:** Strakonice, pagus Kbelnice, vicus Brusy, ad marginem silvae, ca 1,5 km situ occid. a vico Brusy, 49°18'09,3"N, 13°59'43,5"E, 485 m s.m., leg. VŽ 8 VIII 2007 herb. Žíla. – **6750a:** Strakonice, pagus Brusy: in silva ad viam publicam, ca 0,8 km situ merid.-merid.-occid. a pago, 49°17'52,1"N, 14°00'47,2"E, 428 m s.m., leg. VŽ 2 IX 2001 PR 886814–15. – Brusy, les u silnice 0,8 km jz. od obce, 49°17'54"N, 14°00'43"E, 430 m n. m., leg. PL, BT et VŽ 12 IX 2008 OL, herb. P. Lepší. – Strakonice, pagus Dobeč, vicus Brusy, in silva ad viam publicam, inter pagos Kbelnice et Dobeč, ca 0,6 km situ merid.-merid.-occid. a vico Brusy, 49°17'54,6"N, 14°00'44"E, 425 m s.m., leg. VŽ 22 VIII 2006 PR 886770, herb. Žíla. – **36b. Horažďovicko, 6647a:** Klatovy, pagus Plichtice, ad marginem silvae situ bor.-orient. a pago, [49°21'16,8"N, 13°30'24,7"E], leg. VŽ 31 X 1999 PR 886790–91. – **6648c:** Horažďovice, pagus Třebomyslice, in silva ad viam publicam versus oppidum Horažďovice, ca 1,5 km situ merid.-merid.-orient. a pago Třebomyslice, [49°20'19"N, 13°40'54"E], leg. VŽ 24 X 1999 PR 886780–81. – **6648d:** Horažďovice, pagus Střelské Hoštice, in silva, ca 1,3 km situ bor.-bor.-occid. a pago, 49°18'32,3"N, 13°45'00,5"E, 470 m s.m., leg. VŽ 13 IX 2006 PR 886775–76, herb. Žíla. – **37a. Horní Pootaví, 6747c:** Sušice, prope flumen Otava in silva mixta Luh apud opp. Sušice, [49°13'03,2"N, 13°30'42,2"E], 480 m s.m., leg. MK 20 VI 2000 PR 886739–40, herb. Žíla. – **6846b:** Nové

Městečko (Hartmanice), odbočka cesty ze silnice do Nové Dlouhé Vsi 0,8 km sev. od obce, 49°11'10"N, 13°29'47"E, 530 m n. m., leg. BT 11 IX 2010 BRNM, OL. – **6847c**: Svojshe, při cestě na Kozí Hřbety [Velký Kozí Hřbet], 49°07'04"N, 13°30'40"E, leg. B. Mandák 26 VIII 1995 PRA. – Svojshe, údolí sev. od obce, 49°07'03"N, 13°30'36"E, leg. JH 13 VIII 1996 PRA. – Kašperské Hory, les u silnice do obce Štachy 0,8 km jiz. od vrchu Chlum (962 m), 49°08'15"N, 13°34'57"E, 825 m n. m., leg. VŽ 11 IX 2010 OL. – Kašperské Hory, les u silnice do obce Stachy 0,8 km jiz. od vrchu Chlum (962 m), 49°08'15"N, 13°34'57"E, 825 m n. m., leg. BT 11 IX 2010 BRNM, OL. – **6847d**: Sušice, pagus Kašperské Hory: in silva ad viam publicam versus pagus Nicov, ca 2,5 km situ orient. a pag. Kašperské Hory, [49°08'24,8"N, 13°35'30,7"E], leg. VŽ 13 VIII 1996 PR 886792–93. – Kašperské Hory, les u silnice směr Řetenice, 49°08'21"N, 13°35'29"E, leg. JH 13 VIII 1996 PRA. – **37b. Sušicko-horažďovické vápence, 6747c**: Sušice, in colle Žižkův vrch ad marginem merid. oppidi, 49°13'30,8"N, 13°31'28,0"E, 525 m n. m., leg. VŽ 3 IX 2001 PR 886812–13. – Sušice, Žižkův vrch (619 m), v lese 0,2 km záp. od vrcholu, 49°13'10"N, 13°31'21"E, 600 m n. m., leg. BT 11 IX 2010 OL. – Sušice, vicus Vrabcov, ad marginem silvae in clivo collis "Žižkův vrch", ca 0,7 km situ bor. a vico Vrabcov, 49°13'10"N, 13°31'21"E, 600 m s.m., leg. VŽ 11 IX 2010 herb. Žíla. – **37e. Volyňské Předšumaví, 6648c**: Svaté Pole (Horažďovice), borový les jv. od obce Svaté Pole, 49°18'01"N, 13°43'32"E, leg. B. Mandák 19 VII 1994 PRA. – **6747c**: Albrechtice, a margin of a wood next to the Pastviště u Fínů national nature monument about 1 km NE of the village, 49°12'42.6"N, 13°34'26.4"E, 585 m a.s.l., leg. JV 3 IX 2014 herb. Velebil 140914. – **6748b**: Kladruby (Horažďovice), ad marginem silvae in colle "Divoš" (537,3 m), ca 0,6 km situ occid. a pago, [49°16'16,4"N, 13°45'20,9"E], leg. VŽ 22 IX 1997 PR 886778–79. – Kladruby (Horažďovice), les 0,7 km zsz. od obce, 49°16'18"N, 13°45'20"E, 535 m n. m., leg. BT 13 IX 2008 OL. – Strakonice, pagus Volenice, vicus Kladruby, ad marginem silvae in colle Divoš, ca 1 km situ occid.-bor.-occid. a vico, [49°16'29,9"N, 13°45'17,8"E], 460 m s.m., leg. VŽ 19 IX 1998 herb. Žíla. – Kladruby (Horažďovice), les 0,7 km zsz. obce, 49°16'18"N, 13°45'20"E, 535 m n. m., leg. BT 13 IX 2008 OL. – Kladruby (Horažďovice), les na vrchu Divoš (537 m), asi 0,7 km zsz. od obce, 49°16'15"N, 13°45'13"E, leg. BT 31 VIII 2013 OL. – **6748c**: Volenice (Horažďovice), vých. okraje lesa na Turkovickém vrchu 1,3 km jiz. od obce, 49°14'52"N, 13°43'54"E, 530 m n. m., leg. BT 11 IX 2010 BRNM, OL. – Horažďovice, pagus Volenice, ad marginem silvae in colle "Turkovický vrch", ca 1,3 km situ merid.-occid. a pago, 49°14'52"N, 13°43'54"E, 530 m s.m., leg. VŽ 11 IX 2010 PR 886710–11, herb. Žíla. – **6848d**: Volyně, pagus Chvalšovice: ad marginem silvae apud viam publicam ad pagum Vacovice versus, ca 1 km situ occid. a pago Vacovice, 49°08'25,6"N, 13°46'28,8"E, leg. VŽ 8 VIII 2000 PR 886802–03. – Volyně, pagus Vacovice, ad marginem pagi, 49°08'24,2"N, 13°46'55,0"E, 710 m s.m., leg. VŽ 8 VIII 2000 PR 886804–05, herb. Žíla. – Vacovice, křoviny u silnice do Krušlova, za samotou U Mezulánů, 49°08'35"N, 13°47'36"E, 705 m n. m., leg. BT 11 IX 2010 BRNM, OL. – Volyně, pagus Vacovice, ad marginem orient.