Taxonomy of *Rubus* ser. *Discolores* in the Czech Republic and adjacent regions

**Introduction**

*Rubus* ser. *Discolores* (P. J. Mueller) Focke, Spec. Rub. 3: 376, 1914, is a relatively natural and comparatively distinct group of brambles. It belongs to the subgen. *Rubus*, subsect. *Hiemales* E. H. L. Krause. The ser. *Discolores* is relatively easily distinguished from the other groups of the large subgen. *Rubus* by the following combination of characters: usually ± robust shrubs, often up to 2 m tall, with ± thick, angled to furrowed, glabrous to hairy first-year stems, prickles uniform, leaves usually palmate with five leaflets, often ± thick and hard to the touch. Leaves and calyx segments are abaxially covered with a distinct greyish or whitish tomentum usually of stellate hairs. The stellate, sometimes fasciculate hairs are also often found on pedicels and inflorescence branches, rarely on first-year stems. Simple hairs are present with variable frequency in the indumentum of the undersides of leaves, rarely on the upper surface. Simple hairs are usually also found on branches, particularly those bearing inflorescences. They occur on sterile first-year branches in some species. Glands, if present, are usually (in the material from the Czech Republic always) sessile or almost sessile (on very short stalks), on pedicels they are hidden in the tomentum.
Most of the species of the ser. *Discolores* are thamnophilous plants, i.e. plants of less shady habitats and therefore not so obligatorily confined to woodland. They are often found in clearings, woodland margins, along woodland tracks, amongst bushes, sometimes even in open landscapes outside forest. They most often prefer warmer regions and grow in usually drier mineral rich soils of a basic to slightly acidic nature. They avoid wet, strongly acid soils. Their distribution in C Europe has a slightly submediterranean character and they often grow in habitats that originally harboured oak-hornbeam forest.


In the course of examining brambles in the field in the Czech Republic it became clear that there are further species in this series, not known under published names. Therefore, special attention was paid to this group in 1994–2003, first by J. Holub, and later also his disciple, B. Trávníček. During the same period, the group was studied karyologically under the supervision of A. Krahulcová (Krahulcová & Holub 1997a, b, 1998). Holub and Trávníček recognized several new species in the ser. *Discolores* in the Czech Republic and the neighbouring countries, and accorded them provisional names: *R. austroslavicus*, *R. elegantior*, *R. flosamygdalae* (or *R. pseudopersicinus*), *R. guttiferus*, *R. parthenocissus*, *R. pericrispatus*, *R. portae-moravicae* and *R. verae*. The latter name (Holub 1995: 110) later proved to belong to the recently described *R. perperus* H. E. Weber, and the provisional name *R. elegantior* was tentatively assigned by B. Trávníček to the W European *R. phyllostachys* P. J. Mueller, which was recently confirmed by H. E. Weber and G. Matzke-Hajek (Weber 2000, pers. comm.). The remaining six provisional species names are validated below. This paper presents a general characterization of the ser. *Discolores* in the Czech Republic and provides a safer identification of the known species.

**Notes on the taxonomic relationships within the ser. *Discolores* in the Czech Republic**

At present, 17 well known indigenous species of *Discolores*, which are considered “widespread” or “regional” are recognized in the Czech Republic (for an explanation of the distribution terms, see e.g. Holub 1991, Weber 1995, 1996b). The species may be divided into three groups.
The first group is represented by a single, distinct and considerably isolated species, *R. bohemiicola*. It is an important endemic species, not found outside the Czech Republic, and confined to Bohemia. It can be distinguished from the other Czech taxa of the series by very densely hairy first-year stems with smaller and slightly more numerous prickles, by its usually lower growth, stems decumbent, and by its more frequent occurrence in woodland habitats. The species is very specific in its karyology: it has 27 somatic chromosomes and a chromosome fragment (Krahulcová & Holub 1998).

Another group comprises tetraploid taxa (with 28 somatic chromosomes): *R. bifrons* and forms close to *R. praecox* (including the garden escape, *R. armeniacus*), see Krahulcová & Holub 1997a. In addition to the chromosome number, the species in this group are characterized by a very distinct, conspicuously grey-white thin tomentum on the lower surface of leaves, with sparse short patent simple hairs, by usually stouter and more frequent prickles on first-year stems and inflorescences, by often robust inflorescences, very sharp indentation of leaflet margins, stems (at least young) with scattered fasciculate or stellate hairs, and by usually well developed, large (globose to ovoid) fruit. The shrubs of the members of this group are frequently dense, and their stands almost impenetrable.

The last group is the richest in species. They are all triploid (Krahulcová & Holub 1997a, b, 1998). Their leaves often have a less conspicuous (usually greyish to greyish green) tomentum, sometimes with more frequent longer patent simple hairs, prickles are usually smaller, often less frequent, the leaflet indentation is sometimes blunter, stems are glabrous or (less often) hairy, there are often few drupelets per fruit, and the fruit is often semiglobose.

### Tetraploid species

*Rubus bifrons* represents a relatively easily distinguishable and distinct tetraploid species of *Discolores*; it is scattered to locally common in warmer regions (it is rare or completely missing in the northern and particularly northwestern parts of the Czech Republic). It differs from the other species of the group *R. praecox* s.l. in having distinctly pedate, quinate or (on thinner stems) only 3–4-nate leaves, usually less robust growth and inflorescence prickles almost straight, relatively slender, slightly declined. A similar type of prickle to that in the inflorescence of plants of the *R. praecox* agg. is found only in the alien *R. armeniacus*.

In addition to the naturalized alien species of Caucasian origin, *R. armeniacus* (see also the identification key in the appendix), the group *R. praecox* s.l. is represented by indigenous populations in the Czech Republic. These were studied in detail over the last few years. In the Flora of the Czech Republic (Holub 1995), *R. praecox* is understood in the wider sense, and is reported to occur both in Moravia and Bohemia. Later examination of *R. praecox* s.l. has shown that the group is almost confined to Moravia. At least some previous reports of the occurrence of *R. praecox* in Bohemia refer to other species, usually to extremely robust individuals of some triploid species. The distribution of populations of *R. praecox* s.l. in Bohemia should be revised; most probably, they are restricted to rare sites in S Bohemia. In Moravia, the species is scattered, and the populations of *R. praecox* s.l. can be divided in two distinct forms.

One of them is found in C and N Moravia (Moravská brána basin, Opava region, Ostrava region) and is characterized by the following features (see also Figs 1–2, 4–5):
stems most often bluntly angled, sometimes slightly convex between angles, dull, grey-green, in sunny places less conspicuously suffused red-brown, usually with denser and almost appressed indumentum of fasciculate to stellate hairs, with (30–) 45–100 (–150) hairs per 1 cm of stem side, terminal leaflet broad, usually almost orbicular with distinctly cordate base, often with slightly convex surface and the tip curved downwards, with principal teeth broadly rounded in outline, its petiolule is long, about (30–) 38–50% as long as the lamina, with many [(8–) 9–15 (–17)] prickles, conspicuously greyish hairy; petiole is usually 65–80 mm long, usually distinctly longer than lower leaflets (lower leaflets as long as 3/4–4/5 of the petiole), with 14–18 (–22) curved to hook-like recurved prickles; inflorescence branches thick, patent at least in the upper half of inflorescence, conspicuously greyish hairy, prickles on the inflorescence rhachis strongly curved to hook-like, peduncles short, (5–) 7–15 mm long, thick, with 3–10 (–13) prickles; upper part of inflorescence often conspicuously dense and distinctly truncate at the end; calyx segments often with one to several pricklets on the abaxial surface.

The other form (see Fig. 3), mainly confined to S Moravia (regions of Hodonín, Kyjov, Chříby hills, Bílé Karpaty Mts and Zlínské vrchy hills), has stems acutely angled to slightly furrowed, with sparse fasciculate patent hairs, later glabrescent to almost glabrous, often suffused dark purple on sunny places; terminal leaflet most often ovate to broadly elliptical to obovate from rounded to slightly cordate base, and, as a rule, with undulate margins, with a more acute indentation, its petiolule is shorter (most often 30–40% as long as the lamina), with fewer prickles [usually 6–9 (–12)], less distinctly hairy; petiole is shorter, usually as long as or slightly shorter than lower leaflets, with fewer (7–14) prickles; branches of inflorescence (in fruit) are relatively thin, often slightly forward-pointing, less densely hairy, inflorescence rhachis with less distinctly curved prickles, peduncles usually with as few as 2–7 prickles, fruiting inflorescence is sparser, truncate at the end or often also rounded; calyx segments without pricklets.

While the former type is known only from C and N Moravia, from where it extends into southernmost Poland (Raciborz, between Czyżowice and Gorzyce), the latter, the S Moravian taxon, is also known to occur in the neighbouring part of Slovakia (reaching the Zemplínské vrchy hills in the east). Very close to the latter form are plants from Lower Austria, the Wienerwald area (studied at five sites there). An isolated finding from S Bohemia (Helfenburk Castle near Bavorov) may be referable to this form.

The taxonomy of the *R. praecox* group was recently studied by Weber (1986: 225–229) who studied the original material of Bertoloni’s *R. praecox* in herbarium BOLO and selected the lectotype (a specimen from the vicinity of Bologna, N Italy). He compared the Italian type plants with samples from other parts of the geographical range of *R. praecox* and found them to be identical. The plants were from France, Luxembourg, Germany (Bavaria, the Black Forest and Westphalia), Switzerland, Austria (Vorarlberg and Wienerwald), Slovakia, F. Y. R. Macedonia and Crimea. The illustrations published or referred to by Weber (Weber 1986: 227, 229 – plants from Westphalia; 1995: Plate 10, 1996a: 120 – Osnabrück vicinity; Leute & Maurer 1977: 304 – from Kärnten in Austria, as *R. procerus* P. J. Mueller) show plants that seem to be identical with or very close to those from S Moravia, but clearly different from specimens from C and N Moravia. From the colour scan reproduction of *R. praecox* Bertol. lectotype (BOLO) it is evident that the C and N Moravian plants are of different species. Also the descriptions published by Weber (1995: 372) and Matzke-Hajek (1993: 83–84) correspond only to the plants from
S Moravia, Slovakia and Lower Austria and not the C and N Moravian taxon. As the other names placed in the group *R. praecox* belong to plants from W Europe or W part of C Europe, it seems appropriate to use a newly proposed name for the plants from C and N Moravia and S Poland, *R. portae-moravicae*.

The above raises a question, what is the taxonomic status of the plants from S Moravia, classified here as *R. praecox* Bertol. Our *R. praecox* (excluding *R. portae-moravicae*) is still a relatively heterogeneous taxon. Weber (1986: 226) pointed out that there is variation in the anther indumentum in plants from different parts of the range of *R. praecox*. We have also found differences between plants from S Moravia and Lower Austria (the Slovak samples seem to be identical with those from S Moravia). Whilst the S Moravian plants have strongly glabrescent to almost glabrous stems and pink flowers, plants from Wienerwald often have more hairy stems and white flowers.

The overall distribution of *R. praecox* is comparatively large (Weber 1986, 1995, 1996a): it extends from Spain and Portugal, through France, The Netherlands, Luxembourg, W and S Germany (to the Osnabrück region in the north), Switzerland, Italy, Austria, Czech Republic, Slovakia, Hungary, Romania, the Balkans (F. Y. R. Macedonia) to Crimea in the east. It remains to be shown that the differences found among populations of *R. praecox* in different geographic regions are stable and distinct enough to allow further subdivision of this taxon into separate microspecies.

