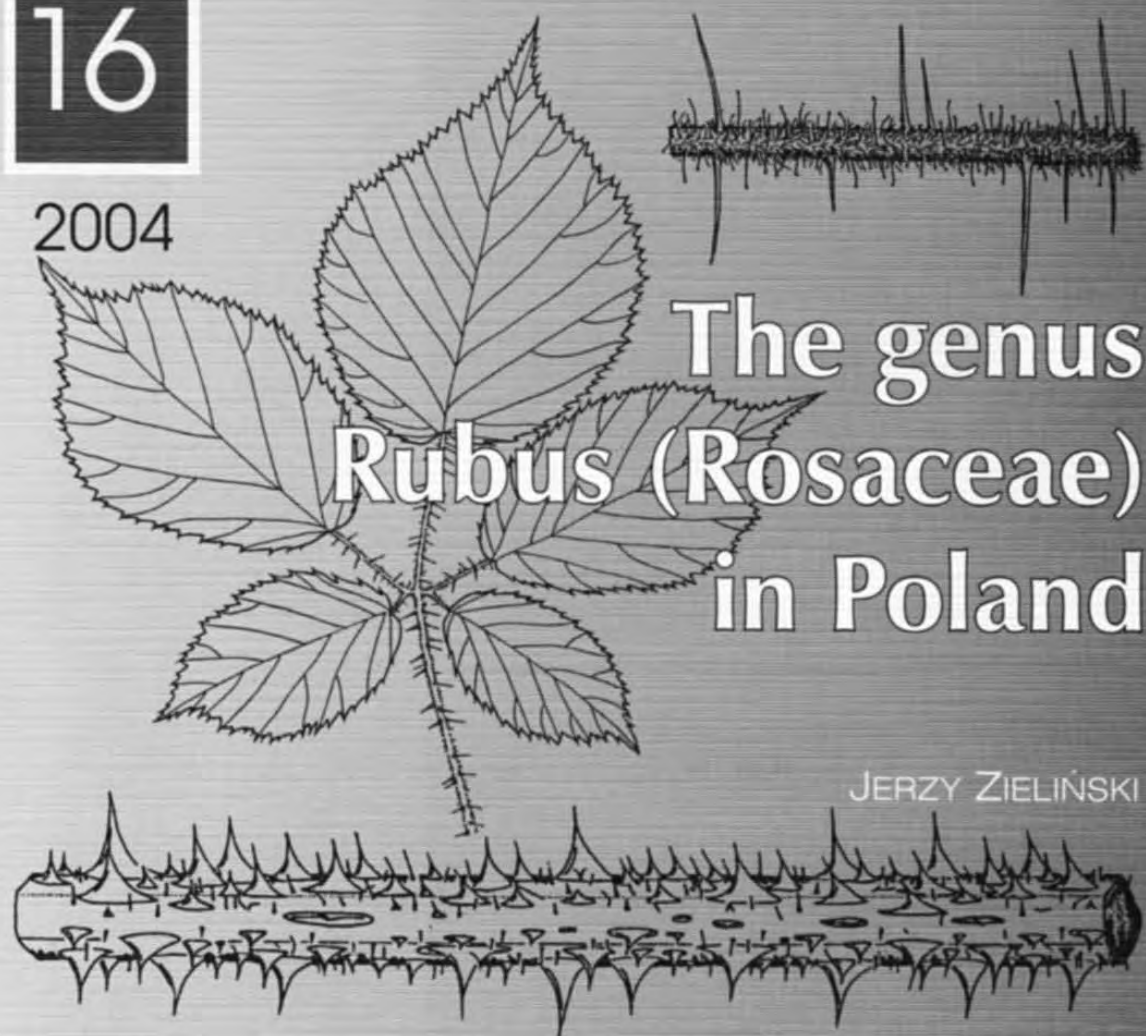


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A detailed botanical line drawing of a Rubus plant. It features a central stem with several serrated, ovate leaves. The stem is covered in numerous sharp, upright prickles. At the top right, a separate illustration shows a close-up of a stem section with several long, thin, hair-like prickles. At the bottom, a larger illustration shows a stem section with many sharp, downward-pointing prickles and small circular glands.

The genus **Rubus** (Rosaceae) in Poland

JERZY ZIELIŃSKI

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THE GENUS *RUBUS* (ROSACEAE) IN POLAND

JERZY ZIELIŃSKI

Abstract: Results of studies on the taxonomy and distribution of the genus *Rubus* L. in Poland are presented. Eighty eight species occurring in Poland have been described, illustrated and mapped. Six lectotypes and three neotypes have been designated. Ten species have been found for the first time in Poland. Eight species [*R. capitulatus* Utsch in Baenitz, *R. chaerophylloides* Sprib., *R. holzfussii* Sprib., *R. oboranus* (Sprib.) Sprib., *R. ostroviensis* Sprib., *R. pfuhlianus* Sprib., *R. seebergensis* Pfuhl ex Sprib., *R. sribillei* (Pfuhl ex Sprib.) Kulesza in Szafer] are probably endemic to Poland. Only five species occur throughout the country, the other ones reach their limit of occurrence in Poland. The richest in brambles is southwestern Poland where more than 70 species have been noted, while in the northwestern regions grow only five species. It is probably connected with the climatic conditions of Poland and the ways of migration of brambles on our territory.

Key words: *Rubus*, Europe, Poland, taxonomy, geographical distribution

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INTRODUCTION

Europe might be considered a perfectly well-known continent floristically but for a few large, abundantly represented genera like *Taraxacum* L., *Hieracium* L. and *Rubus* L. Our still exceptionally poor knowledge on them is connected with serious taxonomic problems arising, to a greater or lesser extent, from apomixis. In the case of the genus *Rubus*, the problems concern almost exclusively its typical subgenus *Rubus*, embracing almost all European brambles. The subgenus includes countless forms, often morphologically extreme, but so far all attempts at their traditional classification have failed.

Cytological and embryological studies have shown that, except for a few sexual species occurring in Europe and its nearest vicinity, such as *R. moschus* Juzepczuk, *R. canescens* DC. and *R. ulmifolius* Schott, the subgenus *Rubus* is represented on the continent exclusively by polyploids of hy-

brid origin ($2n = 21, 28, 35$ and 42) in which the sexual process of reproduction has been almost totally replaced by apomixis. The intensive processes of hybridisation, segregation of hybrids, and introgression that have contributed to the formation of this complex hybrid vegetation, probably started in the Pleistocene and Holocene, when great changes in the European flora brought into contact species that had been isolated geographically until then. Owing to climatic changes and the resultant destruction of habitats existing so far, original parent species became almost extinct. In the dramatically transformed habitat and climatic conditions only hybrids turned out to be able to survive as less specialised ecologically, especially those which had developed the apomictic mode of reproduction. Apomixis, initially probably only local in character, spread through hybri-

disation and introgression. It also allowed numerous hybrids to propagate without the disturbances that might have been involved if they reproduced sexually.

Apomixis in brambles has the form of pseudogamy, because seed production has to be induced by pollination. The development of the endosperm is not then preceded by the reduction of chromosomes in the egg cell and its fertilisation. As a result, the new organism is a perfect copy of the maternal plant. However, probably no form of brambles is totally apomictic. From time to time in some specimens of the given biotype resexualisation of the reproductive process occurs, at least in some ovaries. Such specimens can then take part in hybridisation again by intercrossing with one another and with established, often unrelated forms.

Hybridisation and especially the segregation of hybrids lead to the formation of numerous new morphotypes, but only those that have developed an effective apomictic mechanism of reproduction stand the chance of survival for a longer period of time and spreading. Generally, only a small proportion of emerging morphotypes have such a chance, but some of them can spread over large areas and become an important element of the local flora. Other morphotypes, with various defects in their reproductive system, either die in early stages of development or, unable to overcome the resistance of the environment, endure as single specimens or small, vegetatively formed clusters which die off sooner or later.

The hybridisation of brambles and the segregation of the derived forms give rise to a range of nothomorphs which differ not only in morphology, but also in their habitat requirements. Therefore, there is a chance that in each such series of segregates the forms will appear that will be capable of development in local, even highly deformed, habitats. This seems to be the explanation of the expansive nature of European brambles as a whole.

After more than 200 years, attempts at traditional classifications of European brambles have ended in total failure. For a long time studies of the genus *Rubus* boiled down to describing particular biotypes as independent species. They were described exclusively on the basis of mor-

phology, with widespread forms and single specimens being treated equally. Brambles provided unlimited opportunities for such a treatment, but the result was only an inordinate multiplication of names followed by complete stagnation in research.

What seemed a way out of this awkward situation was the concept of a broadly understood species proposed by Sudre (1908–1913). It allowed biotypes to be combined into species on the basis of similarities by subsuming them, in various ranks, under biotypes rather arbitrarily recognised as typical. In this way heterogeneous biotype conglomerates were constructed with no reference whatsoever to reality. Sudre (1908–1913) subsumed most brambles described from Poland under species known from France. A slightly different concept proposed by Gustafsson (1943) consisted in the grouping of similar biotypes into collective species, so-called 'circle species'. As in previous case, it was recommended that small local species should be attached to the most characteristic 'main' species, the difference being that this concept did not foresee the treatment of the attached biotypes as intraspecific taxa. The drawback of this concept, used by Heslop-Harrison (1968) in *Flora Europaea*, is also a subjective choice of the main species and an equally subjective attachment to it of species regarded as secondary.

Several misunderstandings arose also from the practice of presenting of many local forms as simple or multiple hybrids of previously described species. It was usually done without much justification, mainly intuitively, which often resulted in describing as hybrids the specimens belonging to recognised, 'good' species.

The 1970s were a turning point in the research on European brambles owing to works by Weber (1977, 1981, 1985), who was the first to realise that in the validation of particular biotypes one could use not only their morphology, but also the area they occupy. Its extent can be indicative not only of the age of a given biotype, but also of its ability to endure in nature. For the purposes of practical verification of particular biotypes, Weber (1977) designed a scale to classify them by the size of the area occupied. In his opinion, in the

agamic complex of the subgenus *Rubus* those biotypes can be regarded as species which are characteristic enough morphologically and which occupy an area of at least 20(–30) km in diameter. Weber's scale has been modified slightly by Holub (1992), and this more consistent version, somewhat simplified, is adopted in the present study. It embraces:

- widespread species whose extreme localities are more than 350 km distant (at least in one direction);
- regional species which extreme localities are 20–350 km distant; and
- local biotypes which extreme localities are less than 20 km distant. This group also includes brambles represented by isolated populations, clusters and specimens.

The minimum 20-km threshold in evaluating the taxonomic status of particular biotypes is only seemingly arbitrary. It seems probable that taxa occupying such an area are not susceptible to casual extinction, e.g., as a result of the tree felling or fire of some forest complex. On the other hand, brambles with such relatively small areas often play a significant role in the flora of some regions.

The range criterion, although seemingly very simple and practical, should not be applied mechanically. One should always take into consideration the internal structure of the range, because there may be a biotype which happens to meet the criterion of distance specific to a regional species with a minimum number of localities. In such cases a further search is necessary. Worth further field observations are also those local biotypes which range is a bit narrower than the required 20 km. As a result of such studies they may be promoted to the group of regional species. In the case of a wide scatter of localities, the minimum threshold should be extended appropriately.

The range as a criterion of bramble verification has been used successfully in a number of countries of central and north-western Europe: England (Edees & Newton 1988), Denmark (Martensen *et al.* 1983; Pedersen & Schou 1989), Austria (Weber & Maurer 1991; Maurer & Drescher 2000), various parts of Germany (Weber 1981, 1985, 1987; Stohr 1982, 1984; Henker 1988; Ranft 1995; Matzke-Hajek 1993) and the Czech

Republic (Holub 1992). The most eminent scholar in the modern research on the bramble flora of north-western and central Europe has been H. E. Weber. We owe him the verification and typification of the majority of taxa described from that region. When studying authentic materials he showed that many names were either synonyms, or concerned single or local morphotypes, ecotype modifications, etc. In this way he essentially reduced the number of names applied in the areas he had investigated. For example, as a result of his study of the section *Corylifolii* (Weber 1981) it turned out that only 46 names from among almost 280 analysed referred to taxa with distinct geographical ranges. According to Weber (1995), in central and north-western Europe there are 250–300 agamic bramble species.

In Europe the subgenus *Rubus* is an exceptionally polymorphic group because it has been formed by numerous species, also the ones not related taxonomically. This polymorphism is reflected by divisions into lower units usually called series. The divisions are not ideal and probably not definite but, as Holub (1992) emphasizes, they indicate various genetic centres. The series *Discolores* and *Canescentes* show relations with the sub-Mediterranean region, *Glandulosi* with central European mountains, and another series with the Atlantic and sub-Atlantic regions of Europe. The series in the sections *Corylifolii* are equivalents of those in the section *Rubus*. Generally, there is full morphological continuity between the most extreme taxa of the subgenus *Rubus*, hence several species have been assigned to particular series in a more or less arbitrary way. The divisions into series, however, allow a tentative categorisation of most material studied.

Despite the advances in the research on the genus *Rubus* in central and north-western Europe, our knowledge the bramble flora of this continent is far from satisfactory. Some problems seem quite unsolvable. This especially concerns the series *Glandulosi*, especially abundant in mountainous and submontane regions of Europe. Unlike in other groups, biotype-stabilising apomixis plays a fairly limited role in it. Intensive hybridisation leads to the creation of innumerable non-sta-

bilised, often hard-to-distinguish morphotypes. Fully stabilised biotypes have been few in number so far, but it is often an extremely hard task to differentiate them from very similar, though not identical, forms. Similar problems are connected with the series *Hystrix*.

The group that is still poorly known and, until recently, treated marginally is the section *Corylifolii*. It includes taxa with features intermediate between *R. caesius* from the section *Caesii* and species belonging to various series of the section *Rubus*. Not infrequently, all the taxa of this section are subsumed under the common name of *R. corylifolius* Sm. agg. As a whole, the section *Corylifolii* is a comparatively young group, but even so we meet there several characteristic, stabilised and widespread biotypes which can be treated as 'good' agamic species. The proportion of local morphotypes is fairly substantial in it, though. The *Corylifolii* show a clear connection with habitats created as a result of man's activity; it seems that man has contributed a lot to the development of this group.

RESEARCH SURVEY IN POLAND

Until recently, Polish botanists have derived information about brambles in Poland mainly from an account by Kulesza published in *Flora Polski* in 1930 (Kulesza 1930b). While very valuable, because of good pictures among other things, it is now largely out-of-date. The author, an expert in the bramble flora of central Poland, was clearly influenced by Sudre's monograph (1908–1913), today rather criticized, hence he mentions many species from Poland which in fact do not occur here. On the other hand, Kulesza's work does not embrace a number of species described from the western regions, which were at that time beyond the boundaries of our country.

A critical survey of the bramble species recorded from Poland has been made by Weber (1991a), but he made use exclusively of old herbarium material, which makes his information on the geographical distribution of particular species are out-of-date. What is more, he ignored almost en-

tirely the species endemic to our country. Some more current data on Polish brambles can be found in a study by the same author in the latest edition of *Gustav Hegi Illustrierte Flora von Mitteleuropa* (Weber 1995), but it mainly covers the western regions of Poland.

In the mentioned work from 1991, Weber discusses the history of research on the genus *Rubus* in Poland. In our present western regions and in Wielkopolska, especially until the First World War, intensive studies of brambles were carried out almost exclusively by German botanists such as Barber (1909, 1911), Figert (1905, 1906, 1908a, 1908b, 1909), Holzfuss (1901, 1903, 1909, 1916, 1917, 1930), Kalkreuth (1936), Kinscher (1906, 1909a, 1909b, 1910, 1914, 1915a, 1915b), Krause (1898), Sabransky (1912, 1913), Wimmer (1856), etc. What merits special mention is the research activity of F. J. Spribille, a secondary-school teacher from Śrem and Inowrocław, who devoted nearly 25 years to the study of brambles in Wielkopolska and Silesia and published a number of works on their systematics and geographical distribution (Spribille 1897a, 1897b, 1898, 1899a, 1899b, 1899c, 1900, 1901a, 1901b, 1902a, 1902b, 1902c, 1904, 1905, 1908, 1910, 1913; Schube & Spribille 1904). Fifteen 'good' agamic species in the Polish flora are the ones described by Spribille.

In the central and eastern parts of Poland the research was started by Piotrowski (1897) and later, in the interwar period, it was expanded by Kulesza (1928, 1930a, 1930b, 1934). After long interruption the series of articles concerning taxonomy and distribution of Polish brambles has been published only in the last decade (Zieliński 1991a, 1991b, 1991c, 1993, 1996; Bróz & Zieliński 1993; Szendera 1997; Kosiński & Zieliński 1998; Głowacki 1999; Maliński 2000, 2001; Szendera & Włoch 2001).

METHOD

The present study contains the results of many-years' research of the author on the brambles of Poland. The research, apart from the studies of existing herbarium

specimens, required intensive field work in order to collect the most abundant new herbarium material possible. The existing herbaria were rather scanty and often collected incorrectly. During field studies living plants have been also collected by the author for cytological research conducted by Boratyńska (1994, 1995a, 1995b, 1996, 1997, 1998).

Presented maps have been prepared almost exclusively on the base of author's field observations and on herbarium specimens determined or confirmed by him. Unconfirmed records have been used only in the case of non-critical species or easily recognized apomicts.

Graphical presentation of the recognized species is based on the cartogramme grid prepared for 'Distribution atlas of vascular plants in Poland' (ATPOL), where cartogramme unit is a 10 × 10 kilometres square (Zając 1978a, b). In the maps, large squares of 100 × 100 kilometres are designated by two capital letters, where the first letter indicates the abscissa, and the second – the coordinate. The squares of the grid with 10-kilometre long side are designated by numbers from 00 to 99.

In morphological descriptions (somewhat modified) terminology used by Weber (1995) in Hegi's Flora has

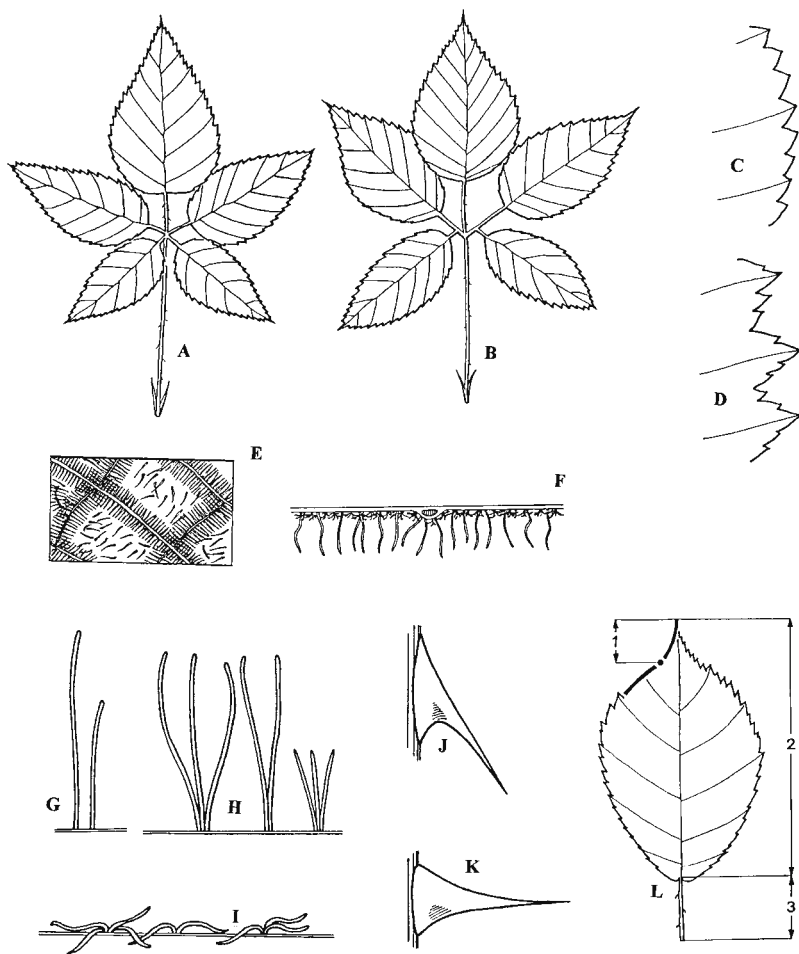


Fig. 1. Selected diagnostic characters of the genus *Rubus* L. A – leaves palmate, B – leaves pedate, C – leaflet margin periodically serrate, D – leaflet margin evenly serrate, E – hairs pectinately arranged on the veins, F – lower leaflet surface (cross-section) with simple hairs and a layer of stellate hairs, G – simple hairs, H – tufted hairs, I – stellate hairs, J – prickles declining, K – prickles patent, L – scheme of terminal leaflet: 1 – length of the apex, 2 – length of the blade, 3 – length of the petiole.

been adopted. Some selected terms are presented on the drawing (Fig. 1) and/or discussed below:

– stems are high-arching when the arches formed by them are more than 1 m tall, low-arching stems form the arches 0.5 m tall or lower.

– glands are subsessile when their stalks are shorter than the diameter of their heads.

– tufted (or fascicled) hairs resemble simple hairs but occur in groups united at the base.

– stellate hairs are very short tufted hairs with \pm recurvate ‘arms’. They often form a continuous indumentum described as felt.

– principal teeth are these ones to which main lateral veins reach.

– leaf margin is periodically serrate when principal teeth are longer than others.

– leaves are palmate when all petiolules of leaflets arise from a common point at the end of the petiole.

– leaves are pedate when petiolules of basal leaflets grow out of the petiolules of the leaflets above them.

– terminal leaflets are: short-petiolate when the ratio of petiolule length to the length of leaflet blade is less than 20%, long-petiolate when this ratio is more than 35%.

RESULTS

At the current stage of research, we can distinguish 88 species in Poland, including 6 alien, naturalized taxa. Ten species have been found for the first time in Poland and one of them (*R. kuleszae*) has been described as a new for science (Zieliński 1996). Among native species 1 belongs to the subgenus *Cylactis*, 1 to the subgenus *Cha-*

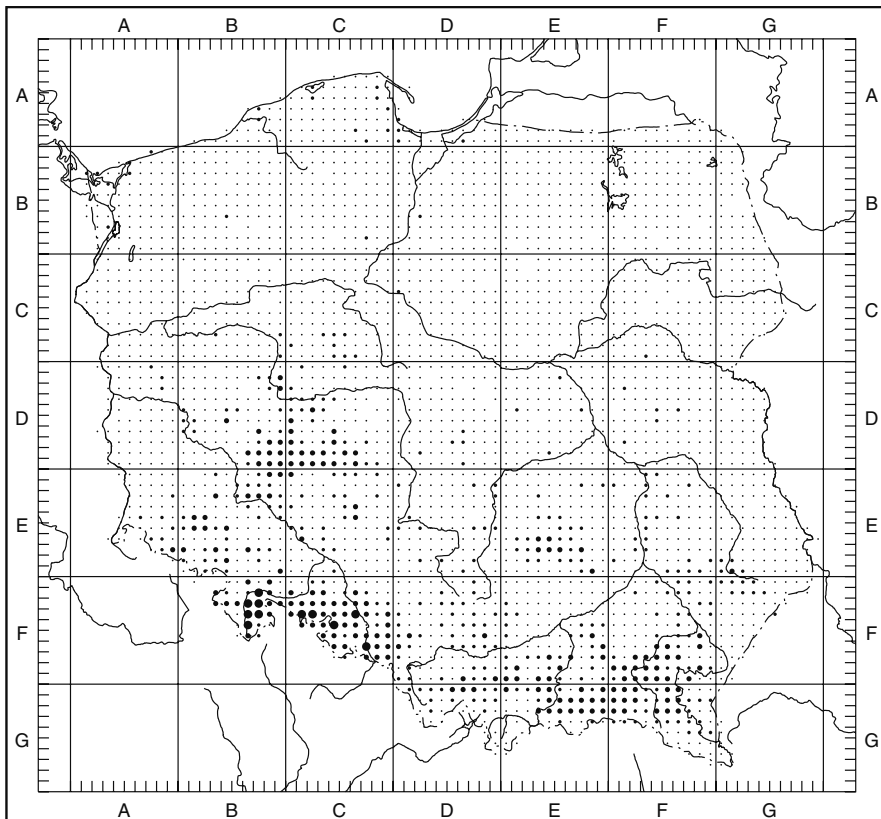


Fig. 2. The locations of concentrations of species of the subgenus *Rubus* in Poland on the ATPOL map: Interval 1–5 species, 6–10, 11–25, ≥ 26 denoting the number of species per cartogramme unit.

maerubus, 1 to the subgenus *Idaeobatus* and 79 to the subgenus *Rubus*. The latter subgenus is represented by section *Rubus* containing 59 taxa, section *Corylifolii* with 19 species and section *Caesii* with 1 species. All native species of the subgenus *Rubus* are agamic, 60 of them are widespread, 19 regional. Eight species (*R. capitulatus*, *R. chaerophylloides*, *R. holzfussii*, *R. oboranus*, *R. ostroviensis*, *R. pfuhlianus*, *R. seebergensis*, *R. spribillei*) are probably endemic to Poland. Only 5 species occur throughout the country, the other reach their limit of occurrence in Poland. The richest in brambles is south-western Poland where more than 70 species have been noted, while in the north-eastern regions only 5 species can be observed (Fig. 2). It is probably connected with the climatic conditions and the ways of migration of brambles on our territory.

The list of brambles occurring in Poland is surely not closed yet. There are no longer larger areas in our country from which information about brambles would be totally missing, but future studies can contribute significantly to our knowledge on the distribution of particular species. In the course of further, especially regional, field studies new discoveries may be expected, both of species known from the neighbouring countries and new regional species endemic to Poland. Some morphotypes, today considered to be local, can also turn out to be such regional species. Local studies on brambles are conducted recently in Wielkopolska (Maliński 2000), in SE Poland (Oklejewicz 1993) and in Górný Śląsk (Szendera 1997).

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herbarium specimens. Dr. Piotr Kosiński helped me to get out of troubles with the computer. I thank warmly all the curators of herbaria and private persons for giving me the run of their herbarium materials. Like most botanists engaged in contemporary bramble research I am specially obliged to the great authority on European brambles, Professor H. E. Weber of the University Osnabrück, Germany; he deserves my special thanks for help in gathering of necessary literature. The study was partially financed by the State Committee for Scientific Research (KBN grant 6 6088 9203).

BRAMBLES OF POLAND

Rubus L.

Sp. Pl.: 492. 1753; Gen. Pl. ed. 5: 218. 1754.

TYPE: *R. fruticosus* L. (*nom. ambig.*).

Shrubs, subshrubs or herbaceous plants, often with suckers. Stems usually prickly, annual or biennial. Leaves alternate, pinnate, digitate or pedate, with 3–7 leaflets, stipulate. Flowers solitary or in racemose or paniculate inflorescences. Flowers 5-merous, without epicalyx. Sepals imbricate, persistent. Stamens numerous. Ovules 2 in each carpel. Fruit a coherent head of 1-seeded drupelets. Stones smooth or foveolate-reticulate.

KEY TO THE SPECIES

1. Leaves simple 2
- 1*: Leaves compound 3
 2. Stems up to 30 cm tall, herbaceous 1. *R. chamaemorus*
 - 2*: Stems more than 1 m tall, woody, biennial 4. *R. odoratus*
3. Plant herbaceous 4
- 3*: Stems ± woody, at least partly biennial. Flowering branches grow from the leaf axils of previous year's stems, rarely also from the leaf axils of current year's stems 5
 4. Terminal leaflets at most twice as long as wide. Barren stems long, procumbent, rooting at nodes. Drupelets (1–)2–6, red 2. *R. saxatilis*
 - 4*: Terminal leaflets more than twice as long as wide. Barren, rooting stems absent. Drupelets more numerous, yellow ... 3. *R. xanthocarpus*

5. Leaves pinnate, with 3–5(–7) leaflets, usually white tomentose with curled hairs beneath. Stems unarmed or with small, soft needle-like prickles. Carpels densely hairy. Drupelets red, hairy. Ripe compound fruit falling down without receptacle (the latter remains in the plant) 5. *R. idaeus*
- 5* Plants with different combination of characters . . . 6
6. Leaflets not or only slightly imbricate. Basal leaflets usually with \pm distinct petiolules. Petiole usually canaliculate at the base only. Lateral leaflets in the upper 3-foliolate inflorescence leaves usually distinctly petiolulate. Stipules usually filiform or filiform-linear. Petals flat, not wrinkled. Fruit usually perfectly formed, with numerous shining, not pruinose drupelets 7
- 6* Leaflets usually \pm imbricate or contiguous. Basal leaflets sessile or subsessile. Petioles distinctly canaliculate above. Lateral leaflets of 3-foliolate inflorescence leaves usually sessile. Stipules normally wider. Petals often wrinkled. Fruit often not perfectly formed. Drupelets often pruinose . . . 75
7. Leaves deeply incised 26. *R. laciniatus*
- 7* Leaves not deeply incised, at the most deeply serrate or shallowly lobed 8
8. Sepals green on the back, glabrous or sparsely pubescent with long, straight hairs (surface of sepals visible through the indumentum). Stalked glands normally absent. Inflorescence often weakly branched, racemose 9
- 8* Sepals \pm densely pubescent on the back, grey-green- to white-felted; if sepals glabrous and green then plants with numerous stalked glands at least in the inflorescence 17
9. Stems and inflorescence axis distinctly zigzag. Prickles up to 5–6 mm long, declining, straight or slightly curved. Leaflets long-petiolulate, not contiguous, without stellate hairs underneath. Stamens usually not exceeding styles (chiefly S Poland) 29. *R. wimmerianus*
- 9* Characters at least partly not so as above 10
10. Stamens long, patent or reflexed after anthesis. Stems grooved, unarmed or with few, weak prickles. Leaves usually large, hairy on the veins only. Leaflets abruptly long-acuminate 15. *R. canadensis*
- 10* Stamens usually erect, not patent after anthesis. At least some of the other characters different 11
11. Stems deeply groove, unarmed or with 1–2 small prickles per 5 cm. Leaves densely, softly pubescent, with simple patent hairs beneath. Petioles unarmed or with 2–4 small prickles (very rare in SW Poland) 8. *R. graecensis*
- 11* Stems and/or prickles another 12
12. Prickles small, 2–4(–5) mm long, subulate or needle-like, straight 13
- 12* Prickles another, usually longer and stronger, broad-based, often curved 14
13. Stems glabrous, angled with flat sides and usually violet(-purple) prickles. Petals 11–15 mm long. Stamens usually distinctly exceeding styles 6. *R. nessensis*
- 13* Stems often hairy. Prickles more numerous (usually more than 15 per 5 cm), coloured like the stems. Stamens shorter than styles. Petals 7–8 mm long 7. *R. scissus*
14. Stems with flat or slightly furrowed sides. Prickles curved. Stamens as long or shorter than styles. Leaflets usually contiguous or imbricate; terminal leaflets ovate, cordate at the base; basal leaflets sessile or with petiolules up to 2 mm. Sepals patent after anthesis (common species) 11. *R. plicatus*
- 14* Stems deeply grooved or prickles (at least part of them) patent. Stamens usually longer than styles. Petiolules of basal leaflets longer . . . 15
15. Stems \pm sulcate. Prickles usually curved, strong, up to 10 mm long, up to 3(–5) per 5 cm. Leaflets sharply serrate, with prominent principal teeth. Inflorescence usually racemose. Stamens longer than styles. Anthers glabrous 9. *R. sulcatus*
- 15* At least some of the characters not so as above . . . 16
16. Prickles mostly straight, patent or slightly declining. Terminal leaflets rounded at the base. Anthers glabrous 13. *R. divaricatus*
- 16* Prickles mostly curved. Terminal leaflets cordate at the base. At least some anthers hairy (rare in W Poland) 12. *R. opacus*
17. Stamens patent after anthesis. Stems glabrous and smooth, without stalked glands. Inflorescence axis and pedicels densely covered with stalked glands. Terminal leaflets (broadly) ovate, cordate at the base, suddenly acuminate at the apex, shallowly serrate, softly pubescent beneath (locally naturalized) 16. *R. allegheniensis*
- 17* Stamens not patent after anthesis, upright, often contiguous above the styles. The other characters at least partly different 18
18. Anthers hairy. Leaves green beneath. Stems without stalked glands 19
- 18* Anthers glabrous, if sometimes hairy, then leaves felted beneath 20

19. Stems deeply grooved, glabrous. Petals pink 34. *R. gratus*
- 19* Stems with flat or slightly furrowed sides, pubescent. Petals white 30. *R. sciocharis*
20. Stems glabrous or almost so, red- or violet-black on the side exposed to the sun, (usually) without stalked glands and acicles. Leaves pedate 3–5-foliolate. Leaflets coarsely serrate. Inflorescence short, with scattered stalked glands. Petals white (rare in SW Poland) 41. *R. tabanimontanus*
- 20* At least some of the characters not as above 21
21. Plants without stalked glands 22
- 21* Stalked glands and/or gland-tipped pricklets present (sometimes few) at least in the inflorescence . . . 39
22. Stems and inflorescence axis distinctly zigzag. Prickles 5–6 mm long, declining, straight or curved. Leaflets long-petiolulate, not contiguous, without stellate hairs beneath. Petals white. Stamens usually not exceeding styles (chiefly S Poland) 29. *R. wimmerianus*
- 22* Plants with another combination of characters 23
23. Stems glabrous or almost so. Prickles usually numerous, up to 25 per 5cm, often crowded, irregularly set, compressed laterally, usually brighter than the stem. Petioles canaliculate above, with numerous, strongly curved prickles. Inflorescence axis and pedicels with numerous, strong, curved prickles (rare in W Poland) 14. *R. senticosus*
- 23* Stems hairy, if not so then prickles less numerous, not crowded. Petioles sulcate at the base only 24
24. Stems persistently pubescent with simple or tufted hairs, stellate hairs present or not . . . 25
- 24* Stems (sub)glabrous or hairs exclusively stellate (lens) 27
25. Stems dull green, usually irregularly sprinkled brown-violet, hairy with simple, tufted and stellate hairs. Terminal leaflets usually convex, oblong-ovate, often with parallel sides, cordate at the base (chiefly SW Poland) 33. *R. macrophyllus*
- 25* Stems of another colour, pubescent with simple and tufted hairs only. Terminal leaflets of another shape, flat 26
26. Prickles 6–15(–20) per 5 cm, often crowded, usually patent, red-based. Inflorescences much branched. Inflorescence axis rather strongly armed in the upper part. Pedicels densely patent-hairy, their surface not visible through the indumentum (common species) 28. *R. gracilis*
- 26* Stems with 3–7 prickles per 5 cm. Inflorescence weakly branched, often racemose and almost unarmed in the upper half. Pedicels rather loosely hairy, their surface visible through the indumentum (very rare in NW Poland) 32. *R. circipanicus*
27. Leaves distinctly (3–6 mm) pedate, (3–)4–5-foliolate, densely felted, grey or whitish underneath. Margins sharply (irregularly) serrate. Prickles on the stems and inflorescence axis slender, normally straight (chiefly S Poland) 17. *R. bifrons*
- 27* Leaves and/or prickles not as above 28
28. Stems grooved, unarmed or with 1–2 small (2–3 mm long) prickles per 5 cm. Leaves densely softly pubescent beneath, with simple, patent hairs. Leaflets not contiguous. Petioles unarmed or with 1–3 small prickles (very rare in SW Poland) 8. *R. graecensis*
- 28* Prickles more numerous and/or longer 29
29. Inflorescence narrowly conical to almost cylindrical, leafy to the apex. Inflorescence axis fairly thick and stiff. Lateral branches short, upright. Leaves green or greyish-green beneath. Terminal leaflet elliptical or narrowly obovate, narrowly rounded and entire at the base, sharply serrate above. Stems angled with slightly furrowed sides (SW Poland) 31. *R. angustipaniculatus*
- 29* Combination of characters not as above 30
30. Stems deeply grooved. Leaves green or greyish beneath, without or with loose layer of stellate hairs beneath. Inflorescence axis usually loosely hairy at least below 31
- 30* Stems with flat or slightly furrowed sides, if not so, then leaves densely felted beneath, grey-green to whitish. Inflorescence axis usually felted-hairy 32
31. Inflorescence with almost upright lateral branches. Leaflets of lower inflorescence leaves serrate like those of the upper leaves. Petals white (rare in S Poland) 10. *R. constrictus*
- 31* Lateral branches of the inflorescence not upright, ± diverging. Leaflets of lower inflorescence leaves usually more deeply serrate as those of the upper leaves, often ± incised. Petals pink (SE Poland) 24. *R. perrobustus*
32. Leaflets (also those of the inflorescence leaves) deeply crenate-serrate, often shallowly lobed and waved along margin, densely white-grey-felted underneath. Terminal leaflets ovate, cordate at the base. Petals white (S Poland) 23. *R. crispomarginatus*
- 32* Leaves not as above 33

33. Stems thick, (8–)10–20(–25) mm in diameter. Prickles 7–11 mm long. Plants robust. Leaflets sharply serrate. Young carpels densely hairy 34
- 33* Stems usually thinner and with shorter prickles 35
34. Prickles red at the base, contrasting with green surface of the stem (on the side turned out of the sun). Prickles on the inflorescence axis mostly straight, \pm declining. Petals pale pink 19. *R. armeniacus*
- 34* Prickles usually coloured like the stem. Prickles on the inflorescence axis \pm curved 18. *R. praecox*
35. Leaves (shortly) pedate, grey-green beneath. Petiole usually much longer than basal leaflets (NW Poland) 27. *R. marssonianus*
- 35* Leaves digitate. Petioles as long or only slightly longer than basal leaflets 36
36. Stamens as long or only slightly exceeding styles. Leaflets sharply serrate. Stems angled, with flat or slightly furrowed sides 25. *R. nemoralis*
- 36* Stamens distinctly exceeding styles. Leaflets not sharply serrate. Stems deeply grooved. Leaves (at least in sunny places) densely covered with mainly stellate hairs beneath, normally grey- to white-felted beneath 37
37. Leaflets not contiguous, terminal ones usually narrowly obovate, coarsely serrate in the upper half. Carpels glabrous 20. *R. montanus*
- 37* Leaflets usually of another shape, broader, often contiguous or regularly serrate. Young carpels hairy at least at the apex 38
38. Terminal leaflets mostly elliptical, thinly felted beneath, very shortly acuminate, shallowly (1–1.5 mm) serrate. Teeth broader than long. Young carpels densely hairy 22. *R. henrici-egonis*
- 38* Terminal leaflets another . . . 21. *R. grabowskii*
39. Prickles \pm equal, acicles and stalked glands absent or fairly few, scattered. Inflorescence axis and pedicels with usually few scattered stalked glands 40
- 39* The largest prickles unequal, grading into acicles and stalked glands; if prickles equal then stems covered with numerous stalked glands and/or gland-tipped acicles. Inflorescence and pedicels with numerous stalked glands 50
40. Stamens as long or shorter than styles. Stems \pm hairy 41
- 40* Stamens exceeding styles, if not so, then stems glabrous 43
41. Inflorescence leafless at the apex. Petals pink 35. *R. sprengelii*
- 41* Inflorescence leafy to the apex. Petals white 42
42. Terminal leaflets with an apex 10–15(–20) mm long. Inflorescence long (N Poland) 36. *R. chlorothyrsos*
- 42* Terminal leaflets with an apex 20–25 mm long (SW Poland) 37. *R. capricollensis*
43. Stems glabrous or almost so, often pruinose, mottled with red on the angles, always with scattered small pricklets and/or gland-tipped acicles. Terminal leaflets periodically serrate with prominent recurved principal teeth, grey-green, chiefly stellate-hairy beneath (rare in S Poland) 39. *R. micans*
- 43* At least some characters not so as above 44
44. Stems with grooved sides, (sub)glabrous. Leaves pedate. Petals, stamens and styles normally deep pink (sometimes fading in sunnier places) 42. *R. glivicensis*
- 44* Stems terete or with shallowly furrowed sides or distinctly hairy. Petals white or pale pink 45
45. Leaves with stiff shimmering hairs pectinately arranged on the veins beneath 46
- 45* Hairs on the veins not pectinately arranged . . . 49
46. Terminal leaflets periodically serrate, with distinctly prominent, recurved principal teeth. Inflorescence usually long, regularly conical 38. *R. pyramidalis*
- 46* Principal teeth of terminal leaflets do not differ distinctly from the other teeth 47
47. Stems sparsely hairy, glabrescent. Terminal leaflets evenly and rather shallowly (up to 2 mm) serrate, \pm convex 43. *R. chaerophyllus*
- 47* Stems rather densely and persistently hairy. Terminal leaflets more deeply serrate, flat 48
48. Prickles up to 5–7 mm long. Prickles on pedicels up to 4(–4.5) mm long. Inflorescence truncate at the apex 45. *R. acanthodes*
- 48* Prickles up to 4–5(–6) mm long. Prickles on pedicels up to 2(–2.5) mm long. Inflorescence not truncate at the apex 44. *R. chaerophylloides*
49. Stems distinctly and persistently hairy. Terminal leaflets usually oblong-ovate, convex. Inflorescence usually few-flowered. Pedicels and sepals with long patent hairs 33. *R. macrophyllus*
- 49* Stems sparsely hairy, glabrescent. Terminal leaflets ovate or elliptical. Inflorescence usually many-flowered, dense. Pedicels and sepals without long patent hairs 40. *R. silesiacus*

50. Largest prickles fairly equal, normally not grading into acicles and stalked glands 51
- 50* Prickles unequal, the largest ones grading into small pricklets, acicles and/or stalked glands 60
51. Leaves (3–)4–5-foliolate, pedate, stellate-hairy and grey-green beneath. Terminal leaflets suborbicular or rarely broadly obovate, short-acuminate, shallowly and evenly serrate. Serration up to 2 mm deep. Teeth straight. Petals pink (SW Poland) 48. *R. salisburgensis*
- 51* Combination of characters not as above 52
52. Prickles 2.5–3(–4) mm long, strongly declining. Leaves 3(–4)-foliolate, sparsely hairy beneath, without stellate hairs. Stems bluntly angled or nearly terete, sparsely hairy (very rare in SW Poland) 53. *R. scaber*
- 52* Characters at least partly not as above 53
53. Leaves of flowering stems (at least the upper ones) stellate-hairy and greyish underneath 54
- 53* Leaves without stellate hairs 55
54. Stems glabrous or with scattered hairs. Pedicels shortly hairy hence stalked glands protruding above the indumentum 47. *R. rudis*
- 54* Stems conspicuously hairy. Stalked glands on pedicels not exceeding hairs 46. *R. radula*
55. Leaves with hairs pectinately arranged on the veins beneath. Prickles distinctly declining. Stems (densely) hairy (W Poland) 54. *R. pfuhlianus*
- 55* Leaves sparsely hairy beneath, without or with few hairs pectinately arranged 56
56. Terminal leaflets (broadly) obovate to suborbicular. Petals and stamens deep pink (chiefly E and C Poland) 51. *R. schnedleri*
- 56* Terminal leaflets of different shape, narrower. Petals white or pale pink 57
57. Stems glabrous. Prickles strongly declining. Terminal leaflets (ovate-)elliptical (very rare in SW Poland) 59. *R. lignicensis*
- 57* Stems \pm hairy. Prickles not so conspicuously declining 58
58. Leaves 3-foliolate, finely, evenly serrate (SW Poland) 52. *R. oboranus*
- 58* Leaves at least partly 5-foliolate 59
59. Stems densely hairy, conspicuously pruinose when young (SW Poland) 50. *R. posnaniensis*
- 59* Stems rather sparsely hairy, not pruinose (very rare in SW Poland) 49. *R. pallidus*
60. The largest prickles 5–7(–8) mm long, usually numerous, sometimes crowded, strong, gradually broadened towards the base 61
- 60* Prickles weaker, the largest ones 3–5 mm long, not crowded, often subulate, with decurrent base 64
61. Leaves normally 3–foliolate, green without stellate hairs beneath. Inflorescence usually short and slightly nodding at apex 57. *R. schleicheri*
- 61* Leaves (mostly) 5–foliolate or leaves stellate-hairy, green-grey beneath. Inflorescence erect 62
62. Leaves with stellate hairs, green-grey beneath (very rare in W Poland) 56. *R. bavaricus*
- 62* Leaves without stellate hairs, green underneath 63
63. Terminal leaflets usually broadly ovate to suborbicular. Stems sparsely hairy 55. *R. koehleri*
- 63* Terminal leaflets usually elliptical or obovate. Stems densely hairy 58. *R. apricus*
64. Stems glabrous. Sepals patent or reflexed after anthesis 65
- 64* Stems \pm hairy 66
65. Prickles strongly declining, at least some of them curved. Leaflets not contiguous 59. *R. lignicensis*
- 65* Prickles slightly declining, straight. Leaflets contiguous 60. *R. holzfussii*
66. Leaves 5–foliolate. Terminal leaflets deeply periodically serrate. Inflorescence leafy to the top, its uppermost leaves often simple, lobed and often very grossly serrate. Prickles of sterile stems only slightly declining 58. *R. apricus*
- 66* Combination of characters not as above 67
67. Stems bluntly angled with flat sides. Prickles distinctly declining, with strongly decurrent base. Leaves 5–foliolate. Leaflets narrow and not contiguous, coarsely sharply serrate, with distinctly prominent, \pm recurved principal teeth. Sepals reflexed after anthesis 61. *R. ostroviensis*
- 67* At least some characters different 68
68. Sepals patent or reflexed after anthesis. Glands and their stalks usually yellow or bright brown 69
- 68* Sepals erect after anthesis, clasping the fruit 71
69. Prickles conspicuously declining, with distinctly decurrent base 54. *R. pfuhlianus*
- 69* Prickles not as above 70

70. Inflorescence narrowly conical, usually nodding at the top, weakly branched, often racemose in the upper part (chiefly SW Poland, locally common) 62. *R. siemianicensis*
- 70* Inflorescence not nodding at apex, paniculate. Terminal leaflets evenly, finely serrate (very rare in SW Poland) 66. *R. barberi*
71. Stems procumbent. Stamens distinctly shorter than styles. Young carpels densely hairy. Stalked glands violet-black (SW Poland) 67. *R. guentheri*
- 71* Characters at least partly different 72
72. Terminal leaflets elliptical or obovate, suddenly acuminate, finely serrate. Principal teeth \pm recurved. Inflorescence rather short, few-flowered, with patent peduncles 63. *R. pedemontanus*
- 72* Leaves and/or inflorescence not as above . . . 73
73. Stems procumbent. Leaves bluish beneath. Leaflets broadly elliptical, broadly obovate or suborbicular, evenly, finely serrate. Glands and gland-tipped acicles yellowish or bright brown (SW Poland) 64. *R. hercynicus*
- 73* Leaves green beneath or terminal leaflets different 74
74. Leaves with stellate hairs beneath, at least on the veins. Terminal leaflets elongated, (narrowly) obovate, or (narrowly) elliptical, evenly, finely serrate (serration up to 1 mm deep) 65. *R. lusaticus*
- 74* Leaves and/or leaflets not as above *R. hirtus* s.l.
75. Stems terete, \pm pruinose. Prickles small, weak. Leaves 3-foliolate. Lateral leaflets broadly rounded at the base, sessile or subsessile. Stipules broadly lanceolate. Sepals long-pointed, clasping the fruit. Petals \pm notched, white. Drupelets pruinose 88. *R. caesius*
- 75* Characters at least partly different (*R. corylifolius* agg.) 76
76. Prickles fairly uniform. Acicles and stalked glands absent or very few, scattered. Pedicels without or with few stalked glands up to 0.5 mm long 77
- 76* Prickles unequal mixed with acicles and stalked glands. Leaves green beneath. Inflorescence usually with very numerous stalked glands 90
77. Upper surface of leaves (at least those of the inflorescence) with very numerous, simple adpressed hairs. Flowers white 82. *R. fasciculatus*
- 77* Upper surface of leaves glabrous, if hairs present then scattered or stellate 78
78. Prickles up to 2.5(–3.5) mm long, slender. Leaves mostly 3-foliolate, deeply periodically serrate, white-grey-hairy beneath. Pedicels with straight, needle-like pricklets. Petals white. Sepals clasping the fruit. 81. *R. mollis*
- 78* Plants with different combination of characters 79
79. Anthers hairy 80
- 79* Anthers glabrous 81
80. Stems conspicuously hairy. Prickles up to 6(–7) mm long. Petals pale pink . . . 79. *R. nemorosus*
- 80* Stems (sub)glabrous. Prickles up to 4(–5) mm long. Petals white 80. *R. camptostachys*
81. Stems usually thick, up to 12 mm in diameter, bluntly angled with flat sides and 3–5 prickles per 5 cm. Leaves 5-foliolate, often very large. Leaflets imbricate, waved along margin. Terminal leaflets broadly ovate to suborbicular, cordate at the base. Petals white 76. *R. kuleszae*
- 81* Combination of characters not as above 82
82. Terminal leaflets broadly ovate to suborbicular, often broader than long, cordate at the base, with a suddenly acuminate apex up to 10 mm long. Prickles usually numerous, (10–)15–20 per 5 cm, up to 4(–5) mm long, stout-based (rare in SW Poland) 73. *R. franconicus*
- 82* Leaflets and/or prickles different 83
83. Terminal leaflets \pm evenly, shallowly serrate 84
- 83* Terminal leaflets coarsely, periodically serrate . . . 88
84. Leaves 3(–5)-foliolate, thinly stellate-hairy and greyish beneath. Petals fresh pink 75. *R. hevellicus*
- 84* Leaves 5-foliolate. Petals white or pale pink . . . 85
85. Terminal leaflets broadly elliptical to suborbicular, shortly acuminate, often convex, sometimes with 1–2 deep lobes. Prickles 3–4 mm long. Inflorescence usually weakly branched, often racemose above. Inflorescence axis \pm straight and stiff. Petals pink, suborbicular. Stalked glands missing 69. *R. orthostachys*
- 85* Combination of characters not as above 86
86. Leaves (also those of flowering branches) green on both sides, without stellate hairs beneath. Terminal leaflets usually convex 70. *R. lamprocaulos*
- 86* Leaves (at least those of flowering branches) (green-)grey-hairy underneath. Stellate hairs always present 87

- 87. Prickles 2–3.5(–4) mm long, 7–20 per 5 cm (very rare in W Poland) 71. *R. curvaciculatus*
- 87* Prickles 5–6 mm long, 5–6 per 5 cm (NW Poland) 72. *R. czarnunensis*
- 88. Stems conspicuously angled, usually with grooved sides. Terminal leaflets elliptical, broadly ovate or rhombic-ovate. Petals 7–9(–10) mm long (very rare in W Poland) 78. *R. lidforsii*
- 88* Stems and/or terminal leaflets not as above. Petals longer 89
- 89. Terminal leaflets broadly ovate to suborbicular, cordate at the base. Lateral leaflets of the uppermost inflorescence leaves broadly rounded to subcordate at the base 74. *R. wahlbergii*
- 89* Terminal leaflets mostly ovate, shallowly cordate at the base. Lateral leaflets of the uppermost inflorescence leaves cuneate at the base 77. *R. gothicus*
- 90. Terminal leaflets periodically serrate. Principal teeth prominent, usually ± recurved 84. *R. capitulatus*
- 90* Terminal leaflets ± evenly, shallowly serrate 91
- 91. Leaves mostly 5-foliolate. Terminal leaflets cordate at the base 83. *R. fabrimontanus*
- 91* Leaflets 3-foliolate. Terminal leaflets rounded or shallowly emarginate at the base 92
- 92. Leaves rather densely and softly hairy beneath. Petals elliptical 86. *R. seebergensis*
- 92* Leaves glabrous or sparsely hairy on the veins beneath 93
- 93. Petals broadly elliptical. Sepals with the point usually shorter than 1 mm, patent after anthesis. Receptacle hairy 87. *R. spribillei*
- 93* Petals suborbicular. Sepals with the point (1–)1.5–2.5 mm long, upright after anthesis. Receptacle glabrous 85. *R. dollnensis*

SCHEME OF CLASSIFICATION

Genus **Rubus**

Subgenus **Chamaerubus**

- 1. *Rubus chamaemorus*

Subgenus **Cylactis**

Series **Saxatiles**

- 2. *Rubus saxatilis*

Series **Xanthocarpi**

- 3. *Rubus xanthocarpus*

Subgenus **Anoplobatus**

- 4. *Rubus odoratus*

Subgenus **Idaeobatus**

- 5. *Rubus idaeus*

Subgenus **Rubus**

Section **Rubus**

Subsection **Rubus**

Series **Nessenses**

- 6. *Rubus nessensis*
- 7. *Rubus scissus*

Series **Rubus**

- 8. *Rubus graecensis*
- 9. *Rubus sulcatus*
- 10. *Rubus constrictus*
- 11. *Rubus plicatus*
- 12. *Rubus opacus*
- 13. *Rubus divaricatus*
- 14. *Rubus senticosus*

Series **Canadenses**

- 15. *R. canadensis*

Series **Alleghenienses**

- 16. *R. allegheniensis*

Subsection **Hiemales**

Series **Discolores**

- 17. *Rubus bifrons*
- 18. *Rubus praecox*
- 19. *Rubus armeniacus*
- 20. *Rubus montanus*
- 21. *Rubus grabowskii*
- 22. *Rubus henrici-egonis*
- 23. *Rubus crispomarginatus*

Series **Rhamnifolii**

- 24. *Rubus perrobustus*
- 25. *Rubus nemoralis*
- 26. *Rubus laciniatus*
- 27. *Rubus marssonianus*
- 28. *Rubus gracilis*

Series **Sylvatici**

- 29. *Rubus wimmerianus*
- 30. *Rubus sciocharis*
- 31. *Rubus angustipaniculatus*
- 32. *Rubus circipanicus*
- 33. *Rubus macrophyllus*
- 34. *Rubus gratus*
- Series **Sprengeliani**
- 35. *Rubus sprengelii*
- 36. *Rubus chlorothyrsos*
- 37. *Rubus capricollensis*

- Series **Vestiti**
38. *Rubus pyramidalis*
- Series **Micantes**
39. *Rubus micans*
40. *Rubus silesiacus*
41. *Rubus tabanimontanus*
42. *Rubus glivicensis*
43. *Rubus chaerophyllus*
44. *Rubus chaerophylloides*
45. *Rubus acanthodes*
- Series **Radulae**
46. *Rubus radula*
47. *Rubus rudis*
48. *Rubus salisburgensis*
- Series **Pallidi**
49. *Rubus pallidus*
50. *Rubus posnaniensis*
51. *Rubus schnedleri*
52. *Rubus oboranus*
53. *Rubus scaber*
54. *Rubus pfuhlianus*
- Series **Hystrix**
55. *Rubus koehleri*
56. *Rubus bavaricus*
57. *Rubus schleicheri*
58. *Rubus apricus*
59. *Rubus lignicensis*
- Series **Glandulosi**
60. *Rubus holzfussii*
61. *Rubus ostroviensis*
62. *Rubus siemianicensis*
63. *Rubus pedemontanus*
64. *Rubus hercynicus*
65. *Rubus lusaticus*
66. *Rubus barberi*
67. *Rubus guentheri*
68. *Rubus hirtus*
- Section **Corylifolii**
Subsectio **Sepincoli**
- Series **Subrectigeni**
69. *Rubus orthostachys*
70. *Rubus lamprocaulos*
- Series **Sepincoli**
71. *Rubus curvaciculatus*
72. *Rubus czarnunensis*
73. *Rubus franconicus*
- Series **Subthyrsoidei**
74. *Rubus wahlbergii*
75. *Rubus hevellicus*
76. *Rubus kuleszae*
77. *Rubus gothicus*
78. *Rubus lidforsii*
- Series **Subsylvatici**
79. *Rubus nemorosus*
80. *Rubus camptostachys*
- Series **Subcanescentes**
81. *Rubus mollis*
82. *Rubus fasciculatus*
- Series **Subradulae**
83. *Rubus fabrimontanus*
- Series **Hystricopses**
84. *Rubus capitulatus*
85. *Rubus dollnensis*
86. *Rubus seebergensis*
87. *Rubus spribillei*
- Section **Caesii**
88. *Rubus caesius*
- Nothosubgenus \times **Cylarubus**
89. *Rubus* \times areschoughi
- Nothosubgenus \times **Idaeorubus**
90. *Rubus* \times pseudidaeus
- Subgenus **Chamaerubus** O. Kuntze
Deutsch. Bromb.: 114. 1867. – Subgenus *Chamaemorus* (Hill) Focke, Abh. Naturwiss. Ver. Bremen **4**: 142. 1874. – Genus *Chamaemorus* Hill, Brit. Herb.: 331.1756.
- TYPE: *Rubus chamaemorus* L.
- Perennial plants with annual, herbaceous, unarmed stems. Leaves simple, palmately lobed. Stipules attached to the stem. Flowers solitary, dioecious. Receptacle conical. Fruit orange.
1. ***Rubus chamaemorus* L.** (Figs 3 & 4)
Sp. Pl. **1**: 494. 1753.
- TYPE: 'Habitat in Sueciae paludibus uliginosius turfosis frequens' [653.21, LINN – LECTOTYPE, designated by A. O. Chater, C. Jarvis & A. Newton (Edees & Newton 1988)].
- Herbaceous, perennial plant with long, branched rhizomes. Stems erect up to 25 cm tall, usually all flowering (not differentiated into flowering and sterile), with several scales in the lower part (transformed stipules), pubescent with



Fig. 3. *Rubus chamaemorus* L. (Piotrowska s.n., KOR 23600). Scale bar = 5 cm.

retorse or patent simple and tufted hairs, often with short stalked glands. Leaves 1–4, suborbicular to reniform, palmate-veined, with 5–7 shallow lobes, finely crenate-serrate, undulate along margin, usually glabrous above, with sparse to numerous short hairs beneath, often also with short-stalked glands on the veins. Stipules ovate to obovate. Petioles clothed like the stem. Flowers dioecious, solitary, terminal, 2–3 cm in diameter. Pedicels covered with retrorse or patent hairs and very short stalked glands. Sepals oblong-ovate, acute or obtuse at apex, patently hairy, upright after anthesis, clasping the fruit. Petals usually 5, rarely more, white, broadly obovate, 8–12 mm long. Carpels glabrous. Fruit with 4–20 drupelets, red at the beginning, becoming orange when ripe. – $2n = 56$ (Czapik 1958, 1983). – Flowering VI–VII.