-bor.-orient. pagi, apud viam publicam pagum Krušlov versus, 49°08'35,2"N, 13°47'26,2"E, 705 m s.m., leg. VŽ 11 IX 2010 PR 886712–13, herb. Žíla. – **37h. Prachatické Předšumaví, 7050b**: Klenovice (Prachatic), křoviny u cesty 0,5 km sev. od obce, 48°59'15"N, 14°06'02"E, 705 m n. m., leg. BT 12 IX 2010 BRNM, OL. – Prachatic, pagus Klenovice, ad viam, ca 0,5 km situ bor. a pago, 48°59'15"N, 14°06'02"E, 705 m s.m., leg. VŽ 12 IX 2010 PR 886716–17, herb. Žíla. – **37i. Chvalšinské Předšumaví, 6950d**: Lhenice, vrcholové partie vrchu Hora (693,6 m) sz. od města, 49°00'01"N, 14°08'15"E, 680 m n. m., leg. ML et PL 26 VIII 2004 CB 39120, 39121. – **7050b**: Lhenice, Mičovice, příkop silnice ca 950 m zsz. od středu Mičovic, 48°59'13"N, 14°06'48"E, 620 m n. m., leg. PL 31 VIII 2008 herb. P. Lepší. – Prachatic, ca 3,3 km sv. od kostela v osadě Chroboly, paseka, 48°58'59"N, 14°05'27"E, 680 m n. m., leg. ML 3 X 2006 CB 51317. – Prachatic, ca 3,3 km vsv. od kostela v osadě Chroboly, paseka, 48°58'16"N, 14°06'03"E, 760 m n. m., leg. ML 4 IX 2006 CB 51318. – Lhenice, Mičovice, při cestě z Klenovic ke Klenovické myslivně, 48°58'51"N, 14°06'11"E [48°59'21,7"N, 14°06'08,9"E], 540 [670] m n. m., leg. ML 30 VII 2002 CB 34267. – Prachatic, pagus Lhenice, vicus Jáma, haud procul a vico, 48°58'2,2"N, 14°06'53,0"E, leg. VŽ 20 VIII 2004 PR 886822–23, PR 886832–33. – **37j. Blanský les, 7051c**: Brloh, Kuklov settlement, along road close to solitary house called U Fialů, ca 580 m NE of church in village, ditch and edge of road, huge shrub, 48°56'05"N, 14°11'18"E, 690 m a.s.l., leg. PL 17 VIII 2017 herb. P. Lepší. – **37l. Českokrumlovské Předšumaví, 7052d**: Březí (Boršov nad Vltavou), při lesní cestě směr zřícenina Maškovec, 0,8 km jiz. od středu osady, 48°54'26"N, 14°25'07"E, 280 [420] m n. m., leg. PL 27 VIII 2003 herb. P. Lepší. – **38. Budějovická pánev, 6951d**: Němčice, ca 2,8 km vých. od kostela v obci, okraj kulturního lesa a lesní cesty, 49°01'58"N, 14°18'44"E, 410 m n. m., leg. ML 14 VIII 2007 CB 64742. – **41. Střední Povltaví, 6650d**: Písek, pagus Malé Nepodřice, in silva ad viam publicam, ca 1 km situ bor.-orient. a pago, 49°18'27,4"N, 14°06'13,5"E, 430 m n. m., leg. VŽ 2 IX 2001 PR 886810–11. – **68. Moravské podhůří Vysočiny, 7059b**: Korolupy, vrch Kopka (486 m) (Jemnicko), okraj lesní silnice 0,7 km sv. od vrcholu kopce, 48°56'50"N, 15°38'13"E [48°57'11,9"N, 15°38'48,9"E], 470 m n. m., leg. R. J. Vašut 22 VIII 2000 OL. – **87. Brdy, 6348c**: Planiny (Borovno), u hájovny, 49°36'08"N, 13°41'26"E, leg. JH 28 IX 1996 PRA. – **6448a**: Planiny (Borovno), osada Na Pile již. od Planin, 49°35'49"N, 13°41'51"E,

leg. JH 28 IX 1996 PRA. – **88a. Královský hvozd, 6744d:** Hojsova Stráž, žel. stanice [Hamry-Hojsova Stráž], Stateček (Pod Statečkem) 3 km jz. od stanice, kóta 958 m, [49°12'04"N, 13°08'19"E], leg. KČ 27 IX 1997 PRA. – Hojsova Stráž, žel. stanice [Hamry-Hojsova Stráž], Stateček (Pod Statečkem), 2,5 km jz. od žel. stanice, kóta 823,4 m, [49°12'02"N, 13°08'49"E], leg. KČ 27 IX 1997 PRA. – Železná Ruda, unter den Oserhütten im Böhmerwalde, [49°12'35,9"N, 13°07'59,3"E], leg. Čelakovský 1/3 IX 1880 PR [as *R. radula*]. – **6745c:** Hojsova Stráž, na okraji obce při silnici na nádraží, 49°12'54"N, 13°11'19"E, leg. B. Mandák 27 VIII 1995 PRA. – **6844b:** Železná Ruda, zwischen dem Oser und Schwarzen See in Böhmerwalde, [49°11'36,4"N, 13°09'06,8"E], leg. Čelakovský 1/3 IX 1880 PR [as *R. radula*]. – **6845a:** Klatovy, pagus Železná Ruda, secundum viam notatam inter lacus "Černé jezero" et "Čertovo jezero", 49°10'24"N, 13°12'00"E, 1160 m s.m., leg. VŽ 8 VIII 2010 PR 886735–36, herb. Žíla. – **88b. Šumavské pláň, 6745d:** Onen Svět (Javorná), menší les záp. od obce, [49°13'56"N, 13°16'19"E], leg. KČ 5 IX 2014 herb. Čížek, OL (dupl.). – **6845c:** Železná Ruda, křížová cesta (modrá turistická značka) ve směru hotel Belveder, [49°08'29"N, 13°14'13"E], leg. KČ 18 VIII 2013 herb. Čížek, OL (dupl.). – Železná Ruda, paseka blízko hotelu Belveder, [49°08'33"N, 13°14'30"E], 850 m n. m., leg. KČ 18 VIII 2013 herb. Čížek, OL (dupl.). – **6846a:** Železná Ruda, pagus Skelná, ad marginem silvae ad viam publicam, ca 1 km situ orient. a pago, 49°09'23,0"N, 13°22'32,1"E, 890 m n. m., leg. VŽ 21 X 2001 PR 886820–21. – **88g. Hornovltavská kotlina, 7149a:** Volary, pagus Černý Kříž, apud stat. ferroviae Černý Kříž, [48°51'38"N, 13°51'37"E], leg. VŽ 7 VII 1992 PR 886777. – **88h. Hornovltavská kotlina, 7350c:** Český Krumlov, pagus Přední Výtoň, vicus Rychněvek, ad marginem silvae apud viam publicam, ca 0,6 km situ merid.-occid. [bor.-occid] a vico, 48°37'15,2"N, 14°03'51,5"E, 750 m s.m., leg. VŽ 1 X 2006 PR 886773–74, herb. Žíla.