*Rubus portae-moravicae* Holub et Trávníček, spec. nova


**Description**: Frutex mediocris usque altus glandulis stipitatibus nullis obsitus vel interdum stipulae atque pedicelli cum glandulis subsessilibus instructae. Turio semialtiarcuatus vel altiarcuatus, robustus, 6–10 (–14) mm in diametro, angulatus, cum faciebus planis vel leviter convexis (in sicco raro subsulcatis), opacus, canoviridis vel (in partibus insolatis) fusco-rubescens, pilis stellulatis pilisque fasciculatis breviter sed conspicue obsitus, pro 1 cm lateris (30–) 45–100 (–150) pilis. Aculei turionis latiores, leviter vel distincte curvati usque subrecti vel paulo reclinati, (5–) 6–9 (–11) mm longi basi (5–) 6–10 (–12) mm lati in numero (3–) 4–8 ad 5 cm longitudinis. Folia turionis digitato– vel subpedata quinata, satis parva, supra glabra (rarissime pilis singulis obsita) opace griseoviridia, subtus pilis stellulatis valde griseotentosam tomentosa usque albo-canescente tomentosa insuper pilis patentibus longioribus obsita (ad tactum parum perceptibilibus pilosa). Petiolus 65–80 mm longus, piliolis infinis plurumque multo longior [longitudo folioli = 75–80% (rarissime usque 100%) longitudinis petioli], patente denseque pilosus a pilis fasciculatis et simplicis, cum aculeis 14–18 (–22) distincte curvatis usque uncinatis munitus. Stipulae anguste lineares usque filiformes 0.4–0.6 mm latae. Foliolum terminale plerumque longe petiolulatum (longitudo petioluli (30–) 38–50% longitudinis laminulae), petiolulus aculeis (8–) 9–15 (–17) armatis. Laminala in statu vivo paulo convexa apice deorsum deflexa, rarius paene plana, plus minusve rotundata vel orbiculate-ovata, basi subcordata usque sapa cordata, pro maxima parte 70–90 mm longa, in apicem (8–) 10–18 mm longa subabrupte vel abrupte attenuata, margine plana vel paulo undulata pericarpio subrotundato, 7–15 cm infra apicem eflosa. Rami inflorales usque simplicia, petiolis (2.0–) 2.5–4.0 (–4.5) mm profundae. Foliola lateralia expresse minoria quam foliola terminalia, petiolibus in inferiore parte inflorales usque simplicia, petiolis (8–) 9–15 (–17) armatis. Laminala in statu vivo paulo convexa apice deorsum deflexa, rarius paene plana, plus minusve rotundata vel orbiculata-ovata, basi cardata usque sapa cordata, pro maxima parte 70–90 mm longa, in apicem (8–) 10–18 mm longa subabrupte vel abrupte attenuata, margine plana vel paulo undulata pericarpio subrotundato, 7–15 cm infra apicem eflosa. Rami inflorescentiae grossi, rami superioriorum patentibus. Folia in parte superiore inflorescentiae ternata usque simplicia, foliolis aequalibus in inferiore parte inflorescentiae sapa quinata foliolis terminalibus leviter ovatis usque rotundatis. Rhachis plus minusve tomentosa insuper pilis patentibus longioribus dense obsita, aculei (3–) 4–8 (–11) pro 5 cm longitudinis, distincte curvati usque uncinati, basi dilatati, 3–10 mm lati, 3–5 (–7) mm longi. Pedicelli breves, pro maxima parte (5–) 7–15 mm longi, grossi, tomentosi insuper pilis longioribus patentibus villosi cum 3–10 (–13) aculeis, aculei leviter curvati, plurumque inaequales, (0.5–) 2.5–3.0 mm longi. Sepala externe albo-canescente tomentosa, plurumque parce aculeatae, post anthesin reflexa, (breviter) acuminata sed non lanceolata appendiculata. Petala dilute usque distincte rosea, late vel rotundate elliptica, (8–) 10–12 (–14) mm longa. Stamina stylos albo-viridibus superantia. Antherae glabrae.
Fig. 1. – *Rubus portae-moravicae*, holotype; bar = 10 cm.
Fig. 2. – *Rubus portae-moravicae*: a – inflorescence; b – leaf; c – indentation on margin of the terminal leaflet; d – detail of sterile branch with prickle; e – detail of inflorescence axis; f – detail of peduncle. Del. A. Skoumalová.
Fig. 3. – *Rubus praecox*: a – infructescence; b – leaf; c – indentation of terminal leaflet margin; d – detail of sterile branch with prickle; e – detail of inflorescence axis; f – detail of peduncle; g – flower. Del. A. Skoumalová.

H o l o t y p e : Czech Republic; N Moravia, town Ostrava, wood margins along the road between the villages of Děhylov and Dobroslavice, 320 m a.s.l. (R 144/98), coll. B. Trávníček, 8.8.1998, OL (Fig. 1).

E t y m o l o g y : The species name is derived from the Latin name of the region of Moravská brána basin (Porta moravica) which connects central Moravia and northern (Silesian) Moravia. In this region the species occurs and was first collected there.

In the Flora of the Czech Republic (Holub 1995: 105), there is an accurate drawing of *R. portae-moravicae* under the name of *R. praecox*. As there is no picture of the true *R. praecox* from the Czech Republic we provide a drawing (Fig. 3) of plants from S Moravia.

*R. portae-moravicae* is a regional species closely related to the much more widely distributed *R. praecox* s. str. The two species share the following characters: stems with broad prickles, distinct grey-white tomentum on lower leaf surface with relatively sparse and short patent simple hairs, voluminous fruiting inflorescence usually with well developed large fruits. They also have the same chromosome number. *R. portae-moravicae* is conspicuously different (for differences, see above) from the Moravian populations of *R. praecox* and is easily distinguishable from other brambles in its geographical range (C and N Moravia, S Poland). It is a typical thamnophilous species able to grow outside forests and does not avoid relatively open habitats. Quite often it forms dense and impenetrable fringes around woods, it also occurs along tracks, margins of forest stands and more rarely in open patches in woodland.

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Fig. 4. – Sterile branch of *Rubus portae-moravicae* (locality: N Moravia, Ludgeřovice near Ostrava).
Herbarium specimens examined (see Fig. 6 for the map of distribution)


Note: The geographical regions used in the lists of localities follow the regional phytogeographical division of the Czech Republic (Skalický 1988). The phytogeographical regions in Slovakia follow the division used in Flora of Slovakia (Futáň 1966). Quadrant numbers given at the localities of the Czech Republic refer to the grid system of Central European net mapping program (Niklfield 1971).
Fig. 6. — Distribution of *Rubus portae-moravicae*.  


**Poland:** Śląsk: SE of Racibórz town, between the villages of Czyżowice and Gorzyce (Holub, 25.8.1994, PRA).
Triploid species (the broader group of *R. montanus* and *R. grabowskii*)

The core of this taxonomic group in the Czech Republic consists of the most common triploid species, *R. montanus* and *R. grabowskii*, and allied taxa *R. phyllostachys*, *R. henrici-egonis*, *R. guttiferus* ined., *R. pericrispatus* ined., and perhaps also *R. elatior* (which differs in having hairy stems) and *R. austroslovacus* ined. The species *R. perperus*, *R. crispomarginatus*, *R. parthenocissus* ined. and *R. austromoravicus* occupy a more marginal position. The latter is closest morphologically to the species of the tetraploid group (the distinct grey-white tomentum on lower leaf surface, similar leaflets, sometimes slightly larger prickles) and in some characters also *R. perperus*, which has more robust prickles on the inflorescence and more conspicuous tomentum on the undersides of the leaflets. Another close taxon is *R. parthenocissus* ined., which has more acute leaflet teeth and shortly acuminate leaflets, higher numbers of prickles and a more robust inflorescence. There is another, not yet satisfactorily known, more robust triploid taxon, previously (e.g. Holub 1995: 107) mistaken for tetraploid taxa of the *R. praecox* group. It occurs scattered in C Bohemia and at two sites in Lower Austria; it was accorded a provisional name “*R. peripragensis*”. Although this taxon requires further study, it apparently represents another undescribed species of the ser. *Discolores*.

A further remarkable taxon, perhaps also triploid according to its morphological characters, occurs in E Moravia. In its general habit it superficially resembles *R. henrici-egonis*. It differs from other Czech members of the ser. *Discolores* in having leaves the above surfaces of which are densely (to softly) hairy. This form was given the provisional name “*R. mollifrons*” and is known from six localities in the Zlínské vrchy hills and a single site in the Ždánický les hills, and requires further study.

New triploid species of the ser. *Discolores* ²

*Rubus flos-amygdalae* Trávníček et Holub, *spec. nova*  

Figs 7–10


Descr.: Frutex altus glandulis stipitatis nullis obsitus vel stipulae atque pedicelli raro cum glandulis subsessilibus instructae. Turio altiarcuatus, 6–9 (–11) mm in diametro, glaber, angulatus, cum faciebus planis vel subsulcatis, opace viridis insuper irregulariter sordide-violeaceo maculosus, in partibus insolatis atrovinosus. Aculei turionis leviter curvati (raro paene recti) (4–) 5–8 (–9) mm longi basi 5–8 (–9) mm lati in numero (0–) 1–3 (–5) ad 5 cm longitudinis. Folia turionis digitato- vel subpedato quinata, saepe plus minusve plana, supra glabra vulgo opace-viridia, subtus pilis stellulatis griseotomentosa vel (in locis umbrosis) griseo-viride tomentosa praeterea pilis patentibus paulo longioribus pilosa (ad tactum parum perceptibilibus pilosa). Petiolus longitudinis foliorum inimorum vel foliolis infimus paulo brevior, pleurumque 55–75 mm longus, sparse pilosus vel (basi) glabrescens, cum aculeis (4–) 5–9 (–11) distincte curvatis munitus. Stipulae anguste lineares usque filiformes, brevior, 0.3–0.7 (–1.0) mm latae. Foliolum terminale modice longe petiolulatum [longitudo petioluli (24–) 30–40 (–43)% longitudinis laminulae]. Laminulae pleurumque anguste obovata, interdum obovata vel elliptica, saepe aliquanto rhombica, basi subcordata, rarius rotundata vel truncata, subabrupte acuminata vel triangularis (5–10–17 (–20) mm longe attenuata, margine paene plana periodiceque serrata cum dentibus principalibus obtusis, incisurae (2.0–) 2.5–4.0 (–5.0) mm profundae. Foliola lateralia vulgo expresse minoria quam foliola terminalia, foliola infima 2–4 (–5) mm longe petiolulata. Inflorescentia paniculata, anguste pyramidalis usque cylindrica, 5–12 (–16) cm infra apicem efoiosa. Rami inflorescentiae tenues, arcuato ascendentes. Folia

² Species of this group were analyzed karyologically by A. Krahulcová
Fig. 7. – *Rubus flos-amygdalae*, holotype; bar = 10 cm.
Fig. 8. – Rubus flos-amygdalae: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickle; e – detail of inflorescence axis; f – detail of peduncle; g – flower; h – detail of pistil. Del. A. Skoumalová.
inflorescentiae simplicia usque (praedominante) ternata foliolis terminalibus anguste rhomboideo-obovatis, raro usque ellipticis. Rhachis subtomentosa insuper pilis patentibus longioribus pauce pilosa, aculei 0–3 (–5) pro 5 cm longitudinis, distincte curvati, 3–5 (–6) mm longi basi 3–7 (–8) mm lati. Pedicelli arcuato ascendentes, (9–) 12–20 (–25) mm longi, tomentosi insuper pilis longioribus patentibus sparse instructi cum 0–3 (–5) aculeis armati, aculei recti vel leviter curvati (0.5–) 1.0–2.0 (–2.5) mm longi. Sepala externe canescente-tomentosa, pilis patentibus nullis vel sparsis obsita, inermia, post anthesin reflexa, pro maxima parte non lanceolate appendix. Petala dilute usque distincte rosea, interdum fere alba, plerumque distincte angusta, anguste elliptica usque obovata, 7–10 (–11) mm longa 3.0–5.0 (–5.5) mm lata. Stamina stylos superantia. Antherae glabrae. Filamenta rosea, raro alba. Ovaria glabra vel apicibus cum pilis singulis raro obsita, styli albo-virescentes basi interdum erubescentes. Receptaculum pilosum. Fructus subglobosus vel globosus e (0–) 8–18 (–25) drupoeis compositus. Floret (VI–) VII (–VIII).