HABITAT. Exclusively on peat moors.

DISTRIBUTION IN POLAND. Pomorze Gdańskie, Warmia, Mazury in the north and on few isolated stands in the Karkonosze Mountains in SW part of the country. In the Karkonosze at 1420 m. Locally abundant, but vulnerable in lowlands by exploitation of peat, in the Karkonosze by excessive tourism. Species strictly protected in Poland, placed in 'Polish Plant Red Book' (Kruszelnicki & Fabiszewski 1993, 2001).

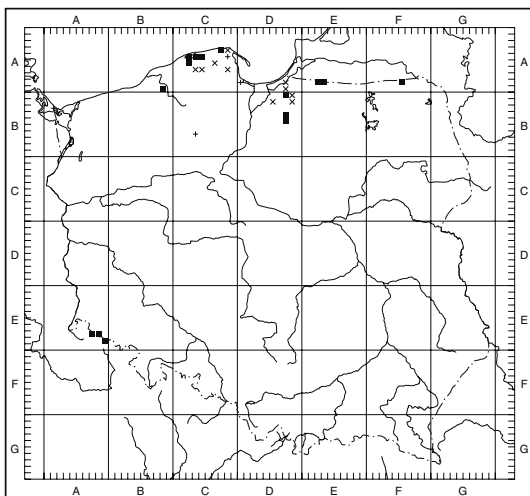


Fig. 4. Distribution of *Rubus chamaemorus* L. in Poland.

GENERAL DISTRIBUTION. Circumboreal, subarctic species: NW Europe, Siberia, Japan, North America.

SELECTED HERBARIUM SPECIMENS. AE8958 – Rówńna pod Śnieżką, $15^{\circ}43' - 50^{\circ}44\frac{1}{4}'$, 18 Aug 1983, *Boratyński 743* (KOR 31153); AE8959 – Śnieżka Mt., $15^{\circ}44' - 50^{\circ}44\frac{1}{2}'$, 10 Jul 1928, *Kozłowska s.n.* (KRAM 143328); BA9844 – Janiewice, $16^{\circ}46' - 54^{\circ}16\frac{1}{4}'$, 17 Aug 1950, *Urbański s.n.* (POZ); CA3769 – Bielawskie Błoto S of Karwia, $18^{\circ}13\frac{1}{4}' - 54^{\circ}48\frac{1}{4}'$, 26 Jul 1950, *Mondelska s.n.* (KOR 10578); CA3852 – between Karwia & Mioszozyno, $18^{\circ}16' - 54^{\circ}49'$, 13 Aug 1903, *Lange s.n.* (TRN); CA3870 – Bielawskie Błoto, $18^{\circ}14' - 54^{\circ}48'$, 1903, *Lange s.n.* (TRN); CA3880 – near Sławoszyno, $18^{\circ}13\frac{1}{2}' - 54^{\circ}47\frac{1}{2}'$, 2 Sep 1906, *Preuss s.n.* (TRN); CA4281 – NW of Kluki, $17^{\circ}19\frac{1}{3}' - 54^{\circ}41\frac{1}{4}'$, 6 Jul 1970, *Żukowski s.n.* (POZ); CA4291 – Kluki, $17^{\circ}19\frac{1}{3}' - 54^{\circ}41'$, 5 Sep 1997, *Zieliński 139/97* (KOR); CA4291 – SW of Kluki, $17^{\circ}19' - 54^{\circ}40\frac{3}{4}'$, 17 May 1968 & 10 Jul 1969, *Piotrowska s.n.* (UGDA); CA4293 – E of Kluki, $17^{\circ}21\frac{1}{4}' - 54^{\circ}41'$, 5 Aug 1968, *Piotrowska s.n.* (UGDA); CA4407 – Łeba, $17^{\circ}43' - 54^{\circ}46'$, 1958, *Wilkoń-Michalska s.n.* (TRN); CA4824 – Werblinia, $18^{\circ}18' - 54^{\circ}45'$, sine die, *Bogeng s.n.* (TRN); CA5200 – SW of Kluki, $17^{\circ}18' - 54^{\circ}40\frac{1}{2}'$, 12 Jul 1969, *Piotrowska s.n.* (KOR 23600 & UGDA); CA5201 – S of Kluki, $17^{\circ}19\frac{1}{2}' - 54^{\circ}40\frac{1}{4}'$, 12 Jul 1969, *Piotrowska s.n.* (KOR 23599 & UGDA); CA5203 – SE of Kluki, $17^{\circ}21' - 54^{\circ}40\frac{1}{2}'$, 19 Jun & 22 Aug 1968, *Piotrowska s.n.* (UGDA); CA5204 – E of Kluki, $17^{\circ}22' - 54^{\circ}40\frac{1}{2}'$, 5 Aug 1968, *Piotrowska s.n.* (UGDA); CA5215 – between Izbica & Kluki, $17^{\circ}22\frac{1}{2}' - 54^{\circ}40'$, 14 Aug 1967, *Piotrowska s.n.* (UGDA); CA6328 – between Gorzyno & Redkowice, $17^{\circ}35\frac{1}{2}' - 54^{\circ}34'$, 12 Sep 1964, *Lisowski, Szafranski & Tobolski s.n.* (KOR 10579); DB1550 – Mechnica, $19^{\circ}18\frac{1}{2}' - 54^{\circ}06\frac{1}{2}'$, Jul 1864, *Klinggraeff s.n.* (TRN); DB3766 – 'Zielony Mechacz' reserve SW of Mąldyty, $19^{\circ}42' - 53^{\circ}54\frac{1}{2}'$, 29 Jun 1972, *Zieliński s.n.* (WA 067240); DB3776 – near Mąldyty, $19^{\circ}42' - 53^{\circ}54\frac{1}{2}'$, 26 Jul 1984, *Gugnacka s.n.* (TRN); EA8375 – 2–3 km SW of Warszakajty, $20^{\circ}37' - 54^{\circ}20\frac{1}{2}'$, 4 Aug 1977, *Boratyńska & Boratyński s.n.* (KOR 8840).

Subgenus *Cylactis* (Raf.) Focke

Syn. Rub. Germ.: 95. 1877.

Basionym: *Cylactis* Raf. Amer. Jour. Sci. 1: 377. 1819.

TYPE: *Cylactis montana* Raf. (= *R. pubescens* Raf.).

Stems annual. Leaves 3-foliolate (in our area). Flowers hermaphrodite. Drupelets red or yellow. Receptacle flat or convex.

Series *Saxatiles* Focke

Spec. Rub. 1: 23. 1910.

TYPE: *Rubus saxatilis* L.

Flowering stems erect. Sterile stems prostrate, rooting. Suckers absent. Drupelets red.

2. *Rubus saxatilis* L. (Figs 5 & 6)

Sp. Pl. 1: 494. 1753.

TYPE: Habitat in Europae collibus lapidosis [653.21, LINN – LECTOTYPE, designated by A. O. Chater, C. Jarvis & A. Newton (Edees & Newton 1988)].

Perennial herbaceous low-growing plant without subterranean rhizomes. Barren stems creeping



Fig. 5. *Rubus saxatilis* L. (Kaczmarek s.n., KOR 3756). Scale bar = 5 cm.

up to 2(–3) m long, merely up to 2 mm in diameter, with brown scales at the base, usually unbranched, rooting at nodes, sparsely hairy, unarmed or with thin, needle-like, soft pricklets 0.5–1.5 mm long. Leaves 3-foliolate, exceptionally 4–5-foliolate at the base, slightly shining, glabrous or with few scattered hairs above, dull green beneath, loosely hairy, especially on the veins. Terminal leaflets with short petiolules, rhombic, ovate or obovate, cuneate at the base, acute or obtuse at the apex, grossly serrate with straight teeth. Lateral leaflets sessile or with petiolules up to 3(–5) mm long. Petiole usually shorter than lateral leaflets, channelled, hairy, unarmed or with minute needle-like pricklets 0.2–0.5(–0.7) mm long. Stipules usually oblong-lanceolate. Flowering stems erect, 10–25(–35) cm tall, with brown scales at the base, patently hairy, without or with short stalked glands and usually with short, minute, soft pricklets up to 2 mm long. Leaves 3-foliolate, clothed like those of the barren stems. Stipules broader than those on the barren stems, elliptical or ovate. Flowers 2–8 in compact corymbs. Pedicels with simple and stellate hairs, without or with short pricklets 0.3–0.8 mm long. Sepals green, hairy, lanceolate or elliptical, patent or reflexed after anthesis. Petals white, narrowly obovate or spatulate, 5–6 mm long, 1.5–2.5 mm wide, erect. Stamens erect, exceeding styles. Receptacle hairy. Styles glabrous or sparsely hairy on the back. Drupelets (1–)2–6, red when ripe, glabrous, shining, easily separating from the receptacle. Stone large, up to 4 mm long, scarcely reticulate-foveolate. – $2n = 28$ (Czapik 1978, 1983, Boratyńska 1997). – Flowering V–VI(–VII).

HABITAT. Open mixed forests, clearings, forest edges.

DISTRIBUTION IN POLAND. The species occurs throughout the country, but it is rather rare in the south-west and south. The highest elevated stand has been recorded from the Tatra Mts at 1900 m, in the massif of Siwy Wierch (Pawłowski 1956).

GENERAL DISTRIBUTION. Europe and Asia, from the Pyrenees in the west, to Japan in the east, with isolated islands of stands in Altai and the

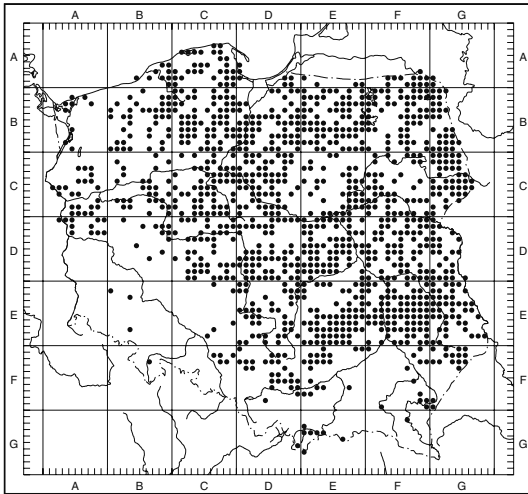


Fig. 6. Distribution of *Rubus saxatilis* L. in Poland.

Himalayas; northernmost localities along S coasts of Greenland.

SELECTED HERBARIUM SPECIMENS. AB1491 – Świątousć, 14°36'–53°59', 11 Jul 1966, *Piotrowska s.n.* (UGDA); AD0217 – Słubice, 14°33½'–52°21', 26 Jun 1977, *Łukaszewicz s.n.* (POZ); BC4119 – near Sarbin Lake, 15°52¼'–52°56', 27 Jul 1969, *Latowski s.n.* (POZ); BD1890 – Ludwikowo, 16°48½'–52°15½', 3 Jun 1933, *Krawiec s.n.* (POZ); BD3920 – Jaskowo, 16°58'–52°08½', 20 Jul 1980, *Czupała s.n.* (POZ); BE1064 – Grodzanowice, 15°46'–51°21½', Jun 1891, *Alte s.n.* (GLM 9570); BE7305 – Chwaliszów, 16°14½'–50°53½', 7 Sep 1987, *Boratyński & Zieliński Z. 1554* (KOR 28044); BF2688 – near Oldrzychowice Kłodzkie, 16°44'–50°22½', 1 Aug 1963, *Giedrojc 581* (TRN); CA4479 – Strzeszewo, 17°45½'–54°42½', 13 Aug 1963, *Nowiński s.n.* (POZNB); CD7423 – near Taczanów, 17°45'–51°47½', 1998, *Czarna s.n.* (POZ); CE8521 – Kup, 17°53'–50°48½', 1 Jun 1865, *Petri s.n.* (LW & WA); DB5359 – between Prabuty & Licze, 19°09'–53°44½', 19 Jun 1974, *Boratyński & Zieliński s.n.* (KOR 6197); DD7743 – near Wiączyń Dolny, 19°38'–51°46½', 29 Jul 1960, *Olaczek s.n.* (LOD); DF2455 – Podwarpie, 19°13'–50°25½', 6 Jul 1993, *Nowak s.n.* (KTU); DF6826 – near Balice, 19°47'–50°05½', 8 Jun 1875, *Śtedziński s.n.* (KRA 045350); DG5939 – Dolina Białego, the Tatra Mts, 19°57½'–49°16½', 14 Aug 1881, *Kotula s.n.* (KRAM 143141); DG5947 – Trzy Kominy Mountain in Strążyska Valley, the Tatras, 19°56'–49°16', 10 Aug 1883, *Kotula s.n.* (KRAM

143142); DG5948 – Sarnia Skala near Zakopane, 19°56½'–49°16', 3 Jul 1881, *Łapczyński s.n.* (WA 059456); EC9782 – Beniaminów, 21°06'–52°26½', 8 Jul 1954, *Kurek s.n.* (KRA 045393); EF2040 – Tunel, 19°59½'–50°26', 30 May 1953, *Błaszczak s.n.* (KRA 88221); EF3102 – Kalina Wielka, 20°09½'–50°22½', 21 Jul 1948, *Wojtas s.n.* (LOD); EG3162 – Kramnica Mt., 680 m, 20°08¼'–49°25½', 6 Jun 1961, *Grodzińska s.n.* (KRAM 216532, 216533); EG4636 – near Muszyna, 20°52¾'–49°21', 17 Jun 1963, *Guzik & Guzikowa s.n.* (KRA 045391 & KRAM 214178); EG6018 – near Morskie Oko Lake, 1390 m, 20°04½'–49°12', 26 Aug 1926, *Pawłowski s.n.* (KRAM 143163); FD5084 – near Garwolin, 21°32½'–51°54', 10 Jul 1898, *Trzebiński s.n.* (KRAM 143147); FF7883 – S of Pruchnik, 22°31½'–49°53½', 4 Jul 1989, *Dropała s.n.* (KRAM); FG1642 – Sanok, 22°13'–49°35', 20 Jul 1957, *Wąsik s.n.* (LOD); GC1192 – Dojlidy, 23°13'–53°06', 29 Jul 1933, *Ludera s.n.* (KRAM 222138); GD1182 – Witoldów, 23°08'–52°12¾', 8 Jun 1964, *Fijałkowski s.n.* (LBL); GF0436 – Haczyska, 23°28'–50°32', 14 Jul 1987, *Szozda s.n.* (LBL).

Series *Xanthocarp* Focke

Spec. Rub. 1: 24. 1910.

TYPE: *Rubus xanthocarpus* Bureau & Franch.

Flowering stems erect. Plants with subterranean rhizomes, without creeping sterile stems. Drupelets yellow when ripe.

3. *Rubus xanthocarpus* Bureau & Franch.

(Figs 7 & 8)

Journ. Bot. (Morot) 5: 46. 1891.

TYPE – Described on the material collected in 1885 by Potanin in Kansu Province in China.

Herbaceous perennial plant with fragile subterranean rhizomes, without stolons. Stems erect or ascending up to 1 m tall, angled, with furrowed sides, green, sparsely hairy or glabrous, without or with sessile glands. Prickles few, usually on angles, slender 1.5–2.5(–3.5) mm long, slightly curved. Leaves 3-foliolate, glabrous and shining above, brighter beneath and hairy on the main veins. Terminal leaflets oblong-lanceolate to ovate-lanceolate, truncate, rounded or rarely shallowly cordate at the base, gradually acuminate at the apex, densely serrate, sometimes shallowly



Fig. 7. *Rubus xanthocarpus* Bureau & Franch. (Bróz, Maciejczak & Zieliński s.n., KOR 29369). Scale bar = 5 cm.

lobed at the base. Petiolules short. Lateral leaflets 1.5–2 × shorter than terminal leaflet. Stipules narrowly lanceolate. Flowers in few-flowered racemes or corymbs in leaf axils. Sepals with a long cusp, densely acicled on the back, patent or loosely reflexed after anthesis. Petals obovate, abruptly narrowed at the base, 10–15 mm long. Stamens somewhat exceeding styles. Anthers glabrous. Receptacle distinctly increased after anthesis, orange or yellow. Collective fruit subglobose. Drupelets glabrous, orange or yellow when ripe. Stone 2.5–3 mm long, foveolate-reticulate. – $2n = 14$ (Boratyńska 1997). – Flowering VI.

HABITAT. Ruderal places, fallow orchards.

DISTRIBUTION IN POLAND. Formerly planted for fruit; naturalized in the village of Miedzianka near Kielce (Bróz & Zieliński 1993).

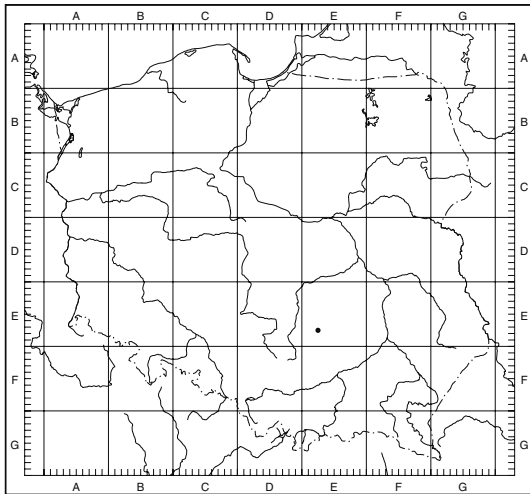


Fig. 8. Distribution of *Rubus xanthocarpus* Bureau & Franch. L. in Poland.

GENERAL DISTRIBUTION. Endemic to China, naturalized in Europe (Holub & Palek 1981).

SPECIMENS SEEN. EE7276 – Miedzianka, by the road to Zajęczkowo, 20°22'–50°50¾', 1991, Bróz *s.n.* (KOR & KTC); EE7276 – ibidem, 20°22'–50°50¾', 30 Jul 1992, Bróz, Maciejczak & Zieliński *s.n.* (KOR 29369).

Subgenus *Anoplobatus* (Focke) Focke

Spec. Rub. 2: 123. 1911.

TYPE: *Rubus odoratus* L.

Shrubs. Stems unarmed. Leaves simple, palmately lobed. Flowers hermaphrodite. Receptacle flat. Fruit red or orange.

4. *Rubus odoratus* L. (Figs 9–10)

Sp. Pl. 1: 494. 1753.

TYPE: 'Habitat in Canada' [BM – SYNTYPE, BM (Hort. Cliff. 192. *Rubus* 4)].

Stems erect up to 2 m tall, unarmed, hairy, densely covered with stalked glands at least when young. Leaves large, up to 30 cm long, 3–5-lobed, cordate at the base, green on both sides, hairy beneath and sometimes also glandular; lobes triangular, acute to acuminate, sharply biserrate. Flowers (3–)4–5 cm in diameter, in corymbs, fragrant, purple. Inflorescence axis, pedicels and sepals densely covered with red long-stalked glands. Sepals abruptly narrowed into a long cusp. Carpels densely tomentose. Fruit red, hemispheric, edible. – $2n = 14$ (material from the Czech Republic; Krahulcová & Holub 1998b). – Flowering V–VI.

HABITAT. Wayside thickets, fallow gardens.

DISTRIBUTION IN POLAND. Cultivated as an ornamental plant, naturalized in places. Sometimes as a remnant of former cultivation.

GENERAL DISTRIBUTION. The species native to E regions of North America.

SPECIMENS SEEN. AB8305 – Szczecin, 14°33½'–53°26½', 9 Sep 1963, Ćwikliński *s.n.* (LOD); BE4976 – Wrocław-Sepolno, 17°05¼'–51°06½', 29 Jun 1897, Baenitz *s.n.* (BRNM); BE7359 – Książ, 16°17¾'–50°50½', 20 Jul 1877, Wacker *s.n.* (TRN); DC1652 – N of Gorczenica, 19°29'–53°12½', Jul 1887, Grütter *s.n.* (TRN); DD7567 – Łódź-Zdrowie, 19°24¼'–51°45½', 11 Jul 1947, Mowszowicz *s.n.* (LOD); DD7568 – Łódź, 19°25'–51°45½', Jul 1989, Witostawski *s.n.* (LOD); DD7602 – Łódź-Marysin, 19°28½'–51°48¾', 25 Jul 1947, Mowszowicz *s.n.* (LOD); DE3560 – Kleszczów, 19°18'–51°13½', 1961, Kawka & Fagasiewicz *s.n.* (LOD); DG0455 – Żywiec, 19°12½'–49°42½', Jul 1895,



Fig. 9. *Rubus odoratus* L. (Dolatowska s.n., KOR 42611). Scale bar = 5 cm.

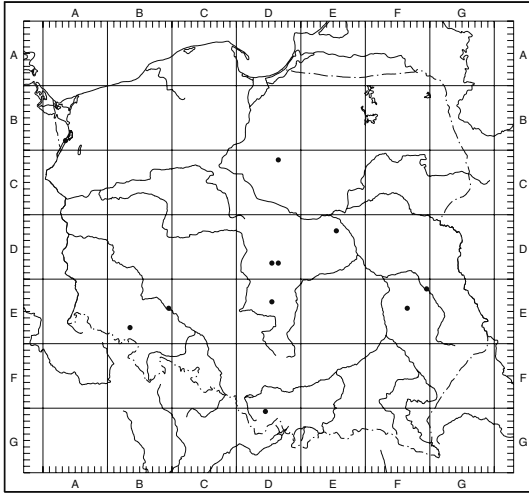


Fig. 10. Distribution of *Rubus odoratus* L. in Poland.

Wotoszczuk s.n. (KRAM 144107); ED2593 – Pruszków, $20^{\circ}48\frac{1}{2}' - 52^{\circ}10'$, 9 Sep 1969, *Nowak s.n.* (WA); FE1984 – Kijany, $22^{\circ}47\frac{1}{2}' - 51^{\circ}19\frac{1}{2}'$, 10 Jun 1946, *Rewieński s.n.* (LBL); FE4636 – Niedrzwica, $22^{\circ}23' - 51^{\circ}06\frac{2}{3}'$, 5 Jul 1938, *Bazyłuk s.n.* (KOR 10870).

Subgenus *Idaeobatus* (Focke) Focke

Syn. Rub. Germ.: 97. 1877.

Basionym: *Rubus* sect. *Idaeobatus* Focke, Abh. Naturwiss. Ver. Bremen 4: 143. 1874.

TYPE: *Rubus idaeus* L.

Stems biennial, woody, usually erect. Leaves imparipinnate, 3–7-foliolate. Receptacle conical. Fruit easily separating from the receptacle when ripe.

5. *Rubus idaeus* L. (Figs 11–12)

Sp. Pl. 1: 492. 1753.

TYPE: Habitat in Europae lapidosis [653.1, LINN – LECTOTYPE, designated by A. O. Chater, C. Jarvis & A. Newton (Edees & Newton 1988)].

Plant with subterranean rhizomes, forming colonies. Stems erect or rarely high-arching, terete, often pruinose, glabrous to densely covered with short simple and tufted hairs, eglandular. Prickles few to numerous, short and needle-like, occurring

all round the stems, patent, 1–2 mm long, purple throughout or with yellow tips. Leaves imparipinnate, usually 5-foliolate, rarely 3-foliolate or, by the splitting of the terminal leaflets, 7-foliolate, glabrous above, grey- to white-felted beneath, with curled hairs, rarely glabrous. Terminal leaflets very variable in shape and size, ovate, obovate or lanceolate (in 7-foliolate leaves), often with 1–2 lobes, rounded or subcordate at the base, with an acuminate apex, evenly and shallowly or deeply and irregularly serrate, often incised. Lateral leaflets sessile or subsessile. Petioles clothed like the stem, unarmed or with minute, straight pricklets. Stipules filiform. Inflorescence consisting of short axillary racemes or clusters with 3-foliolate leaves at the base. Flowers nodding. Pedicels pubescent with numerous to dense patent short simple or tufted hairs and usually with few needle-shaped pricklets *ca* 1 mm long. Petals white, elliptical or obovate, up to 6 mm long, shorter than sepals, erect, glabrous. Stamens erect, as long or shorter than styles. Filaments white. Anthers glabrous. Carpels densely tomentose. Fruit with numerous drupelets, hairy, red and easily separating from the conical receptacle when ripe. – $2n = 28$ (Czapik 1983). – Flowering V–VI(–VII).

HABITAT. Forests, forest margins, clearings, felling sites, wayside thickets, railway embankments, waste lands, most often on rich, moderately wet soils.

DISTRIBUTION IN POLAND. Widespread, locally very common, both in the lowland and in the mountains. In the Tatra Mts up to *ca* 1800 m (Pałowski 1956).

GENERAL DISTRIBUTION. Circumboreal species: Europe, Asia and North America.

NOTES. The species is represented by 3 subspecies, treated often as independent taxa: subsp. *idaeus* (Europe, W Asia), subsp. *nipponicus* Focke (N Japan) and subsp. *melanolasius* Focke (= *R. strigosus* Michx., North America). *Rubus idaeus* subsp. *idaeus* is an extremely variable taxon in Europe, but without distinct geographical variants. From among numerous morphotypes observed in Poland only forma *denudatus* (Schimp. & Spenn.)



Fig. 11. *Rubus idaeus* L. (coll. ign. s.n., KOR 136). Scale bar = 5 cm.

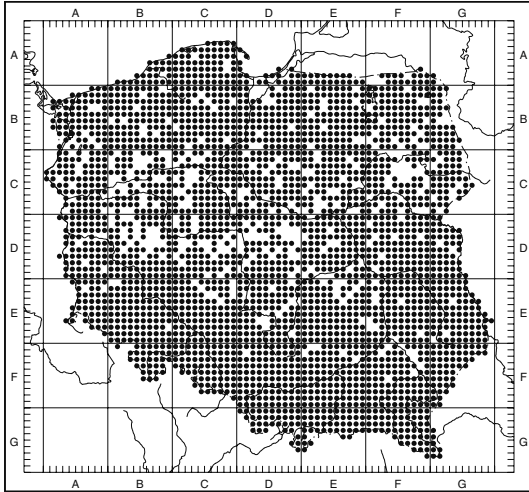


Fig. 12. Distribution of *Rubus idaeus* L. in Poland.

Focke (in Ascherson & Graebner, Syn. Mitteleur. Fl. 6.1: 446. 1902), with leaves glabrous beneath, is worthy of notice. It is very rare plant in our country, but probably undercollected.

Subgenus *Rubus*

Rubus sect. *Eubatus* Focke, Abh. Naturwiss. Ver. Bremen 4: 148. 1874.

Stems biennial, woody, at least in the lower part. Leaves 3–5-foliolate, rarely by the splitting of the terminal leaflets 6–7-foliolate. Flowers numerous, hermaphrodite. Receptacle conical. Drupelets (in our area) black or red-black, not separating from the receptacle when ripe but coming away with it.

Section *Rubus*

Rubus sect. *Eufruticosi* H. E. Weber, Gatt. *Rubus* nordwestl. Eur.: 49. 1973.

Leaves 3–5-foliolate. Basal leaflets of 5-foliolate leaves usually on distinct petiolules. Petioles usually channelled at the base only. Stipules filiform to narrowly lanceolate. Lateral leaflets of inflorescence 3-foliolate leaves usually with distinct petiolules. Petals not wrinkled.

Subsection *Rubus*

Sect. *Suberecti* Lindl., Syn. Brit. Fl., ed. 2: 92. 1835, *pro parte*.

Plants suckering. Stems erect or high-arching, usually not rooting at apex. Prickles uniform, usually on angles. Stalked glands absent at least on the stem. Leaves deciduous or withering in autumn. Sepals often green, glabrous or sparsely hairy on the back, white-bordered.

Series *Nessenses* H. E. Weber

Osnabr. Naturwiss. Mitt. 26: 113. 2000.

Type: *Rubus nessensis* Hall

Stems erect, not climbing. Prickles usually weak and short. Leaves often 6–7-foliolate. Inflorescences (sub)racemose. Stamens erect after anthesis, not connivent. Fruit brownish-red.

6. *Rubus nessensis* Hall (Figs 13–15)

Trans. Roy. Soc. Edinb. 3: 20. 1794.

Rubus suberectus G. Anderson ex Sm., Engl. Bot. 24: 2572 (1814), *nom. superfl.*

TYPE: *Rubus suberectus*, sine die et loco, Anderson, Herb. J. E. Smith 932–41 (LINN – NEOTYPE; Beek 1974).

Stems erect, with nodding tip, usually not branched, terete to bluntly angled, usually with sessile glands, green or brown, glabrous, rarely almost so, shining. Prickles 1–10(–15) per 5 cm, usually on angles, subequal, small, subulate or narrowly conical, 1–3(–5) mm long, straight, patent or slightly declining, green, brown or violet-brown. Leaves 5-foliolate, digitate, rarely 6(–7)-foliolate or all 3-foliolate, contiguous or imbricate, usually dark green, glabrous or with few scattered hairs above, sparsely pubescent on the veins beneath, with simple hairs. Terminal leaflets with mid-long or long petiolules (33–45%), broadly ovate, cordate at the base, with a gradually acuminate apex 10–12 mm long, densely serrate; principal teeth usually prominent, straight or slightly recurved. Basal leaflets with petiolules (1)–2–5 mm long. Petioles usually longer than

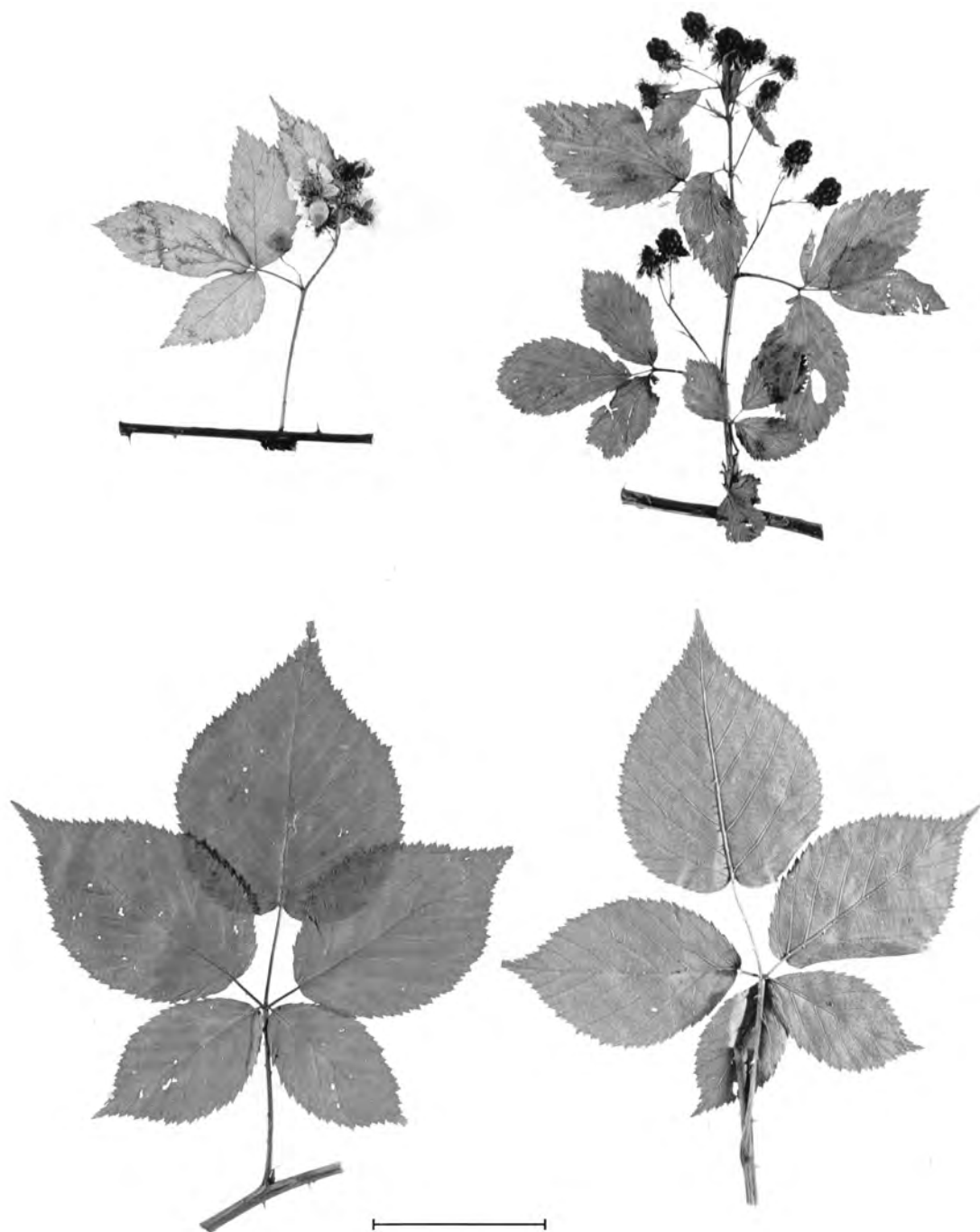


Fig. 13. *Rubus nessensis* Hall (Oklejewicz s.n., KOR 25588). Scale bar = 5 cm.

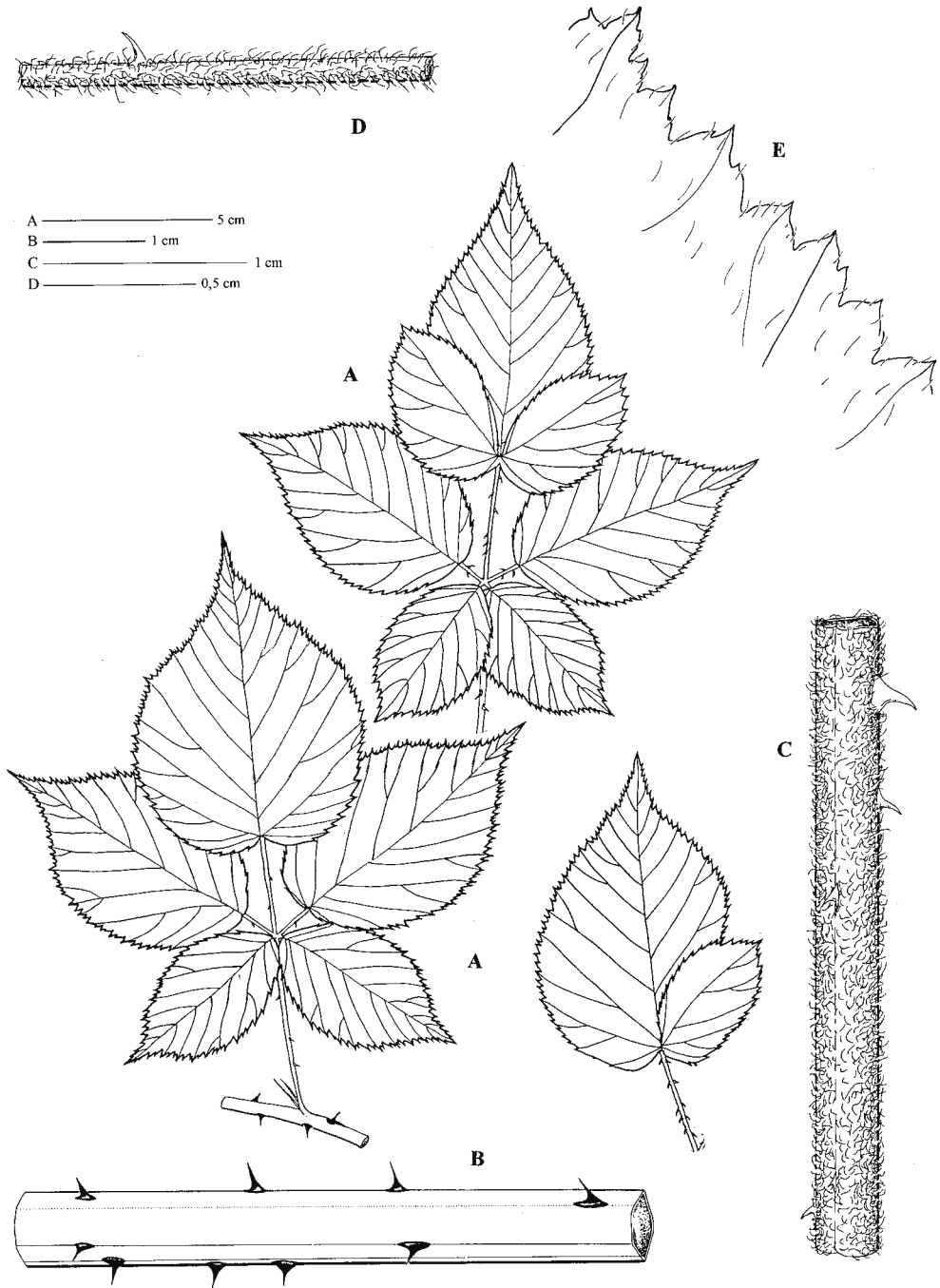


Fig. 14. *Rubus nessensis* Hall. A – leaves from vegetative stems and terminal leaflet; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratynski & Zieliński s.n., KOR 5817).

basal leaflets, channelled, glabrous or sparsely hairy, with sessile or subsessile glands and several slender curved prickles. Stipules filiform. Inflorescence few-flowered, normally racemose. Lower leaves 3-foliolate with sessile lateral leaflets, clothed like those of the turion but more grossly serrate. Inflorescence axis with sparse, patent hairs or glabrous, also with several curved prickles 1–2 mm long and numerous subsessile glands. Pedicels 1.5–2.5(–3) cm long, loosely hairy, with subsessile glands, unarmed or with several almost straight pricklets. Sepals green, white-bordered, (sub)glabrous on the back, unarmed, patent or reflexed after anthesis. Petals white, elliptical or obovate, 10–15 mm long. Stamens usually distinctly longer than styles, not connivent after anthesis. Anthers glabrous. Carpels and receptacle glabrous or hairy. Drupelets dark red or blackish-red when ripe. – $2n = 28$ (Boratyńska 1995b). – Flowering V–VI(–VII).

MAIN DIAGNOSTIC CHARACTERS. Stems usually erect, glabrous; prickles subulate or conical, small, up to 4(–5) mm long, often violet-brown; leaves often 6–7-foliolate, sparsely hairy, without stellate hairs; inflorescence racemose; sepals green on the back; stamens longer than styles; fruit dark, brownish-red.

HABITAT. Open deciduous or mixed forests, forest margins, thickets, usually in semishady, rich places.

DISTRIBUTION IN POLAND. Throughout the country, but locally only rarely noted.

GENERAL DISTRIBUTION. Widespread species. Central, NW and E Europe, from Great Britain and France in the west to Kazan and Kuybyshev in the east, from N Italy, Slovenia and Romania in the south to S Sweden and Norway in the north.

Rather variable bramble, with two subspecies sometimes difficult to separate:

– subsp. *nessensis*

Stems usually more than 1.5 m tall, rather sparsely prickly (1–5 prickles per 5 cm), with scattered, sessile glands; leaves shining, glabrous or sparsely hairy above. Stamens distinctly longer than styles. Carpels glabrous or with few hairs. Receptacle glabrous. – Throughout the range of the species.

SELECTED HERBARIUM SPECIMENS: AB3540 – near Dobropole, $14^{\circ}45' - 53^{\circ}51\frac{1}{2}'$, 18 Jul 1986, *Awzan 20* (KOR 30805); AB5519 – between Łoźnica & Świętoszewo, $14^{\circ}54\frac{1}{2}' - 53^{\circ}42\frac{3}{4}'$, 15 Jul 1977, *Zieliński 959* (KOR); AD6904 – ‘Zatonie’ reserve near Zatonie, $15^{\circ}35' - 51^{\circ}51\frac{1}{3}'$, 18 Jun 1968, *Dzwonko s.n.* (KRA 067003); AD9839 – Szprotawa, $15^{\circ}32' - 51^{\circ}33\frac{1}{2}'$, sine die, *Milczarek s.n.* (TRN); AE2975 – Kruszynek, $15^{\circ}38' - 51^{\circ}15\frac{1}{4}'$, 7 Jun 1967, *Ciaciura s.n.* (SZUB); AE5659 – near Kliny, 325 m, $15^{\circ}17\frac{1}{2}' - 50^{\circ}59\frac{5}{6}'$, 21 Jul 1983, *Boratyński 615* (KOR 30777); BB4200 – Bystrzyno Wielkie Lake NE of Bystrzyna, $15^{\circ}49\frac{1}{3}' - 53^{\circ}50'$, 22 Sep 1993, *Kosiński s.n.* (KOR 35508); BB9373 – 3 km of Mirosławiec towards Kalisz Pomorski, $16^{\circ}03\frac{1}{3}' - 53^{\circ}19\frac{4}{5}'$, 25 Jun 1991, *Tomlik s.n.* (KOR 25411); BC2583 – Żabowo, $16^{\circ}22' - 53^{\circ}03\frac{3}{4}'$, 17 Jul 1997, *Boratyńska s.n.* (KOR 39126); BC6938 – Marlewo, $17^{\circ}03' - 52^{\circ}45\frac{2}{3}'$, 2 Jul 1977, *Stefanek s.n.* (KOR 11041); BD0944 – Poznań, on the bank of Cybina River, $17^{\circ}00\frac{1}{2}' - 52^{\circ}23\frac{2}{3}'$, 11 Aug 1928, *Paczoski s.n.* (KOR); BE2994 – Wysoki Kościół, $17^{\circ}03\frac{1}{3}' - 51^{\circ}16'$, 20 & 24 Jun 1974, *Kozioł s.n.* (KRAM 264840, POZ & WRSL 38755 & 38757); BF1491 – Łężyce, $16^{\circ}20\frac{3}{4}' - 50^{\circ}26\frac{3}{4}'$, 10 Jul 1997, *Małek s.n.* (SGPN); CA5855 – Rekowo, $18^{\circ}19' - 54^{\circ}38\frac{1}{4}'$, 22 Jun 1972, *Markowski s.n.* (UGDA); CC6429 – 1.5 km E of Łysin, $17^{\circ}48\frac{1}{3}' -$

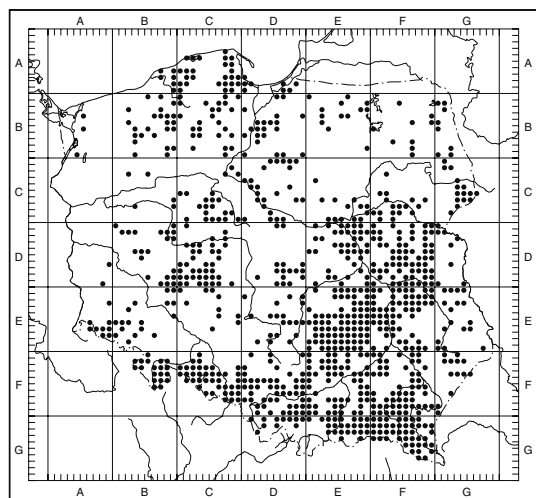


Fig. 15. Distribution of *Rubus nessensis* Hall in Poland.

52°46'3", 8 Jul 1987, *Chmiel s.n.* (POZ); CE3661 – Laski, 18°01'–51°13', 3 Aug 1994, *Danielewicz & Maliński s.n.* (POZNF); DB0526 – Rubno Wielkie, 19°24'–54°13', 2 Jul 1884, *Kalmuss s.n.* (TRN); DB4287 – Bra-
chlewo, 18°58'–53°48½', Jul 1861, *col. ign.* (TRN);
EB3284 – near Spręcowo, 20°26½'–53°53½', Sep 1993,
Tomlik s.n. (KOR 29873); EB4205 – near Spręcowo,
20°27'–53°52', Sep 1993, *Tomlik s.n.* (KOR 29866);
EC6275 – Kępa, 20°25'–52°43½', 26 Aug 1978,
Kotpaczyńska s.n. (WSRP); FB5081 – Onufryjowo,
21°35½'–53°41½', Sep 1993, *Tomlik s.n.* (KOR);
FC5159 – Sielc, 21°48½'–52°49', 9 Jun 1993, *Szymalska s.n.* (WSRP); FC6809 – Brańsk, 22°50½'–52°44½', 20
Jun 1983, *Półkoszek s.n.* (WSRP 031993); GB1135 – near
Giby, 23°21½'–54°02½', sine die, *Mazur s.n.* (WA
071789); GB4090 – Podcisówek, 23°06'–53°44', Sep
1993, *Tomlik s.n.* (KOR); GB9069 – Karczmisko,
23°11½'–53°18', 8 Oct 1926, *Raguski s.n.* (LW
56747); GC5452 – Lipiny, 23°37½'–52°45¼', Jun-Jul
1992, *Łuczaj s.n.* (BSG 22061); GC5690 – near Biało-
wieża, 23°53½'–52°42½', 1 Aug 1953, *Bugata 162*
(KOR); GD6236 – Żeszczynka, 23°18'–51°48', 15 Aug
1962, *Fijałkowski s.n.* (LBL); GD9450 – near Adamki,
23°28½'–51°30½', 6 Jun 1958, *Sokołowski s.n.* (LBL);
GE5588 – Aurelin, 23°40½'–50°56', 11 Jun 1959, *Fijał-
kowski s.n.* (LBL); GE8020 – Radecznica, 22°49¾'–
50°45', 10 Jul 1973, *Kalamon s.n.* (LBL); GF1277 – Su-
siec, 23°11½'–50°25½', 14 Jun 1965, *Fijałkowski s.n.*
(LBL); GF9001 – Przemysł, 22°46'–49°47', Jul 1876,
Jaworski s.n. (LW 55659).

– subsp. *scissoides*: H. E. Weber

Gatt. *Rubus* nordwestl. Eur.: 108. 1973.

TYPE: Wäldchen bei Linnerbruch, Kreis Wittlage in
Niedersachsen, 71.627.1a, 27.6 (flor.) & 11.8.71 (fol.),
H. E. Weber (KIEL – HOLOTYPE, HGB – ISOTYPE;
Weber 1973).

Stems usually up to 1 m, with very numerous
subsessile glands. Prickles subulate, more numer-
ous (usually more than 5 per 5 cm); leaves dull
green, with rather numerous hairs above; stamens
only slightly exceeding styles. Carpels and recep-
tacle hairy.

HABITAT. Usually on less rich soils than subsp.
nessensis, somewhat acid and sandy, sometimes at
margins of peatbogs.

DISTRIBUTION IN POLAND. It seems to be rare
but probably undercollected.

NOTE. Supposedly a hybrid between *R. nessen-
sis* subsp. *nessensis* and *R. scissus*, not seldom dif-
ficult to distinguish from supposed parental taxa.
It needs further studies; its general distribution is
as yet imperfectly known.

SELECTED HERBARIUM SPECIMENS. CB1665 – Nowy
Podleś, 18°01'–54°05½', 20 Aug 1981, *Buliński s.n.*
(GDMA); CB2854 – Koźmin, 18°18'–54°00½', 3 Jun
1981, *Buliński s.n.* (GDMA); CB2871 – Górne Maliki,
18°16'–53°59½', 6 Jun 1981, *Buliński s.n.* (GDMA);
DD9537 – Rydzyny, 19°24'–51°36½', 19 Sep 1976,
Krzemińska-Freda s.n. (LOD); ED3639 – Kabaty-Pyry,
21°02½'–52°07¾', May 1932, *Kobendza s.n.* (WA);
EE4269 – near Piekło, 20°25'–51°07½', 21 Jul 1932,
Kaznowski s.n. (KRAM 143800 & 143801a, b, c);
EE5042 – Piskorzaniec, 20°02'–51°03¼', 7 Jul 1930 &
11 Jul 1932, *Kaznowski s.n.* (KRAM 143802a, b &
143797a, b, c); GB1057 – Pogorzelec, 23°14½'–54°02',
13 Jul 1986, *Filipiak s.n.* (KOR 22939); GC5480 –
Hajnówka, 23°36½'–52°44', Jun & Jul 1992, *Łuczaj s.n.*
(BSG 22103); GC5491 – between Nieznany Bór &
Hajnówka, 23°37'–52°43½', Jun & Jul 1992, *Łuczaj s.n.*
(BSG 21941); GC6308 – Stara Judzianka, 23°34'–
52°43', Jun & Jul 1992, *Łuczaj s.n.* (BSG 22145);
GC6338 – Wierzchowskie, 23°33¾'–52°41½', Jun & Jul
1992, *Łuczaj s.n.* (BSG 22140); GC6349 – Łozice,
23°35'–52°40¾', Jun & Jul 1992, *Łuczaj s.n.* (BSG
22137); GC6377 – near Starzyna, 23°33'–52°39', Jun &
Jul 1992, *Łuczaj s.n.* (BSG 22133); GC6415 – NW of
Czerlonka, 23°40½'–52°42', Jun & Jul 1992, *Łuczaj s.n.*
(BSG 21904); GC6492 – Topiło, 23°37½'–52°38½',
Jun & Jul 1992, *Łuczaj s.n.* (BSG 22153); GC7317 –
Długi Bród, 23°32½'–52°37½', Jun & Jul 1992, *Łuczaj s.n.*
(BSG 21956 & 21964); GC7325 – Wiluki, 23°31'–
52°36½', Jun & Jul 1992, *Łuczaj s.n.* (BSG 21949 &
21953); GC7347 – Górny Gród, 23°32¼'–52°35½', Jun
& Jul 1992, *Łuczaj s.n.* (BSG 21975 & 21977); GC7348 –
Starzyna, 23°33¼'–52°35½', Jun & Jul 1992, *Łuczaj s.n.*
(BSG 21979); GC7349 – Klakowo, 23°34'–
52°35½', Jun & Jul 1992, *Łuczaj s.n.* (BSG 21968).

7. *Rubus scissus* W. C. R. Watson (Figs 16–18)

Jour. Bot. (London) 75: 162. 1937.

Rubus fissus auct. mult., non Lindl. (1835).

TYPE: Magdeburg, an sumpfigen Waldstellen bei Al-
tenhausen, 1870, Maass, Focke, Rubi selecti 33, 'R. fis-
sus' (LE – LECTOTYPE; Weber 1985).

Stems erect, ca 1 m tall, bluntly angled, with
flat or slightly convex sides, green, becoming



Fig. 16. *Rubus scissus* W. C. R. Watson (Zieliński 2928, KOR 24920). Scale bar = 5 cm.

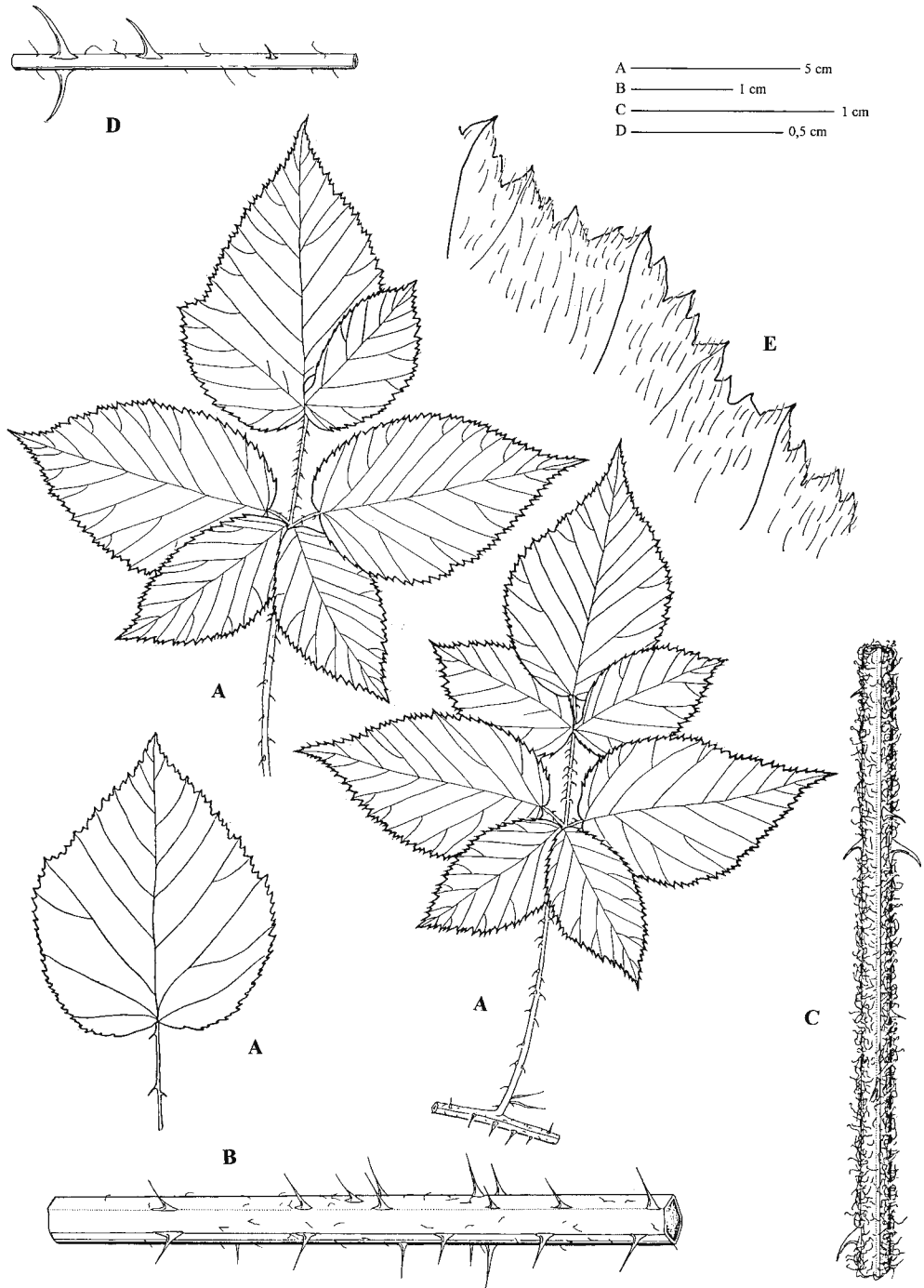


Fig. 17. *Rubus scissus* W. C. R. Watson. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2928, KOR 24920).

violet-brown, glabrous or with very few scattered tufted hairs and very numerous sessile glands. Prickles often very numerous, up to 30 per 5 cm, on angles and between them, usually uniform, subulate, (2-)3-4(-5) mm long, faintly curved or straight, patent or somewhat declining, green-brown, usually with a yellow point. Leaves 5-foliolate or, by the splitting of the terminal leaflet, 6-7-foliolate, often, especially in sunnier situations, wrinkled, dark matt green and hairy above, brighter and softly, rather long-hairy beneath; hairs shining. Leaflets imbricate, terminal ones on short or mid-long petiolules (25-30%), broadly ovate to elliptical, cordate or rounded at the base, with a shortly acuminate apex 10-15 mm long, often 2-3-lobed or entirely divided, \pm evenly serrate; teeth sharp, apiculate; principal teeth only slightly prominent, straight or slightly recurved. Basal leaflets sessile or with petiolules up to 2 mm long. Petioles as long or longer than basal leaflets, channelled, sparsely hairy, with numerous sessile glands and usually with numerous (up to 30 or more) curved prickles 3-4 mm long. Stipules filiform. Inflorescence few-flowered, usually racemose with 5-8 flowers, usually leafy to the apex. Lower leaves 3-foliolate, clothed like those of the turion. Inflorescence axis with sparse

patent short hairs, sessile glands and slightly curved or almost straight, somewhat declining prickles 1-3 mm long. Pedicels 0.5-2 cm long, sparsely to densely hairy, with sessile glands and several prickles 0.5-1(-1.5) mm long. Sepals green and sparsely hairy or glabrous on the back, white-bordered, usually with few short pricklets, patent after anthesis. Petals white, up to 8 mm long, not contiguous. Stamens shorter or as long as styles, not connivent after anthesis. Anthers glabrous. Carpels and receptacle hairy. Collective fruit small; drupelets brownish-red, often imperfectly formed. - $2n = 28$ (Gustaffson 1939). - Flowering V-VI.

MAIN DIAGNOSTIC CHARACTERS. Stems erect up to ca 1m, (sub)glabrous; prickles very numerous, subulate, small, coloured like the stem; leaves 5-7-foliolate, hairy above; inflorescence racemose; sepals green, sparsely hairy; stamens shorter than styles.

HABITAT. Thickets, forest edges, clearings, on sandy soils or drained peatbogs.

DISTRIBUTION IN POLAND. Scattered, somewhat oftener in Pomorze Zachodnie, probably undercollected, often not distinguished from forms of *R. nessensis* (see discussion at that species).

GENERAL DISTRIBUTION. Widespread species. NW, N and Central Europe, from Great Britain through Holland, Belgium, Germany, Poland to W Ukraine and Kaliningrad in the east.