Germany, Lower Bavaria, 6945a: Zwiesel, pagus Ludwigsthal: ad marginem silvae ad viam publicam ex oppido Zwiesel [Zwieselerwaldhaus] versus pagum Bayer Eisenstein cis pagum Ludwigsthal, [49°05'36,2"N, 13°14'50,5"E], leg. VŽ 17 X 1999 PR 886782–83. – Bayerisch Eisenstein, pagus Regenhütte, in silva ad viam publicam, ca 1 km situ bor.-occid. a pago, 49°04'54,2"N, 13°12'09,9"E, 664 m s.m., leg. VŽ 29 VII 2002 PR 886838, PR 886839, herb. Žíla. – **7145b:** Grafenau, pagus Eppenschlag: vicus Marbach, ad marginem silvae, ca 1 km situ orient. a vico, 48°53'53,7"N, 13°18'19,9"E, 685 m s.m., leg. VŽ 3 VIII 2002 PR 886831. – **7147c:** Freyung, kraj osady Ahornöd, ca 2 km ssz. od železničního nádraží ve Freyungu, 48°49'08"N, 13°32'11"E, leg. PL 27 IX 2009 herb. P. Lepší. – Freyung, vicus Bierhütte, margo silvae ad viam publicam, ca 4 [3,1] km situ orient. a pago Hohenau, 48°50'34,1"N, 13°31'53,5"E, 670 m s.m., leg. VŽ 29 VIII 2008 PR 886727–28, herb. Žíla. – **7246d:** Röhrnbach, pagus Prag, margo silvae ad viam publicam, ca 0,5 km situ orient.-bor.-orient. a pago, 48°42'26,8"N, 13°29'24,2"E, 465 m s.m., leg. VŽ 30 VIII 2008 PR 886731–32, herb. Žíla. – **7247c:** Röhrnbach, pagus Wimperstall, ad marginem pagi, 48°42'19,4"N, 13°31'20,7"E, 511 m s.m., leg. VŽ 4 VIII 2003 PR 883764–65, herb. Žíla. – **7345b:** Aicha vorm Wald, pagus Rötzing, margo silvae ad viam publicam apud pagum, 48°39'17,6"N, 13°19'19,2"E, 395 m s.m., leg. VŽ 26 VII 2006 PR 886771–72, herb. Žíla. – Aicha vorm Wald, ad marginem silvae situ orient. ab oppido, 48°40'48,5"N, 13°18'03,6"E, 385 m s.m., leg. VŽ 10 IX 2005 PR 886741–42, herb. Žíla. – **7345d:** Aicha vorm Wald, pagus Oberndorf, margo silvae ad viam publicam inter pagos Kirchberg vorm Wald et Otterskirchen, 48°38'15"N, 13°19'07"E, 450 m s.m., leg. VŽ 26 VII 2006 PR 886768–69, herb. Žíla. – **7346b:** Hutthurm, pagus Hötzdorf, margo silvae ad viam publicam oppidum Ruderting versus, haud procul a pago Hötzdorf, 48°39'33,9"N, 13°27'47,5"E, 445 m s.m., leg. VŽ 24 VII 2006 PR 886758–59, herb. Žíla. – Hutthurm, vicus Grossthannensteig, margo silvae, ad viam publicam, ca 1 km situ merid.-occid. a vico, 48°41'11,2"N, 13°29'43,3"E, 485 m s.m., leg. VŽ 30 VIII 2008 PR 886718, PR 886729–30, herb. Žíla. – Passau, oppidum Hutthurm, pagus Prag, margo silvae ad viam publicam pagum Ramling versus, ca 1 km situ merid.-occid. a pago Prag, 48°41'55,9"N, 13°28'09,5"E, 425 m s.m., leg. VŽ 30 VIII 2008 PR 886719–20, herb. Žíla. – **7346c:** Passau, oppidum Tiefenbach, vicus Allerting, ad marginem silvae haud procul a vico, 48°37'07,1"N, 13°24'51,2"E, 430 m s.m., leg. VŽ 3 IX 2005 PR 886745–46. – Passau, oppidum Tiefenbach, pagus Vollerding, margo silvae ad viam publicam oppidum Tiefenbach versus, 48°37'22"N, 13°21'57,6"E, 410 m s.m., leg. VŽ 25 VII 2006 PR 886766–67, herb. Žíla. – Passau, oppidum Tiefenbach, margo silvae in proximitate oppidi, 48°37'26,5"N, 13°24'32,8"E, 390 m s.m., leg. VŽ 25 VII 2006 PR 886764–65, herb. Žíla. – Passau, oppidum Ruderting, ad marginem silvae apud oppidum, 48°38'46,9"N, 13°24'39,5"E, 460 m s.m., leg. VŽ 3 IX 2005 PR 886743–44, herb. Žíla. – Passau, pagus Ruderting, margo silvae apud viam publicam, ad marginem merid. pagi, 48°38'39,0"N, 13°24'46,6"E, 455 m s.m., leg. VŽ 31 VIII 2008 PR 886725–26, herb. Žíla. – Ruderting, margo silvae ad viam publicam urbem Passau versus, 48°38'46,6"N, 13°24'38,6"E, 460 m s.m., leg. VŽ 25 VII 2006 PR 886762–63. – **7346d:** Passau, pagus Patriching, margo silvae ad viam publicam, ca 1 km situ merid.-orient. a pago, 48°36'13,6"N, 13°25'46,9"E, 430 m s.m., leg. VŽ 31 VIII 2008 PR 886723–24, herb. Žíla. – Passau, pagus Strasskirchen, vicum Haag, margo silvae, ad viam publicam haud procul a vico, 48°37'20,8"N, 13°27'51,8"E, 435 m s.m., leg. VŽ 30 VIII 2008 PR 886721–22, herb. Žíla. – **7347a:** Hutthurm, pagus Kalteneck, margo silvae ad viam publicam, haud procul

a pago, [48°41'24,5"N, 13°27'16,9"E], 350 [360] m s.m., leg. VŽ 24 VII 2006 PR 886756–57, herb. Žíla. – Waldkirchen, pagus Büchlberg, vicus Bärnreuth, ad marginem silvae, ca 1 km a vico Bärnreuth, 48°41'06,6"N, 13°33'07,7"E, 500 m s.m., leg. VŽ 25 VIII 2005 PR 886749–50, herb. Žíla. – **7446a**: Passau, oppidum Haidenhof, ad marginem silvae, situ occid. ab oppido, 48°33'54,6"N, 13°24'00,6"E, 360 m s.m., leg. VŽ 3 IX 2005 PR 886747–48. – **Upper Palatinate, 6539d**: Nabburg, pagus Willhof, vicus Schirmdorf, ad marginem silvae, ca 0,5 km situ bor.-orient. a vico Schirmdorf, 49°25'23,3"N, 12°17'42"E, 470 m s.m., leg. VŽ 16 IX 2006 PR 886752–53, herb. Žíla. – **6540c**: Oberviechtach, pagus Pertolzhofen, ad marginem silvae, apud viam publicam, inter vicus Mantlarm et Wagnern, 49°25'08,1"N, 12°21'30,4"E, 515 m s.m., leg. VŽ 16 IX 2006 PR 886754–55, herb. Žíla. – **6640d**: Neunburg vorm Wald, pagus Diendorf, ad marginem silvae apud viam publicam, inter oppida Neunburg vorm Wald et Rötz, 49°20'57,9"N, 12°25'29,3"E, 500 m s.m., leg. VŽ 18 IX 2004 PR 886830. – **6641d**: Cham, pagus Schönthal, ad marginem silvae, secundum viam publicam, inter oppida Cham et Weiden [in der Oberpfalz], 49°19'39,3"N, 12°37'59,3"E, 477 m s.m., leg. VŽ 28 IX 2003 PR 886840, PR 883761.

Rubus vatavensis (Fig. 9)

Austria, Upper Austria, Hausruckviertel, 7649b: Hartkirchen, okraj lesa při silnici do Wesenufer, ca 0,3 km sv. od osady Hörmannsedt, 48°22'23"N, 13°57'49"E, 280 m n. m., leg. PH, PL, BT, VŽ 12 VIII 2008 herb. Žíla. – Eferding, pagus Hilkering, margo silvae ad viam publicam, ca 0,7 km situ bor.-occid. a pago, 48°22'22,9"N, 13°57'49,3"E, 280 m s.m., leg. VŽ 12 VIII 2008 PR 879958–59, herb. Žíla. – **7649d**: Stroheim, lesní okraj a paseka při silnici mezi osadami Stroheim a Rienberg (ca 1,8 km sv. od kostela ve Stroheimu), 48°20'50"N, 13°58'29"E, 300 m n. m., leg. PH, PL, BT, VŽ 12 VIII 2008 OL, herb. P. Lepší. – Eferding, pagus Rienberg, margo silvae apud viam publicam, ad marginem merid. pagi, 48°20'50,3"N, 13°58'29,4"E, 300 m s.m., leg. VŽ 12 VIII 2008 herb. Žíla. – **7749a**: Sankt Marienkirchen an der Polsenz, vicus Egg, ad marginem silvae in proximitate vici, ca 3 km situ occid. ab oppido, 48°15'36,5"N, 13°53'22,3"E, 345 m s.m., leg. VŽ 13 IX 2003 PR 879935–36, herb. Žíla. – **7849a**: Wels, Kematen [am Innbach], okraj lesa již. od obce, 48°09'39,7"N, 13°51'44,1"E, 450 m n. m., leg. ML, PL 20 VII 2006 CB 51224, herb. Žíla. – **7849b**: Wels, pagus Oberthan, in silva ad viam publicam prope pagum Oberthan, 48°11'09,9"N, 13°57'32,2"E, 356 m s.m., leg. VŽ 16 X 2004 PR 879928–29, herb. Žíla. – **Innviertel, 7447d**: Esternberg, pagus Vichtenstein, ad viam publicam in ripa dextra fluminis Donau, 48°32'04,1"N, 13°39'42,4"E, 309 m s.m., leg. VŽ 6 IX 2003 PR 879933–34, herb. Žíla, OL. – **7548a**: Sankt Aegidi, pagus Hackendorf, ad marginem silvae ad viam publicam, inter oppidum Sankt Aegidi et pagum Hackendorf, 48°28'25,3"N, 13°43'02,8"E, 615 m s.m., leg. VŽ 6 IX 2003 PR 879931–32, herb. Žíla. – **7944b**: Mattighofen, ca 0,5 km NNW of the village of Sollern, 48°05'29,4"N, 13°07'53,5"E, 490 m a.s.l., leg. ML et PL 18 VIII 2018 CB 79240. – Mattighofen, pagus Sollern, ad marginem silvae ad viam publicam, ca 0,5 km situ bor. a pago, 48°05'29"N, 13°07'54"E, 475 m s.m., leg. VŽ 18 VIII 2010 PR 879979, herb. Žíla. – **7945a**: Mattighofen, pagus Äpfelberg, ad viam publicam, situ occid. a pago, 48°04'53,8"N, 13°10'35,8"E, 460 m s.m., leg. VŽ 18 VIII 2010 PR 879980–81, herb. Žíla. – **Mühlviertel, 7650b**: Walding, pagus Lacken, ad marginem silvae apud viam publicam inter oppida Walding et Neufelden, ca 3 km situ merid.-orient. a pago Lacken, 48°21'56,3"N, 14°07'19,4"E, 305 m s.m., leg. VŽ 5 IX 2004 PR 879930, herb. Žíla. – **Traunviertel, 8147d**: Ebensee [am Traunsee], levý břeh jezera Hint. [Hinterer] Langbathsee (Höllengebirge), [47°49'55,3"N, 13°39'08,4"E], 730 [740] m n. m., leg. PL 5 VIII 2007 herb. P. Lepší.