**H o l o t y p e :** Czech Republic; N Moravia, Vidnava, path in the wood 1.5 km SES of the railway station, 250 m a.s.l. (R 124/01), coll. B. Trávníček, 26.7.2001, OL (Fig. 7).

**E t y m o l o g y :** The name is derived from the resemblance of flowers of almond tree (*Amygdalus*) to those of our bramble.

Main diagnostic features (see also Figs 7–10): stems glabrous, angled to slightly furrowed, distinctly dirty violet spotted in half-shade habitats, suffused very dark (dirty) purple in sunny places, only with (0–) 1–3 (–5) prickles per 5 cm; leaves glabrous above, usually dark green, most often (whitish) grey to grey-green below with indumentum of stellate hairs, slightly hairy to the touch, leaflets with almost flat margins, usually not undulate, terminal leaflet narrowly obovate or obovate or almost angular-ovate, tip usually ± not
pronounced, short, often triangular, the leaflet margins not parallel; marginal indentation distinctly periodic with principal teeth ± blunt in outline and incisions (2.0–) 2.5–4.0 (–5.0) mm deep; inflorescence usually a cylindrical (to narrowly cylindrical) panicle, with thinner, usually upwardly curved branchlets and peduncles, the latter with 0–3 (–5) prickles; petals usually (vivid) pink (rarely white), relatively small, narrow, with long claws, stamens of the same (or even deeper) colour as petals (i.e. deep pink in pink-flowered plants); ovaries glabrous, rarely with solitary hairs.

The species *R. flos-amygdalae* bore another provisional name for a long time: *R. pseudopersicinus* (Holub et al. 1995: 11, Trávníček & Hájek 1996: 30, Holub & Trávníček 1998: 602, Holub 1999: 7). This latter name expresses a certain relationship to another pink-flowered taxon described as *R. persicinus* from Tirol, Austria, by A. Kerner (1872). Kerner’s taxon, however, is considered as a local type and not accepted as a species. Moreover, according to the description given by Kerner, *R. persicinus* represents a taxon quite different from *R. flos-amygdalae* and perhaps belonging to the *R. praecox* group [or even to the ser. Rhamnifolii (Bab.) Focke?] The inappropriate provisional name, *R. pseudopersicinus*, was therefore rejected.

*R. flos-amygdalae* is morphologically close to the widespread *R. montanus*; it was even included in the latter in the Czech literature (Holub 1995: 112, Note 2). It was probably also misidentified in neighbouring countries where *R. flos-amygdalae* occurs. According to our opinion, both illustrations under the name *R. montanus* in the latest *Rubus* account in Hegi,
Illustrierte Flora von Mitteleuropa (Weber 1995: 380) may belong to our, probably overlooked species. On the other hand, illustrations in other works (Weber 1986: 241; Holub 1995: 111; Leute & Maurer 1977: 286, as R. candidans) seem to be in a good agreement with the type of the name R. montanus deposited at BR (a colour photograph of the type was seen by us).

Recently, another taxon close to R. montanus was described: R. montanus f. macro-montanus H. E. Weber (Weber 1989). It was later regarded as a variety by J. Holub, and named R. montanus var. macromontanus (H. E. Weber) Holub, Preslia 64: 129 (1993), or even as a separate species, R. macromontanus (H. E. Weber) Vannerom in De Langhe et al., Fl. Belg., ed. 4, 988 (1993). This taxon was described from the neighbourhood of Vamberk, E Bohemia, the Czech Republic, and is reported to differ from the typical R. montanus f. montanus by the following traits: inflorescence rhachis with stouter (7–9 mm long) and more numerous prickles (3–6 per 5 cm of rhachis length), peduncles with more numerous (3–7) and longer (2.5–3.0 mm long) prickles, first-year stems with more numerous (3–6 per 5 cm) and longer (7–10 mm) prickles, leaves indistinctly pedate, terminal leaflet with longer petiolule (33–50% as long as the lamina) and more elongated apex, inflorescence not leafy 10–15 cm below the apex. The form R. *macromontanus is considered as taxonomically identical with R. montanus s. str. here; the first author is of the opinion that it includes exceptionally robust specimens of this very plastic species and occurs scattered within the distribution range of R. montanus.

As R. montanus and R. grabowskii, R. flos-amygdalae also belongs to the most widespread triploid species of the ser. Discolores in the Czech Republic. It often grows at the same localities as the former two taxa. From the most similar species, R. montanus, it differs in the shape of terminal leaflet, which is usually narrowly obovate to slightly angular-ovate (while R. montanus has a narrowly elliptical terminal leaflet with ±parallel margins), and in its narrower and usually pink (rarely white) petals. In the prevailing pink-flowered plants, stamens are also conspicuously pink and the flower resembles an almond-tree flower. Stems of plants in sunny places are often darker coloured than those of R. montanus, and stem parts not exposed to sun are always distinctly spotted (dirty) violet. Inflorescence branchlets of R. flos-amygdalae are often thinner than those of R. montanus and usually curved upwards (ascending). Our species can be distinguished from R. grabowskii by its usually narrower terminal leaflet, which is widest distally (usually broadly ovate in R. grabowskii), lower number of stem prickles, usually only 1–3 (–4) per 5 cm, narrower petals, glabrous gynoecium and inflorescence of cylindrical shape (pyramidal in R. grabowskii).

R. flos-amygdalae is less likely to be mistaken for other triploid species: R. henrici-egonis, R. guttiferus and R. pericrispatus, and perhaps also R. parthenocissus and R. austroslovacus. Misidentification is possible in the case of a quite similar C Bohemian type, provisionally called “R. peripragensis”. All the differences are summarized in the key below.

R. flos-amygdalae is a widespread, probably Central European species, which has been found in Germany (NW Bavaria, Lower Saxony), the Czech Republic, S Poland, Lower and Upper Austria and Slovakia (see also Holub & Trávníček 1998, under the provisional name R. pseudopersicinus).

In the Czech Republic, it is scattered to moderately frequent in nearly all the warmer regions of Bohemia and Moravia, on nutrient ± rich, usually medium basic soils. It often grows in clearings in woods and along forest paths, tracks and forest margins, more rarely in open places in woodland. As in R. henrici-egonis (but less often), the species suffers from mosaic yellowing of leaf parts (probably a virus infection).
**Herbarium specimens examined (Fig. 11)**

Štětkovice village near Náměšť nad Oslavou town, wood along the road 1.5 km SWS of the village, 6862c (Trávníček, 16.8.1994, OL). – Distr. Brno-venkov, in the wood E of Omice village, 6864b (Holub, 5.7.1988, PRA). – Valeč village near Náměšť nad Oslavou town, wood along the road 1.5 km SWS of the village, 6862c (Trávníček,


**A u s t r i a:** **Oberösterreich:** Linz town, in the wood along the road from Mittertreffling village towards Gallneukirchen village (Zilha, 25.8.2002, herb. Žilia). – **Niederösterreich:** Niederfladnitz village, beside the road 1.5 km NEE of the village (Trávníček, 7.9.1993, OL). – Niederfladnitz village, at the woodland path 1.7 km NE of the village (Trávníček, 7.9.1993, OL). – Wienerwald, beside the highway underpass near Wienerwaldsee lake, E of Pressbaum village (Trávníček, 29.8.1998, OL).

Rubus pericrispatus Holub et Trávníček, spec. nova
Figs 12–15

Description: Frutex altus glandulis stipitatis nullis obsitus. Turio altiarcuatus, (5–) 6–9 (–10) mm in diametro, glaber, viridis, in apricis dilute rubescens, angulatus cum faciebus planis vel sulcatis. Aculei turionis plus minusve graciles, patentes, paene recti vel leviter curvati (4–) 6–8 (–9) mm longi basi 5–7 (–8) mm lati in numero (3–) 4–6 (–8) ad 5 cm longitundinis. Folia turionis digitato- vel subpedata quinata, supra glabra, subtus pilis stellulatis griseo-viride tomentosa usque canotomentosa insuper pilis patentibus longioribus satis dense instructa (ad tactum perceptitibus usque molliter pilosa). Petioli 55–65 mm longus foliolis infinis plerumque brevior [longitudo petioli = 80% longitundinis foliolorum], basi glabrus, supra disperse (raro dense) pilosus, cum aculeis (8–) 9–13 (–16) distincte curvatis munitis. Stipulae anguste lineares 0.5–1.0 (–1.3) mm latae. Foliolom terminale modice longe vel breviter petiolulatum [longitudo petiuli (26–) 29–38 (–40) % longitundinis laminulae]. Laminula anguste vel latiore obovata (raro elliptica, ovata vel ovato-rotundata) basi (sub)cordata, rarius plus minusve rotundata, subabrupte usque abrupte (14–) 16–20 (–23) mm longe acuminata, margine (precipue in apricis) undulata saepe parum involuta, serratura plus minusve periodica cum dentibus latioribus cuspidatis, incissurae 2.0–3.5 (–4.0) mm profundae. Foliola lateralia plerumque expresse minoria quam foliola terminalia, foliola infima (3–) 4–6 (–8) mm longe petiolulata. Inflorescentia paniculata, compare brevis, pauper, anguste vel late pyramidalis (3–) 5–8 (–11) cm infra apicem efoliosa. Rami inflorescentiae erecto-patentes. Folia inflorescentiae 1–3 (–4)-nata foliolis terminalibus anguste usque late obovatis, raro usque ellipticis. Rhachis subtomentosa insuper pilis patentibus longioribus pilosa, aculei (1–) 2–5 (–6) pro 5 cm longitundinis, pluries leviter curvati, (3–) 4–5 (–6) mm longi basi 3–5 mm lati. Pedicelli (8–) 10–20 (–25) mm longi, tomentosi insuper pilis longioribus patentibus instructi cum (0–) 1–4 (–5) aculeis armati, aculei graciles, leviter curvati, (0.5–) 1.0–1.5 (–2.0) mm longi. Sepala post anthesin reflexa, inermia, externe cano-tomentosa insuper pilis patentibus sparse obsita, distincte acuminata, interdum lanceolate appendiculata. Petala alba vel (raro) dilute rosacea, late (usque rotundate) elliptica vel obovata, 9–12 mm longa 6–10 mm lata. Staminodia style breviora. Antherae glabrae. Filamenta alba. Aneriae glabrae. Ovaria apicibus sparse pilosa vel subglabra, stylis albo-virescentes. Receptaculum pilosum. Fructus globosus vel subglobosus, (0–) 5–15 (–25) drupeolis compositus. Floret (VI–) VII (–VIII).

Holotype: Czech Republic; E Bohemia, Vraclav near Vysoké Mýto, woods 1.3 km NE of the village Vraclav, 310 m a.s.l. (R 127/00), coll. B. Trávníček, 22.7.2000, OL (Fig. 12).

Etymology: The species is named according to its undulate leaflet margins.

Main diagnostic features (see also Figs 12–15): stems glabrous, angled to slightly furrowed, usually green, or only slightly reddish even when exposed to sun, with (3–) 4–6 (–8) straight prickles per 5 cm; leaves usually ± three-dimensional (with leaflets often ± concave, with raised margins), glabrous above, usually deep (sometimes to light) green, (whitish) grey or white-grey beneath (covered with stellate hairs, mixed with numerous patent longer simple hairs), distinctly, sometimes almost softly hairy to the touch; leaflets (particularly in sunny places) with conspicuously undulating margins (as indicated by the name of the species), often with (irregularly) periodic, coarser indentation, with incisions between teeth 2.0–3.5 (–4.0) mm deep; terminal leaflet widest ± in or above the middle, often obovate, most frequently shallowly cordate at base, with (14–) 16–20 (–23) mm long, ± distinct (mucronate) apex; inflorescence usually shorter and with fewer flowers, sometimes almost broadly pyramidal, with relatively thinner, erecto-patent branches, inflorescence rhachis usually with slightly curved prickles 3–5 mm wide at base; leaves in the inflorescence (particularly in plants in sunny habitats) with slightly raised margins; petals white or more rarely (especially after drying) light pinkish; ovaries sparsely hairy to almost glabrous.