SELECTED HERBARIUM SPECIMENS. BA6751 - Jarosław, $16^{\circ}33\frac{1}{2}' - 54^{\circ}31\frac{1}{2}'$, 23 Jul 1908, *Holzfluss s.n.* (PRC & W); BA8488 - Łazy, $16^{\circ}13' - 54^{\circ}19'$, 18 Jul 1986, *Jelinowski s.n.* (GDMA); BC2574 - between Trzcianka & Żakowo, $16^{\circ}23' - 53^{\circ}04'$, 16 Jun & 8 Sep 1895, *Spribile s.n.* (GLM 6724 & POZ); BD2800 - Ludwikowo, $16^{\circ}49' - 52^{\circ}14\frac{2}{3}'$, 9 Oct 1927, *Urbański s.n.* (LBL); CA5005 - Rowy, $17^{\circ}04\frac{1}{2}' - 54^{\circ}40\frac{1}{4}'$, 10 Aug 1991, *Boratyńska s.n.* (KOR 24435); CA6639 - between Luzino & Strzebielin Morski, $18^{\circ}04\frac{1}{3}' - 54^{\circ}33\frac{3}{4}'$, 3 Aug 1968, *Jelinowski s.n.* (GDMA); CA8658 - Cieszenie, $18^{\circ}03\frac{1}{2}' - 54^{\circ}22\frac{1}{4}'$, 25 Jul 1970, *Markowski s.n.* (UGDA); CA8789 - Kiełpino, $18^{\circ}13\frac{1}{2}' - 54^{\circ}20\frac{1}{4}'$, 9 Jul 1970, *Markowski s.n.* (UGDA); CA8860 - Kosowo, $18^{\circ}14' - 54^{\circ}21\frac{3}{4}'$, 21 Jul 1970, *Markowski s.n.*

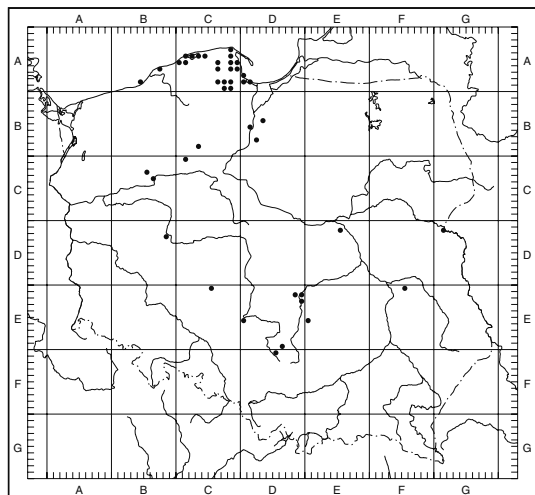


Fig. 18. Distribution of *Rubus scissus* W. C. R. Watson in Poland.

(UGDA); CB8361 – near Sępoleńskie Lake, W of Sępólno Krajeńskie, 17°31'–53°27½', 25 Aug 1988, *Wachholz s.n.* (POZ); CC0144 – N of Łobżenica, 17°15½'–53°17½', 28 Jul 1895, *Spribille s.n.* (POZ); CE0500 – between Antonin & Strugi, 17°51'–51°32½', 29 Jun 1900, *Spribille s.n.* (TRN); DA8141 – Gdańsk, 18°42½'–54°23', 29 Jul 1980, *Buliński s.n.* (UGDA); DB4340 – Mątki, 19°00'–53°50½', 23 Aug 1874, *Klinggraeff s.n.* (TRN); DB5144 – near Mała Karczma, 18°46'–53°45', Jul 1931, *Kulesza s.n.* (POZNB); DB7225 – Kalmuzy, 18°56'–53°35½', 7 Jul 1875, *Klinggraeff s.n.* (TRN); DE1853 – Meszcze, 19°46½'–51°24½', 11 Aug 1928, *Niedziatkowski s.n.* (WA 059448); DE1940 – near Lubiaszów, 19°52'–51°25', 10 Aug 1956, *Urbanek s.n.* (LOD); DE5012 – N of Rudnik, by the road to Wieluń, 18°36½'–51°05½', 17 Jun 1988, *Zieliński 2568* (KOR 28053); DE9645 – between Bystrzanowice & Apolonka, 19°30½'–50°42½', 24 Jul 1991, *Zieliński 2925 & 2928* (KOR 24922 & 24920); DF0596 – Pohulanka, 19°22½'–50°34', 27 Jul 1930, *Panow s.n.* (POZ); ED1522 – near Sieraków, 20°48'–52°19½', 20 Jun 1971, *Nowak s.n.* (WA); EE5042 – Piskorzaniec, 20°01¾'–51°03¼', 11 Jul 1932, *Kaznowski s.n.* (KRAM 143796a, b, 143798, 143799a, b & POZNB); FE0584 – Łąkoć, 22°13½'–51°26', 10 Jun 1973, *Buczowska s.n.* (LBL); GD1182 – Witoldów, 23°08'–52°12½', 8 Jun 1964, *Fijałkowski s.n.* (LBL).

Series *Rubus*

Stems suberect or arching. Prickles usually strong, compressed at the base. Leaves normally 5-foliolate. Inflorescence often paniculate. Fruit black.

8. *Rubus graecensis* W. Maurer (Figs 19–21)

Österr. Bot. Zeitschr. **115**: 224. 1968. – *Rubus graecensis* W. Maurer in Hegi G., Ill. Fl. Mitteleur. **4**, 2A, ed. 2: 315. 1965 (ed. H. Huber), *nomen non rite publicatum* (*sine indicatione typi*).

TYPE: Steiermark, westliche Umgebung von Graz, auf einem Holeschlag bei Tabelbad, 360 m, 16.9.1964, *Maurer* (GZU – HOLOTYPE).

Stems erect or nodding at apex, angled, deeply grooved, glabrous, with numerous sessile glands. Prickles few, 1–2 per 5 cm, 2–3(–4) mm long, curved, sometimes stems unarmed. Leaves digitate, 5-foliolate, with sparse hairs above, densely velvety pubescent with simple hairs beneath; stel-

late hairs absent. Leaflets widely spaced, not contiguous, terminal ones on mid-long petiolules (34–37%), ovate to obovate, cordate at the base, with a gradually acuminate apex 5–10 mm long, evenly serrate; teeth broad. Basal leaflets sessile or on petiolules 1–2(–3) mm long. Petioles longer than basal leaflets, with sparse hairs on the upper surface, without or with 1–2(–3) curved prickles 1–1.5 mm long. Stipules narrowly lanceolate, with long simple hairs and subsessile glands. Inflorescence narrow, usually racemose, leafy only at the base. Lower leaves 3-foliolate, clothed like those of the turion. Inflorescence axis sparsely patent-hairy, with subsessile glands, without or with few prickles 1–2 mm long. Pedicels 0.5–1.5 cm long, sparsely patent-hairy, with subsessile glands, unarmed or with 1–2 slightly curved pricklets up to 1 mm long. Sepals green on the back, grey-bordered, unarmed, reflexed after anthesis. Petals white, elliptical. Stamens as long as styles. Anthers and carpels glabrous. Receptacle hairy. – 2n = 21 (material from the Czech Republic; Kralhulcová & Holub 1997b). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems erect, deeply grooved, unarmed or with sparse small prickles, leaflets widely spaced, densely velvety

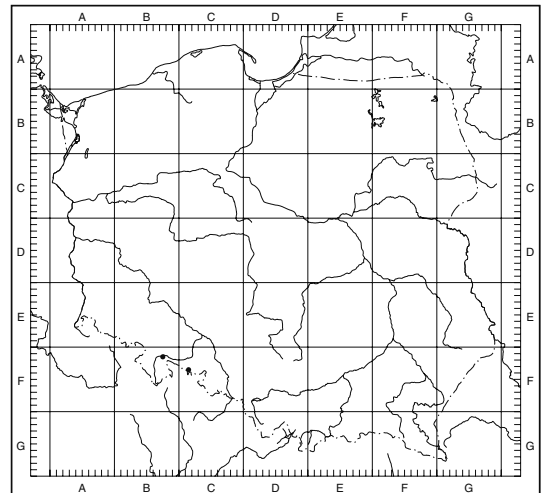


Fig. 19. Distribution of *Rubus graecensis* W. Maurer in Poland.

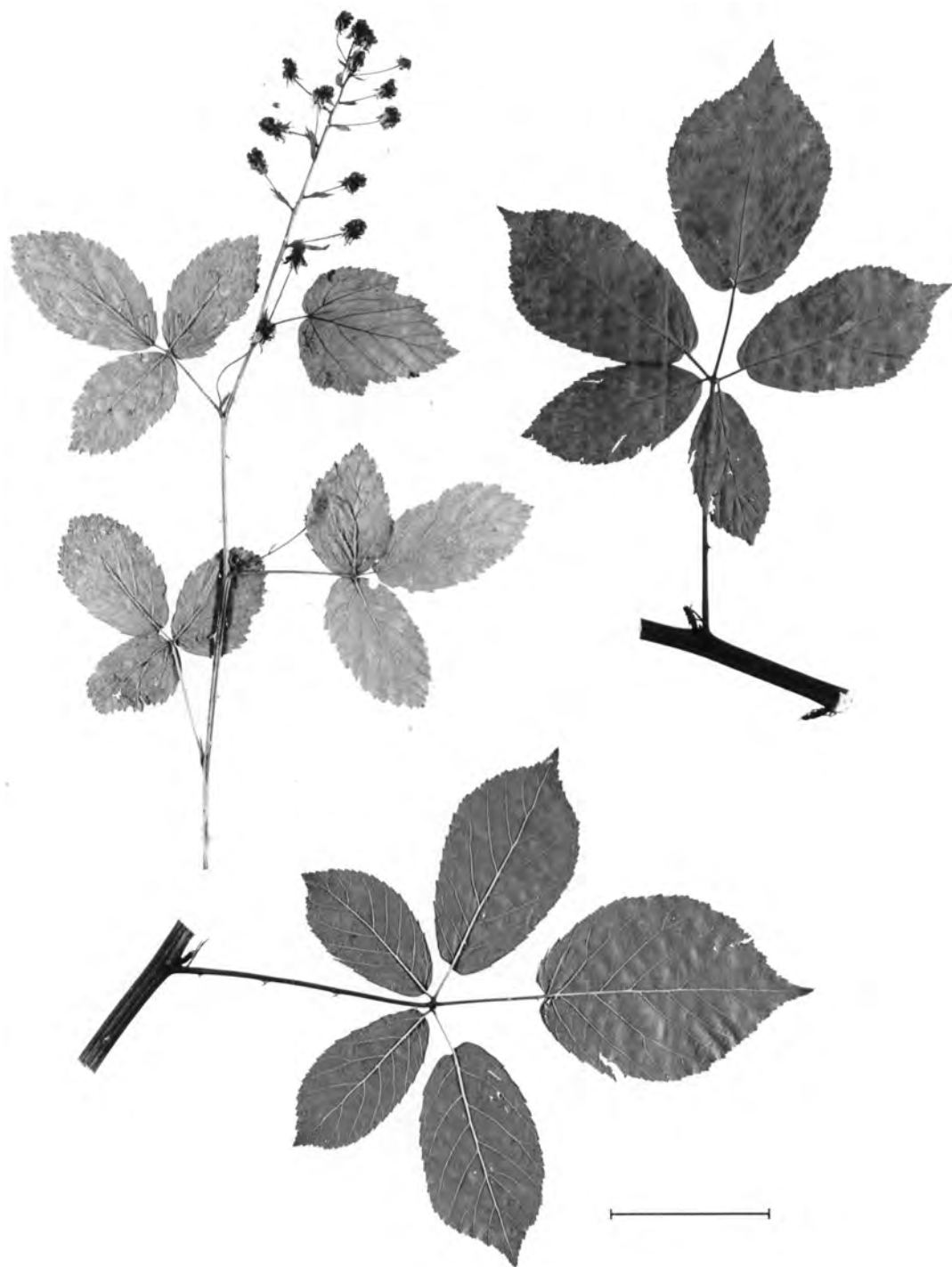


Fig. 20. *Rubus graecensis* W. Maurer (*Trávníček s.n.*, KOR 32888). Scale bar = 5 cm.

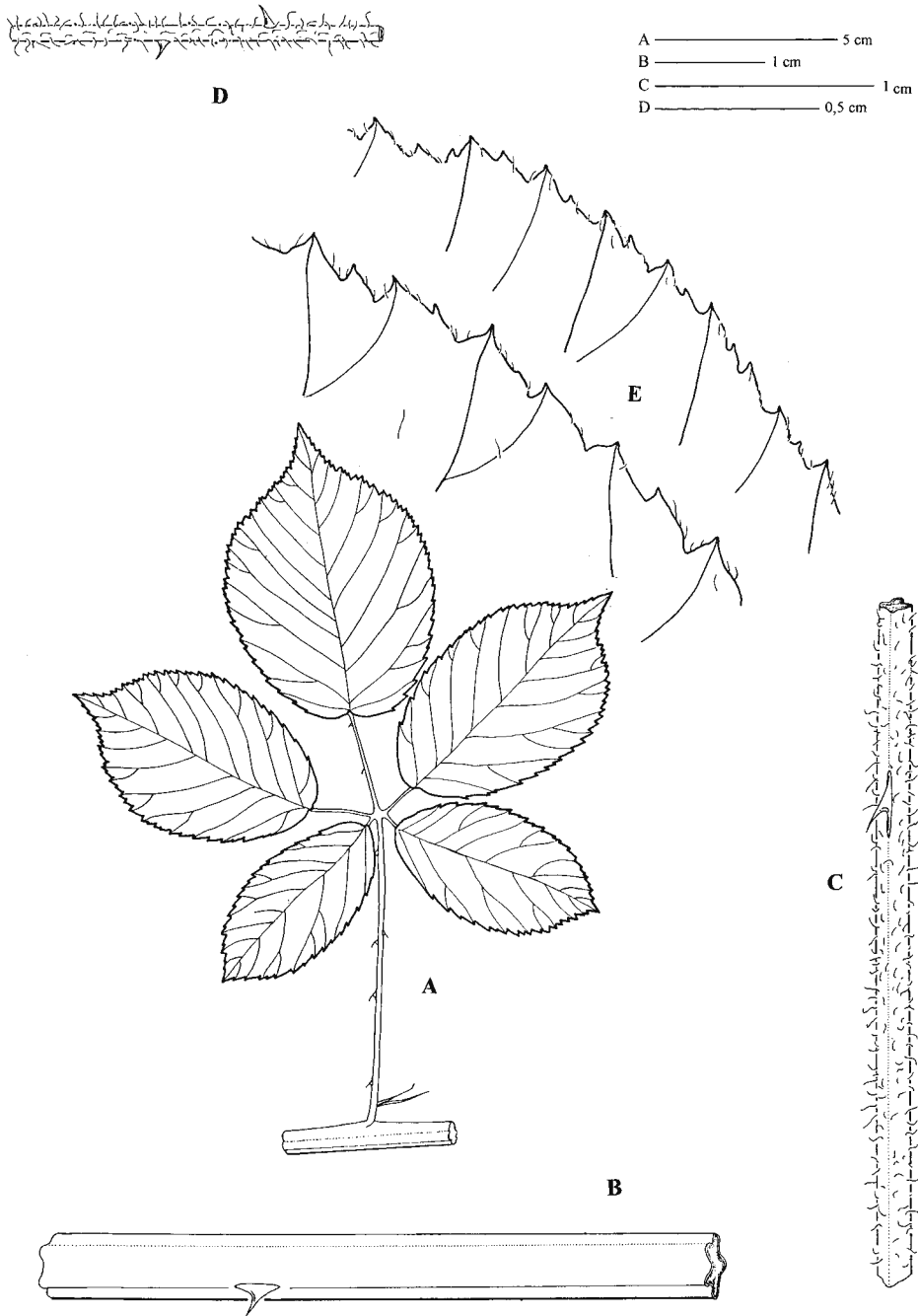


Fig. 21. *Rubus graecensis* W. Maurer. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflets margins. A, B, C, D from *Spribile* s.n. (WRS�), A, E from *Maurer* s.n. (KOR 43247).

pubescent with simple hairs beneath; inflorescence racemose.

HABITAT. Deciduous forest margins, clearings, along forest roads.

DISTRIBUTION IN POLAND. Recorded from 2 localities near Głuchołazy (Kosiński 1999).

GENERAL DISTRIBUTION. Widespread species with the disjunctive range. Chiefly Austria, besides on isolated stands in N Czech Republic and in S Poland.

SPECIMENS SEEN. BF1774 – Olchówka Mountain, between Mąkolno & Laski, 420 m, 16°48³/₅' – 50°28²/₃', 16 Oct 1998, *Kosiński s.n.* (KOR); CF3165 – Głuchołazy, 17°23¹/₃' – 50°18³/₄', 23 Jul 1898, *Spribille s.n.* (WRSL).

9. *Rubus sulcatus* Vest (Figs 22–24)
Steiermärk. Zeitschr. 3: 162. 1884.

TYPE: Steiermark, sine die, *Vest* (GZU – LECTOTYPE; Beek 1974).

Stems erect or high-arching, angled, usually with furrowed sides, glabrous or with sparse hairs, with or without sessile glands. Prickles rather widely spaced, up to 3(–4) per 5 cm, strong, usually curved, 6–10 mm long. Leaves digitate, 5-foliolate, glabrous and usually shining above, glabrous or ± hairy beneath. Leaflets usually not contiguous, terminal ones with long petiolules (usually 35–45%), variable in shape, ovate, obovate or elliptical, truncate to cordate at the base, with a suddenly acuminate apex 15–20 mm long, evenly or usually periodically serrate; the serration 3–5 mm deep; principal teeth straight. Petioles shorter than basal leaflets, sparsely hairy, with sessile glands and several hooked prickles. Stipules filiform to narrowly lanceolate. Inflorescence usually racemose, leafless above, with 3–5-foliolate leaves below. Inflorescence axis angled, grooved, loosely hairy and with sessile glands. Prickles usually few, with broad decurrent base, ± curved, 3–5 mm long. Pedicels up to 3(–4) cm long, loosely hairy, with numerous sessile glands, unarmed or with 1–2 slightly curved prickles 1–1.5(–2) mm long. Sepals usually long-pointed, glabrous or sparsely hairy on the back,

green, white bordered, unarmed, reflexed after anthesis. Petals white, sometimes pale pink in bud, (broadly) elliptical or obovate, (10–)12–16 mm long. Stamens distinctly longer than styles. Anthers glabrous. Carpels glabrous or with few hairs. Receptacle glabrous or sparsely hairy. Drupelets black. – 2n = 28 (Boratyńska 1998). – Flowering V–VI(–VII).

MAIN DIAGNOSTIC CHARACTERS. Stems thick, usually with furrowed sides, glabrous; prickles few, strong, curved; basal leaflets with distinct petiolules; inflorescence usually racemose; sepals green; stamens longer than styles.

HABITAT. Open deciduous forests, forest margins, clearings, thickets.

DISTRIBUTION IN POLAND. Chiefly in S regions, besides on isolated stands in the north in the vicinity of Gdańsk.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe, from S Scandinavia in the north to N Italy in the south, from S England in the west to Kaliningrad and SE Poland in the east.

SELECTED HERBARIUM SPECIMENS. BC4693 – Dębe, 16°32' – 52°52¹/₂', 3 Oct 1896 & 24 Jul 1897, *Spribille s.n.* (KOR); BE4183 – 1 km NE of Biegoszów, 300 m, 15°55' – 51°04¹/₂', 14 Jun 1986, *Boratyńska & Zieliński SU 998* (KOR 22214); BE4966 – Wrocław-Sepolno, 17°05¹/₃' – 51°07', 10 Jul 1896, *Baenitz s.n.* (BRNM 17750/35); BE5494 – Góra Zwycięstwa (350 m) near Graniczna, 16°21²/₃' – 50°59¹/₂', 21 Jul 1869, *Schwarzer s.n.* (LE); BE9945 – Romanów, 17°05¹/₂' – 50°41¹/₂', 30 Aug 1912, *Spribille s.n.* (WRSL); BF2315 – Kościelny Las E of Kudowa Zdrój, 16°16' – 50°25³/₄', 21 Jul 1910, *Barber s.n.* (GLM 47095); CA4832 – Starzyno, 18°16' – 54°44¹/₂', sine die, *Lange s.n.* (TRN); CA8969 – Matęblewo, 18°32' – 54°21¹/₂', 22 Sep 1971, *Rydzewska-Szymczyk s.n.* (UGDA); CD6051 – Józefowo, 17°08' – 51°51', 1 Nov 1897, *Spribille s.n.* (KOR); CE6195 – between Lipki & Ścinawa, 17°22' – 50°55¹/₄', 26 Aug 1994, *Zatorski s.n.* (POZNF); CE6931 – 1 km E of Jas-trzygowice, 18°27' – 50°59', 22 Aug 1911, *Spribille s.n.* (WRSL); CE7395 – near Stare Kolonie, 17°39¹/₃' – 50°49³/₄', 26 Jul 1994, *Zatorski s.n.* (POZNF); CF2666 – near Zdieszowiczki, 18°06¹/₂' – 50°24²/₃', 24 Aug 1996, *Danielewicz s.n.* (POZNF); CF3641 – between Twardawa & Pokrzywnica, 18°02' – 50°20¹/₂', 9 Aug 1907, *Spribille s.n.* (WRSL); CF3922 – between Rudziniec & Taciszów,



Fig. 22. *Rubus sulcatus* Vest (Kaznowski s.n., KOR 11050). Scale bar = 5 cm.

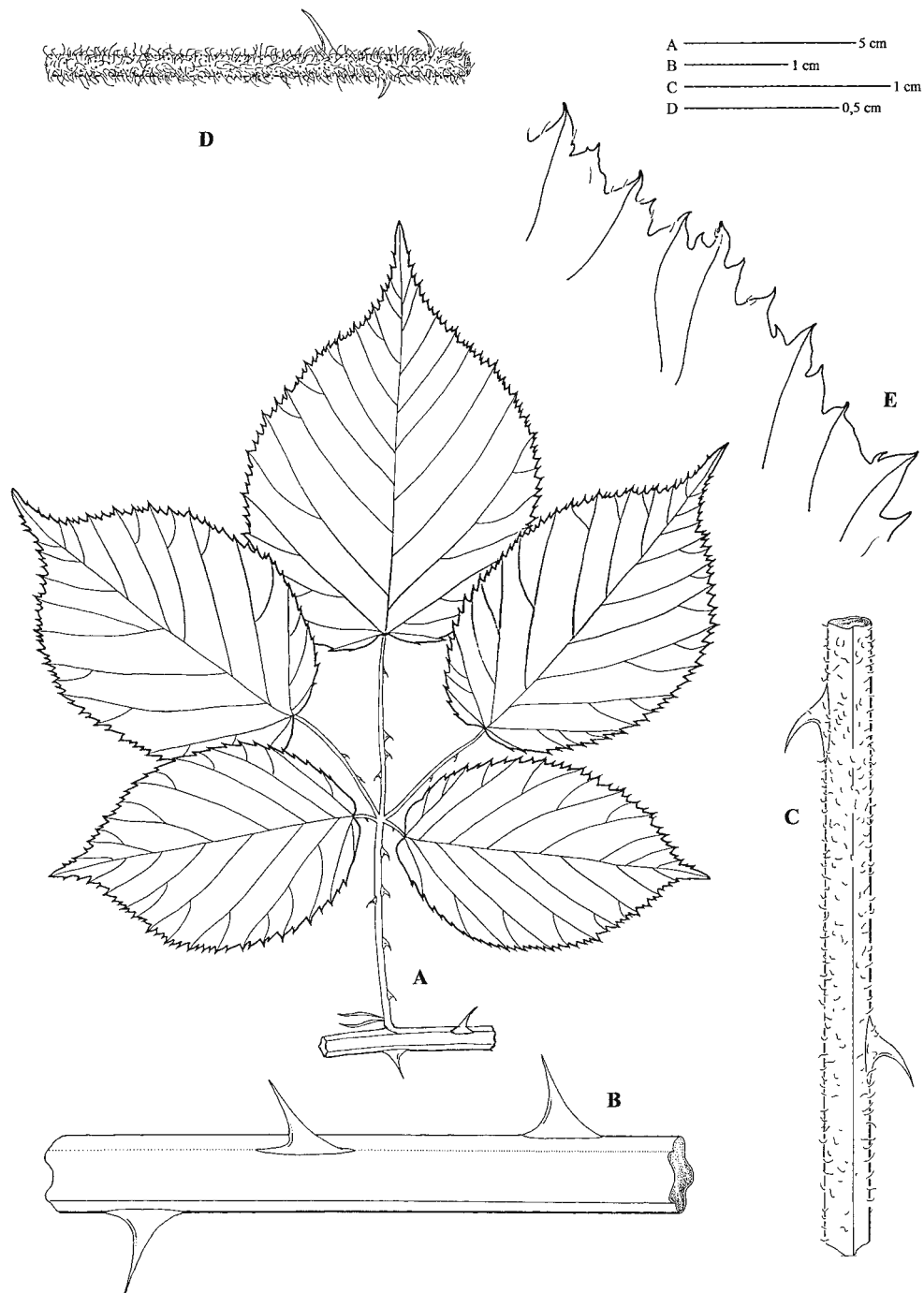


Fig. 23. *Rubus sulcatus* Vest. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin. A, B, E from Zieliński 1767 (KOR 22215), C, D from Oklejewicz s.n. (KOR 22213).

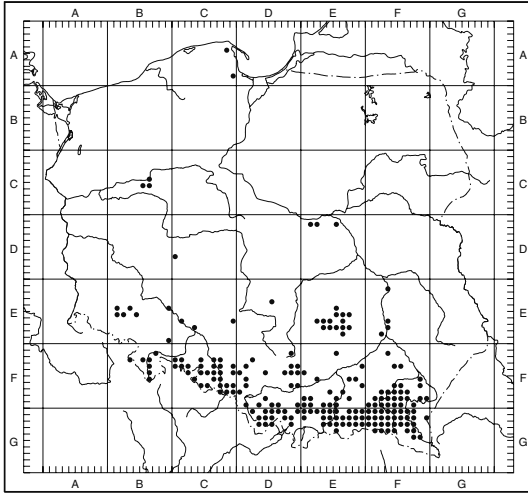


Fig. 24. Distribution of *Rubus sulcatus* Vest in Poland.

18°28'–50°21½', 24 Aug 1915, *Spribille s.n.* (WRSL); DE3529 – Kalisko, 19°25'–51°15½', 29 Jul 1977, *Zieliński 1078* (KOR 8640); DF3196 – Zabrze-Maciejów, 18°49'–50°18', 13 Sep 1976, *Sendek s.n.* (KTU); DF4461 – Sosnowiec-Niwka, 19°10'–50°14½', 27 Jun & 4 Oct 1877, *Schneider s.n.* (LW 55668); EE5502 – Jastrzębia, 20°44½'–51°05', 8 Aug 1965, *Piękoś s.n.* (KRAM 80813); EE5731 – Rataje, 21°01'–51°03½', 29 Jul 1932, *Kaznowski s.n.* (KRAM); FE1306 – near Puławy, 21°58'–51°25', sine die, *Berdau s.n.* (WA 059329–059331); FE6359 – Aleksandrów, 21°58½'–50°55½', 16 Oct 1962, *Salata s.n.* (LBL); FF3448 – 'Morgi' reserve W of Kamień, 22°04'–50°18½', 8 Aug 1992, *Oklejewicz s.n.* (KRA); FF6853 – Zalesie, 22°32'–50°00½', 2 Jul 1992, *Oklejewicz s.n.* (KRA); FF7651 – Kanada, 22°13½'–49°56', 28 Aug 1992, *Oklejewicz s.n.* (KRA).

10. *Rubus constrictus* P. J. Müll. & Lefèvre
(Figs 25–27)

Jahresb. Pollichia **16/17**: 79. 1859.

Rubus vestii Focke, Syn. Rub. Germ.: 155. 1877.

TYPE: Forêt de Retz, 7.1853, *Lefèvre*, '*R. lutescens* Lefèvre', Herb. P. J. Müller 1618 (LAU – LECTOTYPE; Weber 1985).

Stems suberect or high-arching, angled, deeply furrowed, glabrous or with sparse, scattered tufted hairs. Prickles uniform, 3–5 per 5 cm, on angles,

curved, stout-based, 6–7 mm long. Leaves digitate or subpedate, 5-foliolate, green, glabrous or with few scattered hairs above, greyish-green beneath, with a thin layer of stellate hairs and protruding long hairs; exceptionally lower surface green, sparsely hairy. Leaflets contiguous or not, terminal ones usually with long petiolules (35–40%), (broadly) elliptical to obovate, rounded or shallowly cordate at the base, with a suddenly acuminate apex 12–20 mm long, sharply, periodically serrate; serration 3–5 mm deep; principal teeth prominent, usually straight. Basal leaflets with the petiolules 3–5 mm long. Petioles usually ± hairy, with numerous, stout-based curved prickles up to 3 mm long. Stipules filiform or narrowly lanceolate. Inflorescence a narrow panicle, with upright lateral branchlets, sometimes racemose above, leafy almost to the apex, with 3–5-foliolate leaves below. Upper leaves usually more densely hairy than those of the stem. Inflorescence axis zigzag, rather densely pubescent with patent long hairs, with an underlayer of stellate hairs, without stalked glands. Prickles stout-based, strongly curved, almost hooked, (2–)3–4 mm long. Pedicels 1–2 cm long, with dense spreading hairs and curved prickles 2–2.5(–3) mm long. Sepals grey-green, usually short, unarmed, reflexed after anthesis. Petals white, broadly elliptical, 12–15 mm long. Stamens exceeding styles. Anthers glabrous. Carpels glabrous or hairy at the apex. Receptacle hairy. – $2n = 21$ (Boratyńska 1997). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems high arching, with furrowed sides; leaves greyish-green, thinly felted beneath; inflorescence narrow with upright lateral branchlets; inflorescence axis with stout-based, hooked prickles; sepals grey-felted.

HABITAT. Thickets, forest edges, open forests.

DISTRIBUTION IN POLAND. Rare, chiefly in SW Poland.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe, from Belgium and France in the west to W Ukraine in the east, and Romania and Slovenia in the south.

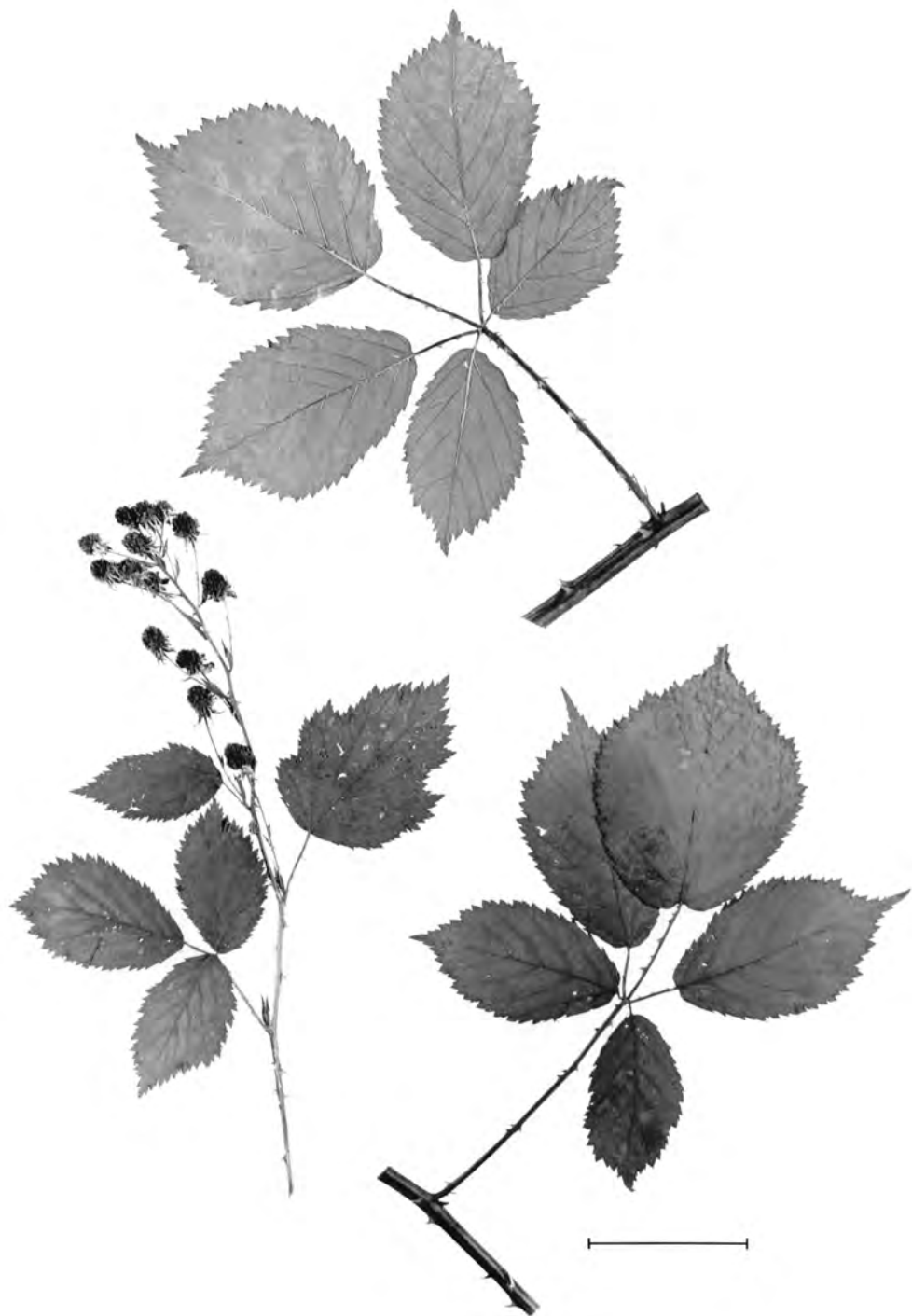


Fig. 25. *Rubus constrictus* P. J. Müll. & Lefèvre (Boratynski & Zieliński, in Zieliński 1672, KOR 32890). Scale bar = 5 cm.

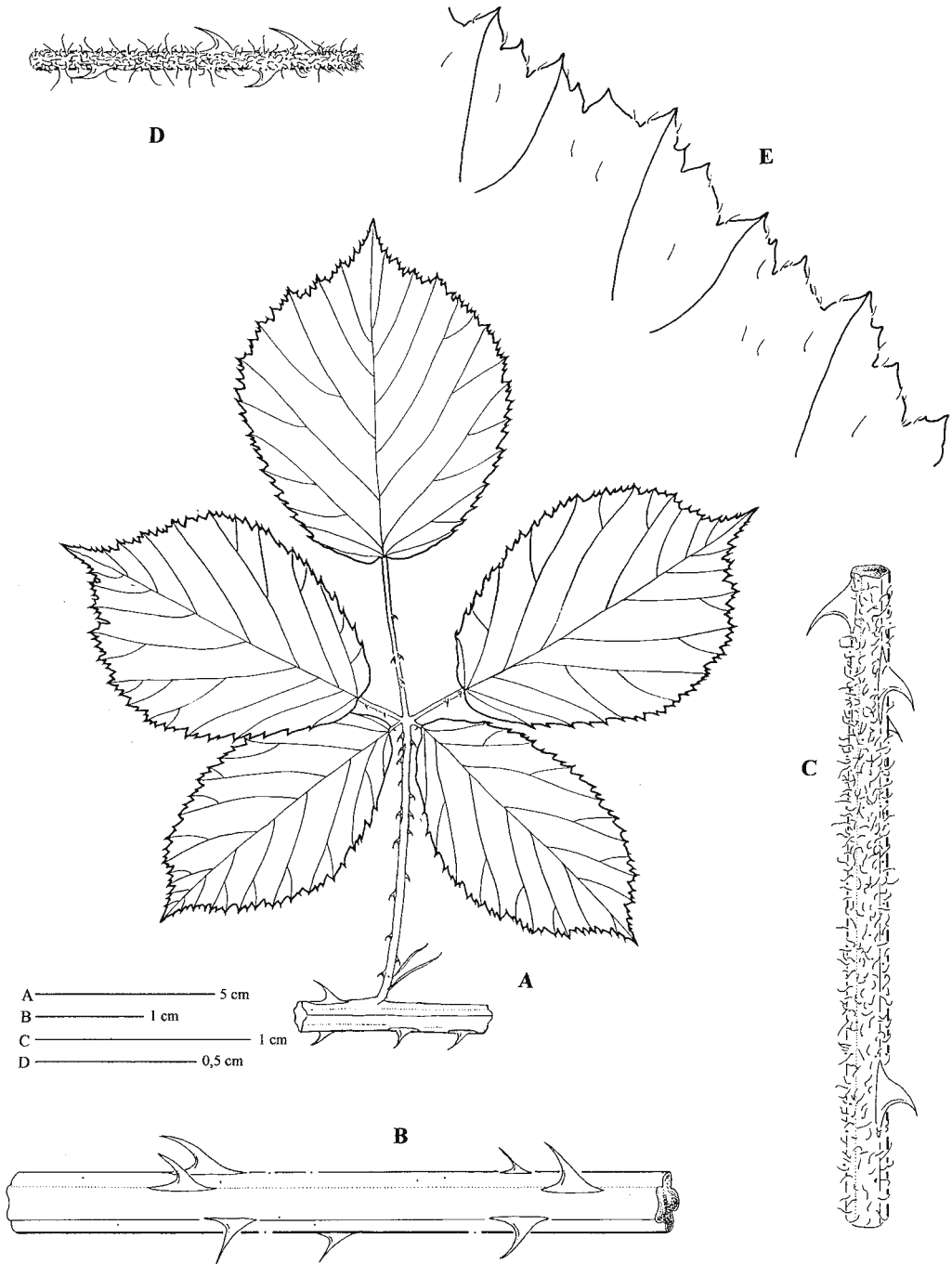


Fig. 26. *Rubus constrictus* P. J. Müll. & Lefèvre. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratyńska et al., in Zieliński 1672a, KOR 30749).

NOTES. *Rubus constrictus*, being traditionally included into the subsection *Rubus*, takes in fact an intermediate position between that subsection and the *Discolores* series of the subsection *Hemales*. Its relationships with the species of *Discolores* is usually clearly demonstrated in greyish stellate-hairy leaves and triploid chromosome number, while with the species of the subsection *Rubus* it shares the suberect habit and weakly branched inflorescences. Within the latter subsection it seems to be most closely related to *R. sulcatus*, from which it can be distinguished by leaves greyish stellate-hairy below, more coarsely serrate and often wavy leaflets, more numerous prickles on petioles and more numerous and stronger prickles on pedicels.

SELECTED HERBARIUM SPECIMENS. AE5434 – on the bank of the Nysa Łużycka River, near Posada, 14° 55½′–50°59¾′, 5 Aug 1907, *Barber s.n.* (GLM 17739); BE1744 – between Stróża & Warzęgowo, 16°46′–51°24′, 18 Oct 1912, *Spribille s.n.* (WRSL); BE5215 – Górzec Mt. (445 m) SW of Męcinka, 16°04½′–51°03½′, 25 Jul 1906, *Spribille s.n.* (GLM 46252 & 46253); BE6070 – Jelenia Góra, 15°44½′–50°54′, 13 Jul 1905, *Kruber s.n.* (WRSL); BF1701 – on the bank of the Studew River E of Brzeźnica, 16°45¾′–50°32½′, 14 Jun & Aug 1908, *Kinscher s.n.* (PRC); BF2572 – between Pokrzywno & Sokolówka, 600 m, 16°30½′–50°22¾′,

9 Jul 1898, *Baenitz s.n.* (BREM & LE); BF4643 – near Długopole & Śnieżnik Kłodzki Mt., 16°40′–50°14′, 31 Jul 1995, *Danielewicz s.n.* (POZNF); CF2723 – near Połęba, 18°12′–50°27′, 14 Sep 1907, *Spribille s.n.* (WRSL); CF6768 – Pogwizdów, 18°16½′–50°03½′, 29 Jul 1899, *Spribille s.n.* (WRSL); EE8611 – Krzemionka Mt. near Smyków, 20°52½′–50°48½′, 19 Jun 1990, *Paul 963* (KRA); EF8567 – Melsztyn, 20°46½′–49°52¼′, 12 Jun 1995, *Pacyna s.n.* (KRA); EF9591 – Witkówka, 20°41½′–49°45½′, 11 Aug 1995, *Pacyna s.n.* (KRA); EG0949 – Pasięki, 21°21′–49°41½′, 28 Jul 1989, *Oklejewicz s.n.* (KOR 22987 & 23694); EG0976 – Lipinki, 21°18′–49°40½′, 25 Aug 1988, *Oklejewicz s.n.* (KOR 23417); FF9249 – Węglówka, 21°46½′–49°46¾′, 18 Aug 1995, *Deptuch s.n.* (KRA); FG0203 – Potok, 21°41′–49°43½′, 18 Sep 1988, *Oklejewicz s.n.* (KOR 30742); FG0290 – Leśniówka, 21°38½′–49°38¾′, 16 Sep 1989, *Oklejewicz s.n.* (KOR 22993 & 23701); GE9048 – Turzyniec, 22°56½′–50°38½′, 8 Jul 1938, *Środoń s.n.* (KRAM 234149 & 234603).

11. *Rubus plicatus* Weihe & Nees (Figs 28–30)

Rubi Germ. 15, t. 1. 1822.

Rubus fruticosus L., Sp. Pl.: 493. 1753, *nom. ambig.*

TYPE: Minden, sine die, *Weihe* (KIEL – LECTOTYPE; Weber 1977).

Stems erect to arching, bluntly angled, with flat or slightly furrowed sides, green or suffused red-brown, glabrous or rarely with few scattered hairs and usually with numerous sessile glands. Prickles equal, on angles, 5–10 per 5 cm, usually curved, rarely some of them straight but declining, (4–)5–6 mm long, red at the base or in the middle (darker than stems), with yellowish points. Leaves digitate, 5-foliolate, glabrous or usually with adpressed sparse hairs above, softly hairy beneath, with simple hairs and sessile glands on the veins. Leaflets usually imbricate, in sunny places often plicate, terminal ones with short or mid-long petiolules (24–36%), variable in shape but usually broadly ovate to suborbicular, rarely broadly elliptical, cordate or shallowly emarginate at the base, with a suddenly acuminate apex 10–15 mm long, rather evenly and finely serrate; the serration 2–3 mm deep; principal teeth straight, not prominent. Basal leaflets sessile or with petiolules up to 1–2(–4) mm long. Petioles ± as long as basal leaflets,

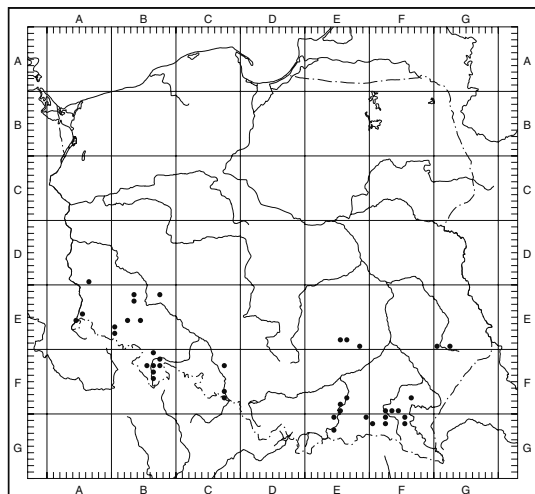


Fig. 27. Distribution of *Rubus constrictus* P. J. Müll. & Lefèvre in Poland.

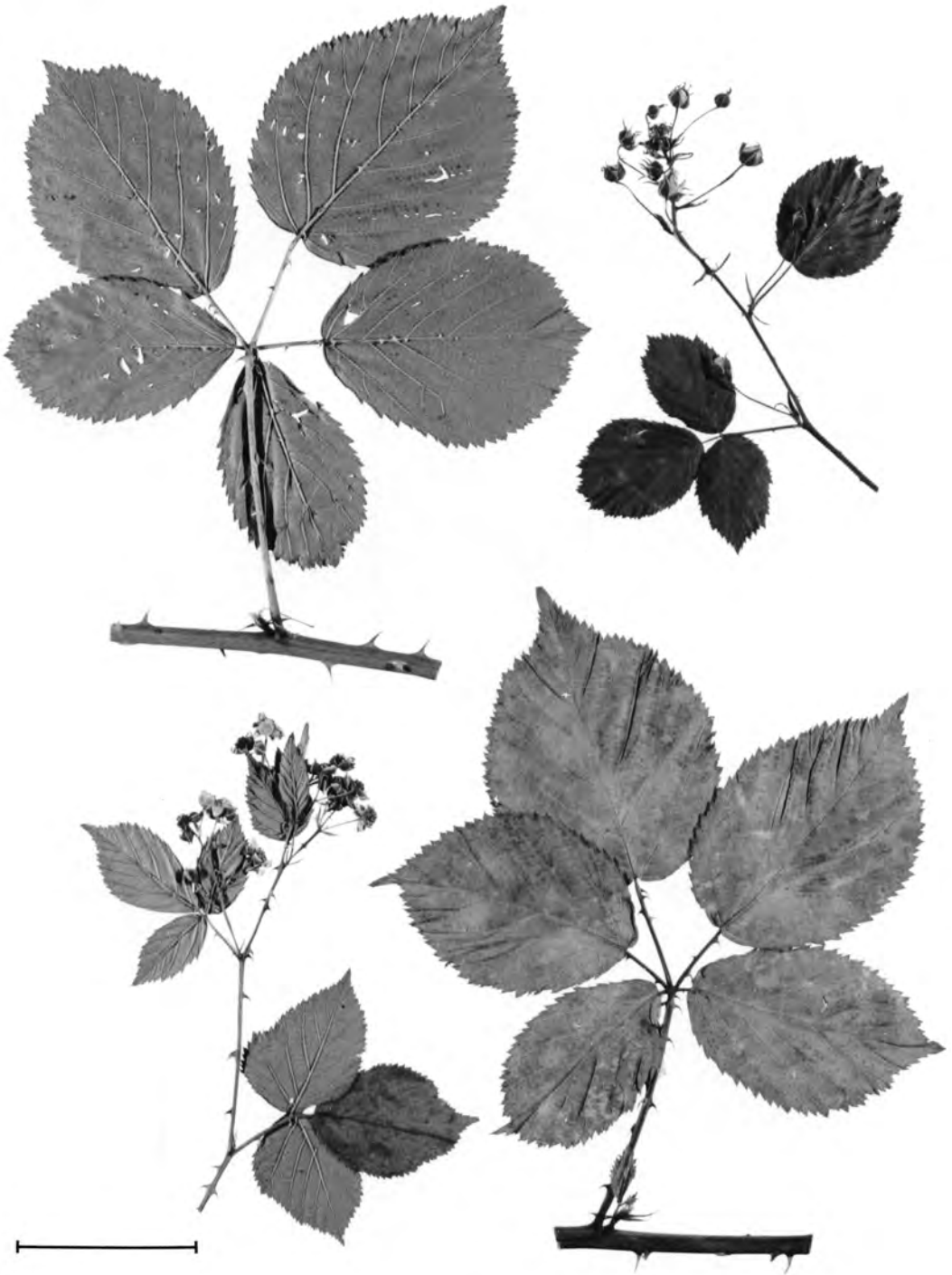


Fig. 28. *Rubus plicatus* Weihe & Nees (*Boratyński* 537, KOR 30011). Scale bar = 5 cm.

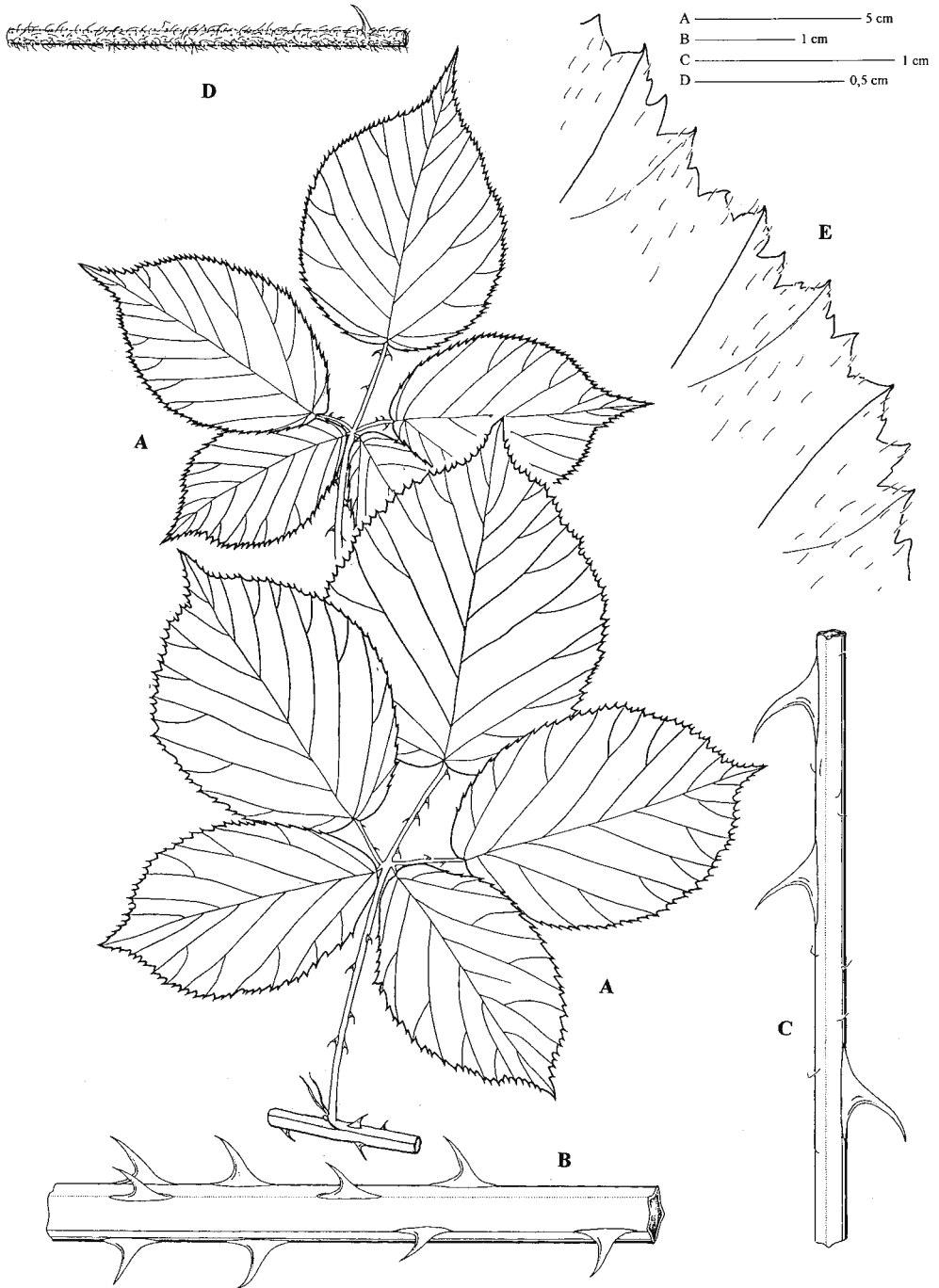


Fig. 29. *Rubus plicatus* Weihe & Nees. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Awzan & Zieliński, in Zieliński 2114, KOR 30749).

sparsely patent-hairy, with numerous strongly curved prickles. Stipules narrowly lanceolate. Inflorescence racemose to paniculate, not very rich, usually leafy to the apex. Lower leaves (3–)5-foliolate; lateral leaflets of 3-foliolate leaves sessile. Inflorescence axis glabrous or very sparsely hairy, with curved prickles 3–5 mm long and numerous sessile glands. Pedicels 2–3(–4) cm long, rather loosely pubescent with adpressed and patent hairs, with numerous sessile yellow glands and usually with curved prickles 1–3(–5) mm long. Sepals green, glabrous or with sparse long hairs on the back, white-bordered, smooth or with few straight needle-like pricklets at the base, patent after anthesis. Petals white or pink, obovate, not contiguous, (8–)10–12 mm long. Stamens as long or shorter than styles. Anthers glabrous. Carpels glabrous or hairy. Receptacle hairy. – $2n = 28$, (Czapik 1987; Boratyńska 1995 b). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems glabrous, angled, with flat or slightly furrowed sides, green or suffused red-brown; prickles curved; leaflets imbricate, green, often plicate, the basal ones sessile or short-petiolulate; sepals green, patent; stamens as long or shorter than styles.

HABITAT. Open forests, forest margins, clearings, thickets, waysides, usually on slightly acid soils.

DISTRIBUTION IN POLAND. One of the commonest brambles, but almost absent in Mazury in the north-east.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: from Great Britain, Denmark, S Scandinavia to Poland, Lithuania and Ukraine, extending to S France, N Italy, Slovenia and Romania.

SELECTED HERBARIUM SPECIMENS. AB0934 – Dźwierzyno, $15^{\circ}23\frac{1}{2}' - 54^{\circ}09\frac{1}{4}'$, 27 Jun 1977, *Zieliński s.n.* (KOR 8841); AD0239 – 2 km S of Słubice, $14^{\circ}35' - 52^{\circ}20'$, 1 Jun 1994, *Danielewicz s.n.* (POZNF); AD0425 – Rzepin, $14^{\circ}49\frac{1}{2}' - 52^{\circ}21'$, 29 Jun 1997, *Kozłowski s.n.* (KOR 39360); AD3898 – near Pomorsko, $15^{\circ}28\frac{2}{3}' - 52^{\circ}02\frac{3}{4}'$, 7 Aug 1995, *Danielewicz s.n.* (POZNF); AD8319 – Trzebień, $14^{\circ}48' - 51^{\circ}38\frac{1}{2}'$, 25 Aug 1976, *Zdobych s.n.* (LOD); AE4899 – W of Pławna Średnia, 320 m,

$15^{\circ}34\frac{1}{4}' - 51^{\circ}03\frac{1}{3}'$, 31 Jul 1986, *Awzan & Boratyński SU III3* (KOR 30671); AE6741 – Czerniawa Zdrój, 610 m, $15^{\circ}19' - 50^{\circ}55'$, 20 Aug 1982, *Boratyńska & Boratyński 235* (KOR 30006); BC0208 – Pruszcz, $15^{\circ}58\frac{1}{2}' - 53^{\circ}18'$, 25 Jun 1991, *Tomlik s.n.* (KOR 25416); BC6630 – 1.5 km of Klempicz, $16^{\circ}29\frac{1}{2}' - 52^{\circ}45\frac{1}{2}'$, 24 Jun 1991, *Tomlik s.n.* (KOR 25403, 25405 & 25665); BE0476 – Tymowa, $16^{\circ}21\frac{1}{3}' - 51^{\circ}27'$, 14 Jul 1958, *Głowacki s.n.* (WRSL 3430); BE1593 – Tarchalice, $16^{\circ}28' - 51^{\circ}21'$, 13 Jul 1993, *Smyk s.n.* (POZNF); BE2853 – W of Oborniki Śląskie, 180 m, $16^{\circ}54' - 51^{\circ}18'$, 3 Aug 1897, *Baenitz s.n.* (G); BE2912 – Pawłów Trzebnicki, $17^{\circ}01\frac{2}{3}' - 51^{\circ}20\frac{2}{3}'$, 31 Jul 1987, *Boratyński & Zieliński Z. 2114* (KOR); BF0910 – near Nowy Dwór, 220 m, $17^{\circ}02' - 50^{\circ}37\frac{1}{2}'$, 18 Oct 1993, *Kosiński s.n.* (KOR 39777); BF2336 – Lewin Kłodzki, $16^{\circ}16\frac{1}{2}' - 50^{\circ}24\frac{3}{4}'$, 18 Jul 1996, *Świerkosz s.n.* (WRSL); BF5685 – Boboszków, 515 m, $16^{\circ}42' - 50^{\circ}06\frac{1}{2}'$, 13 Oct 1995, *Kosiński s.n.* (KOR 39665); CA3769 – Bielawskie Błoto near Wierzchucino, $18^{\circ}13\frac{1}{4}' - 54^{\circ}48\frac{1}{4}'$, Jul 1959, *Białobok s.n.* (KOR); CB1686 – Zaganianie Lake near Stawiska, $18^{\circ}01\frac{1}{2}' - 54^{\circ}04'$, 21 Aug 1981, *Buliński s.n.* (GDMA); CC6511 – 1 km S of Pniewy, $17^{\circ}50' - 52^{\circ}47\frac{1}{2}'$, 7 Jul 1988, *Chmiel s.n.* (POZ); CD3510 – near Zagórzów, $17^{\circ}50\frac{1}{2}' - 52^{\circ}09\frac{1}{2}'$, 25 Jul 1997, *Czarna s.n.* (POZ); CE4958 – Józefów, $18^{\circ}33' - 51^{\circ}08\frac{2}{3}'$, 26 Jul 1977, *Zieliński 1624* (KOR 8660); CF3474 – N of Klisino, $17^{\circ}48' - 50^{\circ}19'$, 16 Jul 1988, *Tomlik & Zieliński Z. 2287* (KOR 29997); DB5993 – 2 km of Ostróda, $19^{\circ}58' - 53^{\circ}42'$, Sep 1993, *Tomlik s.n.* (KOR); DD6579 – Zgierz, $19^{\circ}26' - 51^{\circ}50\frac{1}{2}'$, 16 Jul 1948,

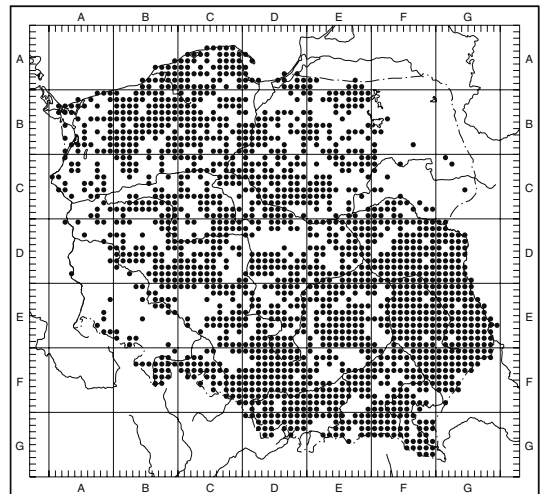


Fig. 30. Distribution of *Rubus plicatus* Weihe & Nees in Poland.