Czech Republic, 34. Plánický hřeben, 6646a: Habartice, okraj lesa při silnici 1,2 km zsz. od obce, 49°23'41"N, 13°23'22"E, 540 m n. m., leg. VŽ 29 VIII 2000 herb. Žíla. – Kocourov (Mochtín), při cestě nad koupalištěm asi 1 km jjv. obce, [49°21'05"N, 13°23'21"E], leg. KČ 31 VII 2013 herb. Čížek, OL (dupl.). – **35d. Březnické Podbrdsko, 6650a**: Třebkov, les 0,8 km jv. (–vjv.) obce, 49°21'06"N, 14°03'40"E, leg. BT, VŽ, ML, PL, AJ 12 IX 2010 OL. – Čížová, vicus Nová Hospoda, margo silvae ad viam publicam, situ bor.-orient. a vico, 49°21'06,8"N, 14°03'40,4"E, 520 m s.m., leg. VŽ 11 IX 2006 PR 879955–56, herb. Žíla. – **6749b**: Kbelnice, okraj lesa na východním okraji obce, 49°17'44,9"N, 13°59'25,3"E, 480 m n. m., leg. ML 10 XI 2005 CB 50788. – **6750a**: Přešovice, les 0,7 km sv. od osady Slatina, 49°17'11"N, 14°00'23"E, leg. BT 17 VIII 1996 OL. – **36a Blatensko, 6649a**: Blatná, pagus Milčice, in silvula, ca 0,4 km situ merid.-orient. a pago, [49°21'47,6"N, 13°52'28,5"E], leg. VŽ 24 VIII 2000 PR 879975–76, herb. Žíla. – **6649c**: Třebohostice, okraj lesa při silnici nedaleko obce, 49°19'51"N, 13°51'24"E, leg. VŽ 1 X 1998 herb. Žíla. – Třebohostice, okraj lesa při silnici směr Blatná 1,5 km sz. od obce, 49°20'30"N, 13°50'58"E, leg. VŽ 28 IX 1998 herb. Žíla. – Třebohostice, okraj lesa u silnice nedaleko obce, 49°19'51"N, 13°51'24"E, leg. JH 1 X 1998 PRA. – Třebohostice, okraj lesa u silnice do Nahošína 0,7 km sz. obce, 49°20'14"N, 13°51'14"E, leg. BT, VŽ 11 IX 2010 OL. – Třebohostice, les sz. od obce na jz. úpatí vrchu Obrň, 49°20'14"N, 13°51'13"E, leg. JH 1 X 1998 PRA. – Třebohostice, ad marginem silvae apud viam publicam, ca 1 km situ bor.-occid. a pago, 49°20'22,3"N, 13°51'05,8"E, 505 m s.m., leg. VŽ 9 X 2006 PR 879949–50, herb. Žíla. – **36b. Horažďovicko, 6648d**: Zadní Zborovice, lesní okraj záp. od obce,

pod vrchem Hřeben, 49°19'50"N, 13°49'57"E, leg. JH 15 VIII 1996 PRA. – Hlupín, les vlevo od Březového potoka před Zádušním lesem, 49°19'48"N, 13°46'20"E, leg. JH 15 VIII 1996 PRA. – Hlupín, les u silnice 1,6–1,3 km vjv. od obce, 49°19'52"N, 13°49'33"E, leg. BT 15 VIII 1996 OL. – Horažďovice, cíp lesa u silnice 2 km vých. od nádraží Horažďovice-předměstí, 49°19'47"N, 13°45'54"E, leg. BT 15 VIII 1996 OL. – Hlupín, in silva haud procul a via publica, in ripa sinistra rivi "Březový potok", ca 2,5 km situ occid.-merid.-occid. a pago, [49°19'42,5"N, 13°46'19,7"E], leg. VŽ 15 VIII 1996 herb. Žíla. – **37e. Volyňské Předšumaví, 6748b:** Katovice, in clivo bor. collis Katovická hora (493,2 m) situ bor.-occid. a pago, [49°16'50,9"N, 13°48'32,9"E], leg. VŽ, VCh 30 IX 1997 herb. Žíla. – Katovice, margo silvae secundum viam publicam inter pagos Katovice et Novosedly, situ merid.-occid. a pago Katovice, 49°16'04,8"N, 13°49'11,9"E, 425 m s.m., leg. VŽ 25 VIII 2006 PR 879939–40, herb. Žíla. – Štěchovice, vicus Lipnice, margo silvae in proximitate vici, ca 0,8 km situ merid.-merid.-orient. a pago Štěchovice, 49°15'00,7"N, 13°46'06,3"E, 500 m s.m., leg. VŽ 22 X 2006 PR 879953–54, herb. Žíla. – **6748c:** Volenice, okraj lesa při silnici mezi obcemi Volenice a Krejnice, 49°14'34"N, 13°43'37"E, leg. VŽ 24 X 1999 herb. Žíla. – Krejnice, les u zatáčky silnice do Volenice 1,2 km sv. obce, 49°14'26"N, 13°43'48"E, 510 m n. m., leg. BT, VŽ 11 IX 2010 OL. – Volenice, okraj silnice v lese ca 2 km jz. od kostela v obci, 49°14'23,9"N, 13°43'39,6"E, 540 m n. m., leg. ML 10 XI 2005 CB 50789. – Volenice, margo silvae ad viam publicam inter pagos Volenice et Krejnice, ca 2 km situ merid.-occid. a pago Volenice, [49°14'29,9"N, 13°43'43,6"E], leg. VŽ 24 X 1999 herb. Žíla. – **6748d:** Tažovice, les u silnice 0,8 km vých. obce (směr Kraselov), 49°13'53"N, 13°46'30"E, 545 m n. m., leg. PL, BT, VŽ 13 IX 2008 OL. – Mladotice, ad marginem silvae in summo collis "Mladotický vrch" (703 m), ca 0,7 km situ merid.-merid.-orient. a pago, [49°12'39,3"N, 13°47'36,1"E], leg. VŽ 10 IX 1997 PR 879968–69, herb. Žíla. – Tažovice, ad viam silvestrem inter pagos Tažovice et Kraselov, 49°13'53,3"N, 13°46'27,9"E, 554 m s.m., leg. VŽ 29 VII 2002 PR 879924–25, herb. Žíla. – Tažovice, in silva ad viam publicam ex pag. Kraselov in pag. Tažovice, ca 1 km situ orient. a pago Tažovice, [49°13'51"N, 13°46'44"E], leg. VŽ 29 X 1999 PR 879970, PR 881071, herb. Žíla. – **6749a:** Dražejov, in clivo merid. collis "Kufidlo" ad marginem orient. pagi, [49°16'13,4"N, 13°52'32,9"E], leg. VŽ 20 IX 1995 herb. Žíla. – **6749b:** Slatina, les u obce, 49°16'49"N, 13°59'49"E, leg. JH 17 VIII 1996 PRA. – Strakonice, apud stationem ferroviae ad marginem orient. oppidi, 49°15'23,6"N, 13°55'14,8"E, 405 m s.m., leg. VŽ 8 VIII 2007 PR 879957, herb. Žíla. – **6749c:** Přední Zborovice, les [kóta] Vlčiny, sev. okraj, 49°13'23"N, 13°54'12"E, leg. JH 16 VIII 1996 PRA. – Drachkov, les [kóta] Kamenná Bába při silnici z Drachkova do Sousedovic, 1 km od obce Drachkov, 49°14'16"N, 13°51'16"E, leg. VŽ 29 X 1999 herb. Žíla. – Přední Zborovice, les na vrcholu Vlčiny 1 km vsv. od obce, 49°13'09"N, 13°54'19"E, leg. BT 16 VIII 1996 OL. – Sousedovice, les u silničky do Drachkova 1,4 km sz. od obce, 49°14'20"N, 13°51'10"E, leg. BT 12 IX 2010 OL. – Hoštice, lesnatý Kalný vrch (kóta 633,7 m) ssz. obce, při lesní cestě na východním svahu, [49°12'04,3"N, 13°54'25,4"E], leg. VCh, VŽ 12 IX 1997 CB 52339. – Libětice, ad marginem occid. silvae in colle Hradiště, situ orient. a pago, [49°13'06,1"N, 13°52'02,6"E], leg. VŽ 5 IX 1997 herb. Žíla. – Sousedovice, ad marginem silvae ad viam publicam pagum Dražek versus, ca 0,4 km situ bor.