The species closest to R. pericrispatus is R. guttiferus. They can be distinguished by the different shape of the terminal leaflet of stem leaves: in R. guttiferus it is widest usually below the middle, often more gradually narrowed to the apex, only indistinctly cordate to rounded at base; usually young leaves are drop shaped. To the touch, leaves of R. guttiferus do not seem hairy beneath (i.e. apart from the tomentum, only with very sparse and short
Fig. 12. – *Rubus pericrispatus*, holotype; bar = 10 cm.
Fig. 13. – *Rubus pericrispatus*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickles; e – detail of inflorescence axis; f – detail of peduncle; g – flower; h – detail of pistil. Del. A. Skoumalová.
Fig. 14. – Sterile branch of *Rubus pericrispatus* (locality: Central Bohemia, Neveklov near Benešov).

Fig. 15. – Leaf of *Rubus pericrispatus* (locality: Central Bohemia, Neveklov near Benešov).
patent hairs), leaflet margins usually only slightly or not undulate (even when exposed to sun), the inflorescence more robust and more elongated, with thicker, and when in fruit almost patent branches distally, with usually more distinctly curved prickles slightly broader at base; gynoecium is conspicuously hairy. Forms of *R. pericrispatus* with a narrower terminal leaflet may be confused with *R. montanus*, which, however, has distinctly red-brown coloured stems with a lower number of prickles [1–3 (–4) per cm], leaves ± flat, with margins not undulate or only slightly so, and the terminal leaflet with parallel margins. Another similar species, *R. grabowskii*, also differs from *R. pericrispatus* in its more distinctly red-brown stems, ± flat leaves, not or slightly undulate leaflet margins, terminal leaflet broader (up to ovate-orbicular), gynoecium more densely hairy and petals usually (in the Czech Republic always) bright pink. Diagnostic traits of the other similar species of the *Discolores* are given in the identification key below.

*R. pericrispatus* is a widely distributed Central European species. Up to now, it has been identified in Germany (Bavaria, see also Fürnrohr 1996, as *R. “percrispatus”*), Czech Republic, Lower and Upper Austria and Slovakia (see also Holub & Trávníček 1998), where it may be more common than it appears. B. Trávníček examined herbarium material of J. Zieliński from SE Poland; in all likelihood, it also belongs to our species. A scattered occurrence in S Poland is very probable, and the species is likewise scattered in the border area of Moravian Silesia, with two localities only 2–5 km from the Polish border. It may also occur in N Hungary.

In the Czech Republic, *R. pericrispatus* grows at scattered localities in most of the warmer woodland regions of Bohemia and Moravia. As the other triploid species of the ser. *Discolores*, it is a thamnophilous species and prefers mineral rich soils, often those that are slightly basic. It avoids strongly acid or wet substrates. It is found by wood margins, in clearings and alongside paths, amongst bushes, more rarely in open patches in woodland.

**Herbarium specimens examined (Fig. 16)**


Slovakia: 2. Ipeľsko-rimavská brázda: Lučenc town, in the scrub along the road 2–2.5 km NEN of Kyptáč hill on the SW periphery of the town (Trávníček, 7.7.2003, OL; Žíla, 7.7.2003, herb. Žíla). – Fiľakovo village, beside the path towards the quarry 1 km NE of the town (Trávníček, 31.7.1993, OL). – Bulhary village near Fiľakovo village, at the crossing of woodland paths 0.5 km SW of Velký Bučeň hill (524 m) NE of the village (Trávníček, 8.7.2003, OL; Žíla, 8.7.2003, herb. Žíla). – 3. Slovenský kras: Plešivec town, trackage in the railway station (Trávníček, 7.8.1991, OL, PRA). – 9. Biele Karpaty (južná časť): Nová Bošáca village (Holub, 30.7.1985, PRA). – 10. Malé Karpaty: Along the road between the towns of Pezinok and Malacky (Žíla, 27.7.2002, herb. Žíla). – 12. Tribč: Zlatno village near Zlaté Moravce town, beside the woodland path 0.8 km NW of the village (Trávníček, 6.7.2003, OL; Žíla, 6.7.2003, herb. Žíla). – Velične village near Zlaté Moravce town, along the path 1–2 km NW of the village (Trávníček, 6.7.2003, OL). – Jeleneck village near Nitra town, at the woodland path 0.8 km NW of Jeleneck reservoir NW of the village (Trávníček, 5.7.2003, OL). – 13. Štrážovské a Súľovské vrchy, Malý Kolačín village, at the woodland path N–NWW of Markovicova hill (592 m) SE of the village (Trávníček, 2.7.2003; OL). – 14d. Poľana: Hrochoť village, beside the road 0.8 km SES of the village (Trávníček, 8.7.1997, OL). – 14e. Štiavnické vrchy: Brehy village near Banská Štiavnica town, along the road in the valley 1.5–2 km SE of the village, SW of Chilm hill (Trávníček, 6.7.2003, OL). – Pukanec town, in the scrub along the road towards Brehy village, 2 km N of the village (Trávníček, 6.7.2003, OL). – 15. Slovenské rudohorie: Klenovec village, wood margin along the road to Kokava nad Rimavicou, in Chorepa saddle 2.5 km W of the village (Trávníček, 8.7.2003, OL; Žíla, 8.7.2003, herb. Žíla). – Brádno village, wood margin along the road to Ješťava town, 0.8 km E of the village (Trávníček, 8.7.2003, OL). – In the scrub along the road between Rákšov village and Ješťava village, 1 km NE of the village (Trávníček, 8.7.2003, OL).


**Rubus guttiferus** Trávníček et Holub, spec. nova

**Figs 17–20**

**Description:** Frutex altus glandulis stipitatis nullis obsitus. Turio altiarcuatus, 6–9 (–12) mm in diametro, glaber, viridis, (dilute) violaceo-rubescens in apricis, angulatus cum faciebus planis vel subsulcatis. Aculei turionis leviter curvati (raro paene recti) (4–) 6–7 (–9) mm longi basi (5–) 6–8 (–10) mm lati in numero 3–6 ad 5 cm longitudinis. Folia turionis digitato-quinata cum laminulis in statu vivo deflexis, supra glabra, subtus pilis stellulatis tenue (griseo-viride) tomentosa insuper pilis patentibus brevibus disperse obsita (parce pilis ad tactum paene non perceptibiliis pilosa). Petiolus 55–75 mm longus foliis infimis inflexus brevibus disperse obsitus (raro pilis ad tactum non perceptilibus tomentulatum). Foliolum terminale modice longe petiolulatum (longitu petioluli 30–40 (–45)% longitudinis laminulæ). Laminula in statu vivo in media parte deflexa angustus vel latirotundus (raro ellipticus vel obovatus) latirotundus vel truncatus (raro lirate cuneata vel subcordata), subabrupte 17–23 mm longe acuminata (acumen saepe assymetricum recurvum), foliis inferioribus 3–6 aculeis munitus. Aculei (2–) 3–5 (–7) pro 5 cm longitudinis, leviter vel distincte curvati, (3–) 4–5 (–6) mm longi basi 4–5 mm lati. Petiolus (5–) 10–15 (–20) mm longus, tenue tomentosus in parte superiori disperse pilosus (usque dense) instructus (1–) 2–5 (–7) aculeis armatis, foliis inferioribus 1–2 mm longis. Sepala reflexa, inermia, externe canescente-tomentosa insuper pilis plus minusve patentibus obsita, conspicue cuspidata vel apicibus in appendices brevibus prolongati. Petala alba, late elliptica usque obovata, 9–12 mm longa 5–8 mm lata. Stamina graciles, leviter curvata 1–2 mm longa. Stamina stylos superantia. Antherae glabrae. Filamenta alba. Ovaria apicibus dense pilosa, subabrupte 17–23 mm longae, lamina widest below the middle; marginal indentation relatively acute, most often almost regular, with incisions (1.5–) 2–3 (–3.5) mm deep, leaflet margins sometimes slightly undulate due to dense teeth; inflorescence narrowly pyramidal, almost cylindrically terminal, with comparatively thick and short erecto-patent to almost patent branches; petals white; rarely densely hairy above.

The differences between *R. guttiferus* and the similar *R. pericrispatus* are summarized in the subchapter dealing with the latter. Another very similar species is *R. austroslovacus*, which can be distinguished from *R. guttiferus* by usually (on sunny sites) darker reddish-brown coloured stems with slightly more slender and almost patent prickles, which are fairly flat (especially when dry), leaves more distinctly (almost grey-white) tomentose, terminal leaflet widest at or slightly distal to the middle, with a shorter, (5–) 8–15 (–18) mm long apex, inflorescence usually sparser, with longer and usually erecto-patent branchlets and peduncles. Another rather similar species, *R. grabowskii*, differs from...
Fig. 17. – *Rubus guttiferus*, holotype; bar = 10 cm.
Fig. 18. – *Rubus guttiferus*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickles; e – detail of inflorescence axis; f – detail of peduncle; g – flower; h – detail of pistil. Del. A. Skoumalová.
Fig. 19. – Sterile branch of *Rubus guttiferus* (locality: Central Bohemia, Čelina near Nový Knín).

Fig. 20. – Leaf of *Rubus guttiferus* (locality: SW Moravia, Říčky near Rosice).
R. guttiferus in having ± flat leaves, terminal leaflet broader, almost rounded-ovate, with shorter and more abrupt apex, and petals bright pink. R. montanus also has ± flat leaves and darker coloured stems on sunny sites, terminal leaflet with ± parallel margins and usually entirely glabrous gynoecium. The arcuate leaflets of ± three-dimensional leaves of R. guttiferus resemble those of R. phyllostachys but the latter has distinctly hairy first-year stems and gynoecium usually almost glabrous. The shape of terminal leaflet, including the slightly laterally bent apex in some leaflets, might point to R. crispomarginatus. However, the latter species can be distinguished by its conspicuously periodic leaflet indentation, with incisions to 3–5 (–6) mm deep and leaflets closer together, i.e. with the terminal leaflet on a petiolule only 22–35% as long as the lamina, and lower leaflets with petiolules only 1–2 (–4) mm long. Leaves of R. crispomarginatus beneath are usually more conspicuously tomentose and stems often more deeply furrowed. Further confusion can be caused by R. perrobustus Holub, which is often regarded as a member of the subsection Rubus (= sect. Suberecti Lindl.) and like R. consanguineus P. J. Mueller et Lefèvre occupies an intermediate position between subsect. Rubus and ser. Discolores. R. perrobustus differs from R. guttiferus in that the lower surfaces of its leaves are less tomentose to non-tomentose (green) and have a more distinctly periodic indentation, usually bright pink petals and glabrous gynoecium.

The geographical distribution of R. guttiferus may be characterized as widely regional to widespread. The species has been found in the Czech Republic, Lower Austria (including Wienerwald), Slovakia (see also Holub & Trávníček, 1998; quite rare, as far as known, but may be more common) and S Poland. It may occur in Germany (especially in the SE part) and N Hungary. The species was first recognized in SW Moravia, and the knowledge of its much more extensive distribution is a result of later explorations.

In the Czech Republic, it is found scattered in warmer wooded regions of Bohemia and Moravia. It is probably absent from (or very rare in) NW Bohemia and SE Moravia. In Bohemia, it is more common in the middle Vltava region, in Moravia chiefly in its W part, along the margins of Bohemian Massif. R. guttiferus is a thamnophilous species obviously preferring nutrient rich, slightly acidic to basic, damp soils. It occurs along margins of woods, in open patches in forests, in clearings and amongst shrubs.