Mowszowicz s.n. (LOD); DE2123 – Szynkielów, 18°46′–51°21′, 26 Jul 1977, *Gózdź s.n.* (LOD); EB1056 – Karbowo, 20°10′–54°05²/₃′, 8 Sep 1993, *Tomlik s.n.* (KOR); EC4093 – Gradzanowo Kościelne, 20°05¹/₂′–52°53⁵/₆′, Sep 1993, *Tomlik s.n.* (KOR 29865); EF5866 – Podlesie, 21°11¹/₂′–50°07¹/₂′, 14 Aug 1993, *Wayda s.n.* (KRA); FC8172 – Łochów, 21°41¹/₂′–52°32′, 22 Jun 1982, *Głowacki s.n.* (WSRP 024817); FD0468 – Kudelczyn, 22°12¹/₃′–52°21′, 5 Aug 1988, *Głowacki s.n.* (WSRP); GC0112 – Żłota Wieś, 23°14¹/₂′–53°15²/₃′, 23 Jul 1962, *Szuczda s.n.* (KOR); GC5480 – Hajnówka, 23°36′–52°43³/₄′, Jun & Jul 1992, *Łuczaj s.n.* (BSG 22100 & 22101); GF3421 – Stara Huta, 23° 22¹/₃′–50°17′, 15 May 1965, *Fijałkowski s.n.* (LBL).

12. *Rubus opacus* Focke in Alpers (Figs 31–33)

Verz. Gefäßpfl. Landdrostei Stade: 25. 1875.

Rubus plicatus subsp. *opacus* var. *smiglensis* Sprib. ex Sudre, Bat. eur.: 208. 1907. – *R. plicatus* var. *smiglensis* Sprib., Verh. Bot. Ver. Prov. Brandenb. **39**: 45. 1897, *nom. prov.*

TYPE: Lesum bei Bremen, 27.6., 6.8.1869, *Focke* (BREM – LECTOTYPE: Beek 1974).

Like *R. plicatus* but stems often stronger, prickles strong, often straight; terminal leaflets with mid-long or long petiolules (35–47%), often obovate, not seldom periodically serrate; basal leaflets with longer petiolules (3–5 mm long); petioles with hooked prickles; stamens as long or longer than styles; at least some anthers hairy. – 2n = 28 (Boratynska 1998). – Flowering VI–VII.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. Very rare in W regions: W Wielkopolska, S of Szczecin.

GENERAL DISTRIBUTION. Widespread species. Holland, Belgium, Germany, Poland.

SPECIMENS SEEN. AB9369 – by the road between Binowo & Wysoka Gryfińska, 14°38′–53°18′, 26 Jul 1856, *Wimmer s.n.* (KOR 10871); AD0794 – between Poźrzadło & Łagów, N of Poźrzadło, 15°15¹/₂′–52°18¹/₂′, 22 Jul 1995, *Zieliński 30/95* (KOR 32343); BD4495 – Starkowo, 16°18¹/₂′–51°58²/₃′, 17 Jul 1979, *Zieliński 1251, 1254 & 1257* (KOR 8959, 8962 & 8958); BD4537 – between Żegrowo & Śmigiel, 16°29¹/₂′–52°01⁴/₅′, 15 Jul 1899, *Spribille s.n.* (POZ & TRN); BD4537 – near Żegrowo, 16°28³/₄′–52°01²/₃′,

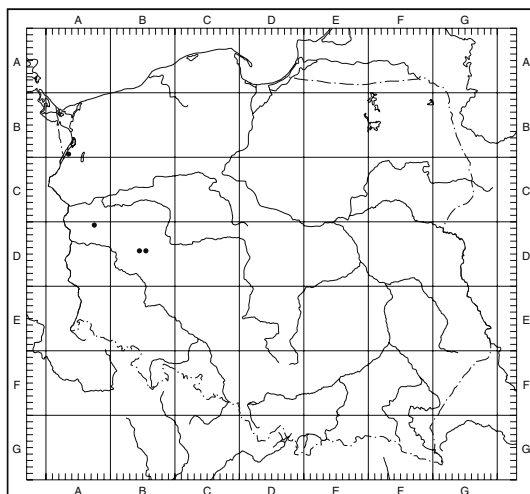


Fig. 31. Distribution of *Rubus opacus* Focke in Poland.

11 Jul & 20 Sep 1907, *Spribille s.n.* (W); BD4537 – Żegrowo, 16°29′–52°01²/₃′, 5 Aug 1995, *Zieliński 91/95* (KOR 32373); BD5308 – SE of Mochy, 16°13′–51°58′, 5 Jun 1998, *Danielewicz s.n.* (POZNF).

13. *Rubus divaricatus* P. J. Müll. (Figs 34–36)

Flora (Regensb.) **41**: 130. 1858.

Rubus nitidus Weihe & Nees, Rubi Germ.: 49, t. 6. 1822., *pro parte, typo excl., nom. illeg., non R. nitidus* Rafin. (1817).

TYPE: Bienwald, 18.7.1857, *P. J. Müller 117* (LAU – LECTOTYPE: Beek 1974).

Stems erect or arching at the apex, angled, with flat or slightly furrowed sides, green, suffused brown, glabrous. Prickles 5–10 per 5 cm, on angles, (5–)6–8 mm long, straight, patent or somewhat declining, rarely some of them slightly curved, slender but strong, stout-based. Leaves digitate, 5-foliolate, shining, glabrous or with sparse hairs above, sparsely to fairly densely hairy beneath, green, without stellate hairs. Leaflets usually not contiguous, rather widely spaced, terminal ones with mid-long to very long petiolules (33–60%), narrowly obovate or elliptical, rounded or shallowly cordate at the base, with an acute or acuminate apex up to 10 mm long, rather evenly, shallowly (up to 1.5 mm deep) serrate. Basal leaf-



Fig. 32. *Rubus opacus* Focke (Zieliński 91/95, KOR 32373). Scale bar = 5 cm.

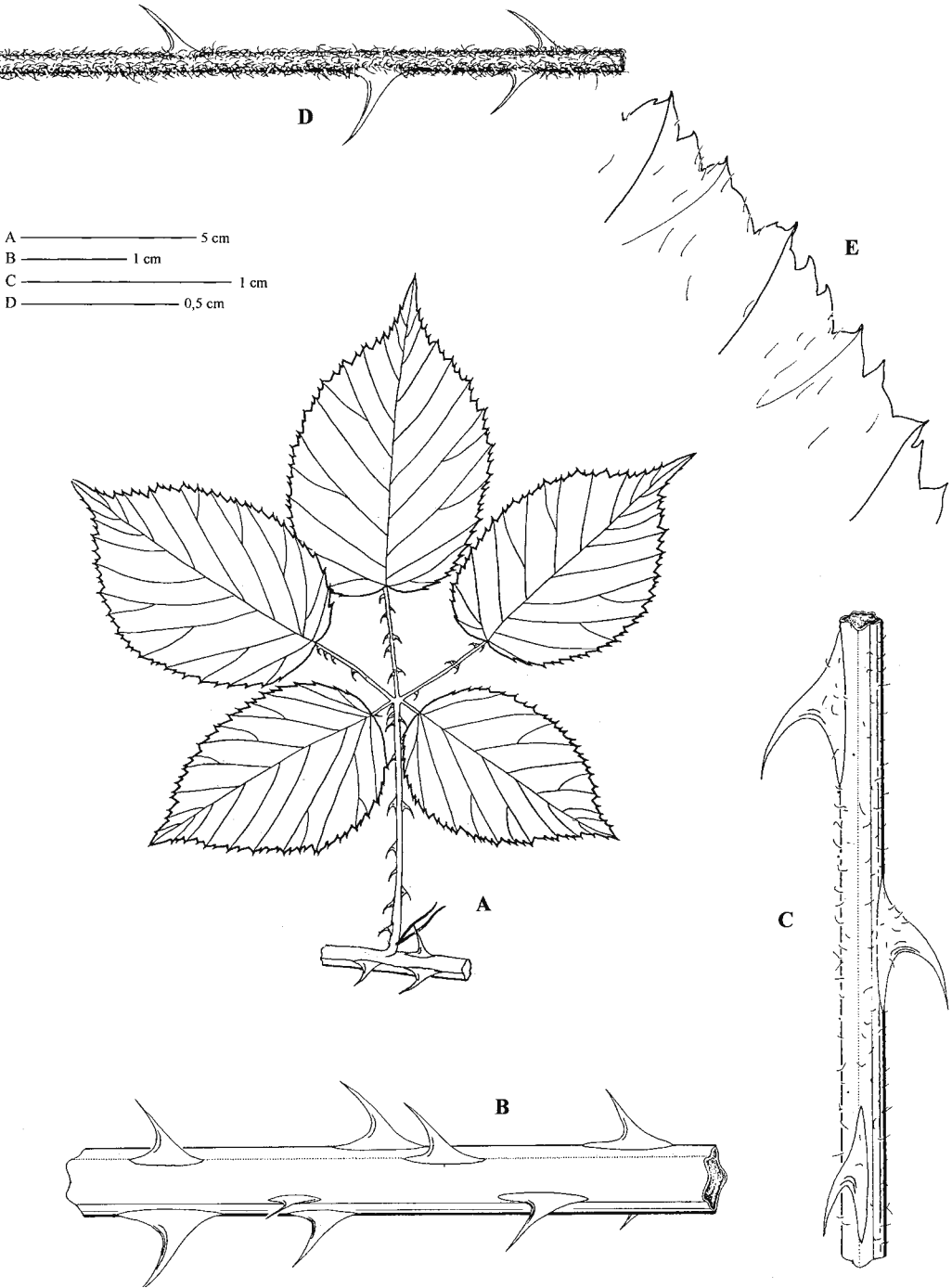


Fig. 33. *Rubus opacus* Focke. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1257, KOR 8958).

lets with petiolules 2–5 mm long. Petioles longer than basal leaflets, sparsely hairy on the upper surface, with numerous strongly curved broad-based prickles up to 4 mm long. Stipules filiform. Inflorescence narrow, often few-flowered, paniculate or (almost) racemose, usually leafy to the apex. Lower leaves (3–)5-foliolate. Inflorescence axis sparsely hairy, with simple hairs and sessile glands. Prickles stout, 3–5(–7) mm long, hooked. Pedicels (0.5–)1–1.5(–2.5) cm long, with rather dense spreading hairs, numerous sessile glands and several stout prickles up to 4 mm long. Sepals green, glabrous, white-bordered, suddenly acuminate, unarmed or with several small prickles at the base, reflexed after anthesis. Petals white or pink, obovate, 7–10(–11) mm long. Stamens (at least outer ones) exceeding styles. Anthers glabrous. Carpels glabrous or with few hairs. Receptacle glabrous. – $2n = 21$ (Boratyńska 1997). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems erect, angled, glabrous; prickles slender but strong, mostly straight; leaflets not contiguous, terminal ones obovate to elliptical, shallowly serrate; inflorescence axis with hooked prickles.

HABITAT. Open forests, clearings, thickets, on acid, sandy, dry or wet soils.

DISTRIBUTION IN POLAND. SW regions, chiefly Dolny Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: S England, Belgium, Holland, Germany, the Czech Republic, Poland.

SELECTED HERBARIUM SPECIMENS. AD3889 – 1 km E of Pomorsko, $15^{\circ}29\frac{2}{3}' - 52^{\circ}03\frac{1}{6}'$, 8 Aug 1995, *Danielewicz s.n.* (POZNF); AD8695 – near Jankowa Żagańska, $15^{\circ}10\frac{1}{2}' - 51^{\circ}35'$, 2 Aug 1899, *Pinkwart s.n.* (WRSL); AD9303 – N of Łęknica, $14^{\circ}43\frac{1}{2}' - 51^{\circ}33\frac{1}{3}'$, 28 Jun 1908, *Barber s.n.* (WRSL); AE1676 – N of Węgliń, $15^{\circ}13' - 51^{\circ}20'$, 1 Jun 1890, *Fiek s.n.* (WRSL); BE0383 – 5 km N of Lubin towards Rynarce, $16^{\circ}10\frac{2}{3}' - 51^{\circ}26\frac{1}{2}'$, 15 Jul 1978, *Zieliński 1190 & 1191* (KOR 8875 & 8876); BE0975 – near Książęca Wieś, $17^{\circ}04' - 51^{\circ}28'$, 15 Oct 1909 & 10 Sep 1910, *Spribille s.n.* (WRSL); BE1587 – between Wodnica & Rudno, $16^{\circ}31' - 51^{\circ}21\frac{1}{2}'$, 14 Mar & 12 Oct 1910, *Spribille s.n.*

(WRSL); BE1678 – between Wołów & Pelczyn, $16^{\circ}41' - 51^{\circ}22\frac{1}{2}'$, 28 Sep 1910, *Spribille s.n.* (WRSL); BE2644 – by the road Mojęcice–Wołów, $16^{\circ}37\frac{1}{2}' - 51^{\circ}18\frac{1}{2}'$, 14 Sep 1910, *Spribille s.n.* (WRSL); BE2956 – near Trzebnica, $17^{\circ}05' - 51^{\circ}18\frac{1}{2}'$, 10 Sep 1910, *Spribille s.n.* (WRSL); BE3242 – near Lubiatów towards Wilczyce, $16^{\circ}02' - 51^{\circ}12'$, 13 Jul 1897, *col. ign.* (WRSL); BE3699 – near Siemichów, $16^{\circ}42\frac{1}{2}' - 51^{\circ}10\frac{1}{2}'$, 29 Oct 1910, *Spribille s.n.* (WRSL); BE4709 – between Leśnica & Mokra, $16^{\circ}51' - 51^{\circ}10'$, 6 Jul 1909, 14 Jun & 20 Aug 1910, *Spribille s.n.* (WRSL); CD8145 – between Konarzew & Baszków, $17^{\circ}20\frac{1}{2}' - 51^{\circ}40\frac{2}{3}'$, 20 Sep 1988, *Zieliński 2133 & 2134* (KOR 25568 & 22824); CD9045 – Jeziora, $17^{\circ}12' - 51^{\circ}35'$, 15 Jul 1898, *Spribille s.n.* (POZ, TRN & WRSL); CD9087 – between Stawiec & Piękocin Nowy, $17^{\circ}14' - 51^{\circ}33'$, 24 Aug 1995, *Zieliński 114/95* (KOR 32434); CD9441 – Tarchały, $17^{\circ}43\frac{1}{2}' - 51^{\circ}35\frac{1}{2}'$, 18 Jul 1997, *Zieliński 82/97* (KOR 39074); CD9489 – between Przygodzice & Strugi, $17^{\circ}50\frac{1}{2}' - 51^{\circ}33\frac{2}{3}'$, 28 Sep 1996, *Boratyńska s.n.* (KOR 38339); CE0072 – near Gruszczyca, $17^{\circ}09\frac{1}{2}' - 51^{\circ}28'$, 10 Sep 1910, *Spribille s.n.* (WRSL); CE0190 – near Borowina, $17^{\circ}16\frac{1}{2}' - 51^{\circ}27\frac{1}{3}'$, 6 Aug 1992, *Zieliński 144/92* (KOR 29965); CE0455 – near Czarny Las towards Ostrzeszów, $17^{\circ}47' - 51^{\circ}30'$, 23 Aug 1994, *Zieliński 108/94 & 109/94* (KOR 29796 & 29797); CE0530 – Antonin, $17^{\circ}51\frac{1}{2}' - 51^{\circ}31'$, 14 Jul 1993, *Zieliński s.n.* (KOR 30512); CE1067 – near Skoroszów towards Czeszów, $17^{\circ}14' - 51^{\circ}23\frac{1}{2}'$, 24 Oct 1911, *Spribille s.n.* (WRSL); CE1112 – by the road near Pierstnica Mała,

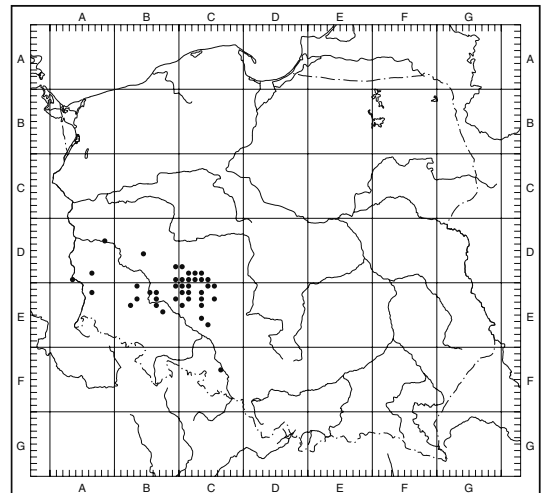


Fig. 34. Distribution of *Rubus divaricatus* P. J. Müll. in Poland.

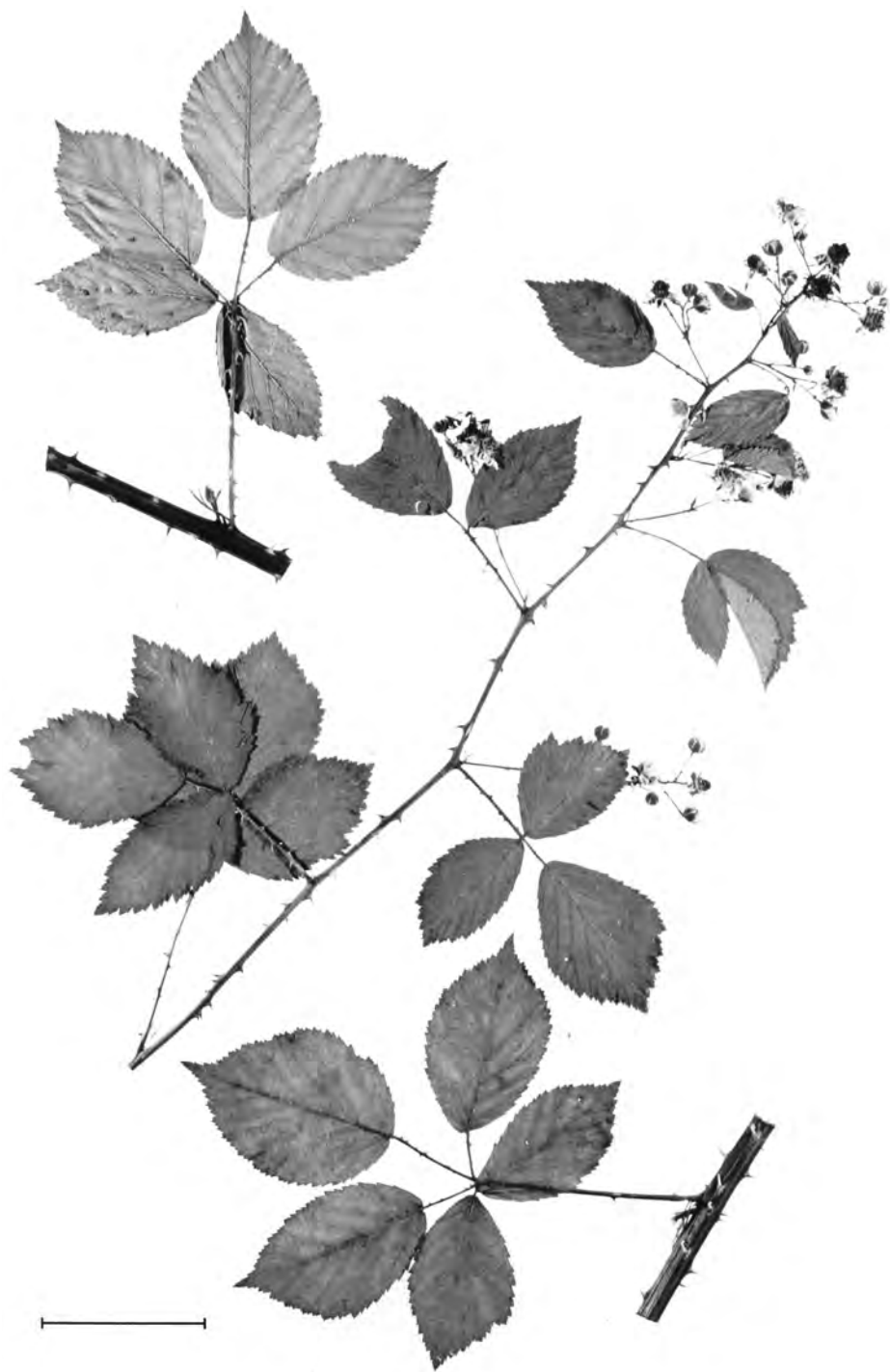


Fig. 35. *Rubus divaricatus* P. J. Müll. (Zieliński 1191, KOR 8876). Scale bar = 5 cm.

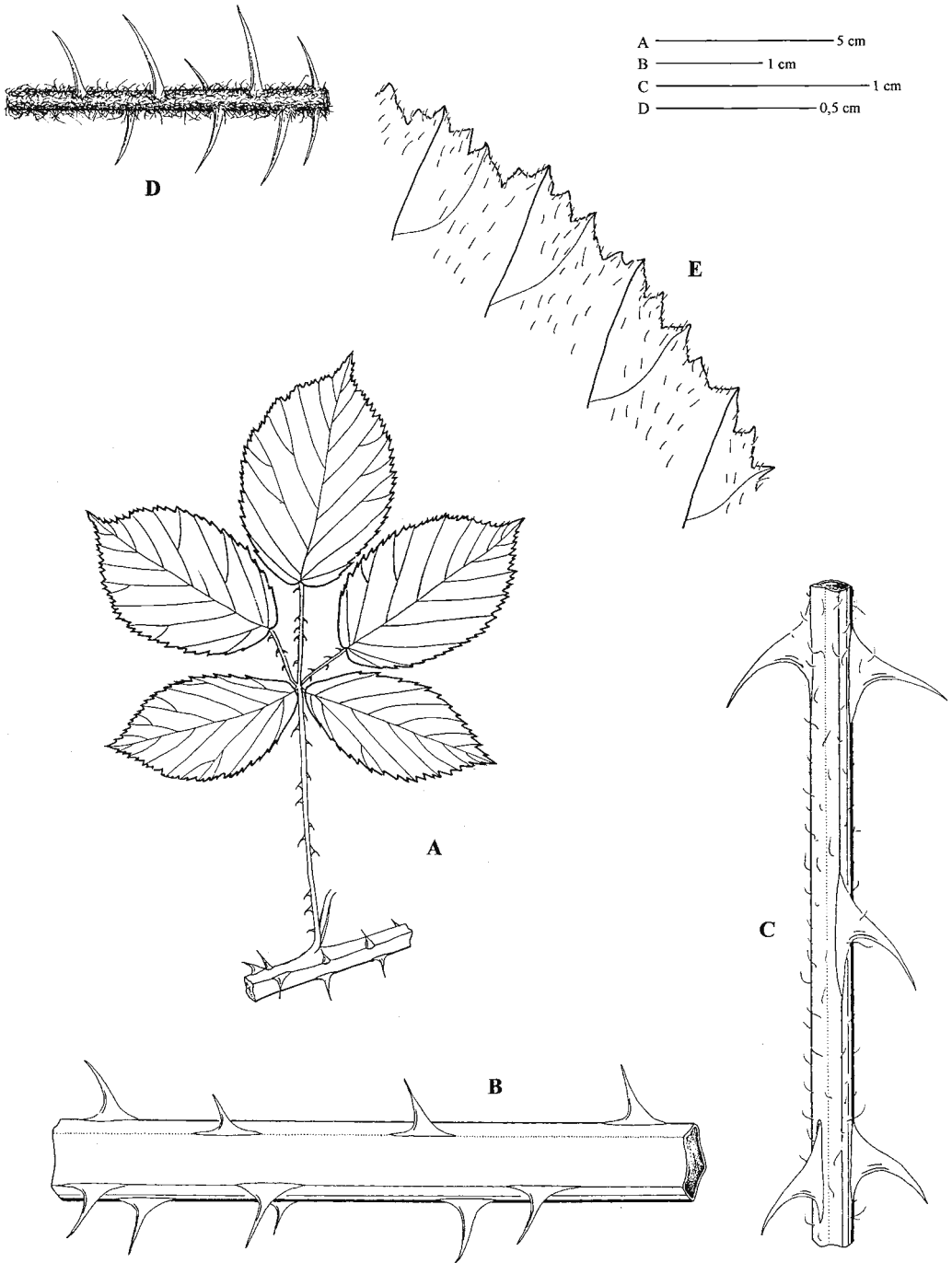


Fig. 36. *Rubus divaricatus* P. J. Müll. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1989, KOR 8875).

17°19'–51°26', 28 Aug 1912, *Spribille s.n.* (WRSL); CE1390 – between Bukowina Sycowska & Gola Wielka, 17°34'–51°22', 9 Nov 1910, *Spribille s.n.* (WRSL); CE2185 – N of Dobroszyce, 17°21½'–51°17', 28 Aug 1912, *Spribille s.n.* (WRSL); CE2384 – between Stradomia & Widawa, 17°38'–51°17½', 13 Sep 1913, *Spribille s.n.* (WRSL); CE2520 – between Czermin & Marcinki, 17°51½'–51°20½', 21 Sep 1915, *Spribille s.n.* (WRSL); CE3074 – near Szczodre, 17°12'–51°12', 18 Jun 1913, *Spribille s.n.* (WRSL); CE3331 – between Jemielnia & Gaszowice, 17°35½'–51°14½', 11 Aug 1914, *Spribille s.n.* (WRSL); CE5368 – near Namysłów, 17°42'–51°02½', 19 Sep 1913, *Spribille s.n.* (WRSL); CE6489 – near Pokój, 17°51'–50°56', 16 Sep 1916, *Spribille s.n.* (WRSL); CF3640 – between Twardawa & Pokrzywnica, 200 m, 18°01½'–50°20½', 15 Sep 1999, *Kosiński & Zieliński 142/99* (KOR 41647).

14. *Rubus senticosus* Köhler ex Weihe in Wimm. & Grabowski (Figs 37–39)

Fl. Siles. 1: 51. 1829.

TYPE: Schmiedeberg, Am Ochsenberge, sine die, *Köhler*. Herb. Weihe (JE – LECTOTYPE; Weber 1985).

Stems high-arching, much branched, bluntly angled, with flat or slightly furrowed sides, glabrous or with sparse, scattered hairs and numerous sessile glands. Prickles usually numerous, up to 20(–25) per 5 cm, mostly on angles but not seldom also between them, often crowded, yellowish, straight to strongly curved, laterally compressed, 6–8(–10) mm long. Leaves (shortly) pedate or rarely digitate, 5-foliolate, usually glabrous above, hairy beneath, sometimes with a thin layer of stellate hairs and then greyish. Terminal leaflets on mid-long or long petiolules (30–40%), broadly ovate, broadly elliptical to suborbicular, rounded to cordate at the base, with a (suddenly) acuminate apex 10–15 mm long, usually shallowly periodically serrate, waved along margins; teeth often unequal with variously directed tips, terminal ones usually slightly retrorse. Petioles usually shorter than basal leaflets, channelled, sparsely hairy, with very numerous, strongly curved stout prickles up to 3(–3.5) mm long. Stipules filiform to narrowly lanceolate. Inflorescence paniculate, leafless above, with 3–5-foliolate leaves below, the upper leaves with numerous or dense stellate

hairs and distinctly greyish beneath. Inflorescence axis sparsely pubescent with simple, tufted and often stellate hairs, with numerous sessile glands and sometimes also with stalked glands. Prickles numerous, hooked. Pedicels 1.5–2.5(–3) cm long, sparsely patent-hairy, with numerous sessile glands, rarely with few short-stalked glands. Prickles numerous, straight or usually slightly curved, 3–5 mm long. Sepals grey-green, prickly, with sessile and short-stalked glands, reflexed after anthesis. Petals white, elliptical, 10–12 mm long. Stamens exceeding styles. Anthers glabrous. Carpels glabrous or sparsely hairy. Receptacle hairy. Fruit often not perfectly formed. – $2n = 28$ (Boratyńska 1994). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems high-arching, angled; prickles usually very numerous, strong, laterally compressed, yellowish; leaves especially those of the inflorescence with stellate hairs, greyish beneath; inflorescence axis with numerous hooked prickles. One of the most prickly brambles of our flora.

HABITAT. Forest margins, clearings.

DISTRIBUTION IN POLAND. On few scattered localities in SW regions.

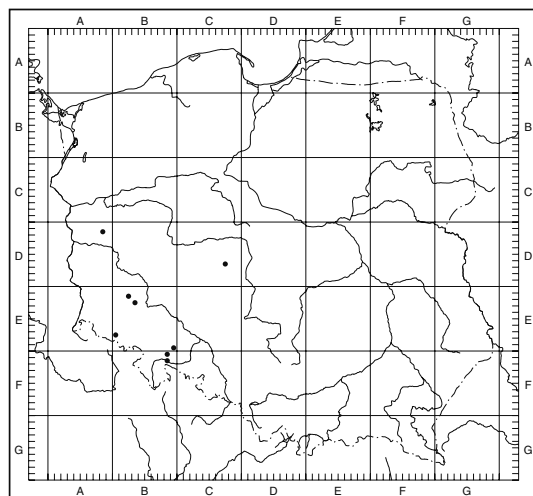


Fig. 37. Distribution of *Rubus senticosus* Köhler ex Weihe in Poland.



Fig. 38. *Rubus senticosus* Köhler ex Weihe (Zieliński 3022, KOR 24824). Scale bar = 5 cm.

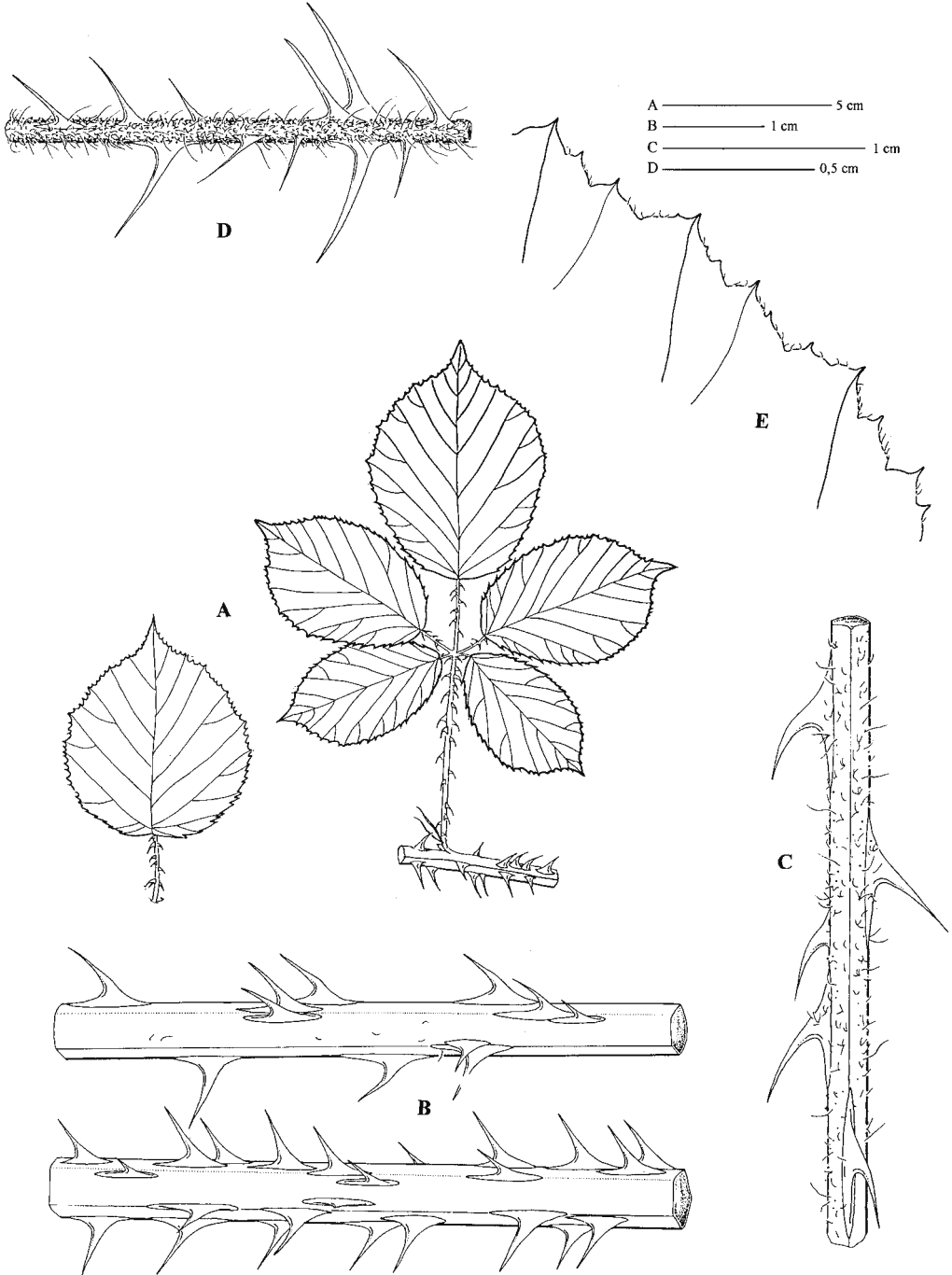


Fig. 39. *Rubus senticosus* Köhler ex Weihe. A – leaf from vegetative stem and terminal leaflet; B – fragments of vegetative stems; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2204, KOR 24826).

GENERAL DISTRIBUTION. Widespread species. Germany, Poland, the Czech Republic.

SPECIMENS SEEN. AD1818 – SE of Lubrza, $15^{\circ}27\frac{1}{2}'$ – $52^{\circ}17\frac{1}{2}'$, 28 Aug 1992, *Zieliński 157/92* (KOR 29380); AD1819 – between Ługów & Lubrza, $15^{\circ}28'$ – $52^{\circ}17\frac{1}{2}'$, 16 Jul 1975, *Zieliński 599* (KOR 7194); BE1299 – N of Zimna Woda, $16^{\circ}07'$ – $51^{\circ}20\frac{1}{3}'$, 22 Jun 1904, *Figert 1/1904* (W); BE2341 – Karczowiska, $16^{\circ}09\frac{1}{2}'$ – $51^{\circ}18'$, 11 Aug 1901, *Figert 159* (W); BE9954 – 1 km SE of Dobroszów, $17^{\circ}05\frac{1}{3}'$ – $50^{\circ}41'$, 8 Aug 1991, *Zieliński 3022* (KOR 24824); BF0867 – Stujejów, $16^{\circ}59'$ – $50^{\circ}35'$, 8 Jul 1905, *Kinscher s.n.* (WRSL); BF1809 – N of Niedźwiedz, $17^{\circ}01'$ – $50^{\circ}32\frac{1}{2}'$, 10 Jul 1905 & Aug 1909, *Kinscher s.n.* (PR & WRSL); CD6778 – between Kamień & Podzborów, $18^{\circ}15'$ – $51^{\circ}50\frac{1}{4}'$, 23 Sep 1988, *Zieliński 2204* (KOR).

Series *Canadenses* (L. H. Bailey) H. E. Weber

Osnabr. Naturwiss. Mitt. 26: 116. 2000.

Basionym: [Grouping] *Canadenses* L. H. Bailey, Genes Herb. 1: 152, 180. 1923.

Type: *Rubus canadensis* L.

Prickles usually absent. Inflorescence racemose. Pedicels long, subpatent. Bracts distinct, lanceolate. Stamens patent after anthesis.

15. *Rubus canadensis* L. (Figs 40–42)

Sp. Pl.: 494. 1753.

TYPE: 'Habitat in Canada'.

Stems erect, angular, with furrowed sides, glabrous and smooth, unarmed or with very few weak prickles. Leaves usually large, 5-foliolate, digitate, glabrous above, glabrous or hairy on the veins beneath. Leaflets contiguous or widely spaced. Terminal leaflets with mid-long petiolules (28–35%), elliptic or elliptic-ovate, abruptly long-acuminate, with an apex up to 30(–35) mm long, evenly, sharply serrate, alive often convex. Basal leaflets with petiolules 1–2(–3) mm long. Petioles glabrous, flat above, unarmed or rarely with 1–2 small pricklets. Stipules linear-filiform. Inflorescence racemose, with 1–3-foliolate leaves at the base. Inflorescence axis loosely hairy with patent simple or fascicled hairs and with sessile glands. Flowers in the angles of broad bracts.

Pedicels 2–3(–5) cm long, usually unarmed, loosely patent-hairy, with sessile or sessile glands. Sepals green, glabrous or sparsely hairy on the back, white-bordered, deflexed after anthesis. Petals white, elliptic, 10–12 mm long. Stamens longer than styles, patent after anthesis. Anthers, carpels and receptacle glabrous. Fruit black. – $2n = 14, 21$ (Craig 1960; Thompson 1997; Krahulcová & Holub 1998b) – Flowering V–VI.

MAIN DIAGNOSTIC CHARACTERS. Stems erect, deeply furrowed, almost unarmed; leaves large, almost glabrous, with often widely spaced, abruptly long-acuminate leaflets; inflorescence racemose, without stalked glands; flowers white with long patent stamens after anthesis.

HABITAT. Thickets, open deciduous forests.

DISTRIBUTION IN POLAND. Naturalized in the Sudety Mts and in the vicinity of Bolesławiec in SW Poland (Kosiński & Zieliński 1998). As escaped from cultivation it was earlier recorded from SE Germany (Ranft 1995; Weber 1995) and Great Britain (Edees & Newton 1988).

GENERAL DISTRIBUTION. E regions of North America.

SPECIMENS SEEN. AE1942 – Parkoszów, $15^{\circ}35\frac{1}{4}'$ – $51^{\circ}22\frac{1}{2}'$, 8 Jun 1967, *Ciaciura s.n.* (SZUB); BF3890 – near

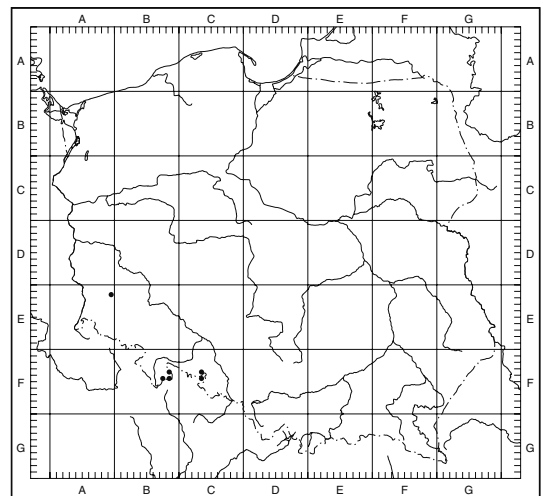


Fig. 40. Distribution of *Rubus canadensis* L. in Poland.



Fig. 41. *Rubus canadensis* L. (Kosiński, Tomaszewski & Zieliński, in Zieliński 17/98, KOR 39951). Scale bar = 5 cm.

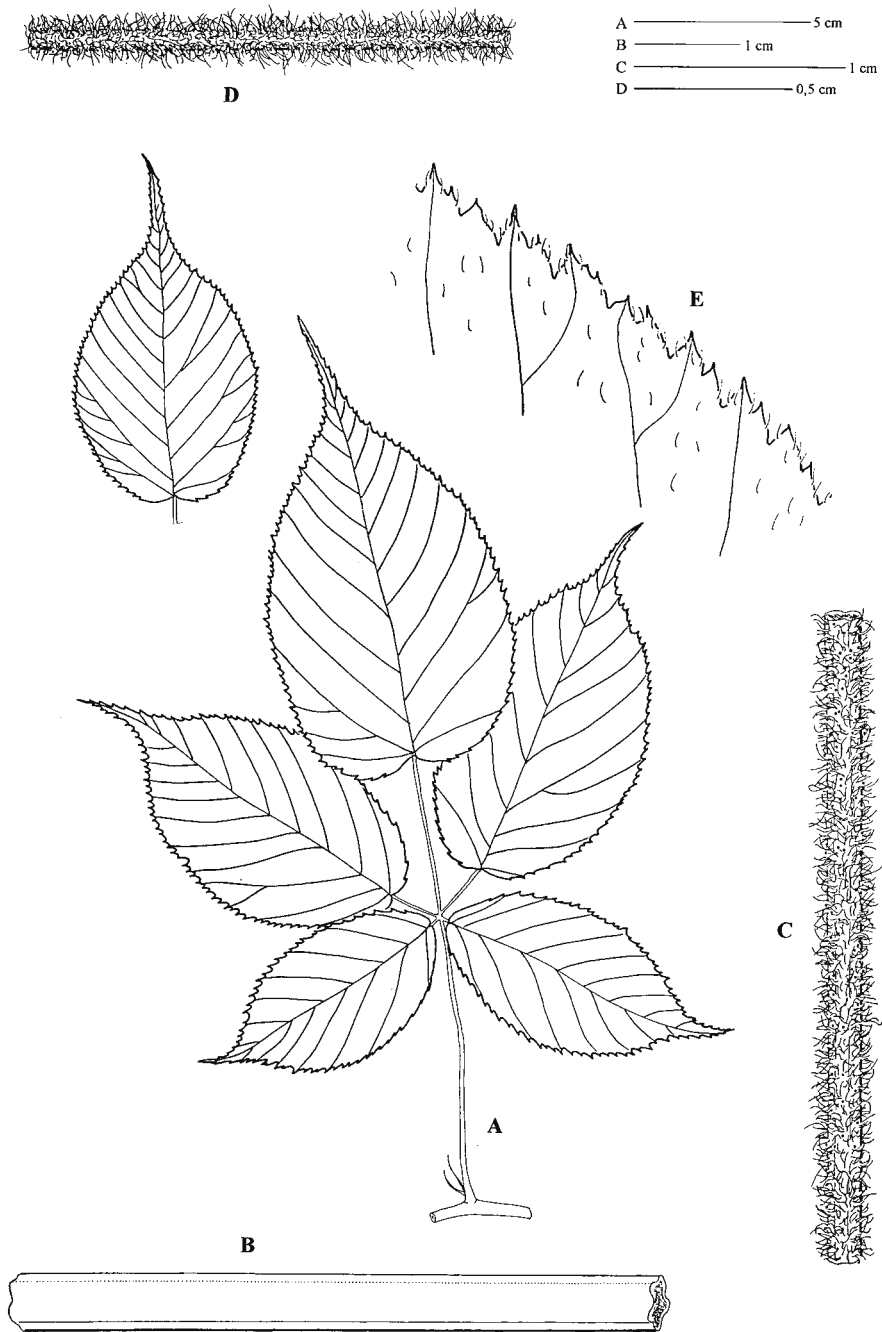


Fig. 42. *Rubus canadensis* L. A – leaf from vegetative stem and terminal leaflet; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Kosiński, Tomaszewski & Zieliński, in Zieliński 17/98, KOR 39951).

Młynowiec, Młynówka valley, 600 m, 16°54'–50°16½', 19 Jun 1997, *Kosiński s.n.* (KOR); BF3890 – ibidem, 16°54'–50°16½', 7 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 17/98* (KOR 39951); CF4382 – 1 km NNE of Prężynka, 260 m, 17°37½'–50°12½', 14 Sep 1999, *Kosiński & Zieliński 117/99* (KOR 41668).

Series *Alleghenienses* (L. H. Bailey) H. E. Weber

Osnabr. Naturwiss. Mitt. **26**: 117. 2000.

Basionym: [Grouping] *Alleghenienses* L. H. Bailey, Gentes. Herb. **1**: 152, 183.1923.

Type: *Rubus allegheniensis* Porter

Like series *Canadenses* but prickles present. Inflorescence axis and pedicels densely covered with short stalked glands.

16. *Rubus allegheniensis* Porter (Figs 43–45)

Bull. Torrey Bot. Club **23**: 153. 1896.

Rubus villosus Aiton, Hort. Kew. **2**: 210. 1789, *non* Thunb., Fl. Jap.: 218. 1784.

TYPE: Pennsylvania, Pocono Summit, 15.08.1896, *T. C. Porter* (NY – HOLOTYPE).

Stems erect, sometimes nodding at apex, angled, with furrowed sides, glabrous, with numerous sessile glands. Prickles on the angles, straight or slightly curved, 3–5(–9) mm long, few. Leaves digitate or subpedate, 5-foliolate, with rather numerous adpressed hairs above, with pectinately arranged, shimmering hairs on the veins beneath. Leaflets imbricate, terminal ones with short to long petiolules, broadly ovate to suborbicular, cordate at the base, with a suddenly acuminate apex 20–40 mm long, evenly, shallowly but sharply serrate; the serration 1–2 mm deep. Petiolules of basal leaflets up to 3(–4) mm long. Petioles hairy on the upper surface, with stalked glands and small straight or slightly curved pricklets. Stipules linear, hairy and with stalked glands. Inflorescence short, racemose, with 3–5-foliolate leaves below, leafless above. Inflorescence axis and pedicels with long patent hairs and numerous stalked glands somewhat shorter than the diameter of pedicel. Pedicels ascending, unarmed or with few, straight pricklets 1–2 mm long. Sepals green, glabrous or with sparse patent hairs, reflexed after

anthesis. Stamens distinctly longer than styles, patent or reflexed after flowering. Anthers, carpels and receptacle glabrous. Fruit oblong-ellipsoid, with numerous black drupelets. – $2n = 14$ (Weber 1995); $2n = 21$ (Thompson 1997); $2n = 28$ (material from the Czech Republic; Kraulcová & Holub 1998a). – Flowering V–VI(–VII).

MAIN DIAGNOSTIC CHARACTERS. Stems erect with few prickles; leaflets imbricate, with narrow, suddenly acuminate apices; inflorescence axis and pedicels patent-hairy and with numerous long-stalked glands; sepals green; stamens patent or reflexed after anthesis; fruit oblong-ellipsoid with numerous drupelets.

HABITAT. Thickets, wayside ditches, margins of neglected orchards.

DISTRIBUTION IN POLAND. Naturalized on scattered localities, formerly cultivated for fruit.

GENERAL DISTRIBUTION. Native to E regions of North America.

SPECIMENS SEEN. AB1569 – by the road S of Łukęcin, 14°52½'–54°01½', 2 Jul 1992, *Boratynska, Dolatowska & Zieliński Z. 3089* (KOR 29922); AB1640 – near Łukęcin, 14°53'–54°02½', 16 Jul 1986, *Zieliński s.n.* (KOR 10557); AB4963 – Resko, 15°24½'–53°46½', 13 Jul 1980, *Brzozowska s.n.* (KOR 29912); BB1718 – Pola-

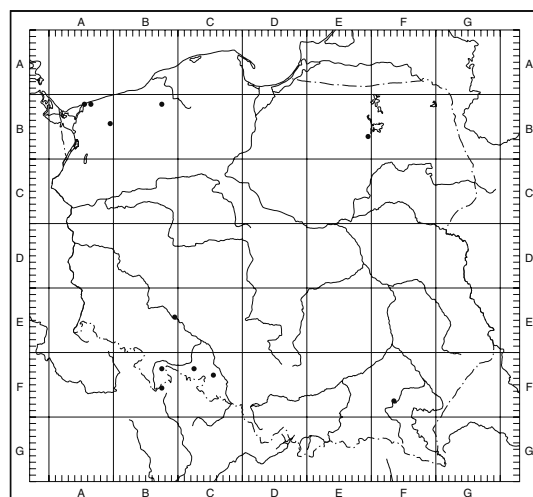


Fig. 43. Distribution of *Rubus allegheniensis* Porter in Poland.

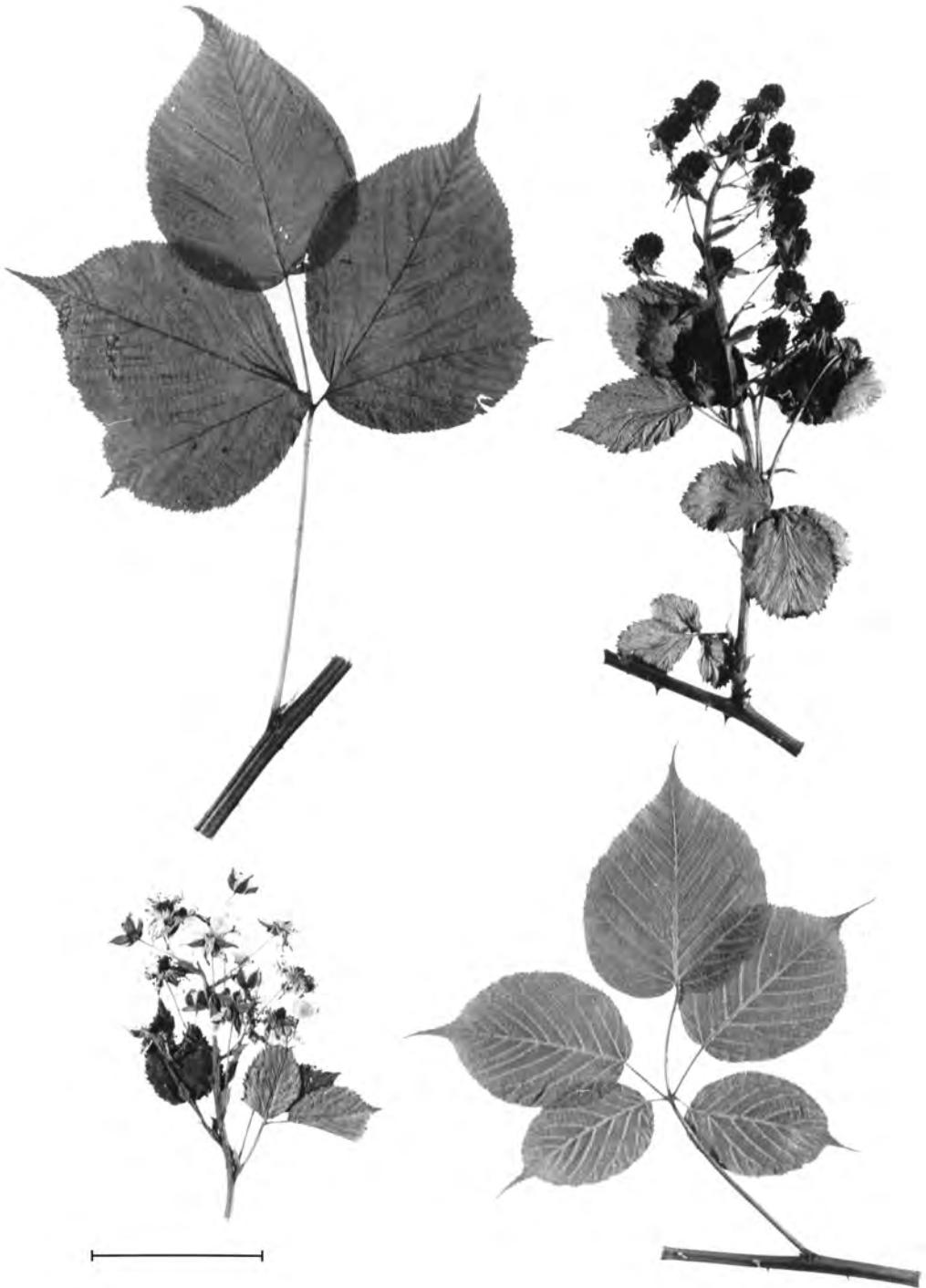


Fig. 44. *Rubus allegheniensis* Porter (Zieliński 3089, KOR 31564). Scale bar = 5 cm.

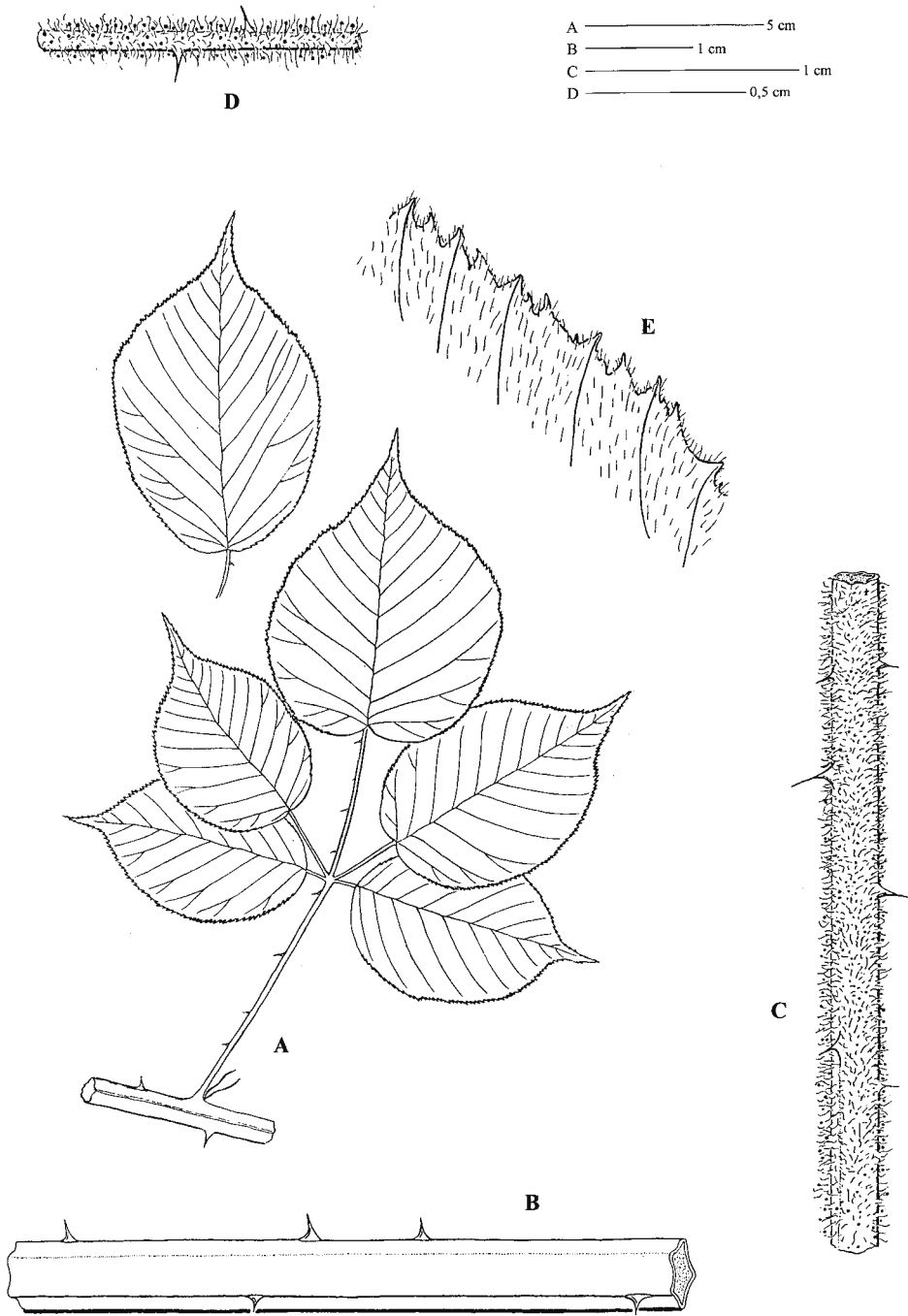


Fig. 45. *Rubus allegheniensis* Porter. A – leaf from vegetative stem and terminal leaflet; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 3089, KOR 31564).

nów, 16°41'–54°07', 20 Sep 1997, *Wastowska s.n.* (POZ); BE4955 – Wrocław-Zalesie, 17°05'–51°07½', 20 Jun & 28 Jul 1899, *Baenitz s.n.* (LE); BF2729 – Złoty Stok, 405 m, 16°52½'–50°26', 8 Oct 1998, *Kosiński 868* (KOR 40733); BF5710 – Międzyzalesie, Jodłów, Kamienny Garb, 765 m, 16°46'–50°10½', 21 Aug 1998, *Kosiński s.n.* (KOR); CF2292 – Mieszkowice, 260 m, 17°29½'–50°22½', 15 Jul 2000, *Kosiński, Tomaszewski & Zieliński 82* (KOR 42713); CF3592 – Kazimierz, 240 m, 240 m, 50°17½'–17°54½', 16 Aug 2001, *Kosiński, Tomaszewski & Zieliński obs.*; EB6929 – Ruciane-Nida, 21°34'–53°39', 17 Jun 1952, *Tacik s.n.* (KRAM); FF7389 – Lubenia-Maternówka, 21°55'–49°55', 25 Aug 1999, *Zieliński s.n.* (KOR 41314).

Subsection *Hiemales* E. H. L. Krause in Prahl

Krit. Fl. Prov. Schleswig-Holst. 2: 57. 1890.