-occid. a pago Sousedovice, [49°14'02,8"N, 13°51'42,7"E], leg. VŽ 27 IX 1996 PR 879977–78, herb. Žíla. – Sousedovice, margo silvae ad viam publicam, inter pagos Sousedovice et Drachkov, ca 1,2 km situ bor.-occid. a pago Sousedovice, 49°14'16,9"N, 13°51'15,5"E, 480 m s.m., leg. VŽ 21 VIII 2006 herb. Žíla. – Drachkov, in silva "Kamenná Bába" ad viam publicam inter pagos Dražek et Sousedovice, ca 1 km situ merid.-orient. a pago Dražek, 49°14'20"N, 13°51'15"E, 480 m s.m., leg. VŽ 29 VII 2002 herb. Žíla. – Hoštice, ad viam silvestrem in clivo orient. collis "Kalný vrch" (635 m), situ bor.-bor.-occid. a pago, 49°12'02,6"N, 13°54'07,6"E, 575 m s.m., leg. VŽ 12 IX 1997 herb. Žíla. – Hoštice, in clivo collis "Kalný vrch", secundum viam silvestrem, ca 0,7 km situ bor.-bor.-occid. a pago, 49°12'02,6"N, 13°54'07,6"E, 575 m s.m., leg. VŽ 8 X 2006 PR 879947–48, PR 879937, herb. Žíla. – Strunkovice nad Volyňkou, ad marginem silvae, ca 1,8 km situ bor.-orient. a pago, 49°13'23,5"N, 13°54'21,3"E, 480 m s.m., leg. VŽ 15 X 2006 PR 879966–67, PR 879951–52, herb. Žíla. – Libětice, lesnatý vrch Hradiště vých. obce, 49°13'07"N, 13°52'25"E, 575 m n. m., leg. VCh, VŽ 5 IX 1997 CB 52345. – **6749d:** Strakonice, Podsrp, les sev. od silnice 1,4 km vjv. od osady, 49°14'43"N, 13°57'13"E, leg. VŽ 16 VIII 1996 herb. Žíla. – Miloňovice, les při sz. okraji obce, 49°13'20"N, 13°57'19"E, leg. VŽ 16 VIII 1996 herb. Žíla. – Nová Ves, jz. okraj Lipovice 0,7 km od obce, 49°13'25"N, 13°56'25"E, leg. VŽ 17 IX 1997 herb. Žíla. – Strakonice, Podsrp, les Srpsko, již.-jz. část, 49°14'27"N, 13°56'01"E, leg. JH 16 VIII 1996 PRA. – Strakonice, Podsrp, les Srpsko, zadní část, 49°14'51"N, 13°55'59"E, leg. JH 16 VIII 1996 PRA. – Strakonice, Podsrp, les sev. od hlavní silnice 1,4–1 km vjv. osady, 49°14'50"N, 13°56'44"E, leg. BT 16 VIII 1996 OL. – Nebřehovice, okraj lesa 0,9 km sev.–zsz. obce, 49°14'40"N, 13°57'28"E, leg. BT 16 VIII 1996 OL. – Miloňovice, les při sz. okraji obce, 49°13'22"N, 13°57'19"E, leg. BT 16 VIII 1996 OL. – Nebřehovice, okraj lesa u silnice 0,8 km sz. obce, 49°14'35"N, 13°57'15"E, 515 m n. m., leg. PL, BT, VŽ 13 IX 2008 OL, herb. P. Lepší. – Strakonice, jv. okraj lesa Srpsko u Nebřehovic (Nebřehovický vrch), 49°14'39"N, 13°57'20"E, leg. JH 16 VIII 1996 PRA. – Sedlíkovice, les 0,7 km již.(–jjz.) od obce, 49°14'39"N, 13°59'37"E, 465 m n. m., leg. BT 12 IX 2008 OL. – Modlešovice,

Nebřehovický vrch (kóta 539 m) zjz. od obce, při silnici v lese na sev. svahu vrchu, [49°14'57,2"N, 13°57'21,6"E], leg. VCh, VŽ 17 VIII 1988 CB 52777. – Nebřehovice, v kulturním lese ca 1,9 km vých. od obce, 49°14'29,7"N, 13°59'11,7"E, 460 m n. m., leg. ML 10 XI 2005 CB 50786. – Nebřehovice, v křovinách ca 2,3 km vých. od obce, 49°14'38,7"N, 13°59'36,9"E, 470 m n. m., leg. ML 10 XI 2005 CB 50787. – Zadní Ptákovice, in tramite arvencis, ca 0,2 km situ orient. a pago, [49°13'56,2"N, 13°57'11,6"E], leg. VŽ 21 VII 1996 herb. Žíla. – Třešovice, ad marginem silvae, ca 0,5 km situ merid.-orient. a pago, [49°12'28,2"N, 13°59'04,1"E], leg. VŽ 17 IX 1997 PR 879971–72, herb. Žíla. – Miloňovice, vicus Nová Ves, ad marginem silvae in clivo merid.-occid. collis "Lipovice", ca 0,7 km situ bor. a vico, [49°13'34,9"N, 13°56'11,6"E], leg. VŽ 17 IX 1997 herb. Žíla. – Miloňovice, vicus Zadní Ptákovice, in silva ad marginem merid. vici, 49°13'44,5"N, 13°57'02,5"E, 510 m s.m., leg. VŽ 7 X 2006 PR 879962–65, herb. Žíla. – Sedlíkovic, ad marginem silvae in colle "Virotín" (496,7 m), ca 1 km situ merid. a pago, [49°14'32,7"N, 13°59'28,2"E], leg. VŽ 16 X 1995 herb. Žíla. – Strakonice, pagus Štěkeň, vicus Sedlíkovic: in clivo orient. collis Virotín, ca 0,6 km situ merid. a vico, 49°14'37,9"N, 13°59'37,8"E, 465 m s.m., leg. VŽ 8 VIII 2006 PR 879945–46, PR 879938, herb. Žíla. – Sedlíkovic, ad marginem silvae in summo collis "Virotín" (496,7 m), ca 0,8 km situ merid.-merid.-occid. a pago, [49°14'32,7"N, 13°59'28,2"E], leg. VŽ 26 IX 1996 herb. Žíla. – Strakonice, pagus Podsrp, ad viam publicam pagum Modlešovice versus, [49°14'54,7"N, 13°56'47,5"E], leg. VŽ 17 VIII 1988 herb. Žíla. – Strakonice, pagus Podsrp, ad marginem merid.-orient. collis "Velká Kakada" (563,8 m), 49°14'23,2"N, 13°56'42,1"E, leg. VŽ 18 X 1995 herb. Žíla. – Strakonice, pagus Podsrp, ad marginem silvae, ca 1 km situ merid.-orient. a pago, 49°14'30"N, 13°57'20"E, 510 m s.m., leg. VŽ 29 VII 2002 PR 879926–27, herb. Žíla. – Strakonice, pagus Podsrp, ad marginem silvae, ca 1 km situ merid.