Herbarium specimens examined (Fig. 21)

Czech Republic:

![Fig. 21. – Distribution of *Rubus guttiferus*.](image-url)
Trávníček & Žávorka: Taxonomy of Rubus ser. Discolores in the Czech Republic


Rubus austroslovacus Trávníček, spec. nova

**Descrip**tio: Frutex altus glandulis stipitatis nullis obsitus. Turio altiarcuatus, 6–10 mm in diametro, glaber, vinosus in apricis, angulatus, cum faciebus planis vel (sub)sulcatis. Aculei turionis plus minusve gracies, patentes vel reclinati, recti vel paulo curvati (4–) 6–8 (–9) mm longi basi satis compressi 5–7 (–8) mm lati in numero 2–5 ad 5 cm longitudinis. Folia turionis digitato-quinta, plana, supra glabra, subtus pilis stellulatis cano-alba vel (in locis umbrosis) griseo-viride tomentosa preterea pilis paulo longioribus obsita. Petiolus 55–75 mm longus foliolis infimis plerumque brevior [longitudo petioli = 80% (rarissime usque 100%) longitudinis foliorum], disperse pilosus usque glabrescens, aculeis (7–) 9–12 (–15) distincte curvatis munitus. Stipulae anguste lineares usque filiformes 0.5 (–1.0) mm latae. Foliolum terminale modice longe petiolatum [longitudo petioluli (26–) 30–40 (–45%) longitudinalis laminulae]. Laminula angusta vel latiore elliptica usque (raro) elliptice-obovata basi rotundata vel truncata (raro latiore cuneata vel subcordata), abrupte tantum (5–) 8–15 (–18) mm longe acuminata, margine plana vel paulo undulata, paene periodice usque (raro) subaequaliter serrata e dentibus interdum periodice usque subaequaliter incisis e dentibus interdum latioribus quam longis, incisiones 2.0–3.5 (–3.0) mm profunde. Foliolus 55–75 mm longus 5–7 (–8) mm lati usque 5–7 (–8) mm lati. Inflorescentia paniculata, pyramidalis vel anguste pyramidalis raro late cylindrica, (5–) 8–15 cm infra apicem eflorescens, ramos erecto-patentes. Foliola inflorescentiae (1–) 3–5 nata foliolis terminalibus ellipticis vel elliptice-obovatis. Rhachis subtomentosa insuper pilis patentibus longioribus obsita, aculeis (2–) 3–5 (–6) pro 5 cm longitudinis, recti vel leviter curvati, paulo reclinati (3–) 4–5 (–6) mm lati. Pedicelli (8–) 12–20 (–25) mm longi, pilosus usque glabros, aculeis (2–) 3–5 (–6) mm lati. Petala alba vel subrosacea, late elliptica usque obovata, 5–7 mm latae. Stamina styllos superantia. Ovaria glabrae. Fruites subglobosus vel globosus interdum usque ovoideus e (0–) 8–20 (–25) drupeolis compositus. Floret (VI–) VII (–VIII).

**Holotypus**: Czech Republic; SE Moravia, Hluk near Uherské Hradiště, southern part of the wood Hluboček 1.8 km NEN of the village Hluk, 260 m a.s.l. (R 249/01), coll. B. Trávníček, 21.8.2001, OL (Fig. 22).

**Etymology**: According to the region where the species was first recognized (S Slovakia).

Main diagnostic features (see also Figs 22–25): stems angled to slightly furrowed, glabrous, suffused red-brown on sunny sites, with usually relatively slender and flat (especially in dry conditions), most often patent prickles with a relatively narrow, 5–7 (–8) mm wide base; leaves glabrous above, grey to grey-white tomentose beneath, with only slightly longer simple hairs beneath (slightly hairy to the touch); terminal leaflet narrowly to broadly elliptical, often with ± parallel margins, sometimes broadly cuneate, usually with a relatively short, (5–) 8–15 (–18) mm long, ± abrupt apex, margin indentation, as a rule, slightly periodic, with incisions 2.0–3.0 (–3.5) mm deep; lateral leaflets often quite large, only a little smaller than the terminal leaflet; inflorescence broadly cylindrical to ovoid-pyramidal, relatively sparse, with erecto-patent branches; petals white to pinkish; ovaries often quite densely hairy above.

As the leaf characters of *R. austroslovacus* are relatively plastic, it may be confused with several other triploid species. Forms with a narrower terminal leaflet resemble *R. montanus* whose terminal leaflet often also has parallel margins. The latter species can be distinguished from *R. austroslovacus* by glabrous gynoecium, terminal leaflets often cordate at the base, lower surface of leaves relatively less distinctly tomentose, a lower number (usually 1–3) of prickles per 5 cm, prickles slightly broader and more curved, and often slightly narrower and more patent inflorescence branchlets. The way it differs from *R. guttiferus* is mentioned in the subchapter dealing with the latter. The almost regular indentation and the relatively short apex of the terminal leaflet of *R. austroslovacus* may sometimes resemble similar features in *R. henrici-egonis*, which, however, differs in hav-
ing the indentation with broader teeth and incisions only 1.0–1.5 mm deep, broader, (6–) 7–10 mm wide prickle bases on first-year stems, and thinner, less distinctly developed tomentum on lower surface of leaves; in addition, its leaflets are usually (on sunny sites) more distinctly convex, and stems suffused paler red-brown, with prickles often slightly
Fig. 23. – *Rubus austroslovacus*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickles; e – detail of inflorescence axis; f – detail of peduncle; g – flower; h – detail of pistil. Del. A. Skoumalová.
Fig. 24. – Sterile branch of *Rubus austroslovacus* (locality: N Moravia, Piskořov near Město Albrechtice).

Fig. 25. – Leaf of *Rubus austroslovacus* (locality: N Moravia, Piskořov near Město Albrechtice).
reddish at base. The well developed, almost white tomentum on the leaflet undersides and sometimes also ± truncate base of terminal leaflets in *R. austroslovacus* may resemble *R. austromoravicus*. The latter is characterized by a usually less elongated terminal leaflet, a more distinct indumentum of patent simple hairs (undersides of leaves are almost soft hairy to the touch), and glabrous gynoecium.

*R. austroslovacus* is a widespread species, hitherto known from Germany (SE part), the Czech Republic, Slovakia (Holub & Trávníček 1998), Lower Austria (Wienerwald) and S Poland. Its occurrence in N Hungary is very probable as it occurs only about two kilometres from the Hungarian border in S Slovakia.

The species was first recognized as a repeatedly occurring form in C part of S Slovakia (see Etymology), later it was found in SE Moravia and in the years 1998 to 2003, also in Bohemia, N Moravia, S Poland, Germany and Austria.

In the Czech Republic, it is more frequent in SE Moravia, and scattered in Moravian Silesia (N Moravia) and in E and C Bohemia. It is a thamnophilous species usually preferring ± basic and drier mineral rich soils. It grows at the margins of forests, amongst shrubs and thickets, in open patches in woodland, in clearings and alongside paths.

**Herbarium specimens examined** (Fig. 26)

**Czech Republic:**


Poland: Śląsk: Przyłęk village, on the wood margin along the road Nysa – Głucholazy, close to Przyłęk village (Trávníček, 11.9.1999, OL).


Germany: Baden-Württemberg: Odenwald, in the scrub beside the road 0.8 km SWW of Guttenbach town (Žíla, 7.9.2000, OL). – Bayern: Spessart, on the wood margin 1 km SE of Altenbuch village (Žíla, 8.9.2000, OL). – Spessart, at the woodland path 1.5 km NE of Kredenbach village (Žíla, 8.9.2000, OL).
Rubus parthenocissus Trávníček et Holub, spec. nova

Figs 27–31

Description: Frutex altus glandulis stipitatis nullis obsitus vel interdum stipulae atque pedicelli glandulis subsessilibus instructae. Turio altiarcuatus, robustus, 6–9 (–13) mm in diametro, angulatus, cum faciebus discincte sulcatis, (in apricis) atrovinosus, glaber vel cum pilis singulis subglaber. Aculei turionis recti vel paulo curvati, explanate reclinati (4–) 5–8 (–9) mm longi basi (4–) 5–8 (–9) mm lati in numero (2–) 4–8 (–11) ad 5 cm longitūdīnīs. Folia turionis digitato-quinta, plus minusve plana, supra glabra vulgo opace-viridia, subitus pilis stellulatis plerumque tenue griso-viride tomentosa (in locis umbrosis paene glabra radioviridiae) praeterea pilis patentibus paulo longioribus parce instructa (pilis ad tactum usque 100% longitūdīnīs foliolorum), disperse usque densior pilosus, cum aculeis (11–) 13–18 (–22) curvatis munitis. Stipulae anguste lineares usque filamentiformes 0.3–0.6 (–1.0) mm latae. Foliolum terminale plerumque modice longe petiolulatum (longitūdīnī petioluli (25–) 30–40 (–45)% longitūdīnīs laminulae). Laminula latiore (usque rotundate) obovata vel elliptica basi rotundata (raro usque subcordata vel truncata), gradatim vel subabrupte in apice (5–) 10–18 mm longa attenuata, margine plus minusve plana vulgo opace et inaequaliter periodice serrata e dentibus principalibus magnibus, cuspidatis, incissurae (2.0–) 3.0–4.5 (–5.0) mm profundae. Foliola lateralia plerumque expresse minoria quam foliola terminalia, foliola infima manifeste longe [(4–) 5–9 (–12) mm] petiolulata. Inflorescentia paniculata, magna, anguste vel ovate-pyramidalis fere ad apicem foliosa [ad (0–) 1–4 (–12) cm infra apicem foliosa]. Rami inflorescentiae erecto-patentes. Petioles 20–80 mm longae foliolis infimis plerumque 8–40 (–60)% longitūdīnīs foliolorum. Inflorescentia in parte superiori densequee tomentosa, in parte inferiori densequee tomentosa, stylī albo-virescentes. Receptaculum tomentum. Fruites subglobosus vel globosus e (0–) 5–18 (–30) drupeolis compositus. Floret (VI–) VII (–VIII).

Holotype: Czech Republic; S Moravia, town Tišnov, path in the wood E of the Kozí brada hill W of the town Tišnov, 345 m a.s.l. (R 22/96), coll. B. Trávníček, 17.7.1996, OL (Fig. 27).

Etymology: Named according to the coarse and acute leaflet indentation (especially in lower leaves in inflorescences), at first sight resembling that of Parthenocissus.

Main diagnostic features (see also Figs 27–31): stems glabrous, usually deeply furrowed, richly suffused dark purple, with (2–) 4–8 (–11) prickle per 5 cm; leaves glabrous above, mostly dark green, with a thin and slight tomentum below (older leaves and leaves of shaded plants only indistinctly tomentose, almost green), with short and relatively sparse simple hairs (almost not hairy to the touch); petioles with (11–) 13–18 (–22), i.e. numerous, prickles; terminal leaflet broadly ovate to ± broadly obovate, in older leaves almost orbicular and then with a short, (5–) 10–18 mm long apex; indentation irregularly periodic, coarse, teeth acute, incisions (2.0–) 3.0–4.5 (–5.0) mm deep; petiolule of terminal leaflet (25–) 30–40 (–45)% as long as its lamina; petiolules of lower leaflets conspicuously long, (4–) 5–9 (–11) mm; inflorescence often voluminous, with a distinctly furrowed rhachis and main branches, with relatively (compared to the size of inflorescence) tiny prickles, inflorescence rhachis often flexuous; inflorescence with simple leaves distributed often to the most distal part, in the inflorescence often conspicuously coarsely periodically dentate, with incisions 3.5–5.5 (–7.0) mm deep (resembling the indentation of leaves of Parthenocissus); petals white or more rarely pinkish, relatively large; ovaries very densely hairy above.