TYPE: *Rubus conothyrsos* Focke (= *R. siekensis* G. Braun).

Leaves persistent in winter. Stems arching to prostrate, with rooting tips. Prickles uniform to unequal. Stalked glands lacking or present. Suckers from roots absent.

Series *Discolores* (P. J. Müll.) Focke

Sp. Rub. 3: 376. 1914.

Basionym: *Rubus* sect. *Discolores* P. J. Müll., Flora 41: 133. 1858.

TYPE: *Rubus discolor* Weihe & Nees (= *R. ulmifolius* Schott).

Stems high-arching, normally without stalked glands. Prickles uniform. Leaves and sepals grey-white- or white-felted beneath.

17. *Rubus bifrons* Vest (Figs 46–48)

Steiermark. Zeitschr. 3: 163. 1821.

TYPE: Sine die et loco, *Vest* 'R. *bifrons* mihi, wurde bisher für *R. fruticosus* gehalten', Herb. Trattinnick (WU – LECTOTYPE; Weber 1985).

Stems arching, strong, angled, with flat or rarely furrowed sides, suffused red-brown on the side turned to the sun, with scattered to fairly numerous stellate hairs, rarely with simple hairs, glabrescent. Prickles uniform, up to 15(–20) per 5 cm, (5–)6–7(–9) mm long, slender but strong,

slightly curved or usually straight, patent or faintly declining. Leaves distinctly pedate, 5-foliolate or partly also 3–4-foliolate, glabrous above, whitish or grey-white beneath, densely felted with stellate and longer tufted and simple hairs. Terminal leaflets with mid-long or oftener long petiolules (35–50%), obovate or rarely broadly elliptical, rounded or shallowly cordate at the base, with an acuminate apex 5–15 mm long, sharply serrate; teeth with variously directed tips; principal teeth prominent, straight or recurved. Basal leaflets with petiolules 4–7 mm long. Petioles with numerous declining or slightly curved prickles 3–4 mm long. Stipules filiform. Inflorescence paniculate, narrowly conical, leafless above, truncate at the apex, with 3–5-foliolate leaves below. Inflorescence axis felted in the upper part with stellate and less numerous longer patent hairs. Prickles slender, subulate, declining, up to 5–7(–9) mm long. Pedicels 0.5–1.5(–2) cm long, felted-hairy, also with patent hairs and very numerous sessile glands. Prickles few, slightly curved, up to 2.5(–3) mm long. Sepals grey-felted, unarmed or with few pricklets *ca* 0.5 mm long, reflexed after anthesis. Petals pink, broadly elliptical to suborbicular, usually 10–12 mm long. Stamens exceeding styles. Anthers glabrous or some of them with single hairs. Carpels hairy. Receptacle glabrous. – 2n = 28 (Boratyńska 1996). – Flowering (VI–) VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems angled, slightly hairy; prickles slender, mostly straight; leaves pedate, white-grey-felted underneath; inflorescence axis with subulate, declining prickles.

HABITAT. Thickets, forest margins, clearings.

DISTRIBUTION IN POLAND. Chiefly in S regions, at the foot of the Karpaty Mts and in S Małopolska, besides on isolated stands in the Odra valley between Opole and Racibórz, SW of Poznań, up to 400–500 m.

GENERAL DISTRIBUTION. Widespread species: NW, W and Central Europe; Belgium, Holland, Germany, Austria, Switzerland, Slovenia, Hungary, the Czech Republic, Slovakia and Poland.



Fig. 46. *Rubus bifrons* Vest (*Oklejewicz s.n.*, KOR 29202). Scale bar = 5 cm.

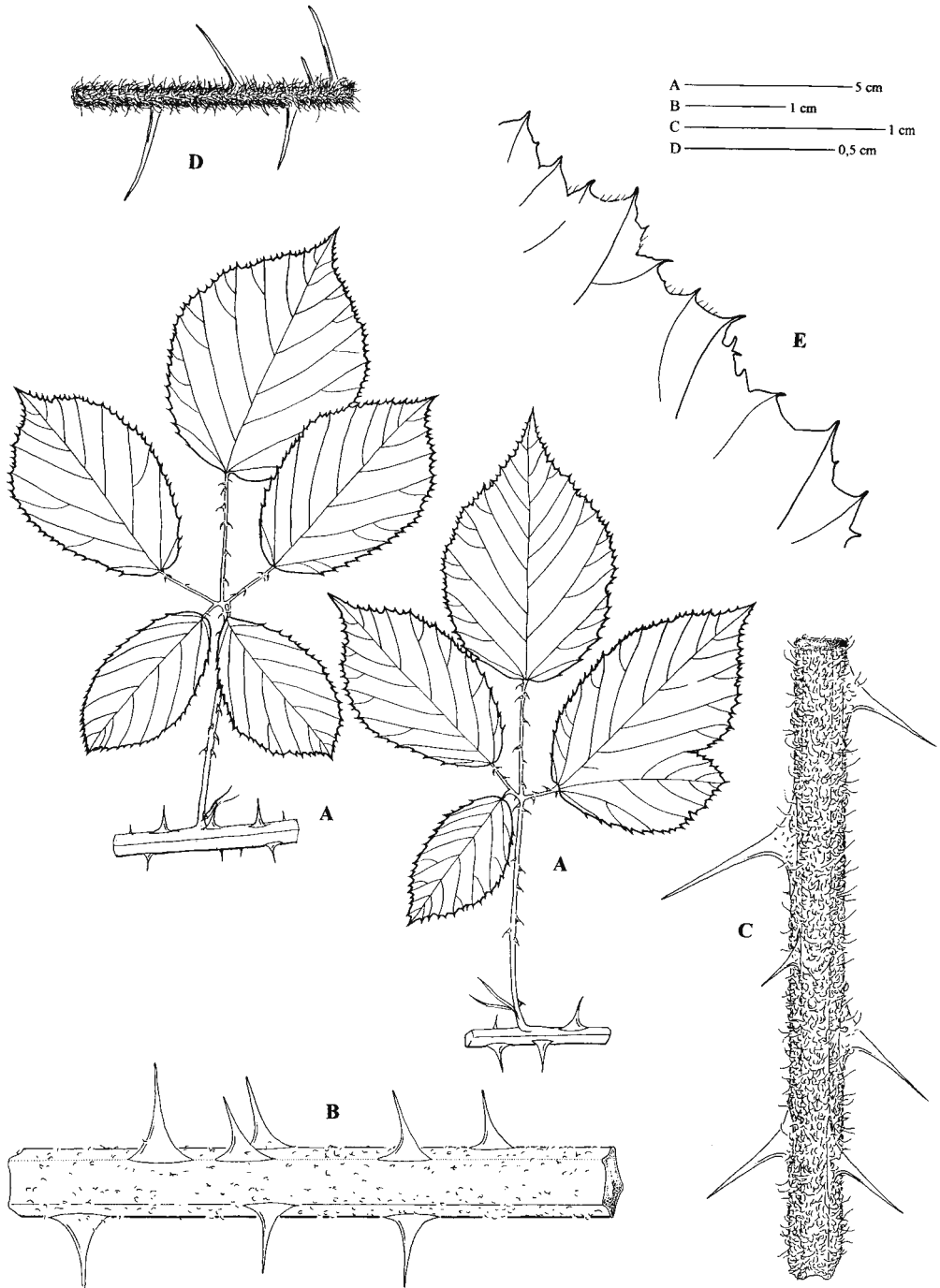


Fig. 47. *Rubus bifrons* Vest. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Tomlik & Zieliński, in Zieliński 2294, KOR 27953).

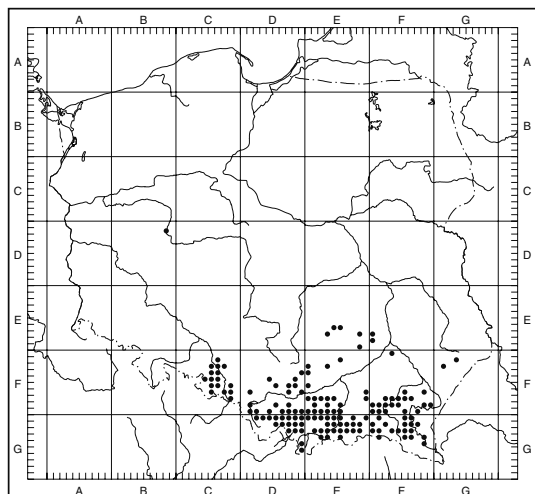


Fig. 48. Distribution of *Rubus bifrons* Vest in Poland.

SELECTED HERBARIUM SPECIMENS. BD1840 – near Jarosławiec, $16^{\circ}48\frac{2}{3}' - 52^{\circ}17\frac{2}{3}'$, 22 Aug 1994, *Zieliński 89/94 & 86/94* (KOR 29510 & 29511); CF1623 – 1.5 km W of Kamiień Śląski, $18^{\circ}03\frac{2}{3}' - 50^{\circ}32\frac{1}{2}'$, 22 Aug 1996, *Maliński & Danielewicz s.n.* (POZNF); CF2563 – Wesola, 190 m, $17^{\circ}55\frac{1}{2}' - 50^{\circ}24\frac{1}{2}'$, 15 Sep 1999, *Kosiński & Zieliński Z. 175/99* (KOR 41615); CF2784 – Łąki Kozielskie, $18^{\circ}13' - 50^{\circ}24'$, 14 Jul 1986, *Lewandowska-Knop s.n.* (KTU); CF3640 – Marianków, $18^{\circ}01\frac{1}{3}' - 50^{\circ}20\frac{1}{3}'$, 11 Aug 1980, *Szotkowski s.n.* (HB. SZOT); CF4402 – Pomorzowice, $17^{\circ}46\frac{1}{2}' - 50^{\circ}17\frac{1}{4}'$, 16 Jul 1988, *Tomlik & Zieliński Z. 2294* (KOR 27983); DF3981 – Ibramowice, $19^{\circ}51\frac{2}{3}' - 50^{\circ}18\frac{1}{2}'$, sine die, *Kozłowska s.n.* (KRAM 222279); DF5551 – 1 km W of Byczyna, $19^{\circ}17\frac{3}{4}' - 50^{\circ}09\frac{2}{3}'$, 28 Jul 1987, *Grzegorzek s.n.* (CHRZ); DF5809 – Dolina Prądnika near Ojców, $19^{\circ}50' - 50^{\circ}12'$, 3 Aug 1928, *Krawiec s.n.* (KOR); DF6726 – N of Frywałd, $19^{\circ}39' - 50^{\circ}05\frac{1}{2}'$, 3 May 1973, *Boratyński, Browicz & Zieliński s.n.* (KOR 5765); DF8797 – Bugaj, $19^{\circ}40' - 49^{\circ}51\frac{1}{2}'$, 22 Aug 1951, *Pawłowska & Pawłowski s.n.* (KRAM 61555); DG5903 – Mietłowska Mt. between Dzianisz & Kościelisko, $19^{\circ}52\frac{1}{2}' - 49^{\circ}18\frac{1}{2}'$, 19 Aug 1955, *Pancer s.n.* (KRA 045023); EE6445 – Jaworze, $20^{\circ}39' - 50^{\circ}57\frac{1}{2}'$, 3 Aug 1933, *Kaznowski s.n.* (KOR 10573); EE7388 – Słowik, $20^{\circ}32\frac{1}{4}' - 50^{\circ}50\frac{1}{2}'$, 5 Sep 1931, 30 Jul 1932 & Jul 1933, *Kaznowski s.n.* (KRAM 144997, KOR 10571, 10572 & POZNB); EE7875 – E slope of Witosławska Góra near Witosławice, $21^{\circ}12\frac{1}{3}' - 50^{\circ}50'$, 8 Aug 1932, *Kaznowski s.n.* (POZNB & KRAM 145001); EE9813 –

Jastrzębska Wola, $21^{\circ}10\frac{1}{3}' - 50^{\circ}42\frac{2}{3}'$, Sep 1896, *Piotrowski s.n.* (LW); EF2025 – Przybyśławice, $20^{\circ}04' - 50^{\circ}26\frac{2}{3}'$, sine die, *Kozłowska s.n.* (KRAM 242278); EF2378 – Wola Chrobberska, $20^{\circ}31\frac{1}{2}' - 50^{\circ}24'$, 31 Jul 1986, *Mazur s.n.* (KOR 10569); EF7460 – Kieblo Łazowskie, $20^{\circ}32\frac{1}{2}' - 49^{\circ}57\frac{1}{2}'$, 11 Jun 1993, *Stachurska s.n.* (KRA); FE7073 – Ptkanów, $21^{\circ}28' - 50^{\circ}50'$, Sep 1896, *Piotrowski s.n.* (LW 55337); FF0351 – Sokół, $21^{\circ}50\frac{3}{4}' - 50^{\circ}34\frac{1}{2}'$, 19 Jul 1996, *Oklejewicz s.n.* (KRA); FF6559 – Kraczkowa, $22^{\circ}12' - 50^{\circ}01\frac{1}{2}'$, 8 Jul 1992, *Oklejewicz s.n.* (KOR 29283 & KRA); FF6853 – Zalesie, $22^{\circ}32' - 50^{\circ}00\frac{2}{3}'$, 2 Jul 1992, *Oklejewicz s.n.* (KOR 29276 & KRA); FF8821 – Kramarzędka, $22^{\circ}29\frac{1}{2}' - 49^{\circ}51\frac{3}{4}'$, 14 Jul 1998, *Niedźwiecka s.n.* (KRA); GF1321 – near Łasochy towards Ciotusza Nowa, $23^{\circ}14\frac{1}{2}' - 50^{\circ}27\frac{2}{3}'$, 26 Aug 1993, *Boratyńska et al. 53/93* (KOR 31187); GF2159 – Borowiec, $23^{\circ}04' - 50^{\circ}21\frac{1}{3}'$, 14 Jun 1965, *Fijałkowski s.n.* (LBL).

18. *Rubus praecox* Bertol. (Figs 49–51)

Fl. It. 5: 220. 1842.

Rubus procerus P. J. Müll. ex Boulay, Ronc. Vogs.: 7. 1864.

TYPE: Bosnia, in sepibus prope Padermo 7.1842, Bertoloni (BOLO – LECTOTYPE; Weber 1985).

Stems high-arching, thick, up to 15 mm in diameter, angled, narrowly furrowed, sparsely hairy with fascicled hairs, usually soon glabrescent. Prickles 3–5(–8) per 5 cm, on the angles, stout, (7–)8–11 mm long, \pm curved. Leaves digitate or subpedate, 5-foliolate, usually large, glabrous above, white-grey-felted beneath, with stellate and longer fascicled hairs. Terminal leaflets with long petiolules (35–40%), (broadly) ovate to broadly elliptic, rarely obovate, cordate or rounded at the base, with an acuminate apex, (sharply) \pm periodically serrate, with straight or slightly recurved principal teeth. Basal leaflets with petiolules 3–5(–6) mm long. Petioles sparsely hairy, with numerous strongly curved prickles. Stipules narrowly lanceolate to filiform. Inflorescence rather narrow, conical, blunt at the apex, with 3–5-foliolate leaves at the base. Inflorescence axis patent-hairy, with an underlayer of stellate hairs above. Prickles usually strong, stout-based, curved, 6–8 mm long. Pedicels usually 5–1.5(–2) cm long, felted, besides with long pat-



Fig. 49. *Rubus praecox* Bertol. (*Oklejewicz s.n.*, KOR 24966). Scale bar = 5 cm.

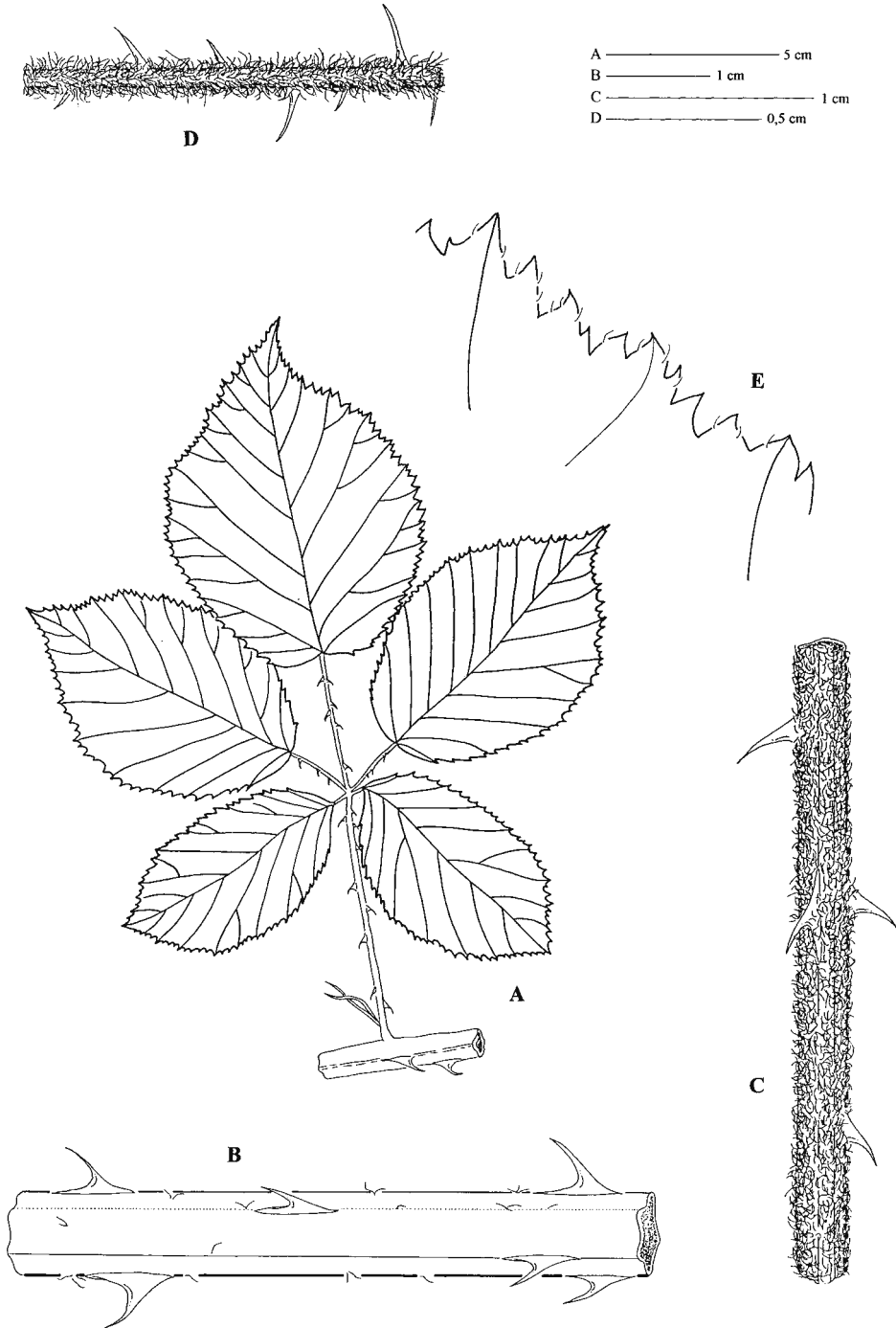


Fig. 50. *Rubus praecox* Bertol. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Oklejewicz s.n.*, KOR 24966).

ent hairs as long or longer than the pedicel diameter. Prickles curved, rather strong, 1.5–2.5 mm long. Sepals grey-felted, unarmed, reflexed after anthesis. Petals broadly elliptic to orbicular, white or pale pink, 10–13(–14) mm long. Stamens exceeding styles. Anthers glabrous or rarely hairy. Carpels and receptacle hairy. – $2n = 28$ (material from Germany; Iwatsubo *et al.* 1995). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems thick, furrowed; prickles strong, \pm curved; leaves white–to grey-felted beneath, leaflets sharply serrate; inflorescence narrow, rather compact; inflorescence axis with strong, curved prickles. Species closely related and often mistaken for *R. armeniacus*, from which it can be separated by stem prickles not red at the base, flat (not convex) terminal leaflets, curved prickles on the inflorescence axis and somewhat smaller flowers.

HABITAT. Open places, thickets, forest margins.

DISTRIBUTION IN POLAND. Rare in the south.

GENERAL DISTRIBUTION. Widespread species. W, S and SE Europe and SW Asia, eastwards to Crimea, N Anatolia and N Iran.

SPECIMENS SEEN. BD4360 – 2.5 km NNW of Łupice, $16^{\circ}06' - 51^{\circ}59\frac{1}{2}'$, 3 Sep 1997, *Maliński 97183* (POZNF);

BD7586 – Brzeżany, $16^{\circ}29' - 51^{\circ}43'$, 21 Aug 1997, *Danielewicz & Maliński M. 97106* (POZNF); BE8419 – Burkatów, 400 m, $16^{\circ}26\frac{2}{3}' - 50^{\circ}47\frac{3}{8}'$, 3 Jul 1990, *Boratyński 90.15* (KOR 25203); CF7866 – near Czyżowice, by the road to Gorzyce, $18^{\circ}24' - 49^{\circ}58\frac{1}{3}'$, 26 Aug 1994, *Zieliński 156/94* (KOR 29469); EG0949 – Pasieki, $21^{\circ}21' - 49^{\circ}41\frac{1}{2}'$, 28 Jul 1989, *Oklejewicz s.n.* (KOR 24966); EG1821 – Szymbark, $21^{\circ}05\frac{3}{4}' - 49^{\circ}37\frac{1}{2}'$, 13 Aug 1994, *Oklejewicz s.n.* (KRA); FF7247 – Pstragowa, 250 m, $21^{\circ}45' - 49^{\circ}57'$, 16 Sep 1997, *Oklejewicz s.n.* (KRA); FG0083 – Duląbka, $21^{\circ}24' - 49^{\circ}39\frac{1}{2}'$, 1 Sep 1990, *Oklejewicz s.n.* (KRA); FG1011 – between Bednarka & Wola Cieklińska, 350 m, $21^{\circ}22' - 49^{\circ}38'$, 8 Sep 1997, *Oklejewicz s.n.* (KRA); FG1260 – Draganowa, $21^{\circ}37\frac{3}{4}' - 49^{\circ}35'$, 24 Jul 1989, *Oklejewicz s.n.* (KOR 25591); GF0124 – SSE of Zwierzyniec, by the road to Józefów, $23^{\circ}01' - 50^{\circ}33\frac{2}{3}'$, 25 Aug 1993, *Boratyńska et al. s.n.* (KOR 31180).

19. *Rubus armeniacus* Focke (Figs 52–54)

Abh. Naturwiss. Ver. Bremen 4: 183. 1874.

Rubus procerus auct. mult. non P. J. Müll. ex Boulay (1864).

TYPE: Ungarn, Armenien, Transkaukasien, sine die, N. N., Herb. Focke (BREM – LECTOTYPE; Weber 1985).

Stems high-arching, bluntly angled with \pm deeply furrowed or rarely flat sides, sparsely unevenly pubescent with tufted and/or simple hairs, glabrescent, green when young, becoming violet-brown. Prickles usually few, 3–7 per 5 cm, 8–11 mm long, stout, straight, patent or slightly declining, rarely somewhat curved, red at the base, with yellowish points, contrasting with the green surface (of shady side) of the stem. Leaves 5-foliolate, pedate or digitate, usually large, with few hairs above, white-grey-felted below, with a dense layer of stellate hairs with few longer patent hairs. Terminal leaflets with mid-long or long petiolules (35–50%), broadly elliptical, broadly obovate to sub-orbicular, rounded to cordate at the base, with a suddenly acuminate apex 5–15 mm long, grossly, unevenly serrate; teeth apiculate, principal ones usually straight. Basal leaflets with petiolules 4–6 mm long. Petioles shorter or longer than the basal leaflets, sparsely hairy, with rather numerous strongly curved stout-based prickles. Stipules filiform-lanceolate. Inflorescence paniculate, usually

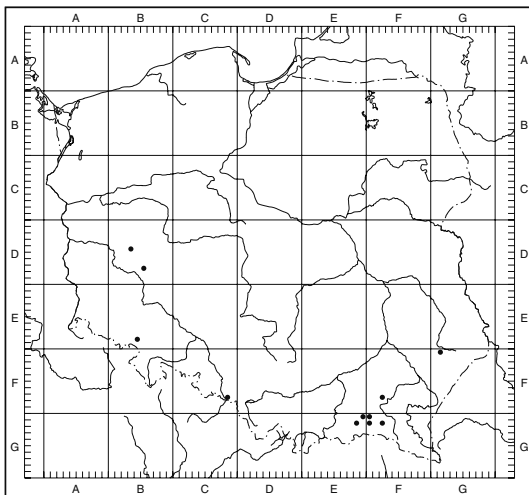


Fig. 51. Distribution of *Rubus praecox* Bertol. in Poland.

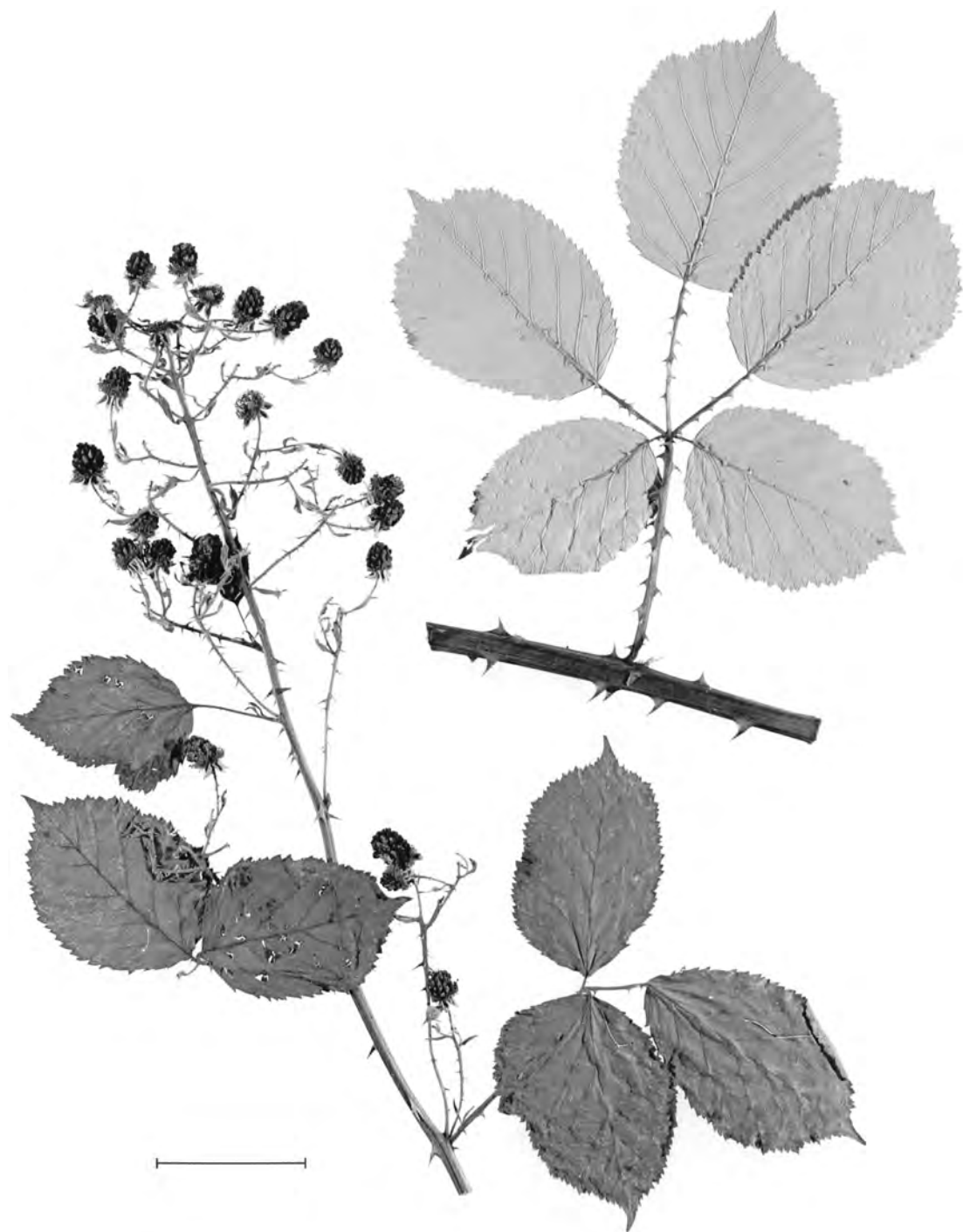


Fig. 52. *Rubus armeniacus* Focke (Zieliński 2984, KOR 24796). Scale bar = 5 cm.

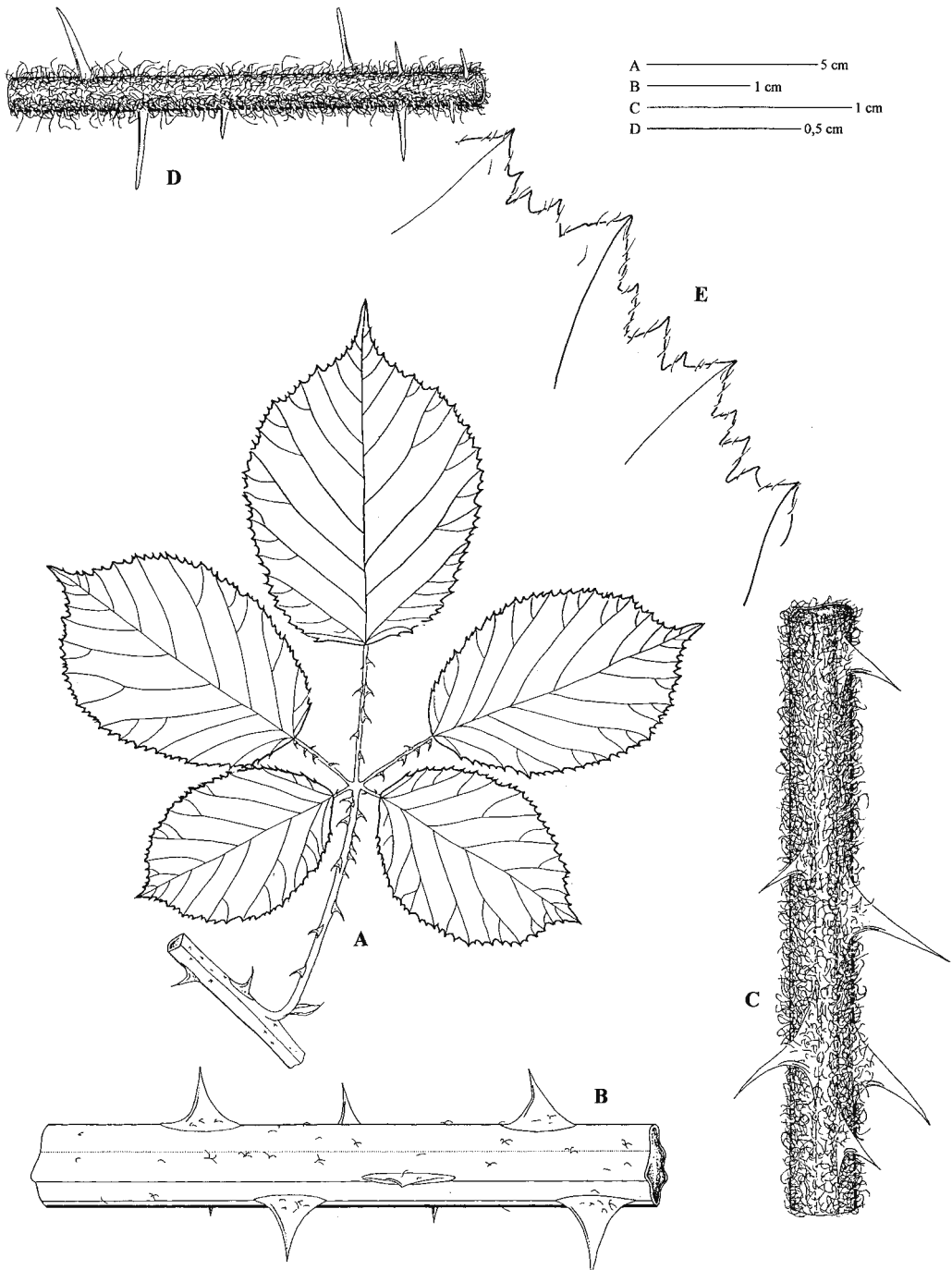


Fig. 53. *Rubus armeniacus* Focke. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2984, KOR 24796).

very rich, leafless at the apex, with 3–5-foliolate leaves below. Inflorescence axis subglabrous below, felted, with spreading hairs above. Prickles slender but strong, up to 7 mm long, with red base, mostly straight, declining. Pedicels up to 1.5 cm long, felted, with long patent hairs, subsessile glands, sometimes with few stalked glands up to 1.5 mm long and with several pricklets up to 1.5 mm long. Sepals grey-white-felted, without or with subsessile glands, usually unarmed, reflexed after anthesis. Petals pale pink, broadly elliptical, 15–20 mm long. Stamens exceeding styles. Anthers glabrous. Ovary densely hairy. Receptacle hairy. Fruit large. Drupelets black, tasty. – $2n = 28$ (Boratyńska 1995 a). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems thick, furrowed, sparsely hairy at least when young; prickles strong, with broad red base; inflorescence axis with straight, declining subulate prickles; flowers large, pale pink; fruit large. From the very similar *R. praecox* it can be distinguished by red-based prickles. The latter character is visible well on young stems, especially on the side turned out of the sun.

HABITAT. Waysides, thickets, margins of gardens and orchards, along railways, rarely at forest edges.

DISTRIBUTION IN POLAND. Scattered chiefly in the west.

GENERAL DISTRIBUTION. The Caucasus (?). Probably introduced to Europe in 1860.

NOTES. The blackberry often planted for large, tasty fruits, sold under the name ‘Theodor Reimers’ or ‘Himalayan Giant’. In many regions naturalized, especially in W Europe and North America.

According to Eedes and Newton (1988) Caucasian origin of *R. armeniacus* is doubtful. The authors identify it with *R. praecox* Bertol.

SELECTED HERBARIUM SPECIMENS. AB4964 – Resko, by the road to Świdwin, $15^{\circ}25\frac{3}{4}' - 53^{\circ}46\frac{1}{2}'$, 3 Jul 1992, Boratyńska, Dolatowska & Zieliński Z. 3102 (KOR 29924); AB5538 – Łoźnica, $14^{\circ}53' - 53^{\circ}41\frac{1}{2}'$, 15 Jul 1977, Zieliński 955 (KOR 8783); AB8314 – Szczecin, $14^{\circ}33' - 53^{\circ}26'$, 28 Aug 1902, Holzfuss s.n. (PR); AD0425 – near Rzepin towards Drzeńsko, $14^{\circ}49' -$

$52^{\circ}21\frac{1}{4}'$, 15 Aug 1974, Boratyński, Kaczmarek & Zieliński s.n. (KOR 6977); AD2878 – Skape, $15^{\circ}27\frac{3}{4}' - 52^{\circ}09'$, 29 Jun 1974, Boratyńska, Boratyński & Zieliński s.n. (KOR 6730); AD8420 – Trzebiel, $14^{\circ}49' - 51^{\circ}38'$, 14 Jul 1978, Zieliński 1177 (KOR 8881); BC7725 – Bąblin, $16^{\circ}43\frac{1}{4}' - 52^{\circ}40\frac{1}{2}'$, 18 Jul 1995, Boratyńska s.n. (KOR 32251); BC9035 – Policko, $15^{\circ}42' - 52^{\circ}27\frac{2}{3}'$, 25 Jul 1975, Browicz & Zieliński 741 (KOR 7186); BE3608 – Pyszczka, $16^{\circ}41' - 51^{\circ}15\frac{1}{2}'$, 29 Oct 1988, Głowacki s.n. (WSRP 34168); BE5201 – near Stanisławów, 350 m, $16^{\circ}01\frac{1}{4}' - 51^{\circ}03\frac{5}{6}'$, 15 Jun 1986, Boratyński & Zieliński SU 1022 (KOR); BE7349 – Pelcznica, $16^{\circ}18' - 50^{\circ}51'$, 28 Jul 1987, Boratyński & Zieliński Z. 1963 (KOR 22874); BE8697 – near Dobrocin, by the road to Dzierżonów, $16^{\circ}41\frac{1}{2}' - 50^{\circ}43\frac{5}{6}'$, 8 Aug 1991, Zieliński 3017 (KOR 24905); CA5004 – Rowy, $17^{\circ}03\frac{1}{2}' - 54^{\circ}40'$, 8 Aug 1990, Stachurski s.n. (KTC); CB9440 – Szczecin-Zdroje, $17^{\circ}39\frac{1}{2}' - 53^{\circ}23'$, 4 Aug 1964, Ćwikliński s.n. (LOD); CC8313 – 2 km NE of Zdziechowa, $17^{\circ}34\frac{1}{2}' - 52^{\circ}36\frac{1}{3}'$, 16 Jun 1993, Chmiel s.n. (POZ); CD0800 – 1 km E of Ościsłowo, $18^{\circ}16' - 52^{\circ}26\frac{3}{4}'$, 13 Sep 1988, Chmiel s.n. (POZ); CD6891 – Krzyżówki, $18^{\circ}17\frac{1}{2}' - 51^{\circ}49\frac{1}{2}'$, 23 Sep 1988, Zieliński 2210 (KOR 25517); CD7572 – 3 km E of Górzno, $17^{\circ}52\frac{2}{3}' - 51^{\circ}44\frac{4}{5}'$, sine die, Zieliński 650 (KOR); CE5603 – between Komorzno & Krzywiczyny, $18^{\circ}03\frac{1}{3}' - 51^{\circ}05\frac{5}{6}'$, 26 Jul 1977, Zieliński 1004 (KOR 8779); CF4405 – between Kietlice & Klisin, $17^{\circ}49' - 50^{\circ}17'$, 26 Aug 1994, Zieliński 163/94 (KOR 29520a); DB3263 – Biała Góra, $18^{\circ}53\frac{3}{4}' - 53^{\circ}54\frac{3}{4}'$, 13 Sep 1975, Rutkowski s.n. (TRN); DC1014 – Wrocławki, $18^{\circ}37' - 53^{\circ}14\frac{1}{2}'$, Sep 1990, Rutkowski s.n. (TRN); DC3062 –

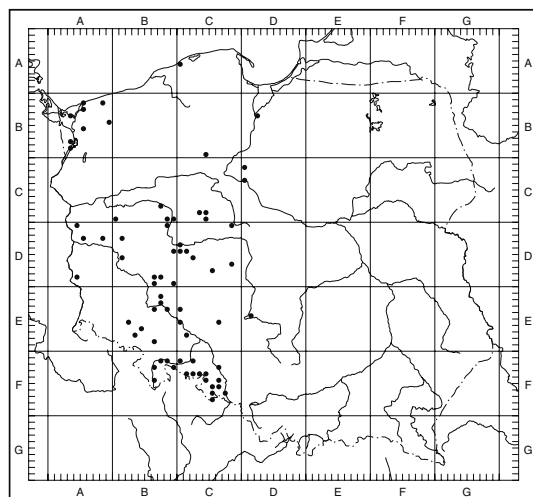


Fig. 54. Distribution of *Rubus armeniacus* Focke in Poland.

Toruń, 18°35¼'–53°01½', 11 Sep 1996, *Rutkowski s.n.* (TRN); DE4101 – between Kraszkowice & Krzczów, 18°44½'–51°11½', 26 Jul 1977, *Zieliński 1025* (KOR 8701a).

20. *Rubus montanus* Lib. ex Lej. (Figs 55–57)

Fl. Spa 2: 317. 1813.

Rubus candicans Weihe ex Rchb., Fl. Germ. exs. 601. 1832., *pro parte, typo excl., nom. superfl. pro R. silesiacus* Weihe.

TYPE: Bois en Goudouf? ('Juillet'), sine die, *Libert* (BR – LECTOTYPE; Beek 1974).

Stems high-arching, sometimes suberect, violet-red, bluntly angled, with flat or furrowed sides, glabrous or with scattered usually stellate hairs when young. Prickles usually few, (2–)3–5 per 5 cm, 5–7(–10) mm long, straight or almost so, patent or declining. Leaves digitate or subpedate, 5-foliolate, glabrous or with sparse hairs above when young, densely covered with stellate hairs and with few protruding hairs beneath, white-grey, rarely grey-green. Leaflets not contiguous, widely spaced, terminal ones usually on short or mid-long petiolules (25–35%), narrowly obovate, rarely elliptical, narrowly rounded or shallowly emarginate at the base, with an acuminate apex 5–15 mm long, periodically coarsely serrate; the serration 3–4 mm deep; principal teeth straight or slightly retrorse. Basal leaflets on petiolules 1–4 mm long. Petioles hairy, with several curved prickles. Stipules filiform to linear. Inflorescence paniculate, usually narrow, conical, with 3–5-foliolate leaves below. Inflorescence axis felted above and with long protruding hairs. Prickles strong, curved, 4–5(–7) mm long. Pedicels 1–2 cm long, felted, with spreading hairs and subsessile glands, unarmed or with 1–4 straight or slightly curved prickles up to 1.5(–2) mm long. Sepals (green-) grey or grey, felted with spreading hairs, usually unarmed, reflexed after anthesis. Petals white or pink, elliptical or obovate, 8–10 mm long. Stamens exceeding styles. Anthers and carpels glabrous. Receptacle hairy. – $2n = 21$ (Boratyńska 1996). – Flowering (VI)–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems high-arching or suberect; leaves white-grey-felted be-

neath; leaflets widely spaced, terminal ones narrowly obovate. The species closely related to *R. grabowskii*, from which it differs in having narrowly obovate leaflets and glabrous carpels. It is sometimes difficult to distinguish from similar local morphotypes.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. SW and S regions.

GENERAL DISTRIBUTION. Widespread species. France, Belgium, Holland, Luxembourg, Switzerland, Germany, N Italy, the Czech Republic, Slovakia, Hungary, Romania.

SELECTED HERBARIUM SPECIMENS. AD5829 – Wyszki, 15°30'–51°55½', Aug 1906, *col. ign.* (WRSL); AE4555 – between Mikulowa & Sulików, 15°05'–51°04½', 20 Jul 1994, *Boratyńska et al. s.n.* (KOR 29498); AE4909 – Skorzynice, 15°42'–51°08¾', 21 Jul 1994, *Boratyńska et al. s.n.* (KOR 29487); BD4125 – Karszyn, 15°52'–52°01¾', 15 Jun 1976, *Ryszewska s.n.* (POZ); BD6163 – Wojków, 15°51½'–51°48½', 5 Aug 1991, *Zieliński 2166* (KOR 24787); BD8692 – between Zawiszcze & Wierzowice, 16°34½'–51°37', 8 Aug 1997, *Zieliński III/97* (KOR 39057); BE1757 – Gródek, 16°48¼'–51°23½', 18 Oct 1912, *Spribille s.n.* (WRSL); BE2994 – Machnice, 17°03½'–51°16½', 8 Oct 1917, *Spribille s.n.* (WRSL); BE9917 – a quarry between Romanów & Krzywina, 17°07½'–50°42¾', 28 Jul 1914, *Spribille*

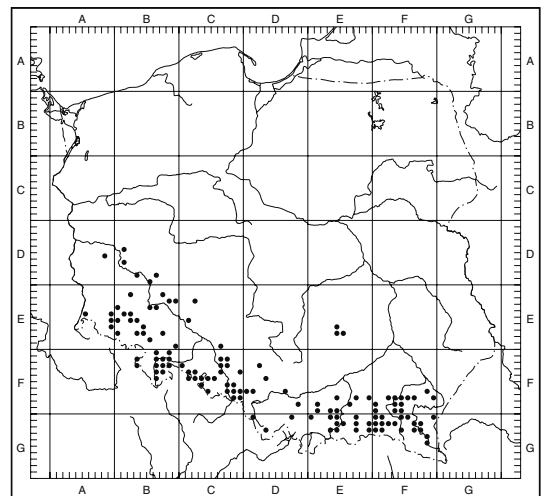


Fig. 55. Distribution of *Rubus montanus* Lib. ex Lej. in Poland.



Fig. 56. *Rubus montanus* Lib. ex Lej. (Zieliński 210/92, KOR 31566). Scale bar = 5 cm.

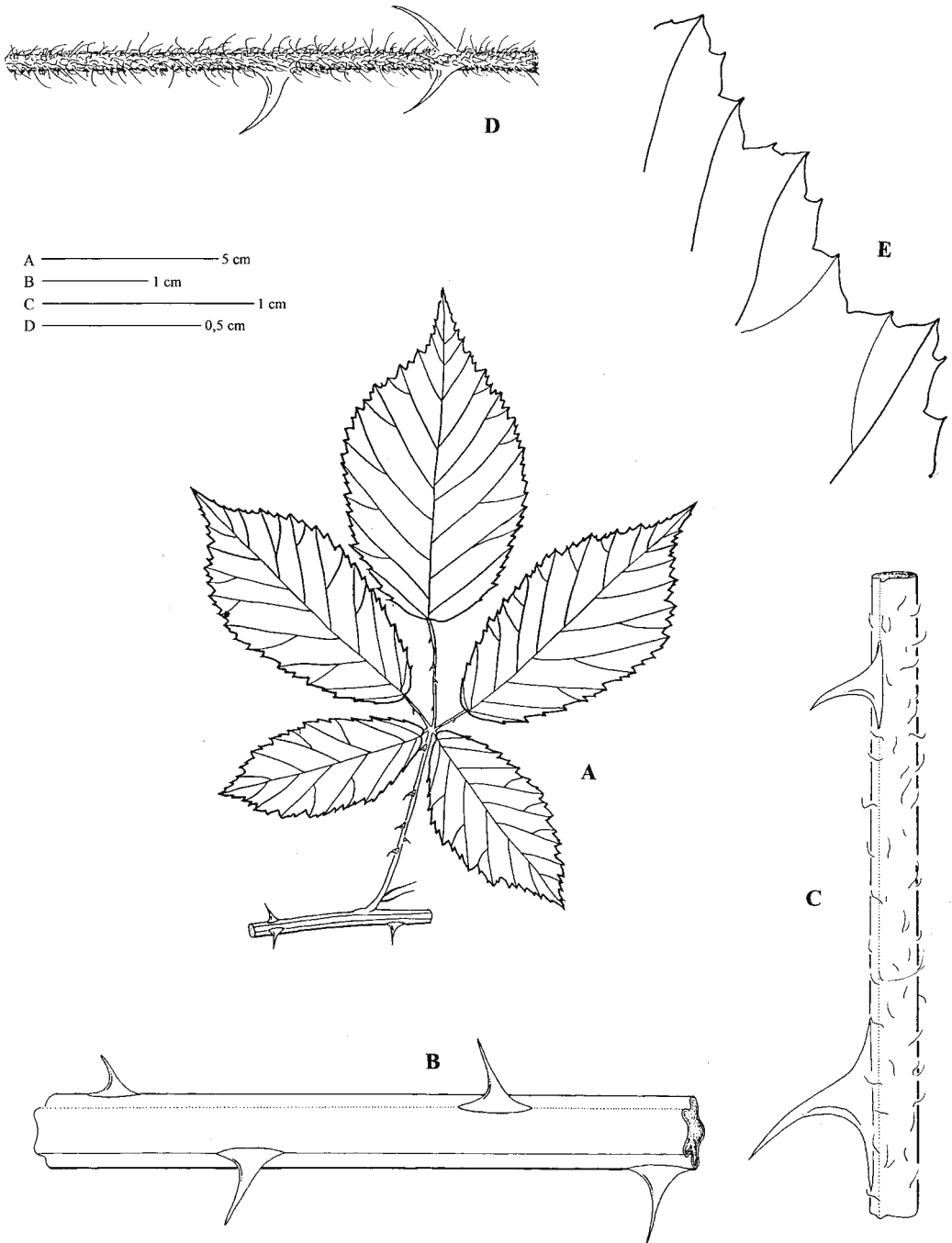


Fig. 57. *Rubus montanus* Lib. ex Lej. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratynski & Zieliński, in Zieliński 1718, KOR 22544).

s.n. (WRSL); CE2206 – between Gola Wielka & Twardogóra, 17°31′–51°21¼′, 9 Nov 1910, *Spribille s.n.* (WRSL); CE5157 – near Kopalina, 17°24′–51° 02¾′, 2 Nov 1910, *Spribille s.n.* (WRSL); CE9605 – Turawa, 18°05½′–50°44½′, 22 Aug 1996, *Danielewicz & Małiński s.n.* (POZNF); CF1756 – Roźniatów, 18°15′–50°30½′, 6 Sep 1907, *Spribille s.n.* (WRSL); CF3922 – between Rudziniec & Taciszów, 18°28′–50°21½′, 24 Aug 1915, *Spribille s.n.* (WRSL); DF2212 – by the road between Miasteczko Śląskie & Tarnowskie Góry, 18°54′–50°28′, 12 Sep 1907, *Spribille s.n.* (WRSL); DF4397 – Mysłowice-Wesoła, 19°06½′–50°12½′, Sep 1976, *Sendek s.n.* (KTU); DF6650 – Wygiełzów, 19°25¼′–50°04′, 3 Aug 1987, *Grzegorzek s.n.* (CHRZ); DF8877 – Biertowice, 340 m, 19°48½′–49°52½′, 23 Jul 1997, *Bartoszek s.n.* (KRA); EE6433 – E of Tumlin, 20°37′–50°58′, 11 Aug 1987, *Zieliński 1778* (KOR 22543); EE7490 – Posłowice, 20°34½′–50°49½′, 7 Jun 1986, *Molendowski s.n.* (KTC); EE7580 – between Mojca & Niestachów, 20°43′–50°50′, 25 Jul 1932, *Kaznowski s.n.* (KOR 10585 a); EF7784 – between Zabłędza & Poręba Radlna, 21°01′–49°56′, 18 Aug 1988, *Zieliński 2480* (KOR 25535); EF7939 – Gołęczyna, 21°21½′–49°58½′, 16 Sep 1999, *Oklejewicz s.n.* (KRA); FF6853 – Zalesie, 22°32′–50°00½′, 2 Jul 1992, *Oklejewicz & Zieliński s.n.* (KOR 29237 & KRA); FF7477 – Czerwonki Hermanowskie, 360 m, 22°02′–49°55½′, 10 Sep 1997, *Oklejewicz s.n.* (KRA); FG0939 – Gaje, 22°44′–49°40½′, 17 Sep 1999, *Oklejewicz s.n.* (KRA); FG1685 – Bykowce, 300 m, 22°15½′–49°33′, 18 Sep 1997, *Oklejewicz s.n.* (KRA); FG2646 – Wielopole, 22°16′–49°29½′, 8 Jul 1988, *Oklejewicz s.n.* (KOR 22749).

21. *Rubus grabowskii* Weihe ex Günther et al.

(Figs 58–60)

Cent. pl. siles. exs. 14. 1827.

Rubus thyrsoides Wimm., Fl. Schlesien, ed. 1: 204. 1832., *nom. superfl.* – *R. thyrsoides* subsp. *thyrsanthus* Focke, Syn. Rub. Germ.: 168. 1877. – *R. thyrsanthus* (Focke) Foerster, Fl. exs. Aachen 95. 1878.

TYPE: Zwischen Riemberg und Hauffen, sine die. *N. N.*, Günther et al., Cent. pl. siles. exs. 14 (KIEL – LECTOTYPE; Weber 1979b).

Stems high-arching or suberect, bluntly angled with furrowed or rarely flat sides, suffused violet-red, glabrous or with few scattered hairs and with subsessile glands. Prickles uniform, on angles, rather few, up to 8 per 5 cm, (4–)5–7(–10) mm long, somewhat curved or straight, slightly declin-

ing. Leaves 5-foliolate, digitate or subpedate, dull green and glabrous above, green-grey- to grey-felted beneath, with a dense layer of stellate hairs and with protruding longer simple hairs; in the shade stellate hairs much less numerous (visible under the lens only) and the lower leaflet surface merely greyish. Leaflets often contiguous; terminal ones on mid-long or long petiolules (30–50%), broadly elliptical, broadly obovate to suborbicular, rarely broadly ovate, broadest in the middle of lamina or slightly above, rounded to subcordate at the base, with a short-acuminate apex 10–15 mm long, evenly or indistinctly periodically serrate; principal teeth straight or somewhat retrorse. Basal leaflets on petiolules 1–3 mm long. Petioles sparsely patent-hairy, with strongly curved prickles. Stipules narrowly lanceolate. Inflorescence paniculate, conical, usually truncate at the apex, sometimes almost cylindrical, with (3–)5-foliolate leaves below. Inflorescence axis pubescent with long simple and tufted hairs, also with the underlayer of stellate hairs. Prickles curved, usually 4–5(–6) mm long. Pedicels (0.5–)1–2 cm long, felted, usually with protruding hairs and numerous subsessile glands hidden in hairs, unarmed or with 1–3(–4), slightly curved pricklets 1–2(–3) mm long. Sepals (green-)grey, felted, usually unarmed, reflexed after anthesis. Petals pink, rarely white, elliptical or obovate, 8–12 mm long. Stamens exceeding styles. Carpels hairy at least above. Receptacle hairy. – 2n = 21 (Boratynska 1996). – Flowering (VI–)VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems usually furrowed, glabrous; prickles at least partly curved, stout; leaves grey-felted beneath (at least those of the inflorescence); petals usually pink; carpels ± hairy. Species rather easy to recognise, but identification of plants from shady places may cause some problems. Such plants have leaves only slightly hairy beneath.

HABITAT. Thickets, forest margins, clearings, open woods.

DISTRIBUTION IN POLAND. Rather common in S and SW regions, besides on isolated localities in the north in the vicinity of Szczecin and Gdańsk.



Fig. 58. *Rubus grabowskii* Weihe ex Günther et al. (Zieliński 597, KOR 7196). Scale bar = 5 cm.

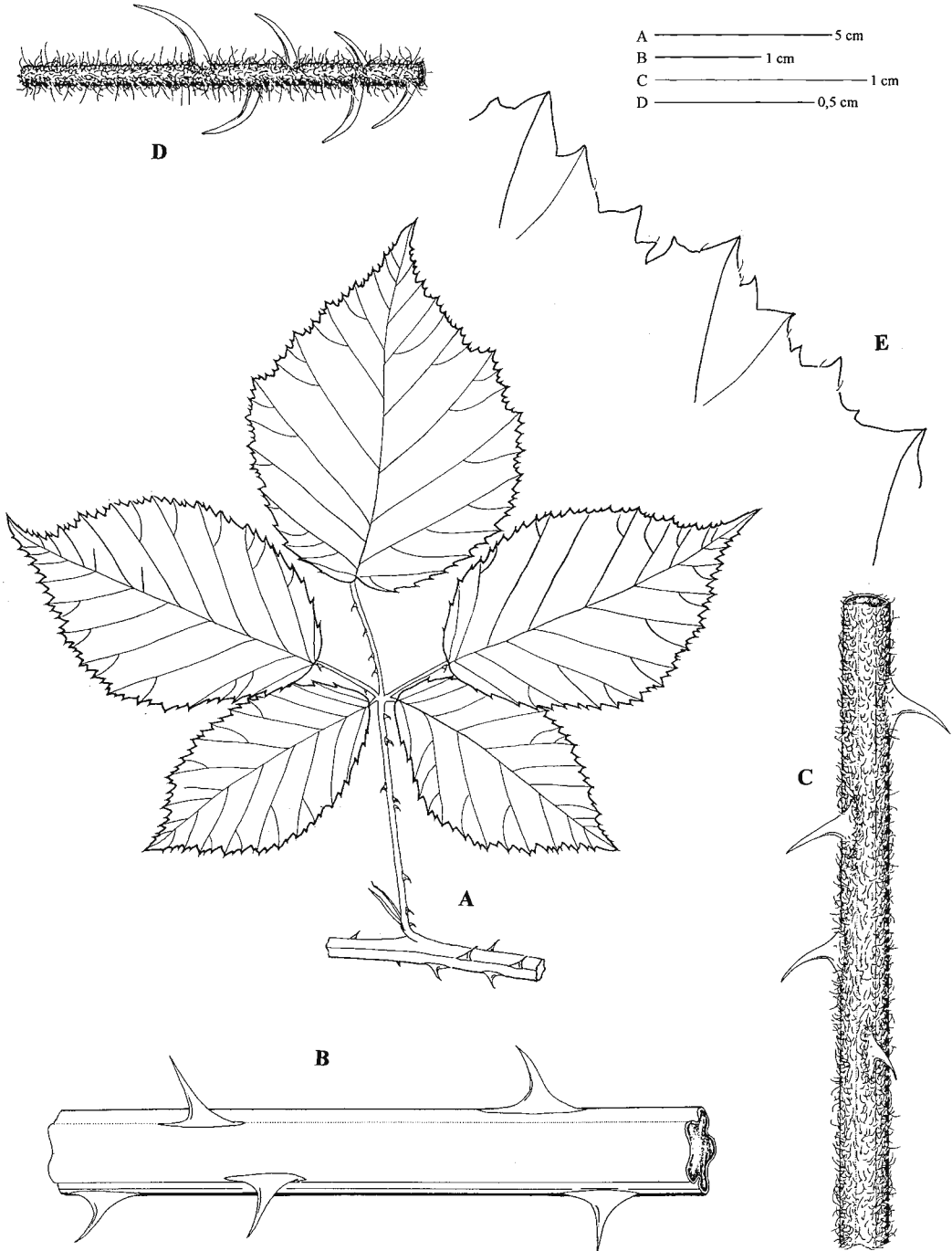


Fig. 59. *Rubus grabowskii* Weihe ex Günther et al. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1504, KOR 43250).