-orient. a pago, 49°14'35,6"N, 13°57'14,5"E, 515 m s.m., leg. VŽ 18 VII 2005 PR 879960–61, herb. Žíla. – Modlešovice, ad marginem silvae ad viam publicam, ca 1 km situ occid. a pago, [49°14'59"N, 13°57'31,5"E], leg. VŽ 26 IX 1996 PR 879973–74, herb. Žíla. – Strakonice, Podsrp, u silnice do Modlešovic ca 0,5 km vjv. osady, [49°14'54,7"N, 13°56'47,5"E], leg. PH, BT, VŽ 16 VIII 1996 herb. Žíla. – Miloňovice, vicus Kuřimany, silva in clivo collis, ca 0,5 km situ merid.-occid. a vico, 49°12'07,9"N, 13°57'41,6"E, 540 m s.m., leg. VŽ 21 VIII 2006 PR 879941–42, herb. Žíla. – Strakonice, pagus Podsrp, ad marginem merid.-orient. silvae, ca 1,4 km situ merid.-orient. a pago Podsrp, 49°14'25"N, 13°56'57"E, 515 m s.m., leg. VŽ 9 VII 2010 OL. – Strakonice, Podsrp, les směr Modlešovice, 49°14'54"N, 13°57'04"E, leg. JH 17 VIII 1988 PRA. – **6849a**: Nihošovice, kopec 1,5 km jv. od obce, lesní cesta borovým lesem, 49°10'41"N, 13°52'06"E, leg. J. Lorber 30 VIII 1996 PRA. – **6849b**: Litochovice, lesnaté návrší Hora zsz. obce, 49°09'47"N, 13°56'04"E, leg. VŽ 24 IX 1997 herb. Žíla. – Litochovice, les sev. silnice do Volyně 1,4 km zsz. obce, 49°09'47"N, 13°55'23"E, 565 m n. m., leg. BT, VŽ, ML, PL, AJ 12 IX 2010 OL. – Litochovice, lesnaté návrší Hora (kóta 627 m) zsz. obce, [49°09'51,1"N, 13°55'28,7"E], leg. VCh, VŽ 24 IX 1997 CB 52302. – Paračov, in silva [Kněžský] Hájek, ca 1 km situ merid.-merid.-occid. a pago, 49°11'38,2"N, 13°59'26,7"E, 530 m s.m., leg. VŽ 16 IX 1997 herb. Žíla. – Paračov, in silva [Kněžský] Hájek ad marginem pagi, 49°11'38,2"N, 13°59'26,7"E, 530 m s.m., leg. VŽ 29 VII 2002 PR 879922–23, herb. Žíla. – Volyně, pagus Litochovice, ad marginem silvae in clivo collis Hora (627 m), ca 1,3 km situ occid.-bor.-occid. a pago, [49°09'49,9"N, 13°55'29,3"E], leg. VŽ 24 IX 1997 herb. Žíla. – Milejovice, ad viam silvestrem, ca 1,5 km situ orient. a pago, 49°11'11"N, 13°57'08"E, 625 m s.m., leg. VŽ 26 IX 2013 herb. Žíla. – **6850a**: Radějovice, ad marginem silvae ad viam publicam, ca 0,5 km situ occid. a pago, [49°11'15,6"N, 14°01'9,1"E], leg. VŽ 17 IX 1997 herb. Žíla. – **37f. Strakonické vápence, 6749a**: Dražejov, les na vršku Opeřová, 0,9 km sv. od obce, 49°16'42"N, 13°52'22"E, leg. VŽ 15 VIII 1996 herb. Žíla. – Dražejov, vrch Opeřová, 49°16'41"N, 13°52'22"E, leg. JH 15 VIII 1996 PRA. – Dražejov, vrch Opeřová, 49°16'41"N, 13°52'22"E, leg. JH 3 X 1996 PRA. – Dražejov, les na vršku 0,9 km sv. od obce, 49°16'43"N, 13°52'24"E, leg. BT 15 VIII 1996 OL. – Dražejov, vrch Opeřová, úpatí, 49°16'41"N, 13°52'22"E, leg. JH 3 X 1996 PRA. – Dražejov, vrch Opeřová, jz. stráň, 49°16'34"N, 13°52'20"E, leg. JH 18 VIII 1996 PRA. – Dražejov, vrch Opeřová, vých. okraj, 49°16'40"N, 13°52'32"E, leg. JH 18 VIII 1996 PRA. – Strakonice, Šibeniční vrch sev. od obce, v borovém lese na již. svahu při okraji, [49°16'21,5"N, 13°54'12,1"E], leg. VCh, VŽ 22 IX 1988 CB 52334. – Strakonice, in silva in colle "Šibeniční vrch" ad peripheriam bor. oppidi, [49°16'21,5"N, 13°54'12,1"E], leg. VŽ 24 X 1995 herb. Žíla. – Dražejov, ad marginem silvae in colle "Opeřová", ca 1 km situ bor.-orient. a pago, [49°16'44,7"N, 13°52'34,1"E], leg. VŽ 15 X 1995 herb. Žíla. – Strakonice, vicus Za Rájem, ad marginem silvae, apud viam publicam pagum Hubenov versus, in clivo bor.-occid. collis Ryšovy, 49°16'46,6"N, 13°53'21,4"E, 460 m s.m., leg. VŽ 22 VIII 2006 PR 879943–44, herb. Žíla. – **6749b**: Řepice, les 1,4 km sz. obce, 49°17'12"N, 13°55'02"E, 455 m n. m., leg. BT, VŽ, ML, PL, AJ 12 IX 2010 OL. – Řepice, lesnatý vrch Hradec (kóta 513 m) sz. od obce, les na vrchu, vápenec, [49°17'18,2"N, 13°55'20,1"E], leg. VCh, VŽ 22 IX 1987 CB 52768. – Domanice, ad marginem silvae in clivo collis "Hradec", ca 1,3 km situ merid.-merid.-occid. a pago, 49°17'12,5"N, 13°55'02"E, 455 m s.m., leg. VŽ 12 IX 2010 PR 879982, herb. Žíla. – **37i. Chvalšinské Předšumaví, 6950d**: Lhenice, u lesní cesty nad sadem 1,6 km sz. obce, 49°00'30"N, 14°08'29"E, leg. BT, PL 12 IX 2009 OL. –

Třebanice, ca 1,4 km jv. od kaple v osadě, okraj lesní cesty, roztroušeně, 49°0'20,5"N, 14°08'21,8"E, 630 m n. m., leg. ML 12 VIII 2009 CB 73265. – Lhenice, lesík při silnici do Třebanic, ca 1,2 km ssz. od náměstí ve Lhenicích, [49°00'17,6"N, 14°8'44,1"E], 570 m n. m., leg. PL 31 VIII 2008 herb. P. Lepší. – Hradce, při silnici u samoty Vršíty, ca 1 km zjz. vsí, [49°00'32,7"N, 14°07'50,4"E], 560 m n. m., leg. PL 13 IX 2002 herb. P. Lepší. – **7050b**: Lhenice, úpatí masivu Stráže jz. od obce, 48°59'15"N, 14°08'30"E, leg. JH 3 X 1996 PRA. – Lhenice, pod vrchem Stráže, 48°59'41"N, 14°08'30"E, leg. JH 1 VIII 1990 PRA. – Lhenice, ca 2 km jz od středu obce, okraj cesty, jeden polykormon, 48°58'44,5"N, 14°08'29,8"E, 620 m n. m., leg. ML 12 VIII 2009 CB 73281. – Lhenice, ca 1,3 km jz. od středu obce, podél cesty na okraji lesa, vzácně, 48°59'2,83"N, 14°08'35,7"E, 620 m n. m., leg. ML 12 VIII 2009 CB 73444. – Mičovice, v lese na vrchu Kozí kámen, jv. svahy, [48°58'44,2"N, 14°08'22,8"E], 650 m n. m., leg. PL, ML 22 VIII 2004 herb. P. Lepší. – **38. Budějovická pánev, 6750d**: Ražice, při silnici mezi Heřmaní a Humňany, na pasece, 49°13'46,9"N, 14°07'20,7"E, 440 m n. m., leg. ML 2 VIII 2006 CB 51251. – **6951a**: Netolice, ca 1,2 km jz. od osady Hradiště, světlina ve smrčíně, 49°04'13,4"N, 14°11'19,7"E, 460 m n. m., leg. ML 28 VIII 2006 CB 51306.