The species must be treated as a member of the ser. Discolor (also because of its triploid chromosome number) in spite of the fact that it it is similar to several species of the
Fig. 27. – *Rubus parthenocissus*, holotype; bar = 10 cm.
Fig. 28. – *Rubus parthenocissus*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickle; e – detail of inflorescence axis; f – detail of peduncle; g – detail of pistil. Del. A. Skoumalová.
Fig. 29. – *Rubus parthenocissus*: a – inflorescence; b – flower. Del. A. Skoumalová.
Fig. 30. – Sterile branch of *Rubus parthenocissus* (locality: C Moravia, Chříby hills, Bunč settlement).

Fig. 31. – Leaf of *Rubus parthenocissus* (locality: C Bohemia, Osečany near Sedlčany).
ser. Rhamnifolii, and R. nemoralis P. J. Mueller in some characters (leaf shape and less developed tomentum). Within the ser. Discolores it resembles R. grabowskii Weihe at first sight; the latter differs in that lower leaflets on first-year stems have shorter petiolules 3–5 mm long, petioles (on these stems) only with (4–) 6–10 (–15) prickles, in the shape of inflorescence, shallower indentation of lower inflorescence leaves, and (at least in the Czech Republic) bright pink petals.

In leaf characters (including the more distinctly acute indentation) and its more voluminous inflorescence, the more robust individuals of R. parthenocissus especially may superficially resemble tetraploid species of the R. praecox group. In addition to their chromosome number, they exhibit a series of more conspicuous differences: nearly white tomentose undersides of leaves, stouter prickles on first-year stems and in inflorescences, usually less distinctly furrowed first-year stems and inflorescence branches, and pink petal colour (in the Czech Republic).

R. parthenocissus is a widespread, formerly overlooked species. According to our current knowledge, its distribution is centered in the southern half of C Europe where it is known to occur from SE Germany (see also Fünnrohr 1996), through the Czech Republic, S Poland (a single locality known) and Austria (common in Wienerwald, and an additional site found near Linz in Upper Austria) to S Slovakia (reaching Zemplínské vrchy in the east, see also Holub & Trávníček 1998). It probably occurs in N Hungary.

R. parthenocissus was first recognized (by B. Trávníček) in E Slovakia (Zemplínské vrchy hills) and in the Chřiby hills in C Moravia. Later it was detected at a number of other localities in this relatively extensive distribution area.

In the Czech Republic, R. parthenocissus was found in the warmer regions of Bohemia and Moravia. In Bohemia, it grows scattered in its SW, C, N and E parts, scattered or locally almost common in S half of Moravia. It is a species evidently preferring more basic, nutrient rich and usually drier soils, and belongs to the thamnophilous element. It occurs along forest margins, in wood clearings and clearing-paths, amongst shrubs, more rarely also in open patches in woodland (plants from the latter habitat have leaves almost without tomentum beneath, and their identification requires considerable experience).

Herbarium specimens examined (Fig. 32)

OL). – Semetín village near Vsetín town, on the slope at the SE foot of the Ratibořský Grúň Mt, SW of the vil-


Slovakia: 2. Ipeľsko-rimavská brázda: Stolícky vrch highland, on the wood margin 0.7 km NW of the

top of Rejchard hill NWN of the village (Trávníček, 8.7.1995, OL). – 14e. Štiavnické vrchy: Kozelník village near Banská Štiavnica town, on the meadows surrounding the top of Rejchard hill NWN of the village (Danhelka, 8.9.1997, OL). – Brehy village near Banská Štiavnica town, along the road in the valley 1.5–2 km SEE of the village, SW of Chlm hill (Trávníček, 6.7.2003, OL; Žíla, 6.7.2003, herb. Žíla). – Pukanec town, in the scrub along the road towards Brehy village, 2 km N of the village (Trávníček, 6.7.2003, OL). – 15. Slovenské

rudohorie: Brádno village, wood margin along the road to Jelšava town, 0.8 km E of the village (Trávníček,
8.7.2003, OL). – In the scrub along the road between Rákoš village and Jeľšava town, 1 km NNE of the village
(Trávníček, 8.7.2003, OL). – Distr. Rožňava, Roštár village, wood margin beside the road to Henčovce village,
2.5 km NE of Roštár village (Trávníček, 9.7.2003, OL). – 19. Slanské vrchy: Dargov village near Trebišov town,
along the road 1.5 km W of the village (Trávníček, 19.7.1995, OL). – Slanec village near Trebišov town, wood
clering beside the road 2.2 km W of the village (Trávníček, 1.8.1994, OL). – 27a. Biele Karpaty (severná časť):
Červený Kameň village near Púchov town, in the woodland close to Závlačná hill (635.5 m), E of the village
(Trávníček, 3.7.2003, OL).

Poland: Śląsk: Marianówka village SE of Bystrzyca Kłodzka town, on the wood margin 1.3 km NWN of the
centre of the village (Trávníček, 13.9.1999, OL).

Austria: Oberösterreich: Rohrbach in Oberösterreich town, on the edge of Kimmerting village (Žíla,
30.9.2002, herb. Žíla). – Untermühl village between the towns of Linz and Passau, on the left bank of Donau river
(Žíla, 13.7.1993, OL). – Niederösterreich: Wienerwald, beside the highway underpass near Wienerwaldsee lake, E
of Pressbaum village (Trávníček, 29.8.1998, OL). – Wienerwald, Hochrotherd village near Pressbaum, along the
road 1 km SE of the village (Trávníček, 30.8.1998, OL). – Wienerwald, Ried am Riederberg village, along the main
road 2 km SEE of the village (Trávníček, 29.8.1998, OL). – Wienerwald, Mauerbach village, beside the road 2.8 km
SW of the village (Tulbinger Kogel) (Trávníček, 30.8.1998, OL). – Mauerbach village, beside the road 1.8 km SW
of the village (Trávníček, 30.8.1998, OL). – Wienerwald, Schwarzensee lake near Baden town, beside the road 2 km
E of the village (Trávníček, 30.8.1998, OL). – Wienerwald, Haidlhof village near Baden town, beside the road 3 km
NW of the village (Trávníček, 30.8.1998, OL).

Germany: Baden-Württemberg: Odenwald, along the road 0.8 km SWW of Guttenbach town (Žíla,
7.9.2000, herb. Žíla). – Bayern: E Bavaria, Grafenau town, along the road on the S edge of Trautmannsdorf vil-
herb. Žíla). – Passau, Vilshofen town, on the wood margin of Kufnaholz woodland (Holub, 4.9.1995, PRA). –
Passau, Vilshofen town, along the road in Kufnaholz woodland (Holub, 4.9.1995, PRA). – Passau town, beside
the railway along the Donau river, SE of Kermmühlle settlement, 5 km E of Passau (Holub, 6.9.1995, PRA). –
Passau, Simbach a. Inn town, on the edge of Julbach village (Holub, 5.9.1995, PRA). – Sachsen: Strand-
Thürmsdorf village near Dresden town (Holub, 1.9.1994, PRA).

Notes on the triploid species new to the Czech Republic

The following two species were studied in detail and safely identified only after the publi-
cation of the treatment of the genus *Rubus* in the Flora of the Czech Republic (Holub 1995). Both of them are annotated in more detail below.

*Rubus perperus* H. E. Weber


Main diagnostic features (see also Fig. 33): usually quite robust shrubs, stems distinctly
furrowed, sparsely hairy to glabrous; leaves usually with a short petiole (lower leaflets of-
Fig. 33. – *Rubus perperus*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickle; e – detail of inflorescence axis; f – detail of peduncle; g – flower. Del. A. Skoumalová.
ten 1/3 longer than petiole), terminal leaflet with quite short petiolule (most often 25–35% as long as the lamina), usually (narrowly) ovate to elliptical, with a ± abrupt, relatively long (20–25 mm) apex, indentation coarser, incisions 3–4 (~5) mm deep; leaves with distinctly grey-white tomentose beneath, longer hairs make leaves feel slightly hairy to the touch; inflorescence usually shorter, often rather plagiotropic, without leaves in the distal part, proximally with usually conspicuously acuminate leaves (leaves towards the inflorescence apex do not become smaller); petals pink (at least in the Czech Republic).

The species was recently (Weber 1997) described from Germany (recorded in Rheinland-Pfalz, Hessen and Bavaria), and reported from a single site in Belgium (Spa) and S Moravia (Stříbrnice in the Chřiby hills, leg. B. Trávníček, 1993, OL).

In the treatment of the genus *Rubus* in the Flora of the Czech Republic, two types were included under the name of *R. elatior* (Holub 1995: 108–110): one of them white-flowered with more densely hairy stems and leaves gradually decreasing in size in the inflorescence, which characterizes *R. elatior* s. str.; the other form is pink-flowered, with glabrescent stems and large, long acuminate leaves in the inflorescence, distally (up to the middle of the inflorescence) of ± same size. The latter type was given a provisional name, *R. verae* (Holub 1995: 110), to honour Věra Holubová, an outstanding mycologist, the wife of J. Holub. After 1995, both types were shown to be different. It turned out that *R. elatior* s. str. represents a rare taxon, mostly found in S and SW Bohemia, and in neighbouring Bavaria, while the other form, *R. verae*, is more widespread in Bohemia. It is common in C Bohemia, rare in S and E Bohemia, and very rare also in SE and C Moravia. A plant from one of the S Moravian sites (Stříbrnice in the Chřiby hills) sent to H. E. Weber was later assigned to the newly described *R. perperus*. A comparison of the plants tentatively called *R. verae* in the Czech Republic with a photograph of the holotype and the original description of *R. perperus* led to the conclusion that they belong to the same taxon. The only difference found is in the flower colour: while Weber (1997: 176) describes *R. perperus* as having white to pale pink petals, our plants have pink flowers. In a later publication, Weber (1998) confirms the occurrence of *R. perperus* in the Czech Republic, and suggests that it may have a wider distribution there.

There is a good illustration of *R. perperus* in the Flora of the Czech Republic (Holub 1995: 109) under the name of *R. elatior*, with a detailed illustration of its inflorescence, which is typical of the species. As there is no drawing of the true *R. elatior*, we give an illustration of this less common species in the Czech Republic (based on plants from SW Bohemia) (Fig. 34).

*Herbarium specimens examined* (Fig. 35)

Fig. 34. – *Rubus elatior*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickles; e – detail of inflorescence axis; f – detail of peduncle; g – flower. Del. A. Skoumalová.
Fig. 35. – Distribution of *Rubus perperus* in the Czech Republic.


**Rubus phyllostachys** P. J. Mueller


Main diagnostic features (see also Figs 36–38): stems always distinctly hairy with scattered short hairs, usually slightly greyish; leaves with scattered appressed hairs above, rarely (almost) glabrous, with grey to grey-green tomentum and only a little longer simple hairs beneath (slightly hairy to the touch); leaves markedly three-dimensional, with leaflets ± arcuate (leaves are shallowly funnel-shaped); terminal leaflet ovate, broadly ovate to almost orbicular, usually ± cordate at the base, with a quite distinct, ca 10–20 mm long apex, indentation regular to indistinctly periodic, with incisions 1.5–2.5 (–3.0) mm deep; inflorescence often leafy to the very top, with simple leaves; petals white or pale pink; ovaries almost glabrous.

*R. phyllostachys* was described in the middle of the 19th century by an outstanding specialist P. J. Mueller (1858: 133). Because of a certain resemblance with the widely distributed *R. grabowskii*, it was sometimes treated as a subspecies of the latter (Weber 1979, 1986). Nowadays, it is again treated (justifiably, in our opinion) as a separate species (Weber 1995). The distribution of *R. phyllostachys*, as recorded hitherto, includes N France (the Vosges), Belgium, S Netherlands and W Germany (from the Black Forest to Rheinland-Pfalz and lower Rhine valley).