GENERAL DISTRIBUTION. Widespread species: Belgium, Holland, Denmark, S Norway, S Sweden, Germany, Austria, the Czech Republic, Hungary, Romania, Slovakia and Poland.

SELECTED HERBARIUM SPECIMENS. AB2520 – Chrząszczewska Island, 14°44'–53°58', 27 Jul 1980 & 12 Aug 1983, *Ćwikliński s.n.* (WSRP); AB8482 – Kłęskowo, 14°40½'–53°22', 27 Jul 1856, *Wimmer s.n.* (KOR 11059); AC1972 – 2 km NE of Stary Klukom, 15°27½'–53°08¼', 18 Nov 1995, *Danielewicz s.n.* (POZNF); AC7688 – between Brzozowa & Maszków, 15°08'–52°34¾', 1 Aug 1975, *Zieliński 774 & 775* (KOR 7182 & 7183); AC9514 – 5 km E of Ośno Lubuskie, 14°57'–52°27½', 13 Aug 1974, *Boratyński, Kaczmarek & Zieliński s.n.* (KOR 6975); BC4694 – Dębe, 16°32¾'–52°52½', Jul 1896, *Pfuhl s.n.* (POZ); BC5116 – Drezdenko, 15°49½'–52°50¼', sine die, *Wimmer s.n.* (KOR 11058); BC7423 – between Dąbrowa & Sieraków, 1 km of Dąbrowa, 16°14½'–52°40', 1 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3055* (KOR); CA6998 – Gdynia, 18°31'–54°31', 5 Oct 1996, *Oklejewicz s.n.* (KRA); CB8733 – by Jezioro Błędzkie near Błędz, 18°09'–53°29½', sine die, *Hohenfeldt s.n.* (TRN); CC7359 – Bożacin, 17°39½'–52°39¾', 22 Jun 1992, *Chmiel s.n.* (POZ); CC7461 – 1 km S of Hubki, 17°41¼'–52°39½', 22 Jun 1992, *Chmiel s.n.* (POZ); CC9742 – near Kownaty, 18°09'–52°29½', 17 Jul 1977, *Boratyński s.n.* (KOR 8353 & 8362); CD4302 – Żerków, 17°34½'–52°04½', 7 Sep 1996, *Czarna s.n.* (POZ); CD6891 –

Krzyżówki, 18°17½'–51°49½', 23 Sep 1988, *Zieliński 2209* (KOR 25518); CD8822 – NW of Szczytniki, by the road to Kalisz, 18°18¾'–51°42¼', 22 Sep 1988, *Zieliński 2194* (KOR 25562); DD6799 – near Grzmiąca, 19°43'–51°49½', 6 Sep 1988, *Zieliński 2489* (KOR 24856); DD7577 – Retkinia, 19°24'–51°45', sine die, *Witostawski s.n.* (LOD); DD8704 – Bedoń, 19°38¾'–51°43¾', 27 May 1970, *Solarek s.n.* (LOD); ED5792 – 1 km of Chynów, 21°04'–51°54', 16 Jul 1990, *Zieliński 2588* (KOR 23712); EE1279 – between Kraszków & Gielniów, 10–12 km E of Opoczno, 20°25½'–51°23½', 7 Sep 1988, *Zieliński 2505* (KOR 24853); EE3690 – S of Szydłowiec, 20°52'–51°11', 9 Sep 1988, *Zieliński 2543* (KOR 24882); EE9804 – Jastrzębska Wola, 21°11'–50°43¼', Sep 1896, *Piotrowski 309* (LW 111139); FF0630 – Kutyły, 22°15¾'–50°34¾', 19 Jul 1993, *Oklejewicz s.n.* (KOR 30557); FF2623 – between Rudnik & Koziarnia, 22°17'–50°24½', 4 Oct 1978, *Zieliński 1240* (KOR 11090); FF7478 – Czerwonki Hermanowskie, 350 m, 22°02½'–49°55', 10 Sep 1997, *Oklejewicz s.n.* (KRA); FG2604 – between Sanok & Zagórz, 22°14½'–49°31½', 17 Aug 1988, *Zieliński 2440* (KOR 24865); GE8089 – Szczepbrzeszyn, 22°57'–50°41½', 12 Jul 1911, *col. ign.* (LE); GE9190 – 'Bukowa Góra' reserve, 1.5 km SW of Zwierzyniec, 22°58'–50°35¾', 9 Jul 1986, *Gutowski s.n.* (BIL).

22. *Rubus henrici-egonis* Holub (Figs 61–63)

Folia Geobot. Phytotax. 26: 334. 1991.

TYPE: Bohemia orientalis: distr. Chrudim; ad viam publicam in silvis inter oppidulum Luže et pagum Zbožnov, merid.-occid. a pago Zdislav; altitudine cca 375 m s. m.; 13.7.1989, *Holub* (PR 4673 – HOLOTYPE).

Stems high-arching, angled, with flat or furrowed sides, suffused red, glabrous or rarely with few scattered hairs. Prickles uniform, 2–3(–5) per 5 cm, on angles, 5–7 mm long, broad-based, slightly curved or straight, patent or somewhat declining. Leaves 5-foliolate, digitate, glabrous above, thinly felted beneath, chiefly with stellate hairs, green-grey. Terminal leaflets with mid-long or long petiolules (27–50%), elliptical or rarely obovate, shallowly cordate or rounded at the base, with a shortly acuminate apex 6–12 mm long, evenly, shallowly serrate; the serration 1–1.5 mm deep; teeth broader than long, principal ones not or only slightly prominent, straight or retrorse. Petiolules of basal leaflets 2–5 mm long. Petioles as long or

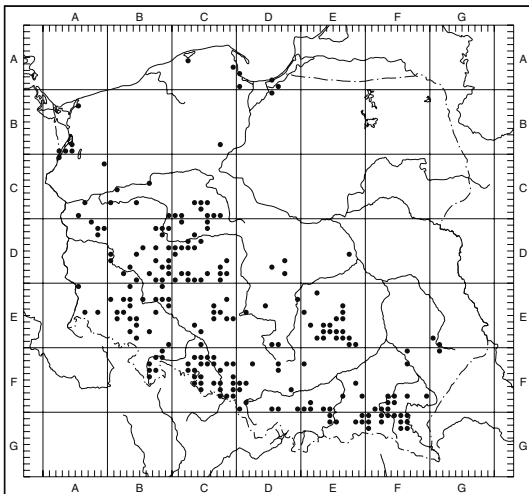


Fig. 60. Distribution of *Rubus grabowskii* Weihe ex Günther et al. in Poland.



Fig. 61. *Rubus henrici-egonis* Holub (Kosiński & Zieliński s.n., KOR 42700). Scale bar = 5 cm.

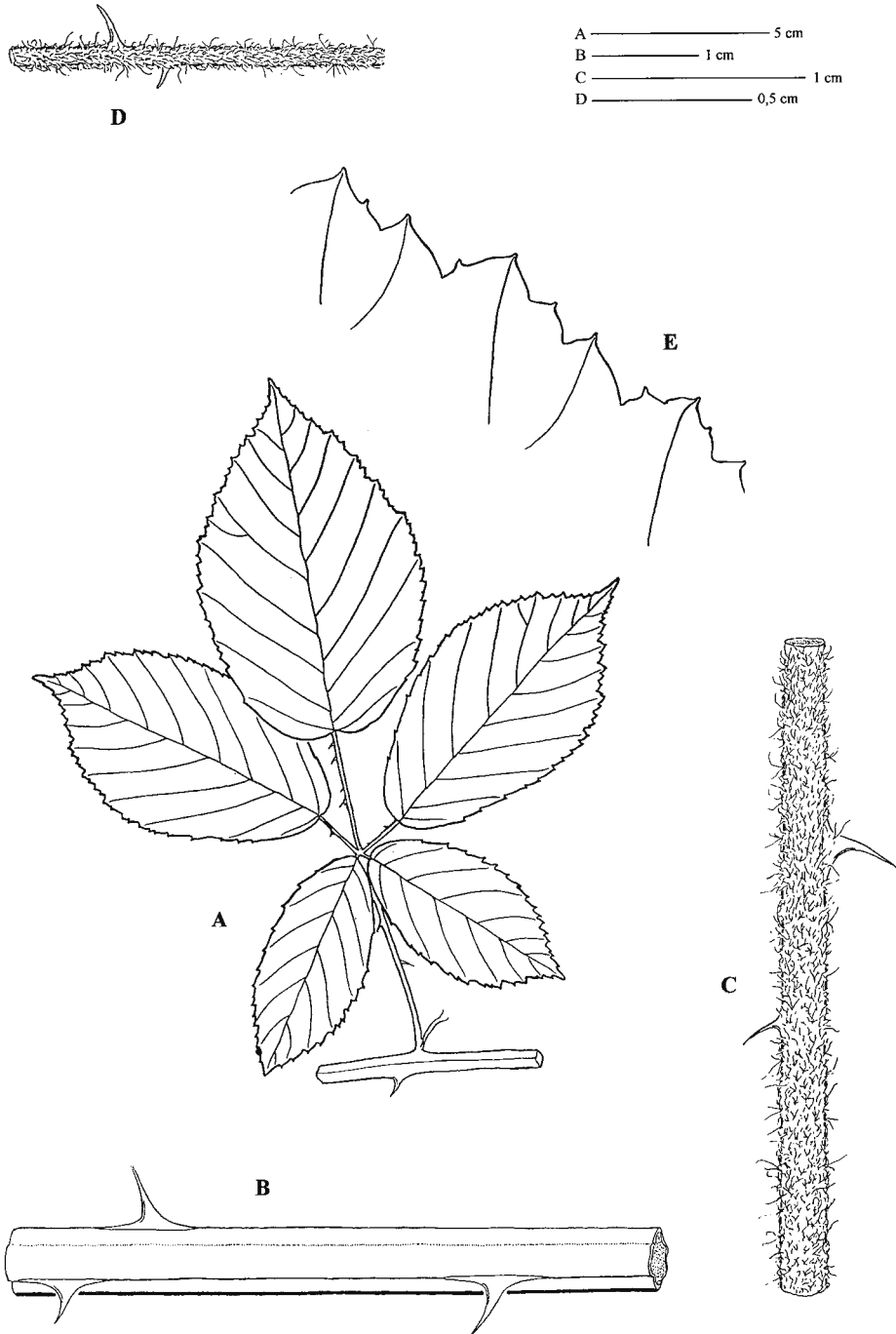


Fig. 62. *Rubus henrici-egonis* Holub. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Kosiński & Zieliński s.n.*, KOR 42700).

shorter than basal leaflets, sparsely hairy and with strongly curved prickles. Stipules filiform. Inflorescence paniculate, conical, leafless above, with 3-foliolate leaves below. Inflorescence axis sparsely hairy in the lower part, densely so above, with stellate and simple longer patent hairs. Prickles up to 5(–6) mm long, curved, usually red at the base. Pedicels 1–2.5 cm long, densely pubescent with spreading hairs and with slightly curved red-based prickles 1–2 mm long. Sepals grey-felted, unarmed, reflexed after anthesis. Petals pale pink or white, obovate, 10–13 mm long. Stamens exceeding styles. Anthers glabrous. Carpels densely hairy. Receptacle hairy. – $2n = 21$ (material from the Czech Republic; Krahulcová & Holub 1997b). – Flowering VI–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems glabrous; prickles few, broad-based; leaves thinly felted underneath; terminal leaflets mostly elliptical; teeth on the margin usually broader than long.

HABITAT. Forest margins, thickets.

DISTRIBUTION IN POLAND. Recently found on scattered localities in the south-west.

GENERAL DISTRIBUTION. Regional species. the Czech Republic, Poland and W Slovakia.

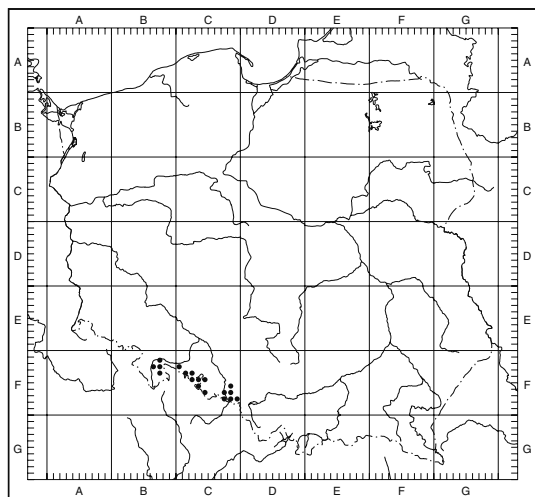


Fig. 63. Distribution of *Rubus henrici-egonis* Holub in Poland.

SELECTED HERBARIUM SPECIMENS. CF3152 – between Glucholazy & Gierlacie, 330 m, $17^{\circ}21' - 50^{\circ}19\frac{1}{2}'$, 16 Sep 1999, *Kosiński & Zieliński* Z. 183/99 (KOR 41608); CF3196 – Pokrzywna, 315 m, $17^{\circ}24\frac{1}{2}' - 50^{\circ}17\frac{1}{2}'$, 28 Jul 1999, *Kosiński, Tomaszewski & Zieliński* 159 (KOR 41753); CF3290 – Pokrzywna, Złoty Potok River, 315 m, $17^{\circ}28' - 50^{\circ}17\frac{1}{4}'$, 20 Jul 1999, *Kosiński, Tomaszewski & Zieliński* 159 (KOR 41753); CF4205 – Dębowiec, 390 m, $17^{\circ}31\frac{1}{2}' - 50^{\circ}17'$, 29 Jul 1999, *Kosiński, Tomaszewski & Zieliński* 193 (KOR 42700); CF5830 – Nędza, 200 m, $18^{\circ}18\frac{3}{4}' - 50^{\circ}10\frac{1}{2}'$, 3 Jul 2001, *Kosiński, Tomaszewski & Zieliński* 216 (KOR 43700); CF6401 – 2 km N of Bliszczycze, 388 m, $17^{\circ}45\frac{1}{2}' - 50^{\circ}06\frac{1}{2}'$, 12 Sep 1999, *Kosiński & Zieliński* 65/99 & 67/99 (KOR 41712 & 41710); CF6424 – Lewice, 325 m, $17^{\circ}48' - 50^{\circ}05\frac{1}{2}'$, 19 Jul 2000, *Kosiński, Tomaszewski & Zieliński* 193 (KOR 42817).

23. *Rubus crispomarginatus* Holub (Figs 64–66)

Folia Geobot. Phytotax. **26**: 335. 1991.

Rubus thyrsoides subsp. *phyllostachys* var. *incisiser-ratus* Sprib. ex Sudre, Bat. eur. no. 362. 1910; Rubi eur.: 90. 1910. – *R. thyrsoidaeus* subsp. *incisiser-ratus* Sprib., Jahresb. Schles. Ges. Vaterl. Cult. **87**: 58. 1910.

TYPE: Flora Moravica: Moravia meridio-orientalis, montis Chřiby; distr. Uherské Hradiště; ad viam publicam inter pagos Stupava et Buchlovica, sept. a colle Holý kopec 549 m; altitudine cca 490 m s. m., 9.7.1990, *Holub* (PR – HOLOTYPE).

Stems high-arching, bluntly angled, with furrowed sides, violet-brown, with scattered simple or tufted hairs, glabrescent. Prickles uniform, usually 3–5 per 5 cm, 6–7(–9) mm long, straight, patent or declining or some of them curved. Leaves digitate, with sparse hairs above, white-grey-felted beneath, with a dense layer of stellate hairs and protruding long shimmering simple hairs. Leaflets imbricate, terminal ones with short or mid-long petiolules (25–35%), ovate to broadly ovate, cordate at the base, with a gradually acuminate apex 20–25 mm long, periodically deeply serrate (3–5 mm), sometimes almost lobed, waved along margin; teeth unequal, broad, obtuse. Basal leaflets with petiolules 2–3 mm long. Petioles with sparse hairs and few to numerous strongly curved prickles. Stipules filiform to linear. Inflorescence narrowly conical, usually weakly branched, sometimes almost racemose, with 3-folio-



Fig. 64. *Rubus crispomarginatus* Holub (*Kaznowski s.n.*, KOR 10656). Scale bar = 5 cm.

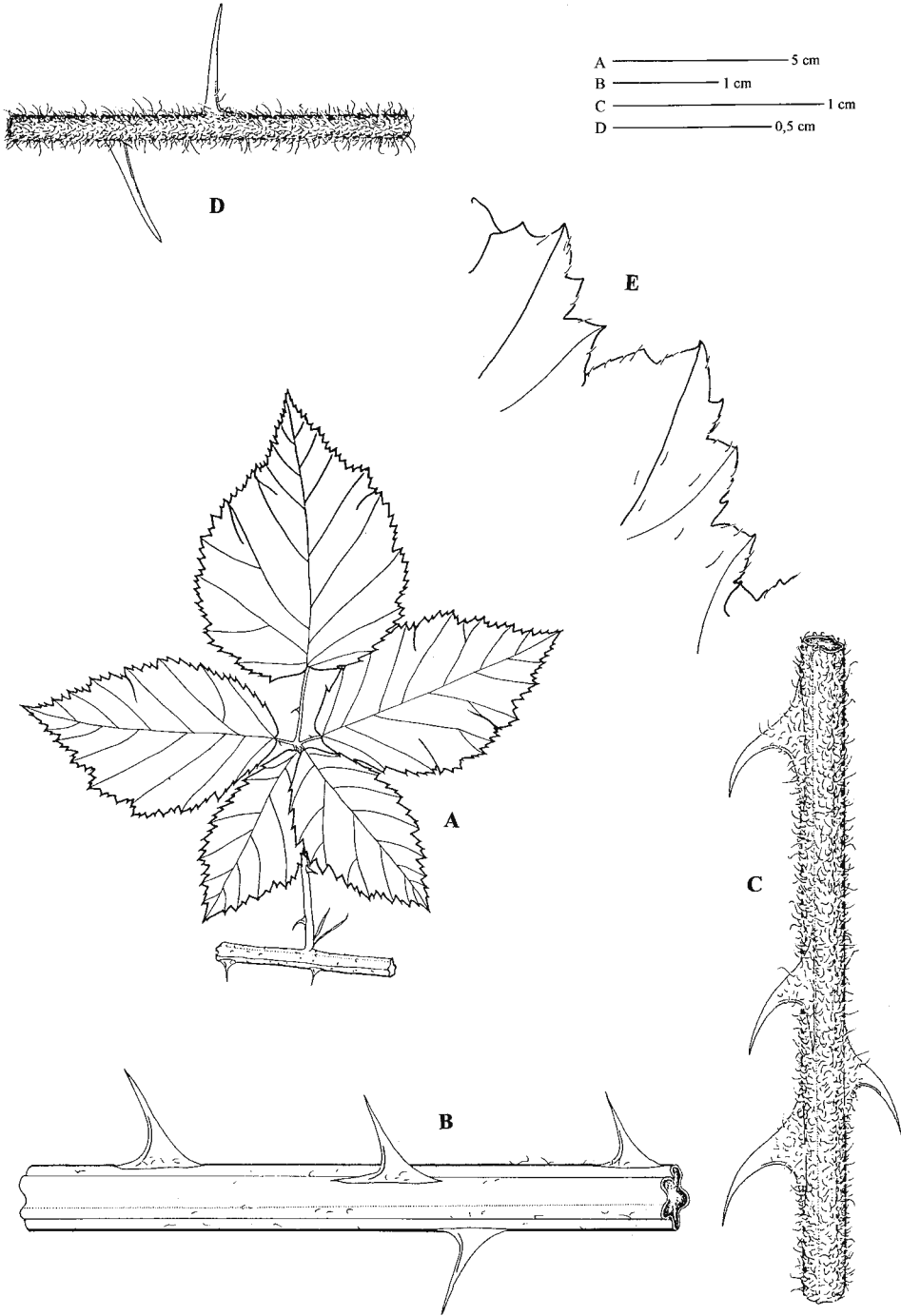


Fig. 65. *Rubus crispomarginatus* Holub. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Kaznowski s.n.*, KOR 10653).

late leaves below. Inflorescence axis felted above, also with long patent hairs and sessile glands. Prickles 3–6 mm long, strongly curved, with broad base. Pedicels 1–1.5 cm long, shortly felted, with longer patent hairs and several curved prickles 2–2.5 mm long. Sepals white-grey, shortly felted, unarmed, reflexed after anthesis. Petals white, usually elliptical, 9–13 mm long. Stamens exceeding styles. Anthers glabrous. Carpels and receptacle hairy. – $2n = 21$ (Boratyńska 1997). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems deeply furrowed; leaves short-petiolate, white-grey-felted beneath; leaflets imbricate, terminal ones usually broadly ovate, cordate at the base, deeply unevenly serrate, usually waved along margins; flowers white.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. Scattered in S regions.

GENERAL DISTRIBUTION. Widespread species: the Czech Republic, Poland and sporadically in Germany at the Czech-German frontier.

SELECTED HERBARIUM SPECIMENS. BE3819 – Ozorowice, $16^{\circ}59' - 51^{\circ}15'$, 8 Nov 1910, *Spribille s.n.* (WRSL); BE5285 – Siedmica, $16^{\circ}05\frac{1}{2}' - 50^{\circ}59\frac{3}{4}'$, 10 Sep 1992, *Boratyńska, Boratyński & Zieliński 217/92* (KOR 29929); BF0691 – a mountain NE of Czerwieńczyce, $16^{\circ}37\frac{1}{2}' - 50^{\circ}32\frac{1}{2}'$, 13 Jul 1910, *Schoepke s.n.* (WRSL); BF1638 – Opolnica, $16^{\circ}43\frac{1}{2}' - 50^{\circ}30\frac{1}{2}'$, 14 Jul 1912, *Buchs s.n.* (WRSL); CE2049 – near Bartków, $17^{\circ}16' - 51^{\circ}19'$, 17 Jul 1903, *Spribille s.n.* (WRSL); CE2122 – Bartków, $17^{\circ}19' - 51^{\circ}20'$, 15 Jul, 18 & 27 Aug 1909, *Spribille s.n.* (GLM 46267); CE4638 – near Kostów & Marianka Siemieńska, $18^{\circ}07\frac{1}{2}' - 51^{\circ}09\frac{1}{2}'$, 1 Aug 1897, *Spribille s.n.* (C); CE9410 – by the road between Niwa & Skarbiszów, $17^{\circ}43\frac{3}{4}' - 50^{\circ}43\frac{3}{4}'$, 17 Aug 1918, *Spribille s.n.* (WRSL); CF2844 – near Jaryszów, $18^{\circ}22' - 50^{\circ}26'$, 8 Sep 1916, *Spribille s.n.* (WRSL); DF1700 – Kroczyce, $19^{\circ}34\frac{1}{2}' - 50^{\circ}33\frac{3}{4}'$, 20 Jun 1934, *Kaznowski s.n.* (KOR); DF6040 – Brzezina, $18^{\circ}35' - 50^{\circ}04\frac{1}{2}'$, 14 Jul 1918, *Schmattorsch s.n.* (PRC); EE6436 – Zagnańsk, $20^{\circ}39\frac{1}{2}' - 50^{\circ}58'$, 19 Jul 1931, *Kaznowski s.n.* (KRAM 140938a, b, c); EE6494 – Gruchawka, $20^{\circ}37\frac{1}{2}' - 50^{\circ}55'$, 1934, *Kaznowski s.n.* (KOR 10653); EE7281 – Kopaniny, $20^{\circ}18' - 50^{\circ}50\frac{3}{4}'$, 5

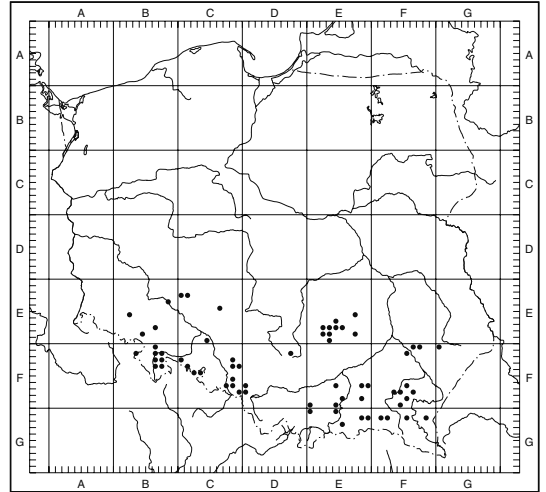


Fig. 66. Distribution of *Rubus crispomarginatus* Holub in Poland.

Jul 1929, *Kaznowski s.n.* (KRAM 142025a, b, c); EE8305 – Czerwona Góra NE of Chęciny, $20^{\circ}30' - 50^{\circ}49'$, 20 Jul 1956, *Browicz & Gostyńska 769* (KOR); EE8794 – Bardo, $21^{\circ}02\frac{1}{2}' - 50^{\circ}44'$, 5 Aug 1930, *Kaznowski s.n.* (KRAM 141070 & POZNB); EF6888 – Machowa, $21^{\circ}13' - 50^{\circ}01'$, 20 Aug 1993, *Wayda s.n.* (KRA); EF8554 – a hill (330 m) near Faliszowice, $20^{\circ}43\frac{3}{4}' - 49^{\circ}52\frac{3}{4}'$, 1 Jul 1993, *Pacyna s.n.* (KRA); EF8878 – between Swoszowa & Joniny, $21^{\circ}12' - 49^{\circ}51'$, 18 Aug 1988, *Zieliński 2474* (KOR 25541); FF0606 – Nalepy, $22^{\circ}20\frac{1}{4}' - 50^{\circ}36'$, 3 Aug 1993, *Oklejewicz s.n.* (KOR 30559); FF1584 – Nowosielec, $22^{\circ}10' - 50^{\circ}26\frac{3}{4}'$, 17 Jul 1993, *Oklejewicz s.n.* (KOR 30560); FF6590 – Matysówka, $22^{\circ}04\frac{3}{5}' - 49^{\circ}59\frac{3}{5}'$, 4 Oct 1999, *Oklejewicz s.n.* (KRA); FG1816 – Grąziowa, $22^{\circ}33\frac{1}{5}' - 49^{\circ}36'$, 14 Aug 1999, *Oklejewicz s.n.* (KRA); GF0077 – near Tereszpól Kukielki, $22^{\circ}55' - 50^{\circ}31\frac{1}{2}'$, 25 Aug 1993, *Boratyńska et al. Z. 46/93* (KOR 31181).

Series *Rhamnifolii* (Bab.) Focke

Syn. Rub. Germ.: 125. 1877.

Basionym: *Rubus* [Group] *Rhamnifolii* Bab., Brit. Rubi: 75. 1869.

TYPE: *Rubus rhamnifolius* Weihe & Nees

Stems high-arching. Prickles strong, uniform, on angles. Leaflets usually coriaceous, green to grey-felted beneath. Stalked glands absent or few.

24. *Rubus perrobustus* Holub (Figs 67–69)

Preslia 64: 128. 1993.

TYPE: Moravia australis; distr. Třebíč; ad molam Skřypinský mlýn dictam ad fluvium Oslava; merid.-occid. a pago Kuroslepy; altitudine cca 285 m s.m.; 3.7.1990, Holub (PR 377841 – HOLOTYPE).

Stems erect when young, finally high-arching, angled with \pm furrowed sides, brown or brown-red, glabrous. Prickles uniform, 3–7 per 5 cm, on angles, 6–8 mm long, curved or straight and declining. Leaves 5-foliolate, digitate, often large, glabrous above, loosely, softly pubescent beneath, with simple, tufted and also stellate hairs. Terminal leaflets usually with mid-long petiolules (25–30%), ovate, ovate-elliptic, rounded or slightly emarginate at the base, with an acuminate apex 15–20(–25) mm long, sharply, periodically serrate; the serration up to 5 mm deep; principal teeth distinctly prominent, usually straight. Petiolules of basal leaflets (2–)3–6(–9) mm long. Petioles shorter than the basal leaflets, with sparse patent hairs and strong, curved prickles. Stipules filiform. Inflorescence weakly branched, subcylindrical, often racemose in the upper part, with 3–5-foliolate leaves below, leafless at the apex. Leaflets of lower leaves of flowering branches usually more deeply serrate than those of the stems, often incised. Inflorescence axis loosely pubescent with patent simple and tufted hairs, more densely hairy at the apex. Prickles 2–5(–6) mm long, curved, broad-based, declining, often reddish at the base. Pedicels (0.5–)1.5–2(–2.5) cm long, densely pubescent with spreading hairs, with slightly curved prickles up to 1.5 mm. Sepals rather densely hairy, grey-green, unarmed, often with broadened tips, reflexed after anthesis. Petals pink, obovate, 10–13 mm long. Stamens exceeding styles. Anthers glabrous. Carpels glabrous. Receptacle hairy. – $2n = 21$ (material from the Czech Republic; Krahulcová & Holub 1998b). – Flowering VI–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems erect or high-arching, furrowed, glabrous; leaves often large, 5-foliolate; terminal leaflets sharply periodically serrate with straight teeth; inflorescence

narrow, subcylindrical; leaflets of lower leaves of flowering branches very deeply serrate, often incised.

HABITAT. Thickets, forest margins, clearings.

DISTRIBUTION IN POLAND. SE regions, on rather numerous localities isolated from the continuous range of the species.

GENERAL DISTRIBUTION. Widespread species with disjunctive range. Chiefly the Czech Republic, besides in Hungary, Austria and in Poland.

SELECTED HERBARIUM SPECIMENS. EG1587 – Kamionka Mała, 20°45'1/2'–49°34'2/3', 30 Jul 1992, *Oklejewicz s.n.* (KOR 29250 & KRA); FF1659 – 2 km S of Dąbrowica, 22°22'1/3'–50°28'1/4', 19 Aug 1993, *Oklejewicz s.n.* (KOR 30747); FF5683 – between Gluchów & Łañcut, 22°15'1/3'–50°05', 6 Sep 1999, *Oklejewicz s.n.* (KRA); FF7389 – Lubenia, 21°54'2/3'–49°55', 4 Sep 1992, *Oklejewicz s.n.* (KOR 29253); FF7596 – Makluczka Mt., 22°08'3/4'–49°54', 17 Aug 1998, *Oklejewicz s.n.* (KRA); FF7650 – Kanada, 22°13'–49°56', 28 Aug 1992, *Oklejewicz s.n.* (KOR 29252 & KRA); FF7671 – Wólka Hyżyńska, 400 m, 22°13'1/4'–49°55', 16 Jul 1998, *Oklejewicz s.n.* (KRA); FF7760 – Zagórze-Świtałowka, 22°20'2/3'–49°55'1/6', 10 Sep 1999, *Oklejewicz s.n.* (KRA); FF8338 – Baryczka, 380 m, 21°54'1/4'–49°52'2/5', 28 Jul 1998, *Oklejewicz s.n.* (KRA); FF8376 – Zagórze, 21°52'1/4'–49°50'1/6', 13 Oct 1999, *Oklejewicz s.n.* (KRA); FF8480 – Potoki, 21°55'1/3'–49°49'3/5', 2 Sep 1999, *Oklejewicz s.n.* (KRA); FF9354 – Krasna Mała, 21°50'1/2'–49°46', 5 Oct 1998, *Oklejewicz s.n.* (KRA); FF9455 – Góra Świętego Marcina, 400 m, 21°59'2/3'–49°45'1/3', 27 Jul 1998, *Oklejewicz s.n.* (KRA); FF9466 – a mountain NE of Blizne, 22°00'–49°44'1/5', 27 Jul 1998, *Oklejewicz s.n.* (KRA); FF9526 – Hłudno, 22°08'3/4'–49°46'1/6', 1 Aug 1996, *Oklejewicz s.n.* (KRA); FF9748 – Jasienica Sufczyńska, 22°26'2/3'–49°45'1/3', 13 Sep 1999, *Oklejewicz s.n.* (KRA); FF9801 – Bachów, 22°29'1/2'–49°47'1/5', 13 Sep 1999, *Oklejewicz s.n.* (KRA); FF9851 – Brzuska, 22°29'1/5'–49°45', 13 Sep 1999, *Oklejewicz s.n.* (KRA); FF9853 – Hucisko Dolne, 22°30'3/5'–49°44'3/5', 13 Sep 1999, *Oklejewicz s.n.* (KRA); FF9873 – Huta Brzuska, 22°31'–49°43'1/6', 13 Sep 1999, *Oklejewicz s.n.* (KRA); FG0058 – Dębowiec, 21°28'–49°41', 18 Sep 1989, *Oklejewicz s.n.* (KOR 22994 & 23702); FG0295 – 1 km NE of Bóbrka, 21°42'1/2'–49°38'1/4', 18 Aug 1988, *Zieliński 2463* (KOR 37971); FG0487 – between Wzdów & Górki, 22°01'–49°38'2/3', 8 Jun 1988, *Oklejewicz s.n.* (KOR 30746);



Fig. 67. *Rubus perrobustus* Holub (Zieliński 2458, KOR 30988). Scale bar = 5 cm.

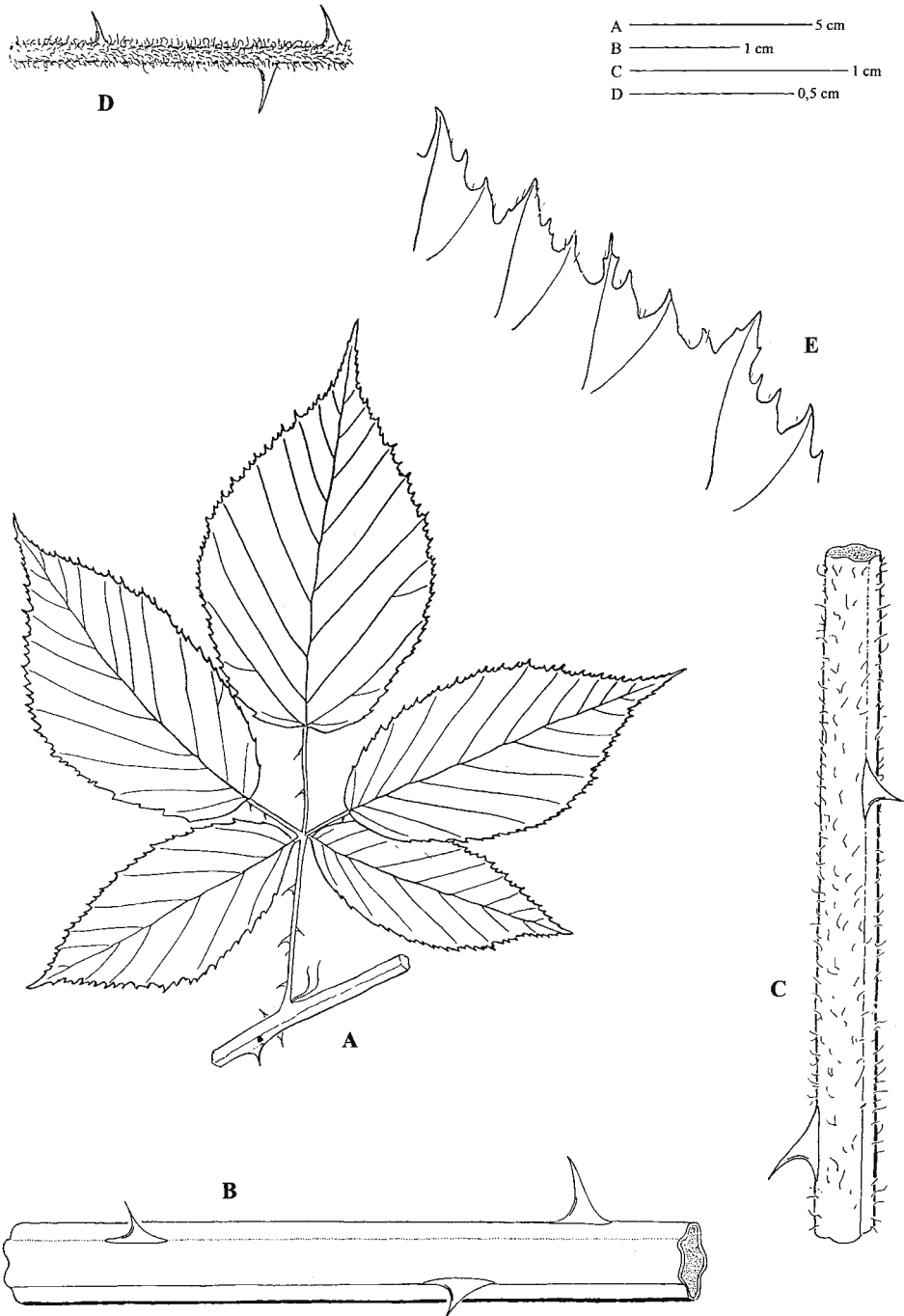


Fig. 68. *Rubus perrobustus* Holub. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2458, KOR 30988).

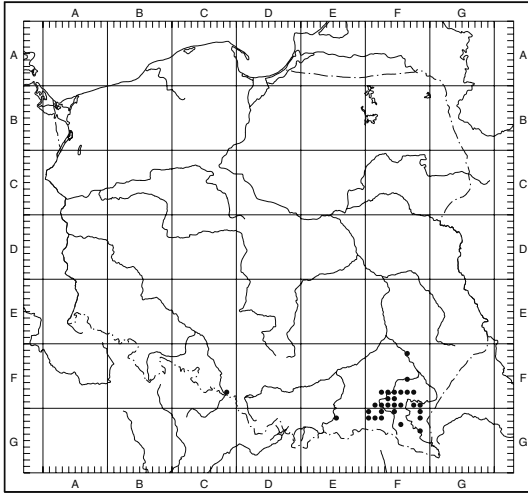


Fig. 69. Distribution of *Rubus perrobustus* Holub in Poland.

FG0568 – Grabówka, $22^{\circ}09\frac{1}{2}' - 49^{\circ}39\frac{1}{2}'$, 30 Jul 1988, *Oklejewicz s.n.* (KOR 30743); FG0835 – Łodzinka, $22^{\circ}32\frac{1}{2}' - 49^{\circ}40\frac{1}{2}'$, 17 Sep 1999, *Oklejewicz s.n.* (KRA); FG1014 – Dobrynia, $21^{\circ}25' - 49^{\circ}38'$, 26 Jun 1989, *Oklejewicz s.n.* (KOR 22992 & 23699); FG1254 – Bania, $21^{\circ}41\frac{1}{2}' - 49^{\circ}35\frac{1}{4}'$, 17 Aug 1988, *Zieliński 2458* (KOR 30988); FG1260 – Draganowa, $21^{\circ}37\frac{3}{4}' - 49^{\circ}35'$, 24 Jul 1989, *Oklejewicz s.n.* (KOR 22986, 22988, 22990, 23693, 23695 & 23697); FG1816 – Grażiowa, $22^{\circ}33\frac{1}{2}' - 49^{\circ}36'$, 13 Aug 1999, *Oklejewicz s.n.* (KRA); FG2512 – Dudyńce, $22^{\circ}04\frac{1}{2}' - 49^{\circ}31\frac{1}{3}'$, 8 Sep 1987 & 14 Jun 1988, *Oklejewicz s.n.* (KOR 22985 & 30740); FG3831 – between Łobozew & Bóbrka, $22^{\circ}28' - 49^{\circ}24\frac{1}{2}'$, 12 Aug 1999, *Oklejewicz s.n.* (KRA).

25. *Rubus nemoralis* P. J. Müll. (Figs 70–72)

Flora 41 :139. 1858.

Rubus selmeri Lindeb., Herb. Rub. Scand.: 33. 1884.

TYPE: A l'Entrée de la Reissbach, 20.7.1857, *Müller 473* (LAU – LECTOTYPE; Weber 1975).

Stems high-arching, angled, with flat or shallowly furrowed sides, violet-red, glabrous or with sparse scattered simple or tufted hairs, usually with sessile glands. Prickles 5–6 per 5 cm, on angles, curved or straight, declining, 6–8(–10) mm long. Leaves 5-foliolate, digitate or subpedate, glabrous above, softly hairy beneath, with long simple hairs and usually with numerous stel-

late hairs, in sunnier places often grey-felted. Terminal leaflets with mid-long or long petiolules (30–45%), broadly elliptical, obovate to suborbicular, rounded or slightly emarginate at the base, with a suddenly acuminate apex 10–15(–20) mm long, sharply serrate; the serration 2–3 mm deep; teeth narrow, principal ones usually distinctly protruding, often retrorse. Basal leaflets with petiolules 3–4 mm long. Petioles sparsely patent-hairy, with numerous hooked prickles 2–4 mm long. Stipules filiform-linear. Inflorescence paniculate, conical, usually narrow, with 3–5-foliolate leaves below. Leaves usually more densely hairy beneath than those of the stems. Inflorescence axis usually loosely hairy, with simple, tufted and stellate hairs. Prickles numerous, at least some of them hooked. Pedicels 0.5–1.5(–2) cm long, with dense spreading hairs and usually curved prickles 2–3(–5) mm long. Sepals grey-hairy, unarmed or more often with needle-like pricklets at the base, reflexed after anthesis. Petals pale pink, rarely white, obovate, 10–12 mm long. Stamens as long or slightly exceeding styles. Anthers glabrous. Carpels glabrous or sparsely hairy. Receptacle hairy. – $2n = 28$ (Boratyńska 1994). – Flowering VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems (sub) glabrous; leaves digitate; terminal leaflets broad, sharply, periodically serrate, suddenly acuminate at apex; stamens as long or only slightly exceeding styles.

HABITAT. Open deciduous or mixed forests, forest margins, clearings, forest roads, thickets.

DISTRIBUTION IN POLAND. SW regions, chiefly Dolny Śląsk, S Wielkopolska, on isolated stands on the island of Wolin.

GENERAL DISTRIBUTION. Widespread species. Chiefly NW Europe: Great Britain, Holland, Belgium, Germany, the Czech Republic, Poland.

NOTES. The species closely related to west-European *R. vulgaris* Weihe. In Poland it is often not distinguished from *R. gracilis* J. Presl & C. Presl. The latter species differs by patent-hairy stems, less curved prickles on the inflorescence



Fig. 70. *Rubus nemoralis* P. J. Müll. (Zieliński s.n., KOR 5842). Scale bar = 5 cm.

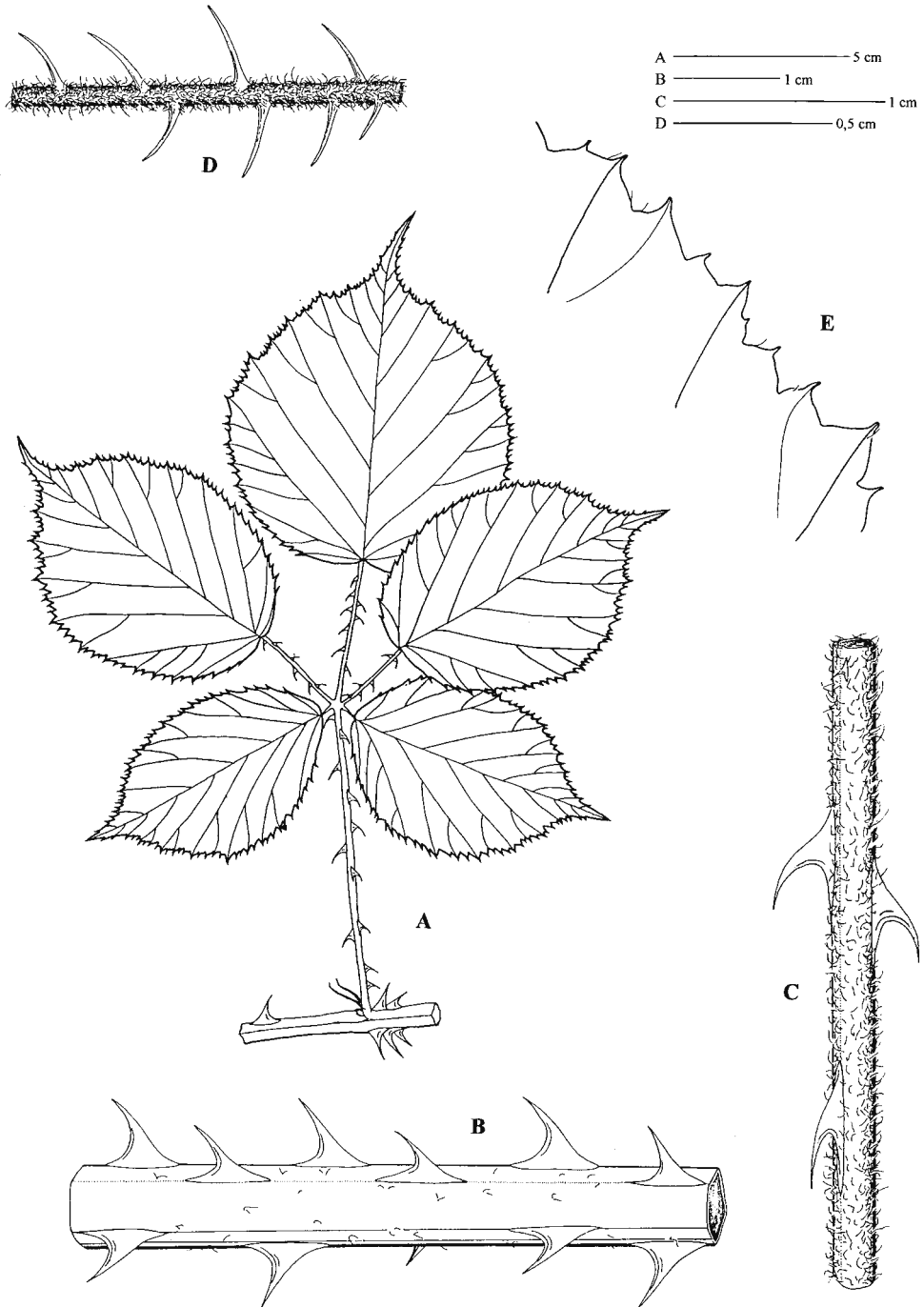


Fig. 71. *Rubus nemoralis* P. J. Müll. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2677, KOR 23889).

axis and stamens distinctly exceeding styles. *Rubus marssonianus* can be distinguished from *R. nemoralis* by pedate leaves, slenderer, less curved prickles and stamens exceeding styles.

SELECTED HERBARIUM SPECIMENS. BC9915 – 2 km E of Owińska, 17°01'–52°30½', Aug 1986, *Zieliński 1498* (KOR 31470); BD1993 – between Mieczewo & Kamionki, 17°00'–52°15½', 8 Jul 1986, *Zieliński 1493* (KOR); BE1634 – between Bożeń & Baszyn, 16°37½'–51°24½', 11 Sep 1987, *Boratyński & Zieliński Z. 1726* (KOR 27850); BE7299 – W slope of Trójgarb near Witków Śląski, 550–600 m, 16°09½'–50°48½', 8 Sep 1987, *Boratyński & Zieliński Z. 1597, 1599 & 1601* (KOR); BE7876 – between Podgaj & Głównin, 16°57½'–50°50½', 9 Aug 1991, *Zieliński 3043* (KOR 24899); CC8062 – Zielonka, 17°07'–52°33¼', 16 Aug 1995, *Danielewicz s.n.* (POZNF); CC8760 – near Ostrowo, 18°07¾'–52°33¾', 13 Sep 1979, *Zieliński 1348 & 1349* (KOR 10968 & 10967); CC9572 – Skorzecin, 17°52'–52° 28', 17 Jul 1979, *Chmiel s.n.* (POZ); CD4193 – Siedlce, 17°18½'–51°59¾', 12 Jul 1994, *Zatorski s.n.* (POZNF); CD7087 – N of Kobylin, 17°13½'–51°44', 5 Aug 1996, *Zieliński 52/96* (KOR 38289); CE1373 – near Wydzierno towards Międzybórz, 17°37'–51°23½', 20 Sep 1912, *Spribille s.n.* (WRSL); CE3661 – Łaski, 18°01'–51°13', 3 Aug 1994, *Danielewicz & Małiński s.n.* (POZNF); CE7390 – Prędocin, 17°35'–50°49¾', 3 Aug 1994, *Zatorski s.n.* (POZNF); CF0226 – between Jaczowice & Pielgrzymowice, 17°32'–50° 37½', 20 Jul 1988, *Tomlik & Zieliński 2426 & 2427*

(KOR 25579 & 25580); CF2720 – by the road from Święta Anna Mt. to Leśnica, 18°10'–50°27¼', 6 Oct 1903, 13 Jul & 2 Aug 1906, *Spribille s.n.* (WRSL); CF3700 – Zdzeszowice, 18°10'–50°23', 14 Jul 1986, *Lewandowska-Knop s.n.* (KTU); DD9335 – between Łask & Okup Wielki, 19°05'–51°36¾', 29 Jul 1977, *Zieliński 1084* (KOR); DE5002 – between Dzierzniki & Rudniki, 18°36½'–51°06', 14 Jul 1993, *Zieliński s.n.* (KOR 30509).

26. *Rubus laciniatus* Willd. (Figs 73 & 74)

Hort. Berol. 2, tab. 82 (*cum descript.*). 1806.

TYPE: *Rubus laciniatus*, sine die & loco (B, Herb. Willd. 9857 – HOLOTYPE; Beek 1974).

Stems arching, red-brown, angled, with flat or slightly furrowed sides, very sparsely hairy, glabrescent. Prickles 5–12 per 5 cm, uniform, 5–7(–9) mm long, strongly curved, stout-based. Leaves digitate or subpedate, with 5 deeply incised leaflets, green on both sides, glabrous or sparsely hairy above, softly hairy beneath. Terminal leaflets long petiolulate (40–50%), with 3–5 incised segments. Basal leaflets on petiolules 4–15(–30) mm long. Petioles and petiolules with strongly curved, stout prickles. Stipules filiform-linear. Inflorescence paniculate, conical to almost cylindrical, usually leafy to the apex. Leaves incised like those of the stems. Inflorescence axis zigzag, sparsely to densely hairy, with numerous, strongly curved prickles. Pedicels loosely pubescent, with spreading hairs and slightly curved prickles 1–3 mm long. Sepals densely pubescent, with spreading hairs and yellowish needle-like prickles, often with widened apices, reflexed after anthesis. Petals pale pink, up to 11(–12) mm long, obovate, with 2–3 lobes at least in some flowers. Stamens longer than styles. Anthers glabrous. Carpels and receptacle glabrous or hairy. – $2n = 28$ (Weber 1995). – Flowering (VI)–VII–VIII.

HABITAT. Deciduous or mixed forest margins, waysides, waste lands.

DISTRIBUTION IN POLAND. Scattered in W regions.

NOTES. The blackberry described on cultivated specimens, most closely related to *R. nemoralis*.

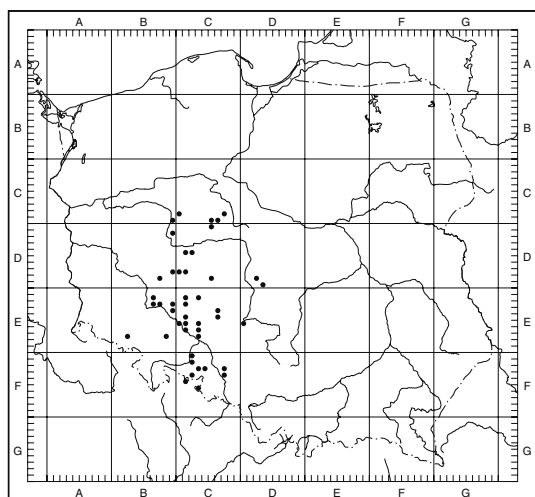


Fig. 72. Distribution of *Rubus nemoralis* P. J. Müll. in Poland.



Fig. 73. *Rubus laciniatus* Willd. (Celiński s.n., KOR 32130). Scale bar = 5 cm.

It is very possible that both taxa are conspecific (Weber 1993).

Rubus laciniatus belongs to the most often cultivated blackberries, and as a fully naturalized plant, it occurs on numerous localities in Europe and in North America. Recently the typical prickly form has been entirely replaced in cultivation by unarmed cultivar 'Thornless Evergreen' being the vegetative mutation of *R. laciniatus*, propagated by pieces of stems. Plants obtained from seeds and suckers of 'Thornless Evergreen' are prickly. *Rubus laciniatus* has been hitherto noted on scattered localities in Poland, but taking into consideration popularity of this blackberry in cultivation and usually abundant self-seeding, one can suppose, that the number of its localities will increase significantly in the nearest future (Zieliński 1991), especially in western part of the country. It is not fully hardy in the east.

SPECIMENS SEEN. AD0434 – Rzepin, $14^{\circ}48\frac{1}{3}'$ – $52^{\circ}20\frac{1}{2}'$, 1996, *Kozłowski s.n.* (KOR); BC1327 – Tuczno, $16^{\circ}07\frac{1}{2}'$ – $53^{\circ}12'$, 10 Jul 1978, *Latowski s.n.* (POZ); BC2207 – Rogoźnica, $15^{\circ}58'$ – $53^{\circ}07\frac{1}{2}'$, 23 Aug 1993, *Kujawa-Pawlaczyk s.n.* (KOR 27988); BD4021 – Głuchów, $15^{\circ}40'$ – $52^{\circ}01\frac{1}{3}'$, Sep 1995, *Danielewicz s.n.* (POZNF); BE4975 – Wrocław, $17^{\circ}05'$ – $51^{\circ}06\frac{3}{4}'$, 29 Jun 1905, *Baenitz s.n.* (LE); CC3814 – Przyłubie, $18^{\circ}19'$ –

$53^{\circ}03\frac{1}{2}'$, sine die, *Rutkowski s.n.* (TRN); CC3887 – Lesisko, $18^{\circ}22\frac{1}{3}'$ – $52^{\circ}59\frac{5}{6}'$, 6 Sep 1986, *Rejewski s.n.* (TRN); CC7535 – 2 km SE of Wieniec, $17^{\circ}53\frac{3}{4}'$ – $52^{\circ}40\frac{3}{3}'$, 28 Jun 1988, *Chmiel s.n.* (POZ); CC7542 – Wieniec, $17^{\circ}51\frac{1}{3}'$ – $52^{\circ}40\frac{1}{2}'$, 19 Jun 1986, *Chmiel s.n.* (POZ); CD3394 – Raszewy, $17^{\circ}36'$ – $52^{\circ}05'$, 16 Aug 1996, *Czarna s.n.* (POZ); CE3691 – Laski, $18^{\circ}01\frac{1}{2}'$ – $51^{\circ}11\frac{3}{4}'$, 23 Aug 1978, *Wawrzyniak s.n.* (KOR 8957 & 30762); DD8518 – Łódź-Lublinek, $19^{\circ}24\frac{1}{2}'$ – $51^{\circ}43'$, Aug 1990, *Witostawski s.n.* (LOD); ED1061 – Brzozów Stary, $20^{\circ}02\frac{1}{2}'$ – $52^{\circ}18'$, 7 Jul 1992, *Głowacki s.n.* (WSRP 33115).

27. *Rubus marssonianus* H. E. Weber

(Figs 75–77)

Feddes Repert. **96**: 613. 1984.

TYPE: Wolgast, Netzbauder Heide, 9.1854, *Marsson* (GFW – HOLOTYPE).

Stems high-arching, angled with flat or slightly furrowed sides, glabrous or with very sparse hairs. Prickles 5–10 per 5 cm, on angles, (5–)6–7 mm long, slender, mostly straight and usually patent. Leaves 5-foliolate, pedate, glabrous or with few scattered hairs above, greyish beneath, with very numerous stellate hairs and less numerous long patent hairs. Terminal leaflets with mid-long or long petiolules (35–45%), suborbicular to broadly elliptical, rounded or shallowly cordate at the base, with a suddenly acuminate apex 7–15 mm long, periodically serrate; the serration 2–3 mm deep; teeth apiculate; at least some principal teeth slightly retrorse. Basal leaflets with petiolules 2–3(–4) mm long. Petioles usually very long, sometimes twice as long as basal leaflets, patent-hairy and with usually hooked prickles. Stipules linear to linear-lanceolate. Inflorescence paniculate, usually narrow, leafless above, with 5-foliolate leaves below. Leaves, especially upper ones, usually more densely clothed beneath than those of the stems, grey-green-felted. Inflorescence axis usually loosely hairy with stellate and longer, patent hairs. Prickles slender but with broad decurrent base, usually curved. Pedicels 0.5–1 cm long, densely pubescent with spreading hairs and with slender, usually slightly curved prickles up to 2.5(–3) mm long. Sepals grey-green, densely covered with spreading hairs and with needle-like

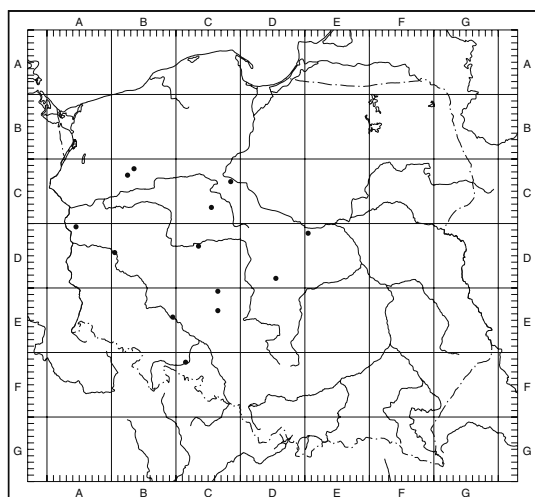


Fig. 74. Distribution of *Rubus laciniatus* Willd. in Poland.