Rubus jarae-cimrmanii (Fig. 13)

Czech Republic, 37e. Volyňské Předšumaví, 6750c: Dunovice, ad marginem viae in silva in clivo bor.-bor.-orient. collis "Radovec" (635,1 m), ca 0,3 km situ merid. a pago, [49°12'02"N, 14°02'47"E], leg. VŽ 22 IX 1996 PR 880306–07, herb. Žíla. – Drahonice, vicus Dunovice ad marginem silvae ca 1,2 km situ occid.-merid.-occid. a vico, 49°12'04,1"N, 14°03'46,7"E, 520 m s.m., leg. VŽ 6 X 2006 herb. Žíla. – **6849b**: Paračov, les Hájek 1 km jz. od obce, 49°11'38"N, 13°59'14"E, leg. VŽ 16 IX 1997 herb. Žíla. – Paračov, les Hájek 0,8 km jz. od obce, 49°11'38"N, 13°59'12"E, 490 m n. m., leg. BT 12 IX 2008 OL. – Strakonice, pagus Paračov: in silva "Hájek" ad marginem pagi, 49°11'38,2"N, 13°59'26,7"E, 531 m n. m., leg. VŽ 29 VII 2002 PR 880316–17, herb. Žíla. – **6850a**: Kváskovice, Kváskovická hůrka 1,5 km jv. od obce, 49°10'52"N, 14°00'56"E, leg. VŽ 17 IX 1997 herb. Žíla. – Radějovice, okraj lesa 0,5 km záp. od obce, 49°11'14"N, 14°01'08"E, leg. VŽ 17 IX 1997 herb. Žíla. – Netonice, ad marginem merid silvae "Brnouš", ca 1 km situ orient. a pago., 49°11'02"N, 14°03'34"E, leg. VŽ 17 IX 1997 herb. Žíla. – **37h. Prachatické Předšumaví, 6850a**: Husinec, ca 1,2 km sv. od vrcholu vrchu Podlípí, v řídkém smrkovém lese, roztroušeně, 49°04'02,5"N, 14°01'26,3"E, 580 m n. m., leg. ML 18 VII 2007 CB 64661. – Husinec, ca 0,3 km sz. od vrcholu vrchu Podlípí, okraj lesní cesty, jeden zastíněný exemplář, 49°03'42,5"N, 14°00'41,7"E, 560 m n. m., leg. ML 18 VII 2007 CB 64674. – Husinec, remíz ca 0,9 km sv. od vrcholu vrchu Podlípí, kulturní bor podrostlý *Sambucus nigra*, jeden větší porost, 49°03'57,7"N, 14°01'27,3"E, 580 m n. m., leg. ML 18 VII 2007 CB 64665. – **6950c**: Kralovice, ca 0,7 km záp. od středu osady, v údolí Zlatého potoka, okraj lesní cesty, 1 rozsáhlý polykormon, 49°00'24,3"N, 14°04'48,9"E, 580 m n. m., leg. ML 16 VIII 2009 CB 73799. – **7050a**: Jelemek, u lesní a polní cesty 0,5 km záp. od obce, 48°59'24"N, 14°02'13"E, leg. BT, PL 13 IX 2009 OL. – Jelemek, ca 700 m záp. od osady, paseka, 1 drobný polykormon, 48°59'27,6"N, 14°02'06,3"E, 770 m n. m., leg. PL, ML 28 VII 2009 CB 73805. – **37i. Chvalšinské Předšumaví, 7050a**: Chroboly, okraj lesa 1 km vých. od obce, 48°57'26"N, 14°04'41"E, leg. VŽ 26 VIII 1995 herb. Žíla. – **7050b**: Lhenice, vicus Vadkov: ca 0,8 km situ bor.-occid. a vico Vadkov, 48°58'32,6"N, 14°08'14,9"E, 630 m s.m., leg. VŽ 22 VIII 2004 PR 880314–15. – Smědeč, hlavní silnice mezi obcemi Smědeč a Vadkov, 48°57'20"N, 14°08'59"E, leg. JH 14 VIII 1996 PRA. – Lhenice, pod vrchem Stráže, 48°59'41"N, 14°08'30"E, leg. JH 1 VIII 1990 PRA. – Záhoří, les 1,1 km sz. od obce, 48°57'17"N, 14°05'34"E, 625 m n. m., leg. PL, BT, PH, VŽ 13 VIII 2008 OL, herb. P. Lepší, PRC, herb. Žíla. – Prachatic, ca 1,9 km vjv. od kostela v osadě Chroboly, při lesní cestě, 48°57'14,4"N, 14°5'36,6"E, 450 m n. m., leg. ML 3 X 2006 CB 51316. – Lhenice, ca 1,3 km jz. od středu obce, příkop lesní cesty, roztroušeně, 48°59'02,8"N, 14°08'35,7"E, 620 m n. m., leg. ML 12 VIII 2009 CB 73267. – Lhenice, ca 0,8 km jz. od středu obce, podél cesty na okraji lesa, roztroušeně, 48°59'18,9"N, 14°08'34,3"E, 610 m n. m., leg. ML 12 VIII 2009 CB 73443. – Lhenice, u "Štěrbů louky", 48°58'32,6"N, 14°08'14,9"E, 630 m n. m., leg. VŽ 22 VIII 2004 herb. Žíla. – Chroboly, vicus Záhoří in silvula ca 1,2 km situ bor.-occid. a vico Záhoří, 48°57'17,4"N, 14°05'34,4"E, 625 m s.m., leg. VŽ 13 VIII 2008 PR 880319, herb. Žíla. – **7050d**: Ktiš, u silnice 1–1,5 km ssv. od obce, 48°55'45"N, 14°08'36"E, leg. VŽ 14 VIII 1996 herb. Žíla. – Ktiš, les při silnici směr Smědeč sv. od obce, 48°55'25,8"N, 14°08'06"E, leg. VŽ 12 VIII 1999 herb. Žíla. – Ktiš, při lesní cestě 1,8 km sev. od kostela, 48°55'57"N, 14°07'49"E, 760 m n. m., leg. ML 30 VIII 2002 herb. P. Lepší. – Smědeč, silnice mezi obcemi Smědeč a Ktiš, 48°55'43"N, 14°08'24"E, leg. JH 14 VIII 1996 PRA. – Smědeč, les u silnice 1,2 km jz. od obce (vpravo od silnice ve směru na Ktiš), 48°55'47"N, 14°08'30"E, 730 m n. m., leg. BT, PH, VŽ 11 VIII 2008 OL, PRC, herb. Žíla. – Smědeč, u silnice 1,5 km sev. od obce, 48°57'00"N, 14°09'07"E, leg. VŽ 14 VIII 1996 herb. Žíla. – Ktiš, ca 2,6 km NW of village, edge of forest road, scattered, 48°55'45,3"N, 14°06'02,1"E, 750 m a.s.l., leg. ML 9 VII 2012 CB 82810. – Ktiš, ca 1,6 km ssv. od kostela, při silnici do Smědeče, 48°55'47,8"N, 14°08'31,3"E, 730 m n. m., leg. ML 30 VIII 2004 CB 39094. – Smědeč, les u silnice 1,2 km jz. od obce (vpravo