In 1993–2002, a taxon of the ser. *Discolores* (provisionally called *R. elegantior* – see Trávníček & Hájek 1996, Holub & Trávníček 1998, Holub 1999) was found at a number of localities in Moravia and SW Slovakia (Záhorská nížina lowland). It resembles *R. grabowskii* in the shape of the terminal leaflet, and is intermediate between *R. grabowskii* and *R. henrici-egonis* in leaflet indentation. It differs from both these species in its slightly leathery and rugose upper leaf surface and ± arcuate (i.e. not ± flat) leaflets with apex often recurved. Further diagnostic characters of this taxon are a greyish stem with scattered hairs, and leaves often with sparse appressed hairs above (*R. grabowskii* and *R. henrici-egonis* have stems very sparsely hairy or glabrous, and leaves usually entirely glabrous above). It has the same flower colour as *R. henrici-egonis* but differs from *R. grabowskii*, which (in the Czech Republic, at least) has bright pink flowers. From both it can be distinguished by its less densely hairy to glabrous gynoecium. Another quite specific feature of this species is the frequent occurrence of simple leaves in the upper part of the inflorescence.

In 1995, an excellent treatment of C European brambles was published by Weber (1995), which includes a good illustration of *R. phyllostachys*. Comparison of the illustration and the descriptions (Weber 1979: 167, 1986: 246, 1995: 383) with plants called *R. elegantior* showed that the Moravian and W Slovak taxon might be identical with the W European *R. phyllostachys*. Plants from several Moravian sites were sent to H. E. Weber.
Fig. 36. – *Rubus phyllostachys*: a – infructescence; b – leaf; c – indentation on the margin of the terminal leaflet; d – detail of sterile branch with prickle; e – detail of inflorescence axis; f – detail of peduncle; g – flower; h – detail of pistil. Del. A. Skoumalová.
Fig. 37. – Sterile branch of *Rubus phyllostachys* (locality: SE Moravia, Lukov near Zlín).

Fig. 38. – Leaf of *Rubus phyllostachys* (locality: SE Moravia, Lukov near Zlín).
who confirmed this in 2000 (pers. comm., the examination was carried out together with G. Matzke-Hajek). *R. phyllostachys* therefore represents a remarkable example of a species with a widely disjunct distribution in Europe. However, a similar disjunct distribution is known for other species of brambles, for instance *R. graecensis* W. Maurer or *R. micans* Godron (Weber 1995).

*R. phyllostachys* is known only from Moravia in the Czech Republic, and its distribution there is centred in the SE part (the Bílé Karpaty Mts, Zliňské vrchy hills, Hostýnské vrchy hills, regions of Břeclav and Hodonín, and the Chřiby hills). From the south-east, it extends to the central part of S Moravia (the Ždánický les hills), C Moravia (E of Olomouc) and the Záhorská nížina lowlands in Slovakia (see also Holub & Trávníček, 1998: 602, as *R. elegantior* ined.). It is also likely that this species occurs in the adjacent part of Lower Austria.

**Herbarium specimens examined** (Fig. 39)

**Czech Republic:**


Identification of species of the ser. Discolores in the Czech Republic

Some species of the ser. Discolores are very similar to one another, and their identification requires considerable experience. The identification usually is much easier in the field where it is possible to examine a whole plant, including its natural coloration, and spatial arrangement of its parts. The posture of leaflets is quite typical of some species: for instance, R. montanus, R. grabowskii and often also R. flos-amygdalae have flat leaves, with leaflets arranged in one plane, while the very similar species R. guttiferus, R. pericrispatus, R. phyllostachys and sometimes also R. austroslovacus have three-dimensional leaves, with leaflets or their petiolules variously arcuate. Stem coloration on sunny sites is also important: in the closely similar tripliod species R. montanus, R. flos-amygdalae, R. partheno-cissus and R. austromoravicus it is characteristically deep purple, while in R. pericrispatus, R. guttiferus, R. crispomarginatus and perhaps also R. henrici-egonis and R. phyllostachys it is almost green or (as in intense sunshine) paler coloured. Flower colour is quite constant (with the exception of R. flos-amygdalae): some species (R. crispomarginatus, R. guttiferus, R. elatior) have pure white flowers, others white to pale pink flowers (R. montanus, R. austromoravicus, R. austroslovacus, R. henrici-egonis, R. pericrispatus), and even pink flowers (R. bifrons, R. grabowskii, R. portae-moravicae, R. praecoix and R. perperus, both the latter in the Czech Republic). Also the indumentum of the gynoeicum proved to be a useful feature, which, however, should be studied at or just after anthesis. It is ± glabrous in
R. montanus, R. flos-amylgdalae and R. austromoravicus, almost glabrous in R. phyllostachys and sparsely hairy in R. pericrispatus. On the other hand, there are similar species with a conspicuously to densely hairy gynoecium: R. austroslovacus, R. grabowskii, R. guttiferus, R. henrici-egonis, R. parthenocissus. The shape of leaflets on sterile stems is considered an important character. However, as a rule, the younger (i.e. more distal) a leaf, the narrower are its leaflets. Similarly narrower leaflets are found on thinner stems. As a standard collection technique, we therefore recommend that not only two typical leaves from the central part of a stem but also additional 1–2 younger leaves from the distal third of a stem are gathered. For instance, on the robust stems of R. montanus the terminal leaflet of middle stem leaves is quite broad; this leaflet thus may be regarded as “untypical”. A good character (requiring considerable experience) may be the shape and arrangement of the inflorescences, especially at fruit ripening when branchlets and peduncles are becoming woody and the spatial arrangement of the inflorescence (or infructescence) has stabilized.

The following identification key includes all the members of the ser. Discolores known to occur in the Czech Republic. Mention of two undescribed species, currently being studied, with the provisional names “R. peripragensis” and “R. mollifrons” is included in separate notes. On the basis of our field studies in the Czech Republic, and after the recognition of R. perperus and R. phyllostachys and the formal description of a further six species, we can confidently claim that the majority of plants of the ser. Discolores are included in our identification key. Special and local types, which are impossible to determine, now represent a quite negligible percentage (3–5%) of the plants found in the wild. At the same time, the ser. Discolores is now the group with the highest number of species in the Czech Republic: it contains 17 indigenous species, two garden escapes and two taxa now under study, which are likely to be described as new species in the future period.

**Key to the identification of species of the ser. Discolores in the Czech Republic**

1a Stems distinctly hairy at least when young (magnifying glass!), with 30–100 (~200) hairs per 1 cm of stem side length ............................................2

b Stems glabrous or with scattered hairs, with 0–25 (~40) hairs per 1 cm of stem side length (if hairs rarely more numerous then upper surface of leaves with sparse appressed hairs – R. phyllostachys, or prickles in the inflorescence straight – R. armeniacus and R. bifrons) .............................................................4

2a Stem prickles 4–7 mm long, 8–15 per 5 cm of stem length; terminal leaflet with a short petiolule (18–26% as long as its lamina); petiole distinctly shorter than lower leaflets; leaflets overlapping; prickles on inflorescence rhachis 3–5 mm long. – Stems (at most) medium high arching, distally decumbent, slightly angled with slightly convex sides, conspicuously densely hairy, with up to 200 patent hairs per 1 cm of stem side length; petals pink; gynoecium slightly hairy ..............................................................R. bohemiicola Holub

b Stem prickles 6–11 mm long, 4–8 (~10) per 5 cm of stem length; terminal leaflet with longer petiolule (longer than 30% of its lamina); petiole distinctly shorter than lower leaflets; prickles on inflorescence rhachis 4–8 mm long; leaflets remote from or touching one another .................................................3

3a Petals pale pink, broadly elliptical to almost orbicular; stems slightly angled with sides often slightly concave; prickles conspicuously broad; stem indumentum short, almost appressed; inflorescence in fruit ± truncate above, dense, with relatively thick, usually almost patent branches; terminal leaflet broad, to orbicular-ovate, often slightly concave, with a conspicuously long petiolule (petiolule 38–50% as long as its lamina), with (8–)9–15 (~17) prickles; calyx segments often with prickles; pubescent, the terminal leaflet of middle stem leaves is quite broad; this leaflet thus may be regarded as “untypical”. A good character (requiring considerable experience) may be the shape and arrangement of the inflorescences, especially at fruit ripening when branchlets and peduncles are becoming woody and the spatial arrangement of the inflorescence (or infructescence) has stabilized.

The following identification key includes all the members of the ser. Discolores known to occur in the Czech Republic. Mention of two undescribed species, currently being studied, with the provisional names “R. peripragensis” and “R. mollifrons” is included in separate notes. On the basis of our field studies in the Czech Republic, and after the recognition of R. perperus and R. phyllostachys and the formal description of a further six species, we can confidently claim that the majority of plants of the ser. Discolores are included in our identification key. Special and local types, which are impossible to determine, now represent a quite negligible percentage (3–5%) of the plants found in the wild. At the same time, the ser. Discolores is now the group with the highest number of species in the Czech Republic: it contains 17 indigenous species, two garden escapes and two taxa now under study, which are likely to be described as new species in the future period.
4a Leaves distinctly pedate, quinate (3–4-nate on thinner stems); inflorescence prickles straight and slender. – Stems (particularly those exposed to sunshine) quite distinctly suffused red-brown to dark violet, with 10–15 ± straight prickles per 5 cm, scattered hairy especially when young; leaves dark green above, with a distinct, thin, grey-white tomentum beneath, without distinct hairiness of longer hairs (not hairy to the touch); leaf margin indentation periodic, teeth very finely acute, incisions 2–3 mm deep; petals pink, styles yellowish, gynoecium covered with long hairs .................................................**R. bifrons** Vest

b Leaves palmate or very indistinctly pedate, always quinate; inflorescence prickles mostly curved (if straight and slender then stems green, with conspicuously dark red angles and prickle bases – **R. armeniacus**) .............................................

5a Terminal leaflet with a conspicuously periodic (to lobate-periodic) indentation, ± crisped, with principal teeth (lobes) obtuse and incisions 3–6 mm deep, petiole short, 22–35% as long as its lamina; petioles of lower leaflets 0–1 ± 2 (–4) mm long. – Stems deeply furrowed, often green to faintly suffused red-brown, glabrous; prickles usually 3–5 per 5 cm, with broad base, only in the upper half narrowed into an acicular apex, patent, yellowish; leaflets overlapping; terminal leaflet oblong-triangular, cordate at base, with the non-abrupt, laterally slightly curved apex; lower leaflets distinctly longer than the petiole of their leaf; inflorescence usually broadly cylindrical; petals white; gynoecium with scattered hairs ...............................................**R. crisposmarginatus** Holub

b Terminal leaflet without conspicuous periodic indentation (or lobation), incisions between principal teeth usually up to 4 mm deep, its petiole usually longer (if sometimes short then petals pink and upper leaves in the inflorescence often conspicuously long – **R. perperus**); petioles of lower leaflets 3–8 mm long ..................

6a Stems usually robust, often 1.0–1.5 (–2.0) cm in diameter, with conspicuous, quite broad, 7–11 mm long prickles; inflorescence usually with distinct, up to 6–8 mm long prickles; leaves beneath most often with a remarkably grey to white tomentum, with sparse patent hairs (indistinctly hairy to the touch); fruit usually well developed, large, globose to ovoid; 2n = 28 ........................................................................................................

b Stems usually less robust, with rather thinner, often shorter prickles; inflorescence often with smaller prickles (if prickles stouter then upper leaves in the inflorescence conspicuously long – **R. perperus**); leaves with distinct to indistinct grey to white tomentum beneath, distinctly or indistinctly hairy to the touch; fruit often small, semiglobose to globose; 2n = 21 ........................................................................................................