Fig. 75. *Rubus marssonianus* H. E. Weber (Zieliński 3078, KOR 31567). Scale bar = 5 cm.

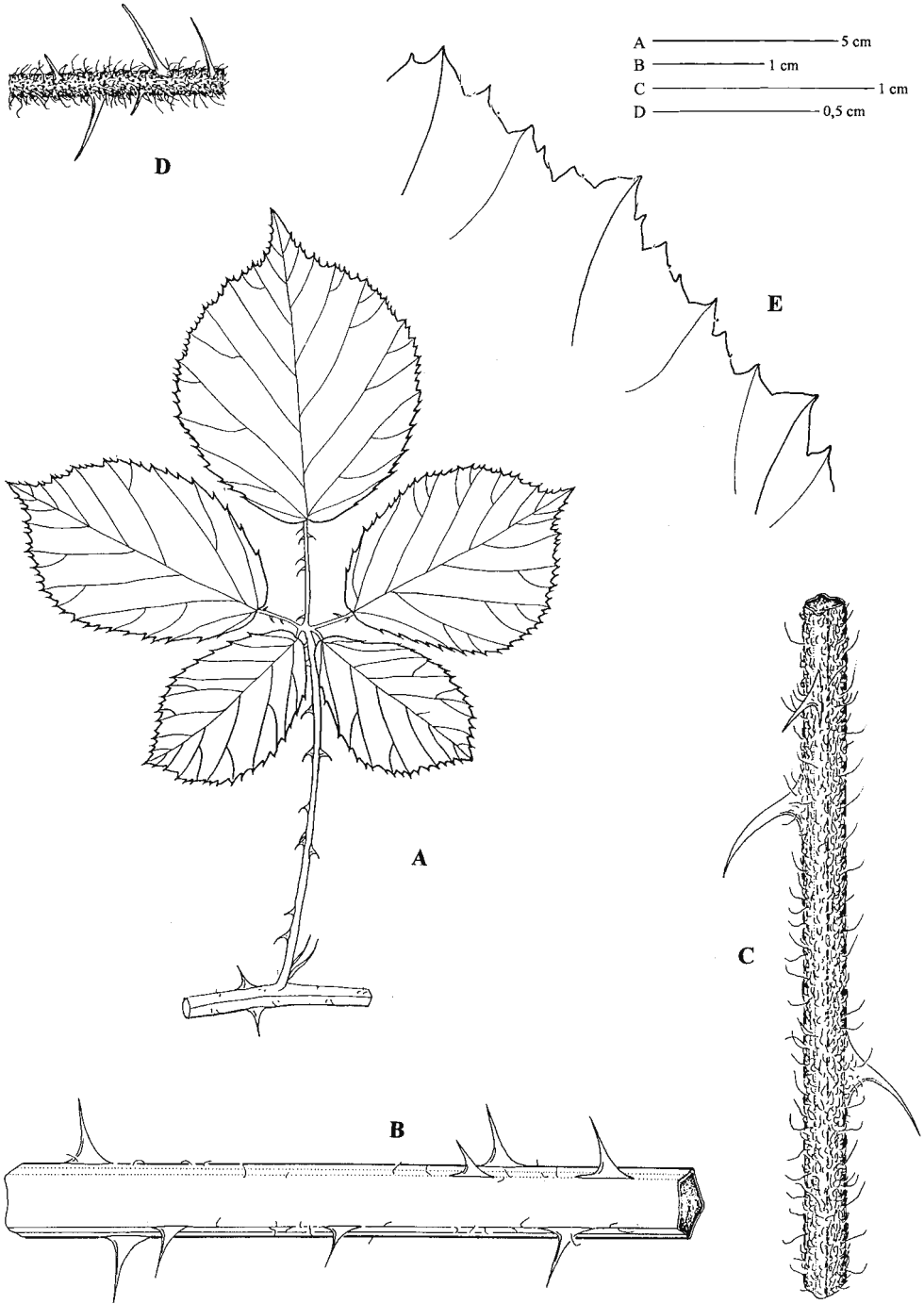


Fig. 76. *Rubus marssonianus* H. E. Weber. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratyńska, Dolatowska & Zieliński, in Zieliński 3079, KOR 30754).

pricklets, especially at the base, reflexed or patent after anthesis. Petals pale pink, obovate, 10–11 mm long. Stamens exceeding styles. Anthers, carpels and receptacle glabrous. – $2n = 28$ (Boratyńska 1995a). – Flowering VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems (sub) glabrous, leaves digitate, long-petiolate; terminal leaflets broad, periodically serrate. The species similar to *R. gracilis* and *R. nemoralis*; from both blackberries it can be distinguished by long-petiolate leaves, from *R. nemoralis* by pedate leaves and longer stamens, from *R. gracilis* by glabrous stems and slenderer prickles.

HABITAT. Deciduous or mixed forest margins, clearings, thickets.

DISTRIBUTION IN POLAND. NW regions, chiefly at the mouth of the Odra river.

GENERAL DISTRIBUTION. Regional species with the area limited to NE Germany (Mecklemburg) and NW Poland.

SPECIMENS SEEN. AB0766 – Pogorzelica, $15^{\circ}07\frac{3}{4}' - 54^{\circ}07\frac{1}{3}'$, 7 Aug 1993, *Boratyńska 11/93* (KOR 29396); AB2279 – Lubiewo, $14^{\circ}25\frac{3}{4}' - 53^{\circ}54\frac{3}{3}'$, 16 Aug 1956, *Piotrowska s.n.* (UGDA & KOR 23598); AB2293 – Przytór, $14^{\circ}20' - 53^{\circ}53\frac{1}{3}'$, 26 Aug 1954, *Piotrowska*

s.n. (UGDA & KOR 23597); AB2402 – N of Kolczewo, $14^{\circ}36\frac{2}{3}' - 53^{\circ}58\frac{3}{4}'$, 13 Aug 1954, *Piotrowska s.n.* (KOR 24886); AB2403 – between Kolczewo & Międzywodzie, W of Koprowo Lake, $14^{\circ}38\frac{1}{6}' - 53^{\circ}59'$, 2 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3081 & 3084* (KOR 30753 & 30752); AB2422 – Kolczewo, $14^{\circ}37' - 53^{\circ}57\frac{3}{4}'$, 19 Jul 1951, *Piotrowska s.n.* (UGDA); AB7361 – Szczecin-Osów, $14^{\circ}30' - 53^{\circ}28\frac{1}{2}'$, Aug 1900 & Jul 1901, *Holzfluss s.n.* (BREM); BC3139 – NE of Wologoszcz, $15^{\circ}52' - 53^{\circ}00'$, 5 Aug 1889, *Gelert s.n.* (BREM).

28. *Rubus gracilis* J. Presl & C. Presl

(Figs 78–80)

Del. Prag. 1: 220. 1822.

Rubus villicaulis Köhler ex Weihe & Nees, Rubi germ. 43, t. 17. 1825.

TYPE: Ad Hlubosch, in sylvaticis ad Styria etc., sine die, *Presl* (PRC – LECTOTYPE; Weber 1984).

Stems arching, normally angled with flat or furrowed sides, usually thick, tinged with red-brown, persistently patent-hairy, with simple and tufted (rarely stellate) hairs. Prickles (3–)5–15(–20) per 5 cm, curved or straight, patent or declining, stout, (5–)6–10 mm long, often hairy at the base, usually red and thus contrasting with green surface of the stem (on shady plants). Leaves 5-foliolate, digitate or subpedate, with sparse hairs or subglabrous above, softly pubescent with patent hairs beneath, in sunnier places often with underlayer of stellate hairs and then grey-green to grey. Terminal leaflets with short to mid-long petiolules (25–35%), elliptical, ovate-elliptical, obovate, rarely suborbicular, rounded or slightly notched at the base, with an acuminate apex 10–15 mm long, evenly or indistinctly periodically serrate; the serration up to 2(–2.5) mm deep; teeth sometimes with variously directed tips. Basal leaflets with petiolules 2–3 mm long. Petioles patent-hairy, sometimes also with stellate hairs. Prickles strongly curved, reddish at the base, up to 4 mm long. Stipules narrowly lanceolate. Inflorescence paniculate, most often conical, usually with truncate or obtuse leafless apex and with 5-foliolate leaves below. Leaves clothed like those of the stems but usually grey-green-felted beneath. Inflorescence axis usually stiff, densely pubescent with spreading hairs, often also with very numerous stellate

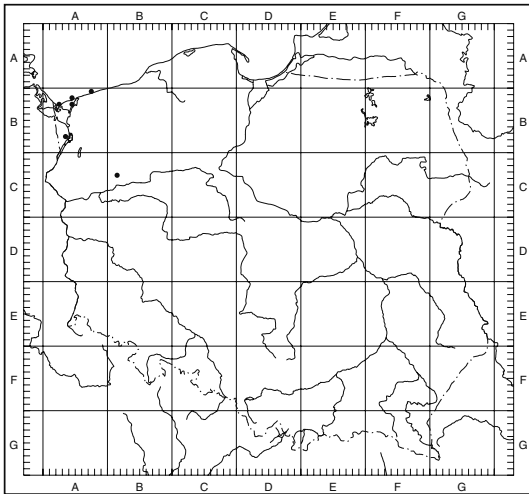


Fig. 77. Distribution of *Rubus marssonianus* H. E. Weber in Poland.



Fig. 78. *Rubus gracilis* J. Presl & C. Presl (Zieliński 1845, KOR 28020). Scale bar = 5 cm.

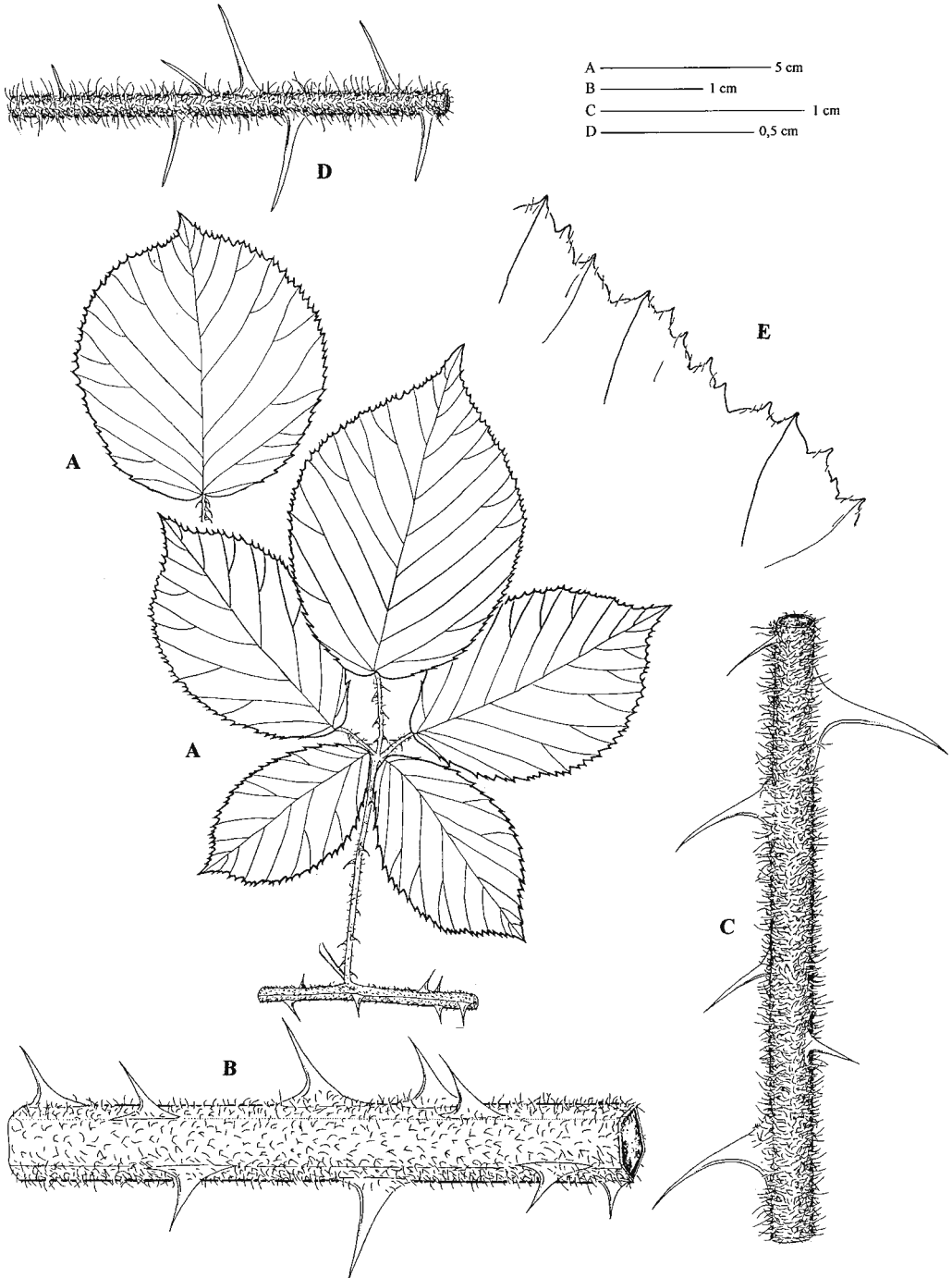


Fig. 79. *Rubus gracilis* J. Presl & C. Presl. A – leaf from vegetative stem and terminal leaflet; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1931, KOR 30852).

hairs, sometimes with few short-stalked glands 0.1–0.2(–0.3) mm long. Prickles slightly curved or straight, declining, 4–5(–6) mm long. Pedicels 0.5–2 cm long, with dense spreading hairs, sometimes with few stalked glands up to 0.3 mm long. Prickles curved or straight, 2.5–4(–5) mm long. Sepals with dense spreading hairs and needle-like pricklets, reflexed after anthesis. Stamens exceeding styles. Anthers glabrous. Carpels glabrous or rarely with few hairs. Receptacle hairy. Petals white or pink, elliptical or obovate, (10–)11–13 mm long. – $2n = 28$ (Boratyńska 1994). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems persistently patent-hairy; prickles usually numerous, stout, red at the base; inflorescence axis stiff, strongly armed. In our flora *R. nemoralis*, *R. marssonianus* (see remarks at those species) and *R. circipanicus* can be mistaken for this species. The latter bramble is rather easy to distinguish by (sub)glabrous stems and almost unarmed, much less branched inflorescence.

HABITAT. Open deciduous or mixed forests, clearings, forest margins.

DISTRIBUTION IN POLAND. Common in S and C regions, on few stands in the north-west.

GENERAL DISTRIBUTION. Widespread species. S Scandinavia, Germany, the Czech Republic, Slovakia, Poland, rarely in W Ukraine and Austria.

NOTES. *Rubus gracilis* is one of the most variable Polish brambles. This variability is demonstrated in the degree of stem hairiness, number of prickles, pubescence of lower leaflet surface, leaflets arrangement, their shape, serration and colour of petals. According to Weber (1984) it is possible to separate 2 subspecies within *R. gracilis*: subsp. *gracilis* widespread in southwestern part of the species area and subsp. *insularis* (Aresch.) H. E. Weber, which prevails in northwestern Europe. The latter subspecies is said to differ from the type by digitate leaves, felted below, broader terminal leaflets and pink petals. This problem, however,

needs further studies. The characters mentioned above seem to be not sufficiently correlated.

SELECTED HERBARIUM SPECIMENS. AB0786 – Pogorzelica, $15^{\circ}07\frac{3}{4}' - 54^{\circ}06\frac{1}{3}'$, 9 Aug 1993, *Boratyńska 8/93* (KOR 29399); AB8314 – Szczecin, $14^{\circ}33' - 53^{\circ}26'$, 9 Jul 1901, *Holzfluss s.n.* (BRNM 41754); AC8946 – 2 km E of Popowo, $15^{\circ}33\frac{2}{5}' - 52^{\circ}32'$, 25 Jul 1975, *Browicz & Zieliński Z. 726* (KOR 7188); AC9393 – near Kunowice, $14^{\circ}39' - 52^{\circ}22\frac{1}{3}'$, 23 Jun 1997, *Kozłowski s.n.* (KOR 39359); AE1828 – Lipie, $15^{\circ}31\frac{1}{2}' - 51^{\circ}23\frac{1}{2}'$, 30 Jul 1864, *Limpricht s.n.* (BREM); BB5292 – Karsibór, $15^{\circ}52' - 53^{\circ}40'$, 25 Jun 1991, *Tomlik s.n.* (KOR 25419); BC3456 – between Dzierżążno Wielkie & Górnica, $16^{\circ}16' - 52^{\circ}59\frac{2}{3}'$, 7 Aug 1893, *Spribille s.n.* (BREM); BC4163 – between Drezdenko & Dobiegniewo, $15^{\circ}46\frac{3}{4}' - 52^{\circ}53'$, 1 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3056* (KOR 29961); BC5662 – near Miłkowo, $16^{\circ}31\frac{1}{3}' - 52^{\circ}48\frac{3}{4}'$, 24 Jun 1991, *Tomlik s.n.* (KOR 25406); CC2717 – between Ostromecko & Nowy Dwór, $18^{\circ}13' - 53^{\circ}09'$, 23 Jul 1893, *col. ign.* (TRN); CC5598 – 1 km SW of Szczepankowo, $17^{\circ}56' - 52^{\circ}48\frac{1}{3}'$, 28 Jun 1988, *Chmiel s.n.* (POZ); CC7070 – Wojnowko, $17^{\circ}04\frac{3}{4}' - 52^{\circ}38\frac{1}{3}'$, 1987, *Tomlik s.n.* (KOR 30890); CC7534 – by Jezioro Wienieckie near Kopczyn, $17^{\circ}52\frac{2}{3}' - 52^{\circ}40\frac{2}{3}'$, 2 Jul 1986, *Chmiel s.n.* (POZ); CC9545 – 0.5 km W of Kinno, $17^{\circ}54\frac{1}{2}' - 52^{\circ}29\frac{1}{2}'$, 27 Jul 1988, *Chmiel s.n.* (POZ); CD1763 – near Kazimierz Biskupi, $18^{\circ}10' - 52^{\circ}18'$, 23 Aug & 13 Nov 1978, *Florkowska & Jankowska s.n.* (POZ); DD5293 – Napoleonów, $18^{\circ}54' -$

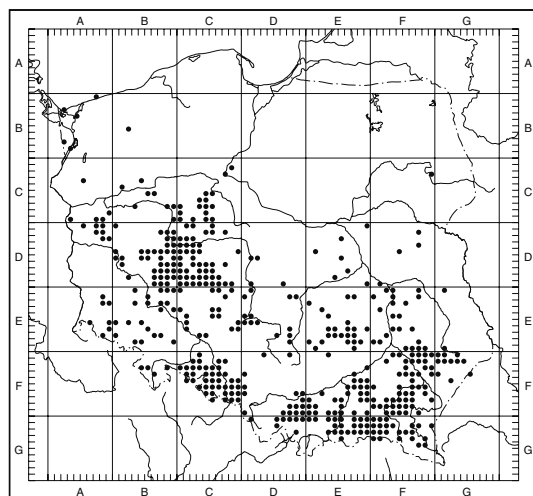


Fig. 80. Distribution of *Rubus gracilis* J. Presl & C. Presl in Poland.

51°54'2/3', Jul 1984, *Witostawski s.n.* (LOD); DD9168 – Podłężyce, 18°49'2/3'–51°35', 19 Jun 1889, *Drymmer s.n.* (WA 059344); DD9624 – 'Molenda' reserve near Tuszyn, 19°29'1/2'–51°37', Aug 1968, *Wieczorek s.n.* (LOD); ED0932 – 'Dębina' reserve near Klembów, 21°23'1/2'–52°23'3/4', 2 Jul 1962, *col. ign.* (LOD); ED2553 – Ożarów Mazowiecki, 20°48'1/2'–52°12'1/2', 14 Sep 1966, *Nowak s.n.* (WA); ED4190 – N of Skierniewice, 20°10'–52°00', 16 Jul 1990, *Zieliński 2572* (KOR 23721); ED5587 – Głuchów, 20°51'1/3'–51°54'2/3', 6 Aug 1991, *Głowacki s.n.* (WSRP); ED7687 – Klin-Branieck, 20°59'3/4'–51°43'1/2', 6 Aug 1991, *Głowacki s.n.* (WSRP); ED9974 – Cecylówka, 21°22'1/2'–51°32'3/4', 7 Jul 1993, *Głowacki s.n.* (WSRP 36713); FC2929 – Trypucie, 23°01'3/4'–53°04'1/3', 17 Jul 1970, *Janik s.n.* (LOD); FD1775 – Cierpigórz, 22°36'–52°14'1/6', 10 Sep 1993, *Głowacki s.n.* (WSRP 36701); FD3754 – Krzesk, 22°34'1/4'–52°04'1/3', 18 Sep 1991, *Głowacki s.n.* (WSRP); FD4418 – Domanice, 22°10'3/4'–52°02'1/4', 7 Jul 1996, *Głowacki s.n.* (WSRP); FD9184 – Słowiki, 21°40'–51°32', 8 Sep 1988, *Zieliński 2520* (KOR 24849); FE1703 – Dąbrówka, 22°29'3/4'–51°24'1/2', 17 Jun 1964, *Fijałkowski s.n.* (LBL); FE6660 – Stróża, 22°16'1/3'–50°54'2/3', 2 Aug 1959, *Fijałkowski s.n.* (LBL); FE8753 – Rataj, 22°27'–50°44', 3 May 1965, *Fijałkowski s.n.* (LBL); GE0186 – Załucze Stare, 23°07'–51°24', 31 Jul 1997, *Głowacki s.n.* (WSRP); GE9162 – Zwierzyniec, 22°59'1/2'–50°37', 18 Jul 1981, *Izdębski s.n.* (LBL); GF1242 – Hamernia, 23°07'–50°27'1/4', 22 Jun 1965, *Fijałkowski s.n.* (LBL); GF1433 – Tomaszów Lubelski, 23°25'–50°27', Jul 1929, *Koporska s.n.* (LBL); GF3516 – Hrebenne, 23°35'–50°17', 12 & 14 May 1965, *Fijałkowski s.n.* (LBL).

Series *Sylvatici* (P. J. Müll.) Focke

Spec. Rub. 3: 391. 1914.

Basionym: *Rubus* sect. *Sylvatici* P. J. Müll., *Flora* 41: 137. 1858.

TYPE: *Rubus piletostachys* Godr. & Gren.

Stems high- to low-arching, usually without stalked glands. Prickles uniform. Leaves normally green, not felted beneath.

29. *Rubus wimmerianus* (Sprib. ex Sudre) Sprib. (Figs 81–83)

Jahresb. Schles. Ges. Vaterl. Kult. 87: 57. 1910. – *Rubus wimmeri* Sprib., *Verh. Bot. Ver. Prov. Brandenburg* 42: 166. 1900., *non Weihe ex Günther et al.* (1826).

Basionym: *R. rhombifolius* microgen. *wimmerianus* Sprib. ex Sudre, *Bat. eur.* 71 (1907).

TYPE: Ratibor. Brzezcie. Weg nach der Aussicht, 29.7.1899, *Spribille s.n.* (KOR 22739 – LECTOTYPE, designated here).

Stems high-arching, distinctly zigzag, angled, with flat or furrowed sides, often suffused violet-grey. Prickles uniform, normally on angles, (5–)10–15(–20) per 5 cm, 5–6 mm long, slightly curved or straight, declining, exceptionally some of them patent, yellowish, brighter than stems. Leaves often large, 5-foliolate, digitate or shortly pedate, dark green, glabrous or with sparse hairs above, loosely to fairly densely hairy beneath; hairs on the veins usually adpressed, pectinately arranged; stellate hairs absent. Leaves usually not contiguous, terminal ones on mid-long or long petiolules (30–50%), obovate to broadly elliptical, rounded or shallowly emarginate at the base, with rather suddenly acuminate slightly recurved apex 15–20 mm long, deeply periodically serrate (especially in the upper half); the serration 3–5 mm deep; teeth rather suddenly acuminate, principal ones prominent, usually somewhat recurved. Basal leaflets with petiolules 4–5(–8) mm long. Petioles usually hairy on the upper surface, with numerous, strongly curved, yellowish prickles. Stipules linear-lanceolate. Inflorescence paniculate, narrow, conical to almost cylindrical, usually leafy to the apex, with 3–5-foliolate leaves below. Inflorescence axis zigzag, fairly densely hairy in the upper part, with spreading hairs and numerous subsessile glands. Prickles yellow, straight or rarely curved, up to 3(–4) mm long. Leaflets of upper leaves usually deeply periodically serrate, sometimes incised. Pedicels up to 1.5(–2) cm long, densely pubescent with short spreading hairs, with several straight or slightly curved prickles up to 1.5 mm long. Sepals loosely hairy on the back, (greyish-)green, white-bordered along margins hence distinctly two-coloured, unarmed, reflexed after anthesis. Petals white, obovate to broadly elliptical, 8–10 mm long. Stamens as long or indistinctly exceeding styles. Anthers glabrous. Carpels (sparsely) hairy. Receptacle hairy. – 2n = 28 (Boratyńska 1998). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems zigzag, angled, violet-grey; prickles short, curved; leaflets



Fig. 81. *Rubus wimmerianus* (Sprib. ex Sudre) Sprib. (Tomlik & Zieliński, in Zieliński 2270, KOR 22860). Scale bar = 5 cm.

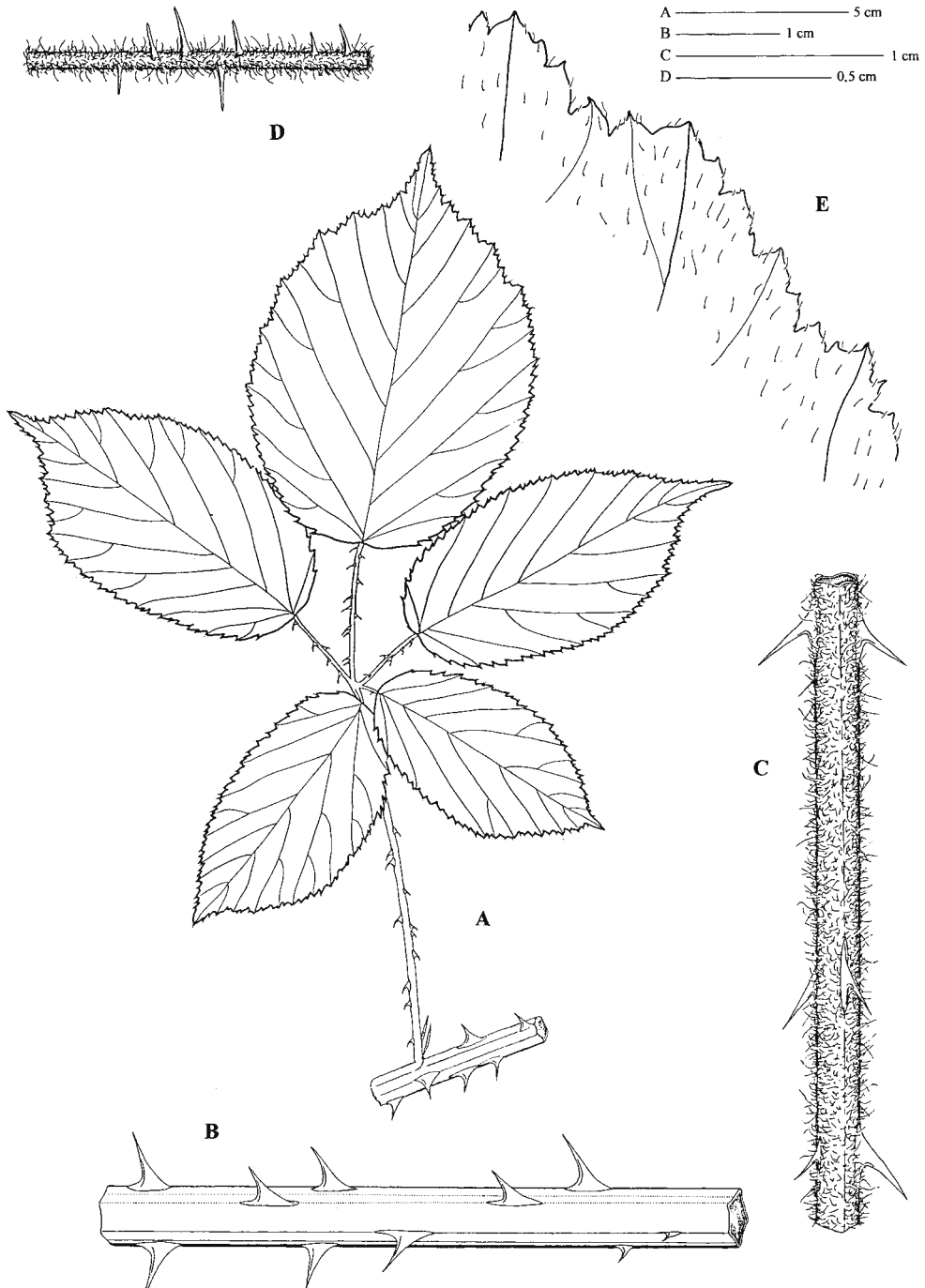


Fig. 82. *Rubus wimmerianus* (Sprib. ex Sudre) Sprib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Browicz & Zieliński s.n.*, KOR 5827).

not contiguous, deeply serrate, green on both sides; sepals green, white-bordered.

HABITAT. Thickets, deciduous forest margins, clearings.

DISTRIBUTION IN POLAND. Chiefly in S regions, locally very common.

GENERAL DISTRIBUTION. Widespread species. Central Europe: the Czech Republic, Poland, sporadically in Austria and Ukraine (S of Lvov, *Paczoski s.n.*, KRAM 140417).

SELECTED HERBARIUM SPECIMENS. CE4532 – Rychtal, 17°53¼'–51°09½', 28 Sep 1899, *Spribille s.n.* (WRSL); CF1790 – Wysoka, 18°10'–50°28¾', 27 Jul 1899, *Spribille s.n.* (KOR 22742 & WRSL); CF6401 – 2 km N of Bliszczycze, 388 m, 17°45½'–50°06½', 12 Sep 1999, *Kosiński & Zieliński 68/99* (KOR 41709); CF6748 – Racibórz-Brzezina, the road to Pogwizdów, 18°16½'–50°04¼', 29 Jul 1899, *Spribille s.n.* (KOR 22739); DF5952 – Hamernia, 19°52½'–50°09½', Aug 1928, *Krawiec s.n.* (KOR 22736 pp); DF6019 – by the road between Bełk & Palowice, 18°43'–50°06½', 5 Sep 1917, *Spribille s.n.* (WRSL); DF9143 – Wilamowicka Górka near Skoczów, 18°46½'–49°48¼', 29 Aug & 4 Oct 1962, *Pelc s.n.* (KRAP 850 c, d); EE6432 – near Tumlin, 20°36½'–50°58¼', 30 Jun 1931, *Kaznowski s.n.* (POZNB); EE7388 – Zalesie, 20°32½'–50°50½', 18 Aug & 2 Oct 1986, *Molendowska s.n.* (KTC); EF6931 – Czar-

na, 21°15'–50°03¾', 12 Aug 1993, *Wayda s.n.* (KRA); EF7081 – Podstolice, 19°59½'–49°57', 21 Jul 1995, *Majcher s.n.* (KRA); EF7596 – Grabno, 20°46'–49°55¾', 2 Aug 1973, *Pacyna s.n.* (KRA); FE8015 – between Brzezina & Nikisiałka, 21°29'–50°47½', 19 Jul 1932, *Kaznowski s.n.* (KRAM 141058 & POZNB); FE8916 – Podlesie, 22°47'–50°45½', 29 Jul 1973, *Kalamon s.n.* (LBL); FF1646 – Glinianka, 22°19½'–50°28½', 19 Aug 1993, *Oklejewicz s.n.* (KOR 30501); FF8566 – Łazek, 22°08½'–49°50', 7 Oct 1997, *Oklejewicz s.n.* (KRA); FG4811 – Zawóz, 600 m, 22°27¼'–49°20', 21 Aug 1998, *Oklejewicz s.n.* (KRA); FG4942 – near Polana, 22°36¼'–49°18', 29 Aug 1998, *Oklejewicz s.n.* (KRA); GD2235 – Cieleśnica, 23°19'–52°09½', sine die, *col. ign.* (POZNB); GE9053 – Lipowiec, 22°52'–50°37¾', 19 Jun 1958, *Fijałkowski s.n.* (LBL).

30. *Rubus sciocharis* Sudre (Figs 84–86)

Bat. eur.: 68. 1907, *nom. nov. pro nomine R. sciophilus* Lange in Oeder, Fl. Dan. 17: 7, t. 3026. 1883, *non R. sciophilus* P. J. Müll & Lefèvre., Jahresb. Pollichia 16/17: 205 (1859).

TYPE: Teglorskoven ved Nyborg, 16.8.1867, *Lange* (C – LECTOTYPE; Weber 1985).

Stems arching, bluntly angled, with flat or slightly furrowed sides, green or brown-yellow, usually with numerous sessile glands, loosely patent-hairy with simple or tufted hairs. Prickles (7–)8–15 per 5 cm, yellowish, lighter than stems, irregularly spaced, 3–5 mm long, straight or slightly curved, distinctly declining, rather slender. Leaves pedate, 3–4-foliolate or partly 5-foliolate, matt green and with sparse adpressed hairs above, sparsely pubescent with simple or tufted hairs beneath. Terminal leaflets with short or mid-long petiolules (18–33%), broadly ovate to elliptic, rarely broadly obovate, cordate at the base, with an acuminate apex 10–15 mm long, alive slightly convex, coarsely (2–4 mm deep) serrate; teeth usually broader than long, apiculate, principal ones usually slightly prominent, straight or some of them retrorse. Lateral leaflets of 3-foliolate leaves with petiolules 3–6 mm long, petiolules of 5-foliolate leaves 1–3 mm long. Petioles sparsely hairy with patent hairs. Stipules filiform-linear. Inflorescence conical, usually leafy to the apex. Lower leaves 3-foliolate, the uppermost

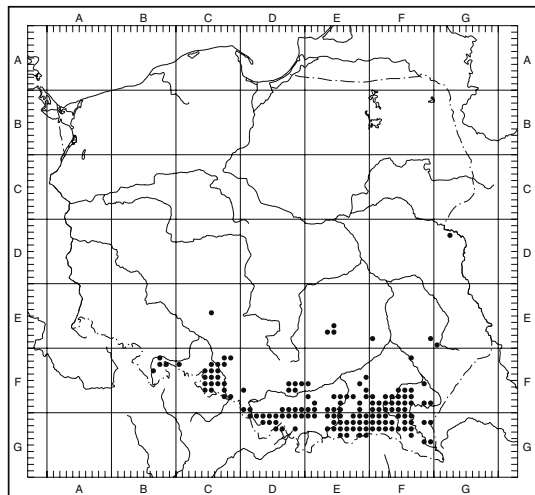


Fig. 83. Distribution of *Rubus wimmerianus* (Sprib. ex Sudre) Sprib. in Poland.

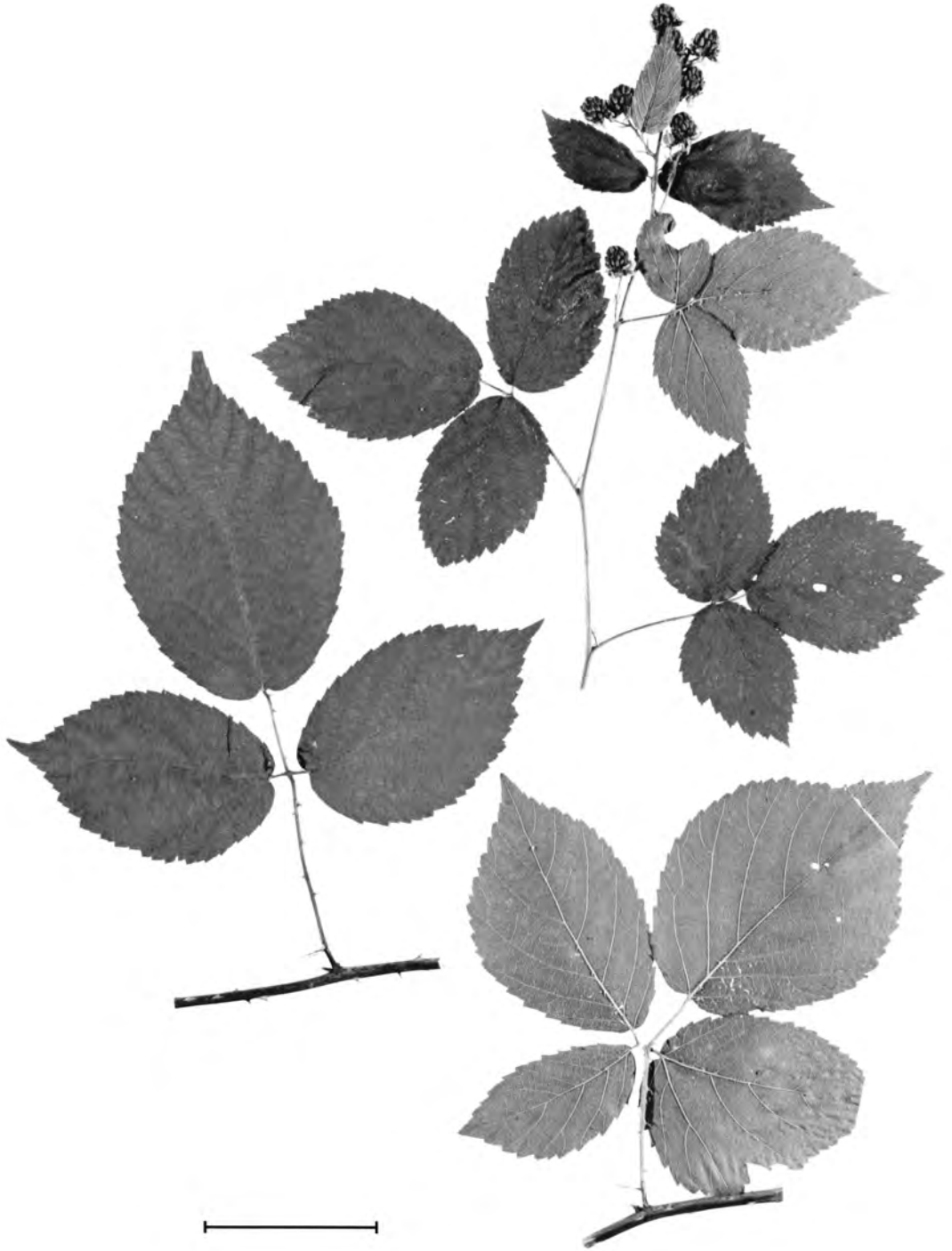


Fig. 84. *Rubus sciocharis* Sudre (*Szendera s.n.*, KTU). Scale bar = 5 cm.

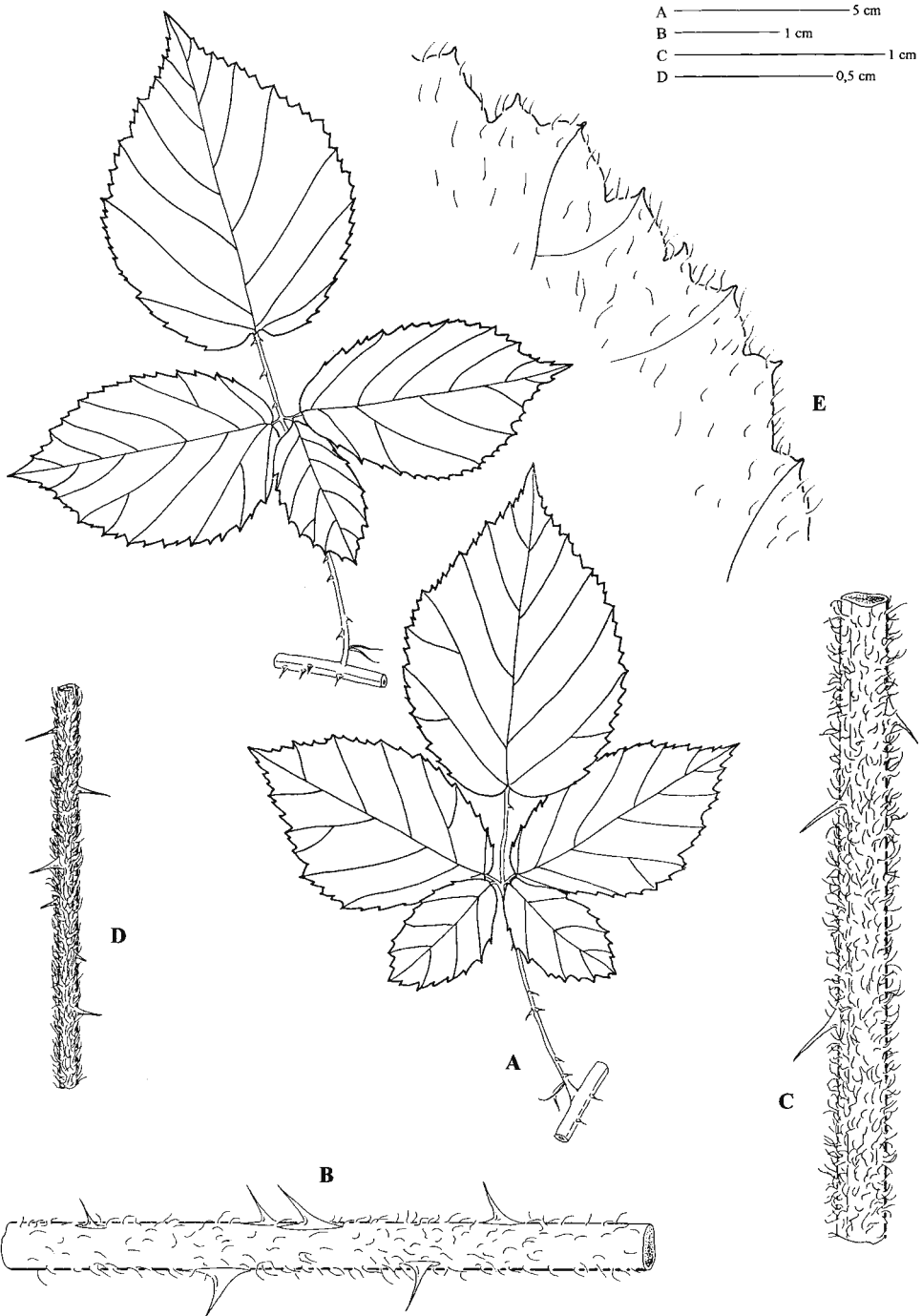


Fig. 85. *Rubus sciocharis* Sudre. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Szendera s.n.*, KTU).

simple, pubescent like leaves of barren stems, but sometimes with indistinct underlayer of stellate hairs beneath. Inflorescence axis flexuose, rather loosely patent-hairy. Prickles straight or slightly curved, declining, 3–4(–5) mm long. Pedicels 5–10 mm long, with numerous subsessile glands, rather loosely hairy chiefly with patent hairs, sometimes with underlayer of stellate hairs, with numerous, yellow, (almost) straight prickles 1–2 mm long. Sepals greenish or greenish-grey, patent-hairy and usually with stellate hairs, acicular, (usually) patent after anthesis. Petals white, elliptic, 13–18 mm long. Stamens exceeding styles. Anthers with long hairs. Young carpels (sparsely) hairy. Receptacle hairy. – $2n = ?$ – Flowering (VI)–VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems bluntly angled, loosely patent-hairy; leaves 3–5-foliolate, pedate; leaflets coarsely serrate; teeth on the leaflet margin usually broader than long; anthers hairy.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. Recently found in two sites in the south, NE of Opole.

GENERAL DISTRIBUTION. Widespread species. NW Europe: England, Belgium, N Germany, Den-

mark and Poland. In C Germany only planted and naturalized (Weber 1995). It is not unlikely that Polish stations of this species are also of anthropogenic origin.

SPECIMENS SEEN. CE9753 – Antoniów, 18°12'–50°41½', 22 Jun 1994, *Szendera s.n.* (KTU); CF3730 – Kędzierzyn-Koźle-Kłodnica, 18°10'–50°21', 22 Jun 1994, *Szendera s.n.* (KTU).

31. *Rubus angustipaniculatus* Holub

(Figs 87–89)

Folia Geobot. Phytotax. **25**: 341. 1991.

Rubus rhombifolius Weihe var. *pyramidaliformis* Sudre, Bat. Eur. Fasc. V, No. 239. 1907. – *R. pyramidaliformis* (Sudre) Ziel., Fragm. Flor. Geobot. **36**(2): 267. 1991. – *R. rhombifolius auct. non* Weihe in Boenninghausen (1824).

TYPE: 'Bohemia septentrio-orientalis; distr. Turnov; ad viam publicam in silvis Ceperka dictis sept.-orient. a pago Zdobin, haud procul ab oppidulo Miletin; altitudine cca 420–440 m s.m., 10.08.1990, leg. J. Holub' (PR 4678 – HOLOTYPE).

Stems arching, angled, with furrowed or rarely flat sides, very sparsely hairy, finally glabrous. Prickles (5–)6–10(–14) per 5 cm, (5–)6–7(–8) mm long, declining, straight or slightly curved, broad-based, often reddish. Leaves 5-foliolate, digitate or pedate, glabrous or sparsely adpressed-hairy above, sparsely to rather densely stellate hairy beneath, green or grey-green. Leaflets usually not contiguous, terminal ones with long petiolules (40–50%), elliptical, narrowly obovate or rhombic, narrowly rounded at the base, with an acuminate apex 10–20 mm long, sharply, periodically serrate; teeth narrow, principal ones prominent, usually straight. Petioles usually longer than basal leaflets, sparsely hairy, with 6–10 strongly curved prickles. Stipules linear to narrowly lanceolate, hairy and with short-stalked glands. Inflorescence paniculate, narrowly conical, with short upright or ascending lateral branches, leafy to the apex, with 3-foliolate leaves below. Leaves more densely hairy beneath than those of the stems. Inflorescence axis thick and stiff, usually sparsely hairy, green, with declining straight or curved prickles 3–5 mm long. Pedicels 0.5–1 cm long, grey-felted,

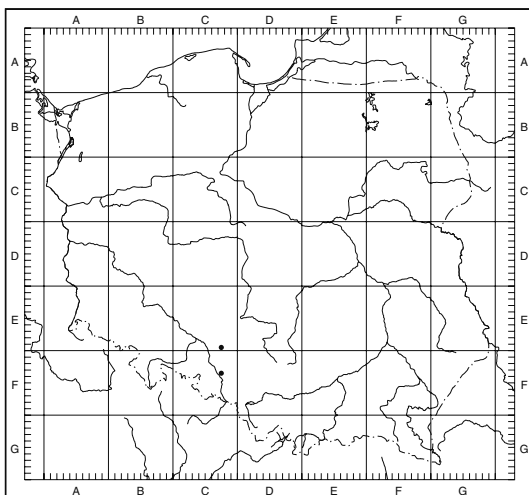


Fig. 86. Distribution of *Rubus sciocharis* Sudre in Poland.



Fig. 87. *Rubus angustipaniculatus* Holub (Zieliński 1008, KOR 2661). Scale bar = 5 cm.

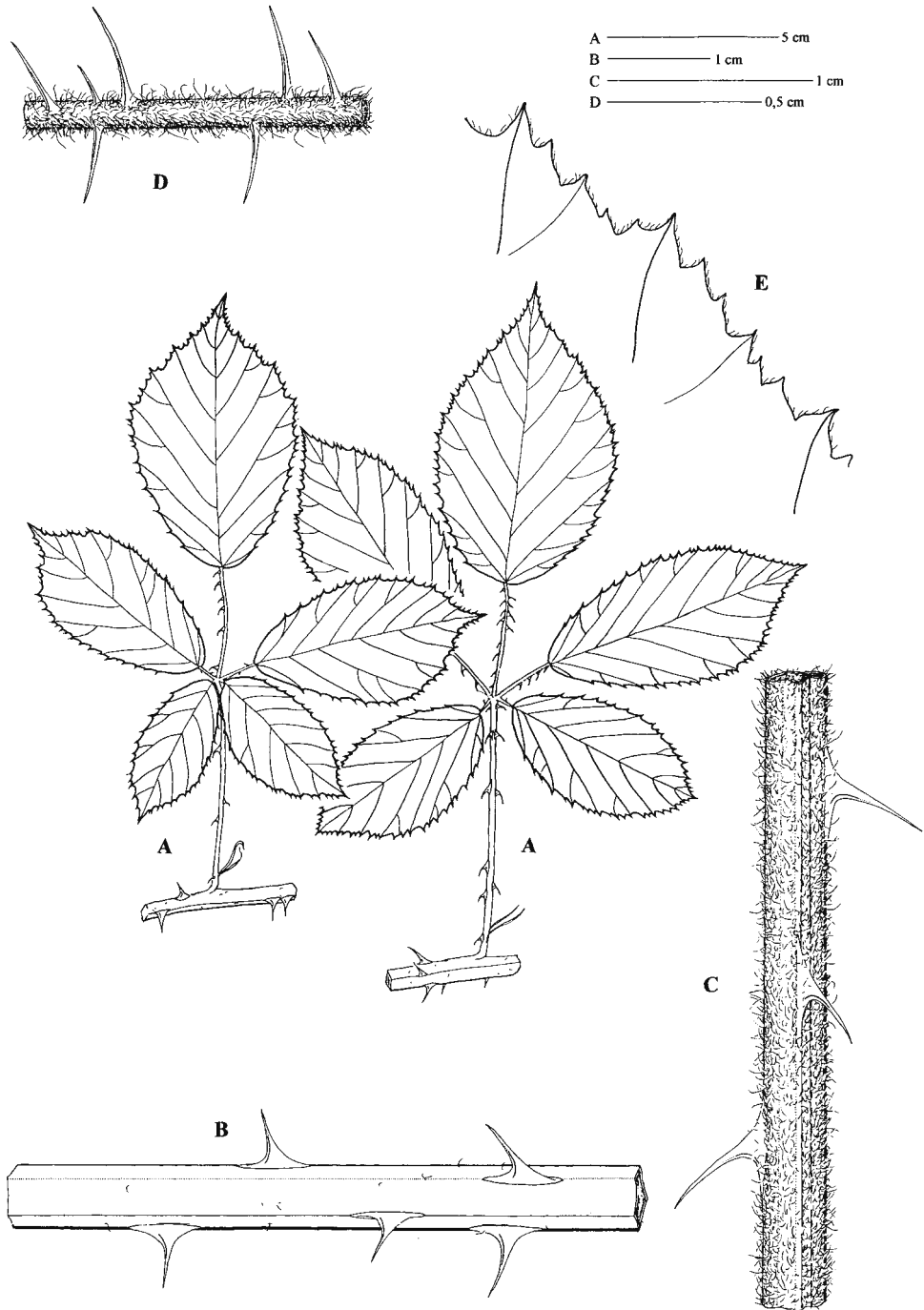


Fig. 88. *Rubus angustipaniculatus* Holub. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1008, KOR 2661).

with straight or curved straw-yellow prickles, 1.5–2(–3) mm long. Sepals densely grey-felted, besides with longer protruding hairs, abruptly narrowed at the apex, reflexed after anthesis. Petals pale pink, elliptical or narrowly obovate, 8–12 mm long. Stamens as long or slightly exceeding styles. Stamens, carpels and receptacle glabrous. – $2n = 28$ (Boratyńska 1994). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, (sub)glabrous; prickles strong; leaves not contiguous; terminal leaflets usually narrowly obovate, sharply periodically serrate; inflorescence narrow, stiff, leafy to the apex.

HABITAT. Deciduous forest margins, clearings, thickets.

DISTRIBUTION IN POLAND. SW regions, chiefly Dolny Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Regional species. The Czech Republic and Poland.

NOTES. Reported wrongly from Poland as *R. rhombifolius* Weihe (e.g. Kulesza 1930). It is easy to distinguish from this species chiefly by the different serration of terminal leaflets.

SELECTED HERBARIUM SPECIMENS. AE7951 – by the crossroad between Jagniątków & Piechowice, $15^{\circ}37' - 50^{\circ}49\frac{2}{3}'$, 12 Sep 1982, *Boratyński 485* (KOR 23773); BD9727 – Załęcze, $16^{\circ}48\frac{1}{4}' - 51^{\circ}36'$, 2 Jul 1899, *col. ign.* (WRSL); BE2321 – near Karczowiska by the road to Zimna Woda, $16^{\circ}09\frac{1}{2}' - 51^{\circ}18\frac{2}{3}'$, 11 Jul 1903, *Spribille s.n.* (WRSL); BE2777 – E of Jodłowice, $16^{\circ}48\frac{1}{2}' - 51^{\circ}17'$, 19 Aug 1997, *Głowacki s.n.* (WSRP); BE4142 – between Polna & Jerzmanice Zdrój, $15^{\circ}53\frac{1}{2}' - 51^{\circ}06\frac{1}{2}'$, 1901, *Figert & Spribille s.n.* (WRSL); BE5204 – Górzec Mt. (445 m), 2.5 km SW of Męcinka, $16^{\circ}04\frac{1}{2}' - 51^{\circ}03\frac{1}{2}'$, Sep 1908, *Kinscher s.n.* (PR); BE5494 – Góra Zwycięstwa (350 m) near Graniczna, $16^{\circ}21\frac{2}{3}' - 50^{\circ}59\frac{1}{2}'$, Jul 1878, *Scholz s.n.* (WRSL); BE7214 – near Domanów, by the road to Bolków, $16^{\circ}04\frac{1}{2}' - 50^{\circ}52\frac{1}{2}'$, 7 Aug 1991, *Zieliński 2975* (KOR 24785a); BE9553 – N of Kozia Równia in the Sowie Mts, $16^{\circ}30\frac{1}{2}' - 50^{\circ}40'$, 4 Oct 1919, *Schmattorsch s.n.* (WRSL); BE9955 – 1 km SE of Dobroszów, $17^{\circ}05\frac{1}{2}' - 50^{\circ}41'$, 8 Aug 1991, *Zieliński 3024* (KOR 24914); BF0771 – the NW slope of Łysa Góra near Grochowa, $16^{\circ}45\frac{1}{2}' - 50^{\circ}34'$, 30 Jun 1904, *Kinscher s.n.* (WRSL); BF2305 – Kościelny Las E of Kudowa Zdrój, $16^{\circ}15\frac{2}{3}' -$

$50^{\circ}26\frac{1}{3}'$, 10 Jul 1910, *Spribille s.n.* (GLM 47073); BF3759 – Stojków, 480 m, $16^{\circ}53\frac{1}{4}' - 50^{\circ}19'$, 10 Sep 1994, *Kosiński s.n.* (KOR 39632); CD8102 – between Rzemiechów & Kuklinów, $17^{\circ}17\frac{2}{3}' - 51^{\circ}42\frac{2}{3}'$, 6 Aug 1996, *Zieliński 55/96* (KOR 38284); CD8531 – Lewków, $17^{\circ}52' - 51^{\circ}41\frac{1}{2}'$, 27 Sep 1895, *Spribille s.n.* (C); CE2572 – between Bralin & Tabor Mały, $17^{\circ}53' - 51^{\circ}18'$, 21 Sep 1915, *Spribille s.n.* (WRSL); CE2819 – Młynek, $18^{\circ}25' - 51^{\circ}21\frac{1}{4}'$, 14 Jul 1993, *Zieliński s.n.* (KOR 30510); CE3211 – Sokołowice, $17^{\circ}27' - 51^{\circ}15\frac{2}{3}'$, 4 Oct 1912, *Spribille s.n.* (WRSL); CE3331 – Jemielna, $17^{\circ}35' - 51^{\circ}14\frac{1}{3}'$, 14 Oct 1913, *Spribille s.n.* (WRSL); CE5110 – Chrzastowa Mała, $17^{\circ}17\frac{1}{2}' - 51^{\circ}04\frac{1}{2}'$, 20 Oct 1911, *Spribille s.n.* (WRSL); CE5977 – near Strojec, between Rudniki & Praszka, $18^{\circ}32\frac{1}{3}' - 51^{\circ}02\frac{1}{5}'$, 24 Jul 1991, *Zieliński 2940* (KOR 24777); CE6381 – between Mąkoszyce & Lubsza, $17^{\circ}35\frac{1}{2}' - 50^{\circ}56'$, 15 Nov 1909, *Spribille s.n.* (WRSL); CE7911 – near Biskupice, $18^{\circ}26\frac{3}{4}' - 50^{\circ}54\frac{1}{2}'$, 6 Oct 1906, *Spribille s.n.* (WRSL); CE8700 – N of Bierdzany, $18^{\circ}09\frac{1}{3}' - 50^{\circ}49\frac{3}{4}'$, 14 Jul 1988, *Tomlik & Zieliński Z. 2212* (KOR); CF1519 – by the road Przywory-Góraźdze, $18^{\circ}00\frac{1}{3}' - 50^{\circ}32\frac{2}{3}'$, 27 Aug 1918, *Spribille s.n.* (WRSL); CF1536 – by the road Kędzierzyn-Opole, near Góraźdze, $17^{\circ}57\frac{2}{3}' - 50^{\circ}31\frac{1}{5}'$, 26 Aug 1996, *Danielewicz & Maliński s.n.* (POZNF); CF1850 – Strzelce Opolskie, $18^{\circ}18' - 50^{\circ}30\frac{2}{3}'$, 13 Jul & 2 Aug 1906, *Spribille s.n.* (PR); CF2944 – Boguszyce, $18^{\circ}30' - 50^{\circ}26\frac{1}{4}'$, 26 Aug 1916, *Spribille s.n.* (WRSL); CF3287 – near Dębowiec, $17^{\circ}33\frac{1}{2}' - 50^{\circ}18'$, 29 Jul 1902, *Spribille s.n.* (WRSL); CF5854 – Szymocice, $18^{\circ}22' -$

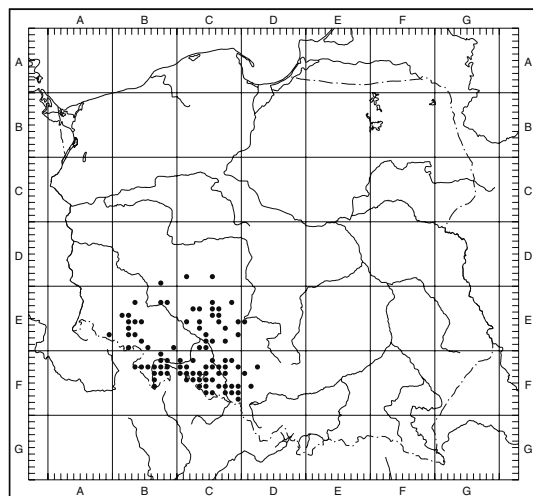


Fig. 89. Distribution of *Rubus angustipaniculatus* Holub in Poland.