od silnice ve směru na Ktiš), [48°55'47"N, 14°08'30"E], 730 m n. m., leg. PL, BT, PH, VŽ 13 VIII 2008 herb. P. Lepší. – Ktiš, ad marginem silvae apud viam publicam ca 1,5 km situ bor.-bor.-orient. a vico, 48°55'46,7"N, 14°08'29,9"E, 730 m s.m., leg. VŽ 11 VIII 2008 PR 880320, herb. Žíla. – Smědeč, okraj lesa u silnice 1,4 km sev. od obce, 48°56'54"N, 14°09'05"E, leg. BT 14 VIII 1996 OL. – Ktiš, lesíky u silnice 1,2 km ssv. od obce, 48°55'38"N, 14°08'23"E, leg. BT 14 VIII 1996 OL. – Ktiš, about 2,7 km NW from centre of the village, a wood road along the Křížovický potok stream about 500 m N from the, 48°55'45,4"N, 14°06'02,1"E, 750 m a.s.l., leg. JV 9 VII 2012 herb. Velebil. – **37j. Blanský les, 7050d:** Kuklov, ca 0,4 km záp. od vrcholu Šibeníku, podél lesní cesty, 48°56'08,2"N, 14°09'59,3"E, 750 m n. m., leg. ML 30 VIII 2004 CB 39092. – Smědeč, ad marginem silvae ad viam publicam, ca 1 km situ orient.-merid.-orient. a pago, 48°55'58"N, 14°10'09"E [48°55'56,1"N, 14°09'59,3"E], leg. VŽ, JH 14 VIII 1996 PR 880308–09, herb. Žíla. – **7051a:** Brloh, severní svahy vrchu Vlčí kopec, okraj lesní cesty, jeden malý porost, 48°57'03,9"N, 14°11'07,7"E, 660 m n. m., leg. ML, PL 3 VIII 2007 CB 64787. – Nová Ves, ca 0,3 km vsv. od samoty Plešný, v mladé smrččině při okraji lesní cesty, malý zastíněný porost, 48°58'16"N, 14°13'12,7"E, 660 m n. m., leg. ML, PL 3 VIII 2007 CB 64789. – **7051c:** Kuklov, silnice na vrchu Šibeník mezi obcemi Kuklov a Smědeč, 48°56'06"N, 14°10'17"E, leg. JH 14 VIII 1996 PRA. – Brloh, ca 1 km vjv. od vrcholu vrchu Vlčí kopec, poblíž samoty Špatenka, 48°56'17,4"N, 14°11'14,7"E, 740 m n. m., leg. ML, PL 3 VIII 2007 CB 64782. – Kuklov, ca 0,2 km sv. od vrcholu Šibeníku, podél lesní cesty, 48°56'08,6"N, 14°10'24,4"E, 750 m n. m., leg. ML 30 VIII 2004 CB 39093. – Brloh, západní svahy vrchu Vlčí kopec, okraj lesní cesty, jeden malý porost, 48°56'56,1"N, 14°10'53,2"E, 710 m n. m., leg. ML, PL 3 VIII 2007 CB 64784. – Brloh, ca 0,75 km vjv. od vrcholu vrchu Vlčí kopec, okraj lesní cesty, jeden velký polykormon, 48°56'45,5"N, 14°11'35,6"E, 680 m n. m., leg. ML, PL 3 VIII 2007 CB 64781. – Ktiš, Březovík village, small clearing ca 1.4 km WNW of top of Bulový hill and ca 1.7 km NE of centre of village, 48°54'42,3"N, 14°10'17,2"E, 780 m a.s.l., leg. PL 17 VIII 2017 herb. P. Lepší. – Smědeč, u lesní cesty 1,1 km vjv. (až jv.) od obce, 48°55'58"N, 14°10'09"E, leg. BT 15 VIII 1996 OL. – **7052c:** Slavče, ca 200 m NNW of summit of Kašparka hill, forest clearing, one small shrub, 48°55'13,8"N, 14°20'22,3"E, 605 m a.s.l., leg. PL, ML 13 X 2017 CB 85408. – **7151a:** Chvalšiny, okraj lesa při silnici ca 2 km sz. od obce Chvalšiny, 48°52'08"N, 14°11'35"E, leg. VŽ 9 X 1999, this specimen is lost. – **37k. Křemžské hadce, 7052c:** Mříč, ca 2,2 km vsv. od středu osady, podél lesní pěšiny v kulturním lese, 1 polykormon, 48°54'35,5"N, 14°21'34,4"E, 510 m n. m., leg. ML 8 VIII 2009 CB 73794. – **37l. Českokrumlovské Předšumaví, 7052c:** Mříč, ca 2,5 km vjv. od středu osady, v údolí Němč strouhy, okraj lesní cesty, 1 polykormon, 48°54'19,7"N, 14°21'43,1"E, 470 m n. m., leg. ML 8 VIII 2009 CB 73793. – **37p. Novohradské podhůří, 7053a:** Srubec, ca 0,9 km sev. od kostela v obci, jeden větší porost na okraji lesní cesty, 48°57'19,7"N, 14°32'27,5"E, 530 m n. m., leg. ML 23 IX 2007 CB 64652. – **38. Budějovická pánev, 6851c:** Nestanice, ad viam publicam ad marginem silvae, ca 1 km situ occid. a pago, [49°06'11"N, 14°11'05"E], leg. VŽ, JH 12 VIII 1996 PR 880310–11, herb. Žíla. – Nestanice, les záp. od obce, 49°06'11"N, 14°10'58"E, leg. JH 12 VIII 1996 PRA. – **6951a:** Nestanice, ca 1 km zjz. od středu osady, okraj lesní cesty, vzácně, pouze jeden malý polykormon, 49°05'58"N, 14°11'11"E, 490 m n. m., leg. ML 14 VIII 2009 CB 73659. – **6951d:** České Budějovice, pagus Pištín: in silva, ca 2 km situ merid.-occid. a pago, 49°01'48"N, 14°19'06"E, 450 m s.m., leg. VŽ 1 IX 2011 PR 886694–95. – Němčice, ca 3,6 km vjv. od kostela v obci, světlna v kulturním lese při silnici Němčice-Češňovice, 49°01'48,9"N, 14°19'04,4"E, 410 m n. m., leg. ML 14 VIII 2007 CB 64744, herb. Žíla. – Němčice, ca 2,8 km vých. od kostela v obci, okraj kulturního lesa a lesní cesty, 49°01'58,3"N, 14°18'44"E, 410 m n. m., leg. ML 14 VIII 2007 CB 64743. – Němčice, ca 3,6 km vých. od kostela v obci, v oplocence v smrčkovém lese, jeden polykormon, v okolí roztroušeně, 49°01'54,7"N, 14°19'19,9"E, 410 m n. m., leg. ML 14 VIII 2007 CB 64741. – **6952c:** Břehov, ca 1,5 km jv. od kostela v obci, řídká kulturní smrčina, roztroušeně, 49°00'50,9"N, 14°20'52,1"E, 420 m n. m., leg. PL, ML 31 VII 2009 CB 73232. – **7052b:** České Budějovice, okraje lesa a u lesní cesty jz. od osady vých. Boru (při silnici České Budějovice-Branišov), 48°58'43"N, 14°25'31"E, 420 m n. m., leg. PL, BT, VŽ 14 VIII 2008 OL. – České Budějovice, okraje lesa a u lesní cesty jz. od osady vých. Boru (při silnici České Budějovice – Branišov), 48°58'43"N, 14°25'31"E, 420 m n. m., leg. PL, BT, PH, VŽ 14 VIII 2008 herb. P. Lepší. – České Budějovice, pagus Dubně, vicus Branišov ad marginem silvae apud viam publicam ca 2,3 km situ orient. a vico Branišov, 48°58'44,5"N, 14°25'37,4"E, 405 m s.m., leg. VŽ 14 VIII 2008 PR 880318, herb. Žíla. – **7052c:** Boršov nad Vltavou, vicus Dvůr Koroseky, in silva, ca 1,2 km situ occid. a vico, 48°55'41"N, 14°22'16"E, 510 m s.m., leg. VŽ 2 IX 2011 PR 886692–93. – České Budějovice, ca 1,3 km sev. od obce Vrábče, paseka, 48°55'40,4"N, 14°22'21,6"E, 500 m n. m., leg. ML 13 IX 2006 CB 51319, herb. Žíla. – Vrábče, ca 640 m NE of Vrábče train stop, young *Pinus sylvestris* plantation, a large growth, 48°55'17"N, 14°21'49,6"E, 535 m a.s.l., leg. ML 19 X 2017 CB 85058. – Vrábče, ca 760 m NE of Vrábče train stop, *Salix caprea* and *Betula pendula* grove, large growth, 48°55'24,5"N, 14°21'44,2"E, 530 m a.s.l., leg. ML 19 X 2017 CB 85061.