7a Stems ± green in summer, with angles and prickle bases conspicuously coloured, bright purple; terminal leaflet distinctly convex when fresh; inflorescence rachis mostly with straight prickles; flowers often large, petals up to 14–18 mm long; stems often with scattered fine fascicular hairs; leaves very large, over 20 cm long, terminal leaflet often longer than 10 cm. – Stems angled to furrowed; leaves dark green above, terminal leaflet broadly elliptical, obovate or almost orbicular, with a short, very abrupt apex, its margins with an irregularly periodic coarse indentation; petals pink; styles often reddish at base; gynoecium hairy .................................................**R. armeniacus** Focke

b Stems (when exposed to sunshine) suffused to dark violet, angles and prickle bases not conspicuously differently coloured; terminal leaflet with undulate margins (not convex) when fresh; inflorescence rachis mostly with curved prickles; petals 10–14 mm long; stems usually glabrescent to glabrous; leaves usually smaller. – Stems angled to slightly furrowed; leaves dark green above, terminal leaflet most often broadly elliptical, with a ± abrupt apex, its margins with an irregularly periodic coarse serrulate-denticulation; petals pink (in the Czech Republic); gynoecium (sparingly) hairy ...............................................**R. praecox** Bertol. (s. lat.)

8a Stems with scattered hairs, with 5–25 hairs per 1 cm of stem side length; leaves usually with sparsely scattered appressed hairs above; inflorescence often leafy throughout with simple leaves. – Stems angled to slightly furrowed, slightly greyish, only indistinctly suffused red-brown, sometimes spotted dirty violet, with 3–5 prickles per 5 cm; leaves often three-dimensional with leaflets arcuate, indentation inconspicuously periodic, shallow (incisions only 1.5–2.5 (–3.0) mm deep), slightly coriaceous-rugulose above, with a medium thick to thinner grey tomentum beneath, slightly hairy to the touch; terminal leaflet broadly ovate to obovate-orbicular from a shallowly cordate base, with a 10–20 mm long apex; petals white or pale pink (especially when dry); gynoecium almost glabrous .................................................**R. phyllostachys** P. J. Mueller

b Stems glabrous or glabrescent, with 0–5 (–7) hairs per 1 cm of stem side length (if rarely more densely hairy then leaves in the inflorescence conspicuously long and petals pink – **R. perperus**); leaves glabrous above; inflorescence usually distally not leafy (if leafy then lower leaves in the inflorescence conspicuously coarsely dentate and stem strongly furrowed – **R. parthenocissus**) ...........................................................
9a Leaves with a dense white tomentum and with a rich glossy indumentum of longer hairs beneath, soft sericeous to the touch; inflorescence often short, broadly ovoid-pyramidal, most often only in proximal 1/4 leafy, usually in the axils of quinate leaves similar to the leaves on sterile stems. — Stems often (on sunny sites) suffused red-brown to dark violet, slightly spotted, glabrous, angled, indistinctly furrowed; prickles quite broad at base, 2–6 per 5 cm of stem length; leaves usually dark green, terminal leaflet usually ± truncate at base, with 8–15 mm long apex; indentation acutely serrate, periodic, principal teeth longer, straight, incisions 1.5–3.5 mm deep; petals white or pale pink; gynoecium glabrous .................. \textit{R. austromoravicus} Holub
b Leaves tomentose beneath, sometimes with sparse to scattered longer hairs which usually do not form a dense soft tomentum (if such an indumentum is present then leaves with undulate margins and stems light coloured, ± green – \textit{R. pericrispatus}); inflorescence usually of a different shape and type, with 3–4-nate leaves predominating .................................................................10

10a Leaflets often with a ± abrupt, conspicuously elongated, 15–25 mm long apex; lower leaflets distinctly (c. by 1/3 of their length) longer than petiole of their leaf; inflorescence distally not leafy, proximally with relatively large, conspicuously elongated leaves. — Stems usually distinctly furrowed, sparsely to scattered hairy to almost glabrous, suffused red-brown (on sunny sites), with 4–7 prickles per 5 cm; leaves quite distinctly grey-white tomentose, only indistinctly hairy to the touch (of longer patent hairs); terminal leaflet usually coarsely, ± periodically dentate, incisions 2–4 mm deep, petiolute shorter (petiolute 25–35% as long as its lamina); inflorescences often slightly plagiotropic, with relatively stout prickles quite broad at base; petals pink (in the Czech Republic); gynoecium hairy .................................................\textit{R. perperus} H. E. Weber

b Leaflets with apex shorter and/or not abrupt, lower leaflets shorter or a little longer than petioles of their leaf; leaves becoming smaller towards the distal part of the inflorescence, the most distal ones not conspicuously elongated .................................................................11

11a Indentation regular, shallow, serrulate-crenulate (teeth distinctly wider than their length), incisions only 1.0–1.5 (2.0) mm deep; terminal leaflet often (on sunny sites) convex; prickles very broad at base, (6–)7–10 mm wide, often slightly reddish; stem glabrous or with sparsely scattered hairs. — Stems ± green or suffused light red-brown (peach-coloured), angled to slightly furrowed, with 2–5 prickles per 5 cm; leaves usually paler green, often yellowing in a mosaic pattern, with only a very thin greyish tomentum beneath, ± not hairy to the touch; terminal leaflet broadly elliptical, with a short, less distinct apex; petals white to pale pink; gynoecium hairy .................................................................\textit{R. henrici-egonis} Holub

[A relatively similar taxon of the ser. \textit{Discolores} was found in E Moravia; it differs from the other \textit{Czech} species of the series as its leaves are densely (to softly) finely hairy above. It was accorded a provisional name, \textit{“R. mollifrons”}.]

b Indentation often irregular, coarser, with incisions 2–4 mm deep; terminal leaflet usually not convex; prickles usually narrower at base, ± of the same colour as the stem (yellowish green or almost dark violet); stems glabrous (rarely – in \textit{R. parthenocissus} – with solitary hairs) ..................................................12

12a Inflorescence voluminous, some of them leafy up to below the top, with a relatively flaccid, conspicuously flexuous rachis furrowed to the most distal part, with relatively small prickles; lower leaves in the inflorescence distinctly coarsely dentate with incisions 3.0–5.5 (7.0) mm deep; petiololes of lower leaflets (4–)5–9 (12) mm long, flowers quite large, with petals often up to 15 mm long; leaves usually dark green above, with a thin tomentum below (often glabrescent and almost green), almost without patent hairs (± not hairy to the touch); stems usually deeply furrowed. — Stems (on sunny sites) intensely suffused dark violet, with 4–8 prickles per 5 cm; prickles usually declining, 5–8 (9) mm long; terminal leaflet broadly elliptical to obovate or almost orbicular, with a short ± abrupt apex c. 10–18 mm long, its indentation usually irregularly periodic and quite coarse, incisions 3–4 (5) mm deep; petals white or (especially after drying) pale pink; gynoecium with a dense long indumentum .................................................\textit{R. parthenocissus} Trávníček et Holub

b Inflorescence of different character; lower leaves in the inflorescence usually less coarsely dentate (if more coarsely so then with almost soft indumentum of patent hairs beneath – \textit{R. pericrispatus}), petiololes of lower leaflets usually shorter; flowers usually smaller; leaves most often more distinctly tomentose beneath and/or covered with patent hairs (if with a thin and slightly developed tomentum then terminal leaflet gradually acuminate with an elongated apex and stems green or pale red – \textit{R. gutiferus}); stems usually less distinctly furrowed ........................................................................\textit{R. grabowski} Weihe
b Terminal leaflet of different shape, usually narrower; petals white or pale pink or dark pink but then narrower and filaments equally or darker pink (in *R. flos-amygdalae*) .......................................................... 14

14a Gynoecium densely hairy (hairs persist even on the top of young druplets and form a fascicle there); terminal leaflet most often rounded at base, or truncate to very broadly cuneate, widest below the middle, or at or above the middle (but then elongated-elliptical, with an indistinct apex), indentation regular or indistinctly periodic; leaves often three-dimensional (leaflets or their petiolules variously arcuate); petals white or rarely pinkish ............ 15

15a Terminal leaflet broadest below the middle, gradually narrowed to a distinct apex 17–23 mm long, at least in young leaves it has the shape of a drop; leaves with a thin tomentum beneath, through glabrescence often only greyish green, almost not hairy to the touch; stems ± green, only slightly suffused pale red-brown (peach-coloured) on sunny sites; inflorescence in fruit relatively dense, with branchlets shorter and thicker, subpatent to patent; inflorescence prickle of broader bases, distinctly curved; stem prickles broader at least in the proximal half, often slightly curved and declining; leaf indentation almost regular, margins often ± undulate with very dense teeth; petals white ............................................................ *R. guttiferus* Trávníček et Holub

b Terminal leaflet broadest at or above the middle, abruptly narrowing in a short, 8–15 mm long apex, most often oblong-elliptical to almost oblong-rectangular (with ± parallel margins); leaves usually with distinctly grey-white tomentose beneath, at least slightly hairy to the touch; stems more intensely purple on sunny sites; inflorescence in fruit often sparse, with branchlets longer and thinner, erecto-patent; inflorescence prickle slender, with narrow bases, only very slightly curved; stem prickles usually narrow, flat (especially after drying), most often almost straight and patent; leaf indentation regular to slightly periodic, margins may be slightly undulate; petals white to pale pink .......................... *R. austroslovacus* Trávníček

16a Leaflets (especially when exposed to sunshine) with distinctly to conspicuously undulate margins, more or less grey tomentose beneath and with longer patent hairs (distinctly to softly hairy to the touch), most often (paler) deep green above; terminal leaflet narrowly to broadly obovate, usually cordate at base; stems green, only very slightly suffused reddish even on sunny sites, with 4–8 prickles per 5 cm; lower leaflets with petiolules usually 4–6 mm long; inflorescence usually short, pyramidal from a broad base. – Petals white to pale pink, leaf indentation periodic, sometimes relatively coarse (incisions 3–4 mm deep), with teeth often pointing in various directions; inflorescence leaves often longitudinally arcuate, with raised margins .......................................................... *R. pericrispatus* Holub et Trávníček

b Leaflets ± flat, with grey to white tomentum beneath, with only a little longer, sparse indumentum of simple hairs (indistinctly and slightly hairy to the touch); most often dark green above; terminal leaflet usually narrower, narrowly elliptical to narrowly obovate, more rarely obovate, rounded to cordate at base; stems (on sunny sites) suffused distinctly purple to dirty dark violet, with (0–) 1–3 (–5) prickles per 5 cm; lower leaflets with petiolules usually 2–4 mm long; inflorescence usually elongated, narrow pyramidal to almost cylindrical .......................................................... 17

17a Terminal leaflet most often (more rarely broadly) elliptical to almost rectangular, usually with parallel margins and a ± abrupt, 10–15 mm long apex; petals pinkish white, (broadly) elliptical to obovate, most often 9–12 mm long, filaments usually white; branchlets of inflorescences with fruit relatively thick, most often straight or moderately curved; stems (on sunny sites) suffused red-violet, not spotted to slightly so. – Terminal leaflet usually distinctly periodically dentate, medium intensely grey to grey-white tomentose beneath .......................................................... *R. montanus* Lej.

b Terminal leaflet most often narrowly (angular-) obovate, less often obovate (margins not parallel), usually with an indistinctly abrupt, often shorter, broadly triangular apex; petals most often (to bright) pink, less often pale pink to white, conspicuously narrow, usually only 7–10 mm long, filaments of the same colour as petals, bright pink in pink-flowered specimens (flowers then resemble those of almond tree); inflorescence branchlets relatively thin, most often ascending; stems (exposed to sunshine) conspicuously coloured dark violet, distinctly spotted dirty violet (spots more visible on the shaded side of stem). – Terminal leaflet usually distinctly periodically dentate, with grey tomentum beneath … *R. flos-amygdalae* Trávníček et Holub

[In C Bohemia, a scattered occurrence was recorded for a similar species, especially in the shape of the terminal leaflet; it was given a provisional name, “R. peripragensis” It can be distinguished by the denser and more robust prickles on its stems, and stems covered with scattered short hairs, more coarsely acutely dentate, often slightly broader terminal leaflet and hairy gynoecium.]
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