50°09½', 18 Jul 1988, *Tomlik & Zieliński s.n.* (KOR 22832); CF6933 – between Rybnik & Niedobczyce, 18°29'–50°05', 19 Jul 1988, *Tomlik & Zieliński Z. 2379* (KOR 31191); DE5002 – 2 km of Dzierzniki, by the road Krzepice-Wieluń, 18°36½'–51°05¾', 20 Sep 1986, *Zieliński 1417* (KOR 23772); DF2212 – between Miasieczko & Tarnowskie Góry, 18°54'–50°28', 12 Sep 1907, *Spribille s.n.* (WRSL); DF3044 – Łąbędy, 18°38½'–50°21', 20 Jul 1906, *Spribille s.n.* (WRSL); DF5142 – near Ornontowice, by the road to Dębieńsko Wielkie, 18°45½'–50°09¾', 18 Sep 1917, *Spribille s.n.* (WRSL); DF5163 – Orzesze, 18°46½'–50°09', 23 Sep 1995, *Urbisz s.n.* (KTU).

32. *Rubus circipanicus* E. H. L. Krause in Prah (Figs 90–92)

Krit. Fl. Prov. Schleswig-Holst. 2: 56. 1889.

Rubus villicaulis var. *validus* Holzfuss, Allgem. Bot. Zeitschr. Syst. 9: 27. 1903.

TYPE: Groß Müritz: Im versandeten Ellernbruch hinter der Düne in consortio *Rubi plicati, fissi, dumetorum* variet., *caesii* et *vestiti* mei, 7 Oktober 1879, *Krause* (BREM – LECTOTYPE: Weber 1979).

Stems usually high-arching, wine-red or red-brown, angled, with flat or slightly furrowed sides, usually sparsely pubescent with simple or partly also tufted hairs. Prickles uniform, on angles, (3–)5–10(–15) per 5 cm, 6–7(–8) mm long, brighter than stems, slender, straight, patent or declining. Leaves 5-foliolate, digitate or shortly pedate, partly 3–4-foliolate, with sparse hairs above, with numerous patent hairs beneath, in sunnier places often with an underlayer of stellate hairs and then grey-green to grey. Terminal leaflets with short or mid-long petiolules [22–35(–40)%], (broadly) elliptical to obovate, shallowly cordate or rounded at the base, with an acuminate apex 10–15 mm long, evenly or slightly periodically serrate; serration 2–2.5 mm deep; principal teeth straight or slightly recurved. Basal leaflets with petiolules 1–1.5 mm long. Petioles loosely patent-hairy. Stipules narrowly lanceolate. Inflorescence conical to almost cylindrical, usually weakly branched, almost racemose above, with 3-foliolate leaves below. Leaves densely covered with stellate hairs, grey beneath. Inflorescence axis loosely to densely hairy with patent hairs. Prickles slender

up to 5 mm long, curved. Pedicels (0.5–)1–2.5 cm long, loosely felted, besides with long patent hairs, densely covered with yellow, sessile glands, unarmed or with several slightly curved or straight prickles 2–3 mm long. Sepals green-grey, with spreading hairs and numerous bright sessile glands, unarmed, reflexed after anthesis. Petals pink, elliptical, 11–14 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or rarely with few hairs. Receptacle glabrous or with long hairs. – 2n = 28 (Boratyńska 1996). – Flowering VII–VIII.

HABITAT. Thickets, deciduous forest margins.

DISTRIBUTION IN POLAND. Known hitherto from few localities in Pomorze Zachodnie. Recorded from S Wielkopolska and Śląsk (Weber 1995) but these data concern most likely *Rubus angustipaniculatus*.

GENERAL DISTRIBUTION. Regional species. Central Europe, chiefly Germany.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, sparsely hairy; prickles long but slender; leaves (3–)4–5-foliolate; inflorescences weakly branched, with few prickles; flowers pink. The species can be mistaken for *R. gracilis* and *R. nemoralis*;

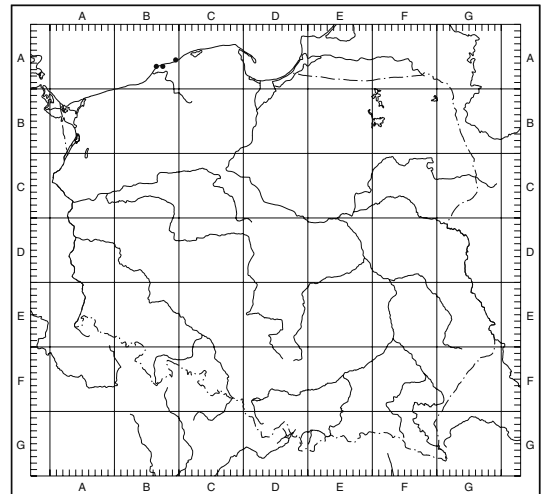


Fig. 90. Distribution of *Rubus circipanicus* E. H. L. Krause in Poland.



Fig. 91. *Rubus circipanicus* E. H. L. Krause (Zieliński 1509, KOR 24378). Scale bar = 5 cm.

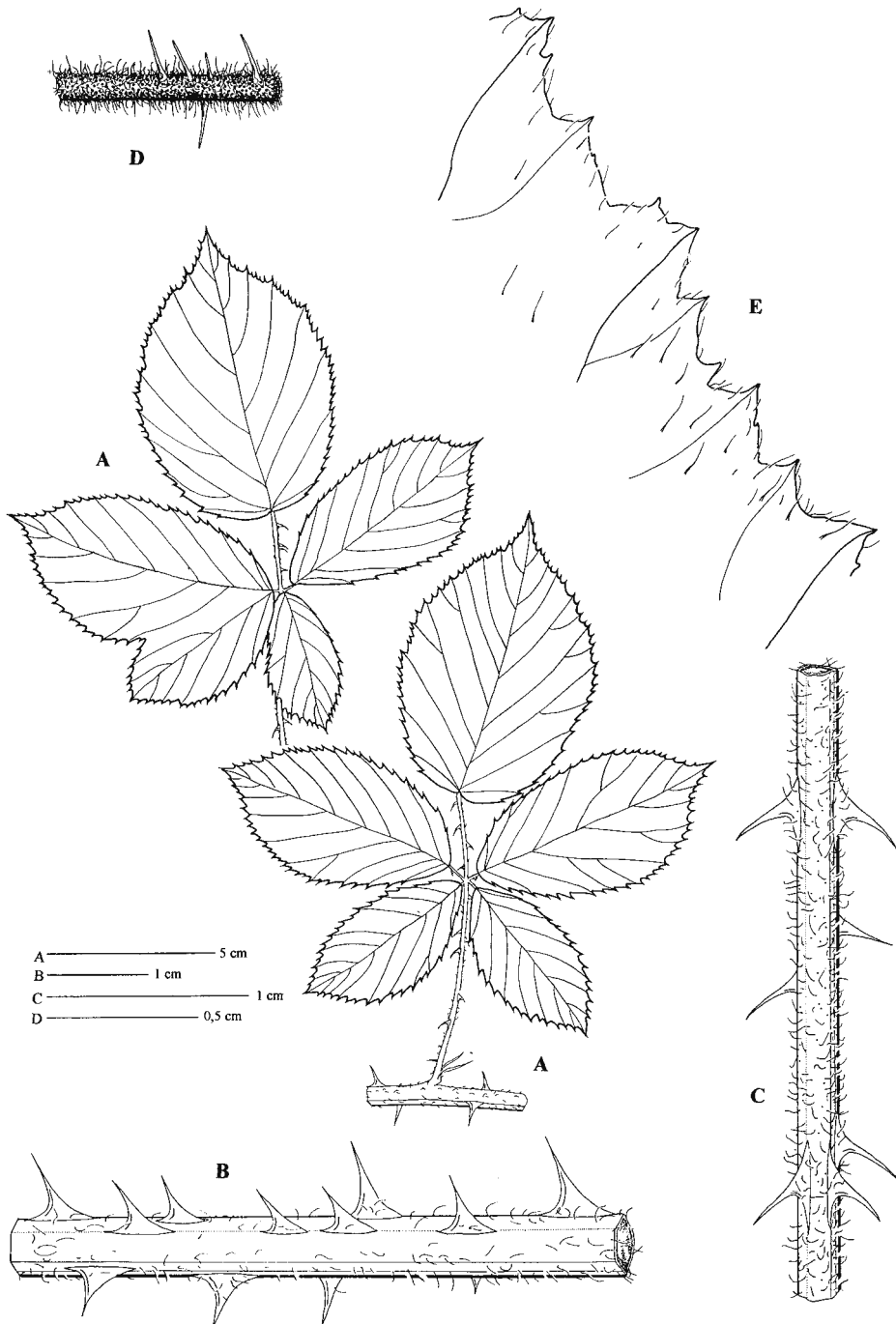


Fig. 92. *Rubus circipanicus* E. H. L. Krause, A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1509, KOR 24378).

from the former species it differs by subglabrous or sparsely hairy mature stems, from the latter by straight or weakly curved prickles on inflorescence axis, from both species by short petiolules of basal leaflets and weakly branched, almost racemose inflorescences.

SPECIMENS SEEN. BA5993 – Ustka, 16°53'–54°35¼', Aug 1952, *col. ign.* (LOD); BA6649 – near Jarosławiec, 16°31½'–54°32½', Jul 1907 & 27 Jul 1908, *Holzfluss s.n.* (PR & W); BA6776 – Korlino, 16°37½'–54°30½', 4 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3111* (KOR 31150).

33. *Rubus macrophyllus* Weihe & Nees

(Figs 93–95)

Rubi germ.: 35, t. 12 A. 1824.

TYPE: *Rubus macrophyllus* Weihe, sine loco et die, *Weihe* (MSTR – LECTOTYPE; Beek 1974).

Stems arching, often climbing, up to 3(–4) m long, angled, with flat or slightly furrowed sides, mat-green, with brighter stripes, irregularly mottled brownish red on the side exposed to the sun, distinctly pubescent with stellate and subadpressed tufted and simple hairs, often glabrescent. Prickles uniform, 8–10(–15) per 5 cm, 4–6(–7) mm long, straight, declining or slightly curved, yellowish when young, later reddish. Leaves 5-foliolate, digitate or shortly pedate, sometimes also 3-foliolate, especially on lateral branches, loosely adpressed hairy above, loosely pubescent beneath with simple and tufted hairs, besides with an underlayer of stellate hairs, in sunnier places sometimes greyish-felted. Terminal leaflets usually with long petiolules (40–50%), variable in shape, but at least partly oblong-ovate, with almost parallel sides, shallowly cordate at the base, with an acuminate apex 15–20 mm long, usually convex, slightly waved along the mid-vein, periodically serrate; teeth rather unequal, broad, apiculate, principal ones retrorse. Basal leaflets with petiolules 5–8 mm long. Petioles hairy, with a dozen or so straight or curved prickles up to 2(–3) mm long. Inflorescence paniculate, usually weakly branched, leafless above, with 3(–5)-foliolate leaves below. Inflorescence axis white-felted, especially above, besides with dense long patent

hairs. Prickles slender, straight, declining or curved, 2–5 mm long, sometimes mixed with few small needle-like pricklets and stalked glands not exceeding the diameter of axis. Pedicels (0.5–)1–2(–3) cm long, grey-green-felted and with patent long hairs, without or with few short-stalked glands and several straight or slightly curved prickles up to 2.5 mm long. Sepals densely felted, grey-green, also with long patent hairs, usually unarmed, reflexed after anthesis. Petals white or pale pink, obovate, 8–10 mm long. Stamens longer than styles. Anthers glabrous or sparsely hairy. Carpels glabrous or sparsely hairy. Receptacle hairy. – 2n = 28 (Boratyńska 1995 b). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems mat green, mottled brownish red, distinctly pubescent with stellate and subpatent longer simple and tufted hairs; terminal leaflets usually convex, cordate at the base, often with parallel sides; inflorescence weakly branched, with white-patent-hairy axis.

HABITAT. Open deciduous forests, clearings, forest margins.

DISTRIBUTION IN POLAND. Chiefly in SW regions, in Dolny Śląsk and S Wielkopolska, locally common.

GENERAL DISTRIBUTION. Widespread species. W and Central Europe, from S England, France and Switzerland in the west to Italy in the south and the Czech Republic and Poland in the east.

SELECTED HERBARIUM SPECIMENS. AE4657 – SW of Lubań, 15°15'–51°05', 27 Sep 1905, *Barber s.n.* (GLM 17719); BD7909 – between Domachowo & Siedlec, 17°06½'–51°48', 16 Jul 1986, *Awzan & Zieliński Z. 1474* (KOR 27980); BD8495 – Belcz Wielki, 16°20½'–51°37', 31 Aug 1994, *Smyk s.n.* (POZNF); BD8773 – 4 km E of Sulów Wielki, 16°44½'–51°38½', 8 Aug 1997, *Zieliński 105/97* (KOR 39050); BD9743 – 3 km NE of Wąsosz, 16°44½'–51°35', 15 Jul 1978, *Zieliński 1195* (KOR 8880); BE0390 – Obora, 16°08'–51°25½', 26 Aug 1996, *Głowacki s.n.* (WSRP); BE3055 – between Grodziec & Olszanica, 15°47'–51°11½', 21 Jul 1994, *Boratyńska et al. Z. 134/94* (KOR 29485); BE3605 – near Pogalewo Wielkie, 16°38¼'–51°15', 3 Jul 1897, *Baenitz s.n.* (BREM, BRNM 17720/35, LE, PR & WRSL); BE4165 – Kozia Mt. near Złotoryja,

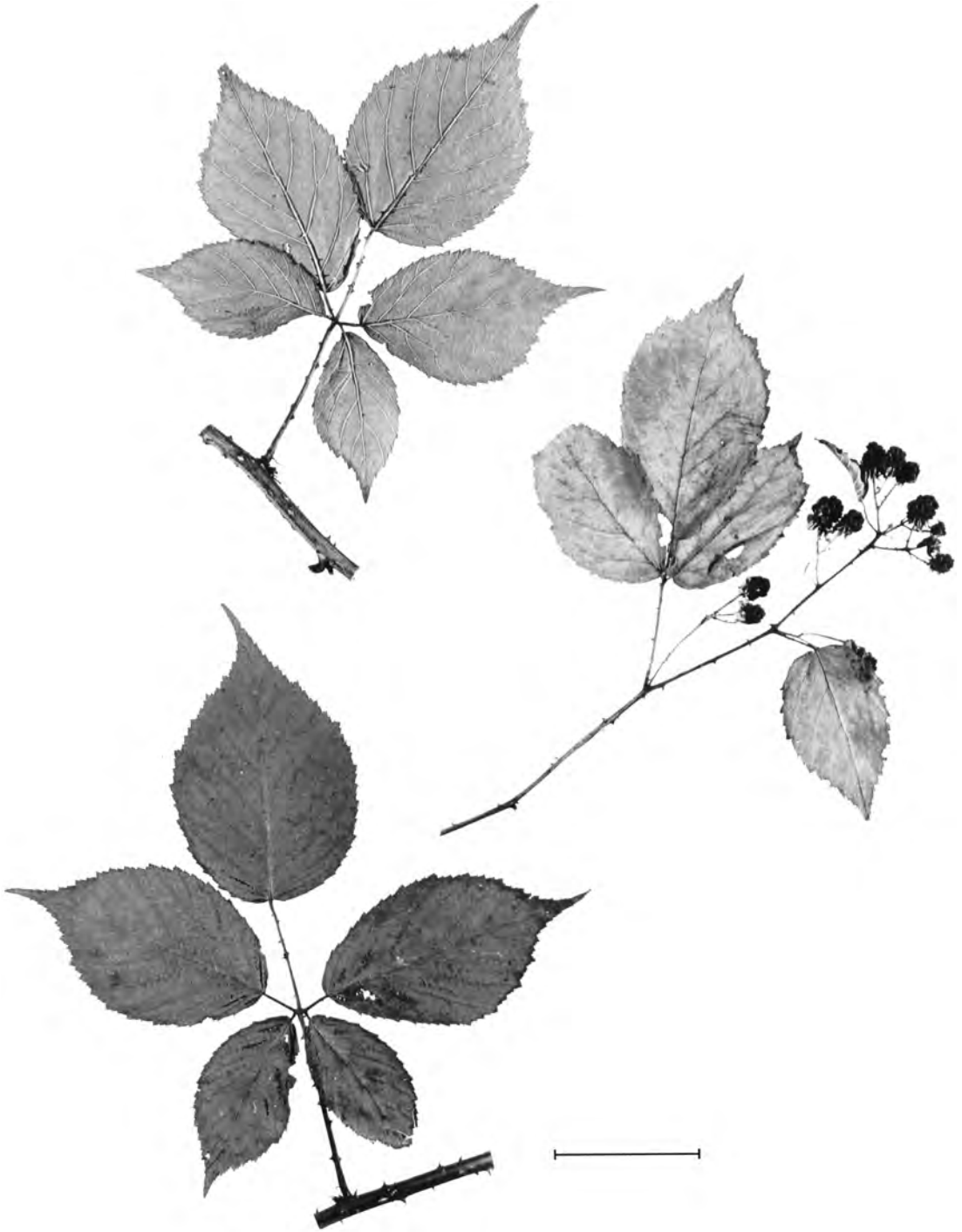


Fig. 93. *Rubus macrophyllus* Weihe & Nees (Zieliński 1113, KOR 8770). Scale bar = 5 cm.

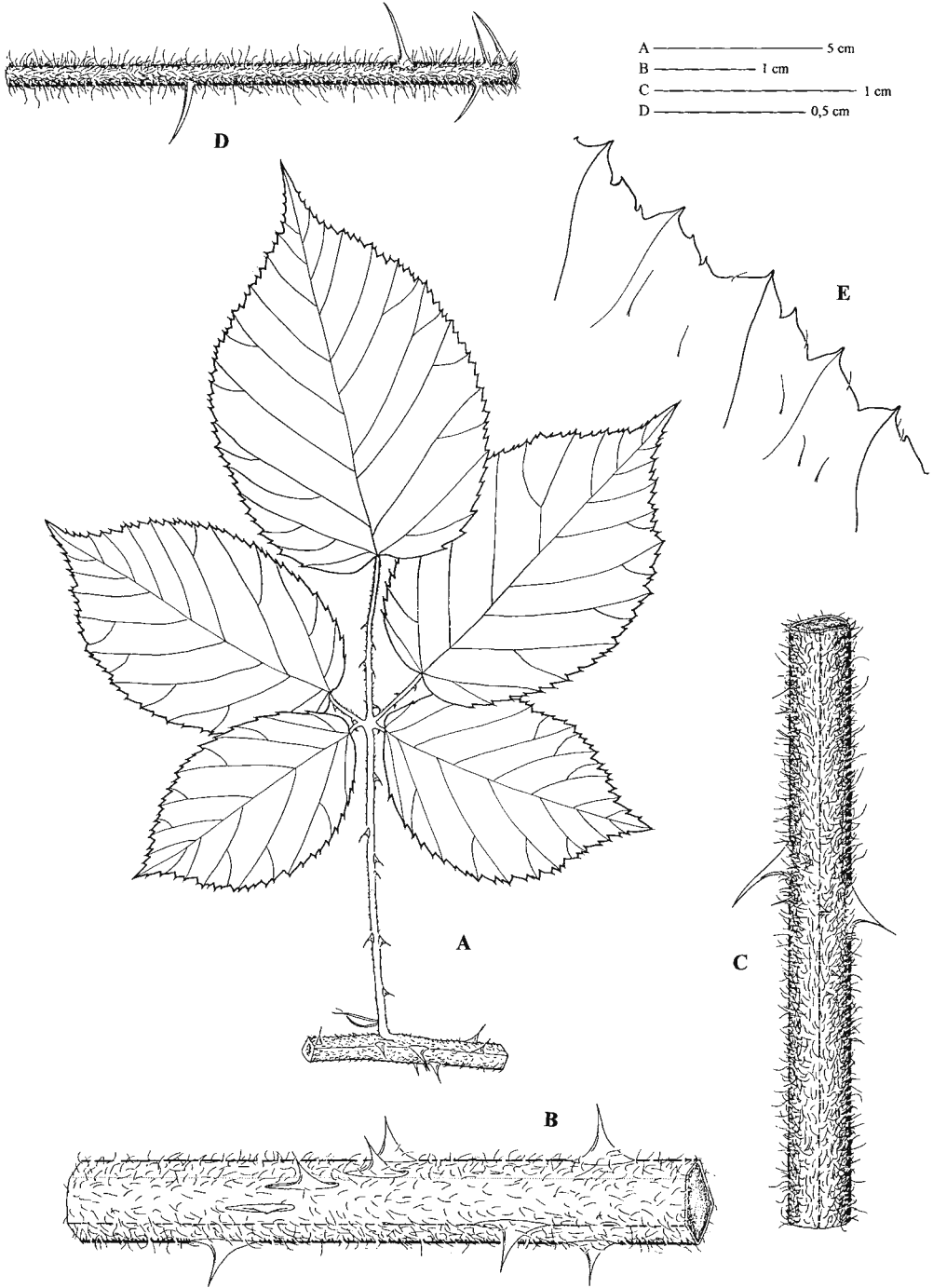


Fig. 94. *Rubus macrophyllus* Weihe & Nees. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1106, KOR 8759).

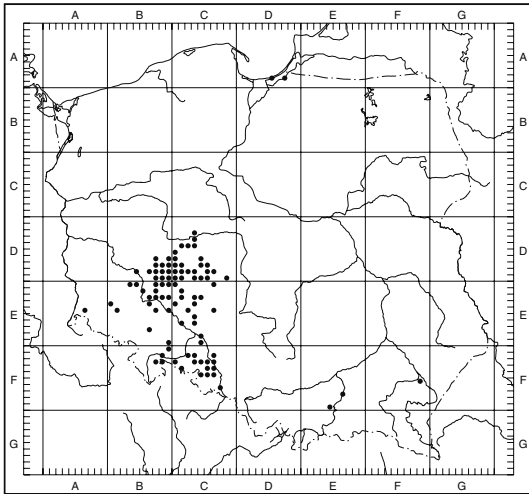


Fig. 95. Distribution of *Rubus macrophyllus* Weihe & Nees in Poland.

340 m, $15^{\circ}56\frac{1}{2}' - 51^{\circ}05\frac{1}{2}'$, 28 Jun 1896, *Pinkwart s.n.* (BREM, BRNM 17015/35 & 17016/35, G, LE, LW 055247 & W); BE4707 – near Żurawiniec, $16^{\circ}49\frac{1}{2}' - 51^{\circ}10\frac{1}{2}'$, 27 Oct 1909, *Spribille s.n.* (WRSL); BE7609 – Górką, 180 m, $16^{\circ}43\frac{1}{3}' - 50^{\circ}53\frac{3}{4}'$, 13 Jul 1896, *Baenitz s.n.* (BRNM 17579/35, G, LE, LW 055513, PR & WRSL); BE9913 – near Romanów, $17^{\circ}04' - 50^{\circ}43'$, 28 Aug 1914, *Spribille s.n.* (WRSL); BF0910 – near Nowy Dwór, 220 m, $17^{\circ}02' - 50^{\circ}37\frac{1}{2}'$, 18 Oct 1993, *Kosiński s.n.* (KOR 39775); CD2391 – Chlebowo, $17^{\circ}34' - 52^{\circ}10\frac{1}{4}'$, 26 Sep 1997, *Czarna s.n.* (POZ); CD4183 – S of Chwałkowo Kościelne, $17^{\circ}18\frac{1}{3}' - 52^{\circ}00\frac{1}{2}'$, 26 Aug 1996, *Czarna s.n.* (POZ); CD4302 – NE of Żerków, $17^{\circ}34\frac{3}{4}' - 52^{\circ}04\frac{1}{2}'$, 23 Sep 1995, *Czarna s.n.* (POZ); CD6472 – near Taczanów, $17^{\circ}43\frac{1}{2}' - 51^{\circ}50\frac{1}{4}'$, 1998, *Czarna s.n.* (POZ); CD9590 – Antonin, $17^{\circ}51' - 51^{\circ}33'$, 23 Jul 1899, *Spribille s.n.* (POZ); CD9807 – near Brończyn, 4 km SW of Błaszki, $18^{\circ}23' - 51^{\circ}38'$, 22 Sep 1988, *Zieliński 2189* (KOR 31397); CE2488 – between Syców & Gola, $17^{\circ}49\frac{1}{2}' - 51^{\circ}17\frac{1}{2}'$, 26 Aug 1977, *Zieliński 1137* (KOR 8636); CE3331 – near Jemielna, by the road to Gaszowice, $17^{\circ}35\frac{1}{3}' - 51^{\circ}14\frac{2}{3}'$, 14 Oct 1913, *Spribille s.n.* (WRSL); CE4664 – near Komorzno, by the road to Wolczyn, $18^{\circ}03\frac{1}{2}' - 51^{\circ}08'$, 26 Jul 1977, *Zieliński 1003* (KOR 8659); CE5346 – Namysłów, by the road to Smarchowice Śląskie, $17^{\circ}40' - 51^{\circ}03\frac{1}{3}'$, 8 Oct 1913, *Spribille s.n.* (WRSL); CE6163 – Oława, $17^{\circ}20\frac{1}{2}' - 50^{\circ}56\frac{1}{2}'$, 8 Jul 1994, *Zatorski s.n.* (POZNF); CE8430 – near Wielopole, $17^{\circ}43\frac{3}{4}' - 50^{\circ}47\frac{1}{2}'$, 10 Jul 1994, *Zatorski s.n.* (POZNF); CE9430 – near Dąbrowa, by the

road to Nowa Jamka, $17^{\circ}44' - 50^{\circ}42\frac{1}{3}'$, 6 Sep 1918, *Spribille s.n.* (WRSL); CF1683 – near Zakrzów, $18^{\circ}04' - 50^{\circ}29'$, 1 Sep 1901, *Spribille s.n.* (WRSL); CF2676 – near Zdzieszowice, $18^{\circ}06' - 50^{\circ}24\frac{1}{2}'$, 23 Aug 1996, *Danielewicz & Maliński s.n.* (POZNF); CF3641 – 2–3 km W of Pokrzywnica, $18^{\circ}02' - 50^{\circ}20\frac{2}{5}'$, 16 Jul 1988, *Tomlik & Zieliński Z. 2250 & 2255* (KOR 25684 & 25685); DA8557 – between Przebrno & Krynica Morska, $19^{\circ}25' - 54^{\circ}22\frac{1}{3}'$, 18 Jul 1886, *Kalmuss s.n.* (TRN); DA8790 – Święty Kamień, $19^{\circ}37' - 54^{\circ}20'$, 2 Jul 1883 & 29 Jul 1885, *Kalmuss s.n.* (TRN); EF7670 – Więckowice, $20^{\circ}49' - 49^{\circ}56\frac{2}{3}'$, 18 Jul 1995, *Pacyna s.n.* (KRA); EF9442 – Wojakowa, $20^{\circ}34' - 49^{\circ}48'$, 6 Aug 1988, *Pacyna s.n.* (KRA); FF5867 – Nowa Jagiełła, $22^{\circ}35\frac{1}{2}' - 50^{\circ}05\frac{2}{3}'$, 17 Sep 1999, *Oklejewicz s.n.* (KRA).

34. *Rubus gratus* Focke (Figs 96–98)

Abh. Naturwiss. Ver. Bremen 4: 348. 1875.

TYPE: Burgdamm bei Bremen, 14.7.1874, *Focke* (BREM – LECTOTYPE; Beek 1974).

Stems high-arching, violet-brown, somewhat shining, angled, deeply grooved, with scattered hairs, glabrescent. Prickles uniform, 6–10(–12) per 5 cm, 4–6(–7) mm long, strong but slender, straight, declining or patent, brown-red at the base. Leaves 5-foliolate, digitate or subpedate, with scattered hairs above, hairy on the veins beneath, without stellate hairs. Terminal leaflets usually with mid-long petiolules (25–35%), broadly elliptical to obovate, rounded or shallowly cordate at the base, with a suddenly long-acuminate apex (15–)20–30 mm long, unevenly, sharply serrate; serration 3–5 mm deep; teeth usually apiculate, principal ones prominent, straight. Basal leaflets with 3–4 mm long petiolules. Petioles sparsely patent-hairy, with straight or curved red-based prickles. Stipules filiform-linear. Inflorescence paniculate, conical, leafy to the apex, truncate, with 3–5-foliolate leaves below. Inflorescence axis distinctly angled, loosely patent-hairy, with slender, straight, declining, broad-based prickles 3–4(–5) mm long. Pedicels 1–2(–2.5) cm long, loosely to fairly densely pubescent with long patent hairs, exceptionally with few short-stalked (0.2 mm long) glands, unarmed or with several straight or indistinctly curved pricklets up to 2 mm long. Sepals grey-green,



Fig. 96. *Rubus gratus* Focke (Zieliński 2648, KOR 33078). Scale bar = 5 cm.

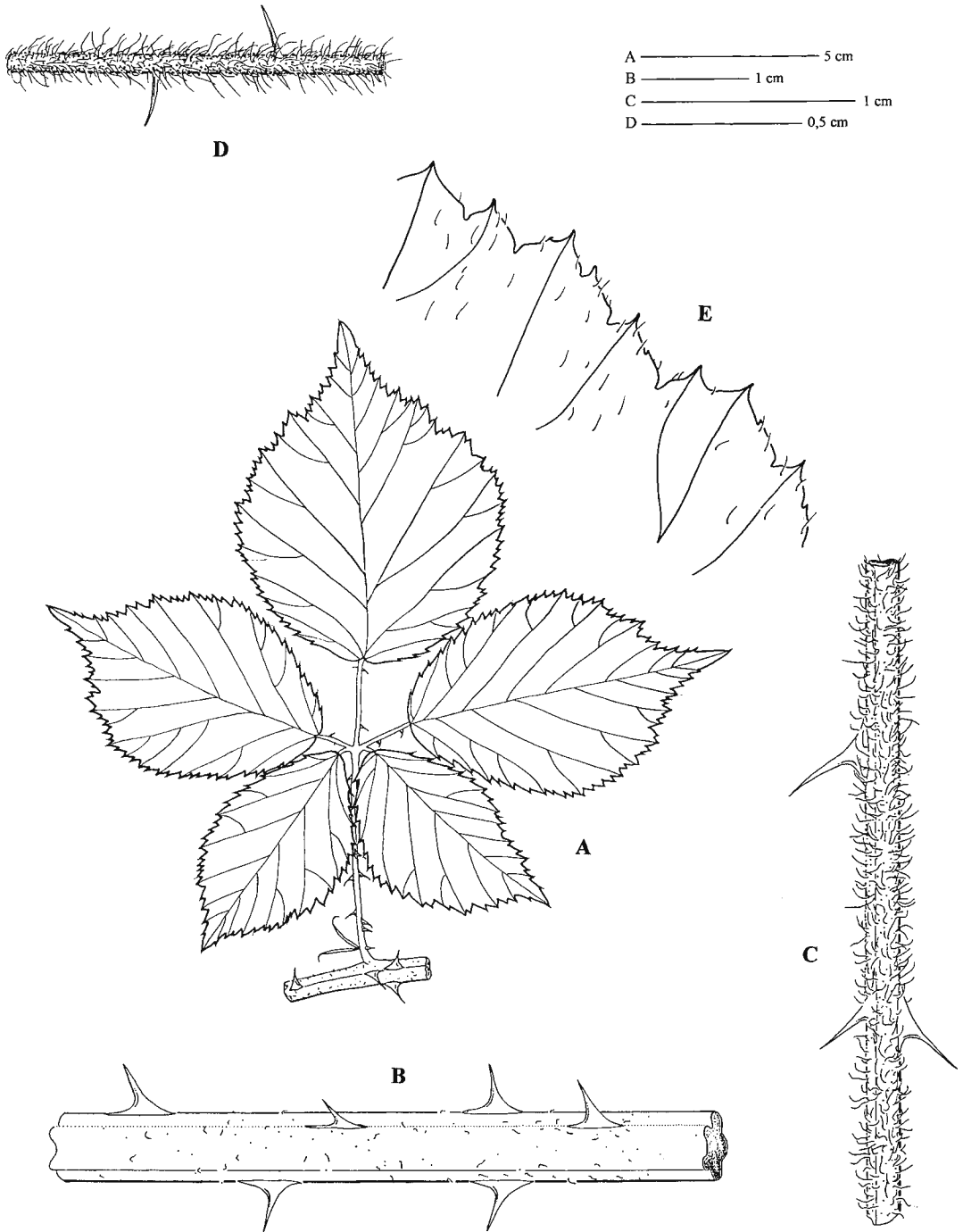


Fig. 97. *Rubus gratus* Focke. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2593, KOR 27987).

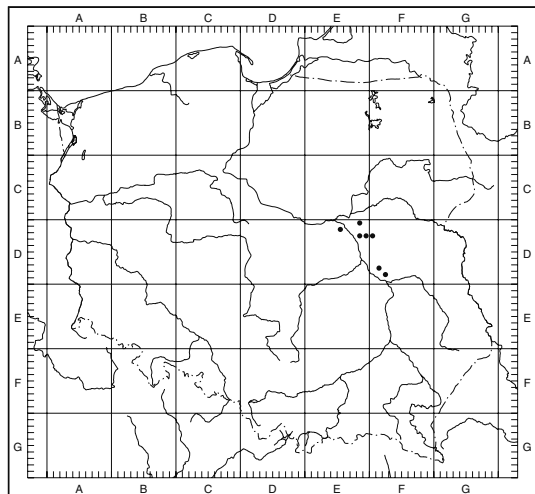


Fig. 98. Distribution of *Rubus gratus* Focke in Poland.

felted, besides with patent long hairs, usually unarmed, patent or clasping the fruit. Petals pink, broadly elliptical or obovate, 12–14 mm long. Stamens longer than styles, pink at the base. Anthers, at least in some flowers, hairy. Styles glabrous. Receptacle with long hairs. – $2n = 28$ (Boratynska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems deeply grooved; leaflets deeply sharply serrate; flowers large, pink; anthers hairy.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. In C part on several localities isolated from the continuous range of the species.

GENERAL DISTRIBUTION. Widespread species with disjunctive range. Great Britain, Holland, Germany, Denmark, Poland.

SPECIMENS SEEN. ED0892 – Wołomin, $21^{\circ}14' - 52^{\circ}20\frac{2}{3}'$, 30 Jul 1990, *Głowacki s.n.* (WSRP); ED1523 – Sieraków, $20^{\circ}49' - 52^{\circ}19\frac{1}{2}'$, 20 Jun 1971, *Nowak s.n.* (WA); ED2823 – Stara Miłosna, $21^{\circ}14\frac{1}{2}' - 52^{\circ}13\frac{1}{2}'$, 21 Jul 1993, *Głowacki s.n.* (WSRP 34742); ED2969 – Ruda, $21^{\circ}29' - 52^{\circ}11'$, 27 Sep 1988, *Głowacki s.n.* (WSRP); FD2082 – Kędzierak, by the road to Góra Kalwaria, $21^{\circ}31\frac{1}{3}' - 52^{\circ}09\frac{3}{4}'$, 17 Jul 1990, *Zieliński 2592 & 2593* (KOR 30837 & 27987); FD7177 – Kaleń, $21^{\circ}43' - 51^{\circ}43\frac{1}{2}'$,

23 Sep 1994, *Głowacki s.n.* (WSRP); FD7220 – 2 km S of Gończyce, $21^{\circ}45\frac{1}{4}' - 51^{\circ}46'$, 21 Jul 1990, *Zieliński 2648* (KOR 23078).

Series *Sprengeliani* Focke

Syn. Rub. Germ.: 241. 1877.

TYPE: *R. sprengelii* Weihe

Stems low-arching to prostrate, usually hairy, with uniform to somewhat unequal prickles. Leaves green beneath, without stellate hairs. Inflorescence with stalked glands. Petals not deciduous after flowering, subsistent. Stamens shorter or as long as styles.

35. *Rubus sprengelii* Weihe (Figs 99–101)

Flora 2: 18. 1819.

TYPE: *Rubus sprengelii*, sine die & loco, Herb. Weihe (MSTR – LECTOTYPE; Beek 1974).

Stems low-arching or prostrate, terete or bluntly angled, with numerous sessile glands and sometimes also with scattered stalked glands and gland-tipped acicles, loosely but persistently pubescent with patent simple and tufted hairs. Prickles 10–15 per 5 cm, rarely more, 5–6 mm long, with stout decurrent base, usually strongly curved. Leaves 3–4-foliolate, rarely 5-foliolate, pedate, glabrous or with few hairs above, sparsely hairy beneath, without stellate hairs. Leaflets not contiguous, terminal ones with short petiolules (20–25%), (broadly) elliptical, ovate or obovate, narrowly rounded or shallowly emarginate at the base, with an acuminate apex (10–)15–20 mm long, (periodically) serrate; teeth apiculate, principal ones straight or indistinctly recurved. Basal leaflets sessile or with petiolules 1–2(–3) mm long. Petioles shorter than basal leaflets, patent-hairy, with rather numerous, strongly curved prickles. Stipules filiform or filiform-linear. Inflorescence paniculate, loose, with usually patent lateral branchlets, leafless above, with 3-foliolate leaves below. Inflorescence axis loosely to densely pubescent with spreading hairs, with scattered stalked glands at least above, and strongly curved prickles 3–4 mm long. Pedicels (1–)1.5–2 cm long, with numerous long patent hairs, an underlayer of



Fig. 99. *Rubus sprengei* Weihe (Zieliński 1069, KOR 8739). Scale bar = 5 cm.

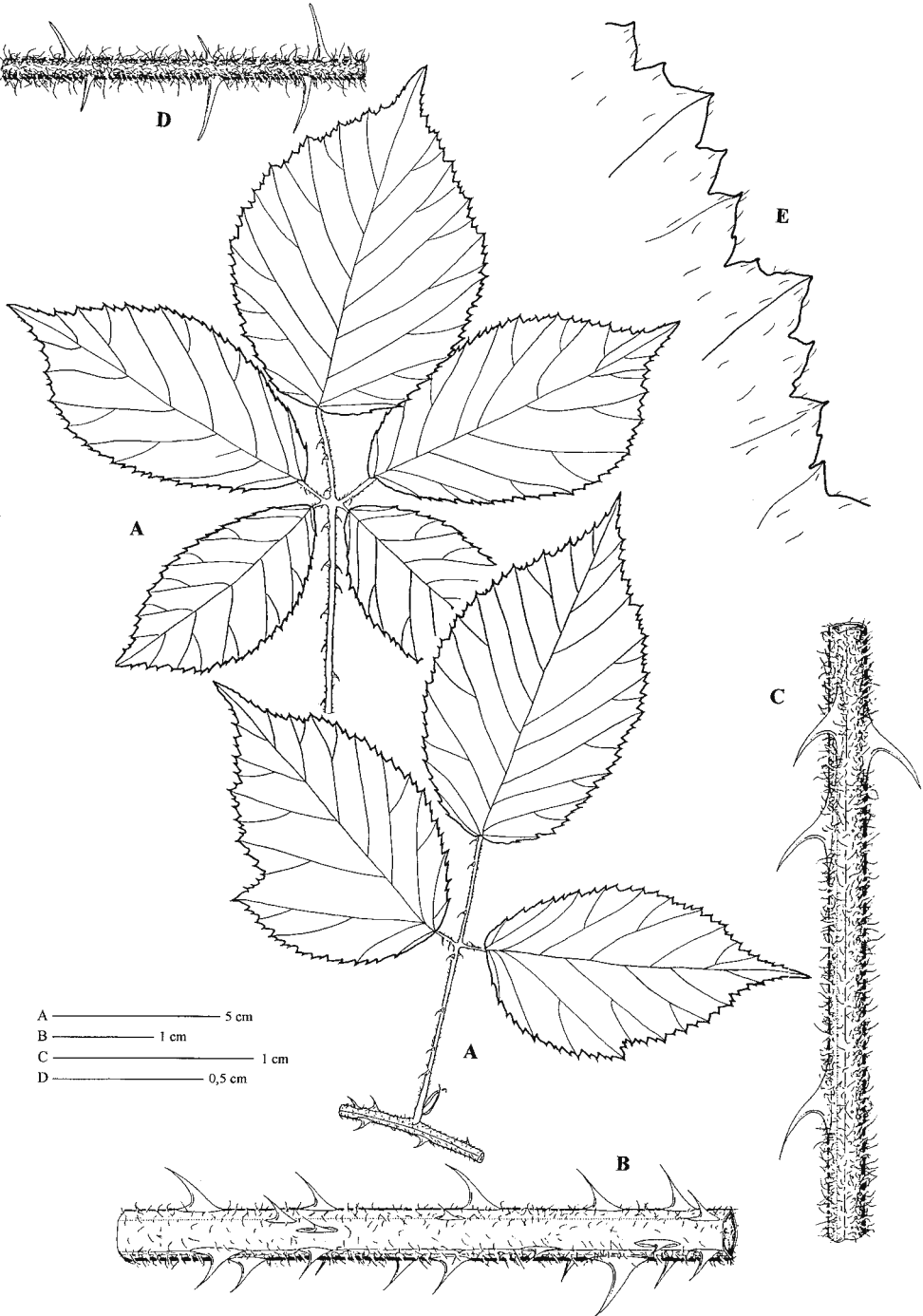


Fig. 100. *Rubus sprengelii* Weihe. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1069, KOR 8739).

stellate hairs and with scattered stalked glands 0.2–0.3(–0.5) mm long. Prickles slightly curved, reddish at the base, 2–3 mm long. Sepals grey-green, white-bordered, often cuspidate, covered with short stellate and long patent hairs, unarmed or with minute straight pricklets at the base, patent or loosely reflexed after anthesis. Petals fresh pink, elliptical or obovate, 8–10 mm long. Stamens usually as long or shorter than styles. Anthers glabrous. Carpels and receptacle hairy. – 2n = 28 (Boratyńska 1996). – Flowering VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching or prostrate, hairy; prickles uniform, curved; inflorescence loose, broad, with patent lateral branches, patent-hairy throughout; petals fresh pink; stamens short.

HABITAT. Open mixed or deciduous forests, forests margins, clearings.

DISTRIBUTION IN POLAND. Chiefly in the west, locally common.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: S Scandinavia, Germany, Poland, on isolated stands in the Czech Republic and Austria.

SELECTED HERBARIUM SPECIMENS. AB0932 – between Trzebiatów & Kołobrzeg, 15°22'–54°09¼', 20 Jul 1959, *Browicz & Gostyńska s.n.* (KOR 2104); AB8459 – Wielgowo, 14°46½'–53°24½', 2 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3075* (KOR 29987); AC3152 – Piasek, 14°16'–52°56¼', 4 Jul 1986, *Friedrich s.n.* (SZCZ); AC5827 – Zdroisk, 15°24'–52°49½', 11 Aug 1979, *Bogdanowicz s.n.* (POZ); BB6640 – between Strzeszyn & Okole, 16°26'–53°38', 25 Jul 1992, *Kosiński s.n.* (KOR 39778); BB7411 – by Drawsko Lake near Siemczyno, 16°09'–53°34¼', 27 Jul 1980, *Rutkowski s.n.* (TRN); BC2583 – Żabowo, 16°22'–53°03¼', 17 Jul 1997, *Boratyńska s.n.* (KOR 39132); BC4808 – near Chodzież, 16°54'–52°58', 25 Jul 1897 & 24 Aug 1902, *Spribille s.n.* (TRN & KOR); BC7725 – Bąblin, 16°43'–52°40½', 17 Jul 1995, *Boratyńska s.n.* (KOR 32249); BC9151 – between Rybojady & Pszczew, 15°47½'–52°26¾', 31 Jul 1975, *Zieliński 745* (KOR 7185); BD2947 – between Bnin & Konarskie, 17°04'–52°13', 14 Jul 1987, *Boratyńska & Zieliński Z. 1923* (KOR 21750); BD7833 – between Drzewce & Karzec, 16°53'–51°46', 16 Jul 1986, *Awżan & Zieliński Z. 1471*

(KOR 21755); BE0995 – between Koniówko & Książęca Wieś, 17°04'–51°27', 10 Sep 1910, *Spribille s.n.* (WRSL); BE2762 – Radeecz, 16°44½'–51°17½', 27 Aug 1991, *Głowacki s.n.* (WSRP); BE3663 – Szczepanów, 16°37'–51°12', 4 Jul 1963, *Krawiecowa s.n.* (WRSL 62481); CA5022 – Dębina, 17°01½'–54°38¾', 16 Aug 1979, *Piotrowska s.n.* (KOR); CA5690 – Świetlino, 17°55½'–54°36', 28 Jul 1971, *Markowski s.n.* (KOR); CA6801 – near Wejherowo, 18°15'–54°35½', 8 Jul 1981, *Buliński s.n.* (GDMA); CC6540 – 2 km NW of Chomiąza, 17°49'–52°45½', 13 Jul 1987, *Chmiel s.n.* (POZ); CC8062 – Zielonka, 17°07'–52°33¼', 16 Aug 1995, *Danielewicz s.n.* (POZNF); CC8770 – near Ostrowo, 18°07'–52°33½', 13 Sep 1979, *Zieliński 1350* (KOR); DA5156 – 2.5 km SE of Bór, 18°47½'–54°38½', 14 Jul 1883, *Klinggraeff s.n.* (TRN); DD5135 – by the road Uniejów-Turek, 1 km of Uniejów, 18°47'–51°58', 27 Aug 1994, *Boratyńska 1/94 & 3/94* (KOR 29402 & 29403); DD6579 – Zgierz, 19°26'–51°50½', 16 Jul 1948, *Mowszowicz s.n.* (LOD); DD7860 – Galkówek, 19°43½'–51°45¾', 13 Jul 1955, *Dzikowska s.n.* (LOD); DE4907 – Józefów, 19°58'–51°11', 28 Jul 1977, *Zieliński 1069 & 1070* (KOR 8739 & 8740); DE6710 – Jasień, 19°34½'–50°59¾', Jul 1924, *Kulesza s.n.* (POZNB); DE8247 – Blachownia, 18°58'–50°47½', 12 Jul 1988, *Hereźniak s.n.* (LOD); DF1453 – Brudzowice, 19°11'–50°30¾', 14 Aug 1995, *Nowak s.n.* (KTU); DF3087 – Gliwice-Sobiszowice, 18°41'–50°18½', 13 Sep 1976, *Sendek s.n.* (KTU); DF5073 – Leszczyny, 18°37¾'–50°08¼', 1 Aug 1919, *Schmattorsch s.n.* (WRSL); DF9173 – Międzywieć, 18°46½'–49°47', 8 Aug & 9

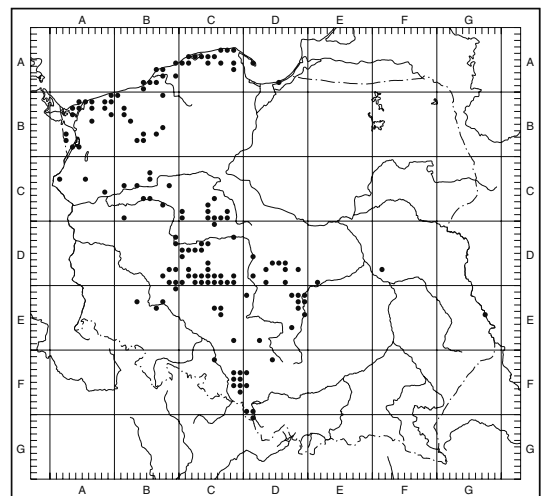


Fig. 101. Distribution of *Rubus sprengelii* Weihe in Poland.

Oct 1962, *Pelc s.n.* (KRAP); DG0116 – Hermanice, 18°48¾'–49°44¾', 26 Aug & 6 Oct 1962, *Pelc s.n.* (KRAP 864); ED9189 – Żądłowice, 20°17½'–51°33½', 2 Jun 1967, *Jakubowska s.n.* (LOD); FD7191 – Godzisz-Stawisko, 21°38'–51°42½', 9 Sep 1995, *Głowacki s.n.* (WSRP); GE4761 – Starosiele, 23°52'–51°02', 18 Jul 1960, *Jaroszyński s.n.* (LOD).

36. *Rubus chlorothyrsos* Focke (Figs 102–104)

Abh. Naturwiss. Ver. Bremen 2: 462. 1871.

Rubus chlorothyrsoides Holzfuss, Feddes Repert. 28: 205. 1930.

TYPE: Wollah bei Lesum, 1870, *Focke*, Rubi selecti 44 (BREM – LECTOTYPE; Beek 1974).

Stems usually low-arching, angled, with flat or slightly furrowed sides, loosely pubescent with patent long hairs and with scattered stalked glands. Prickles 10–20 per 5 cm, often fairly unequal, the longest ones 5–7 mm long, brighter than stems, slender, usually straight and declining, both on the angles and between them. Leaves 5-foliolate, digitate, dark green and with sparse hairs above, brighter beneath, loosely pubescent with rather stiff simple long hairs. Terminal leaflets with short or mid-long petiolules (20–35%), elliptical or obovate, shallowly cordate to cuneate at the base, with a suddenly acuminate apex 10–15(–20) mm long, (periodically) serrate; teeth apiculate, principal ones straight or slightly recurved. Basal leaflets with petiolules 1–3 mm long. Petioles shorter than the basal leaflets, patent-hairy, with numerous slightly curved prickles and stalked glands. Stipules narrowly lanceolate. Inflorescence paniculate, narrowly conical, leafy to the apex, with 3-foliolate leaves below. Inflorescence axis densely patent-hairy, with numerous sessile glands and scattered stalked glands. Prickles slender, straight, declining, 3–5 mm long. Pedicels (0.5–)1.5–2(–3) cm long, densely pubescent with spreading hairs, sessile and stalked glands and slightly curved needle-like prickles 1.5–2.5(–3) mm long, reddish at the base. Sepals (grey-)green, with adpressed and patent hairs, glandular and with yellowish needle-like pricklets, reflexed, patent or rarely clasping the fruit. Petals white, elliptical or obovate, ca 10 mm long. Stamens shorter than styles.

Anthers glabrous, exceptionally some of them hairy. Carpels densely long-hairy. Receptacle glabrous or hairy. – $2n = 28$ (Beijerinck 1956). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, patent-hairy; inflorescence narrowly conical, densely leafy to the apex; petals white; stamens shorter than styles; ovary densely hairy.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. Known from few localities in NE regions, isolated from continuous range of the species.

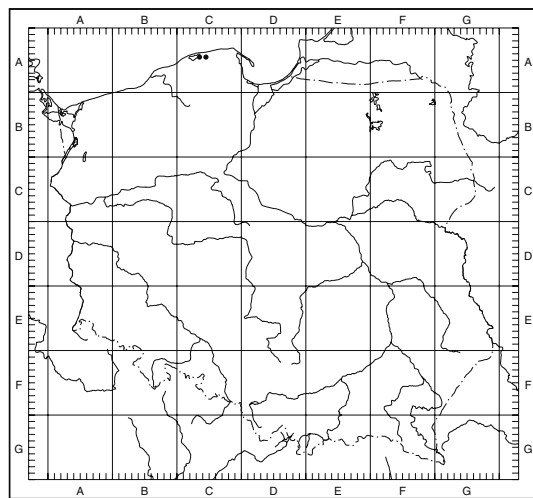


Fig. 102. Distribution of *Rubus chlorothyrsos* Focke in Poland.

GENERAL DISTRIBUTION. Widespread species. NW Europe: Denmark, Holland, N Germany, Poland. Closely related to *Rubus capricollensis* (see remarks at that species).

SPECIMENS SEEN: CA4314 – Rąbka, 17°31'–54°45½', 30 Jul 1990, *Stachurski s.n.* (KTC); CA4404 – SE of Jezioro Sarbskie lake near Sarbsk, 17°40½'–54°45¾', 4 Aug 1970 & 1981, *Zieliński s.n.* (KOR 10546 & 10547); CA4437 – between Bargędzino & Ulinia, by the crossroad to Sasino, 17°43'–54°44½', 4 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3114 & 3115* (KOR 29928 & 31568).

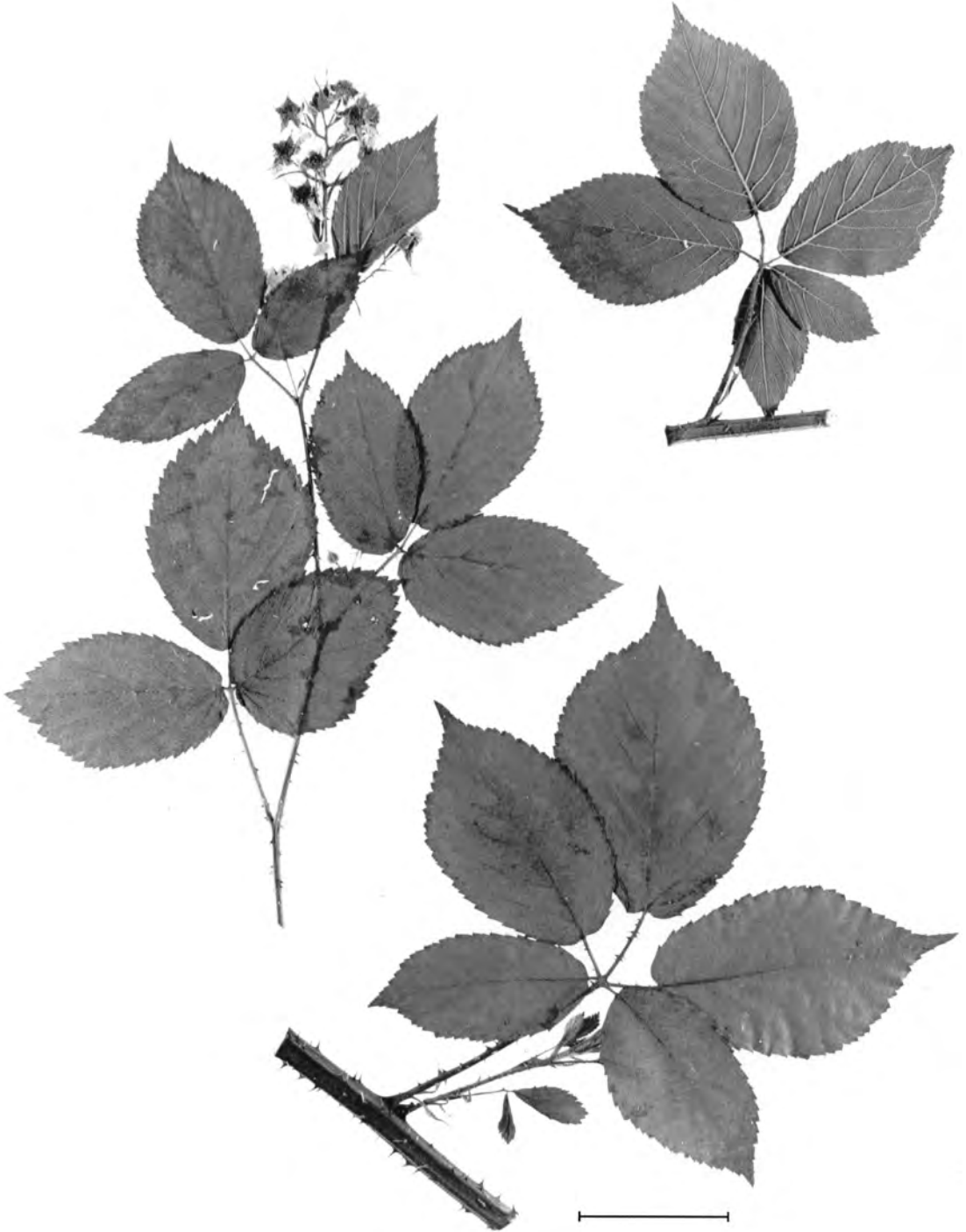


Fig. 103. *Rubus chlorothyrsos* Focke (Boratyńska et al., in Zieliński 3115, KOR 31568). Scale bar = 5 cm.

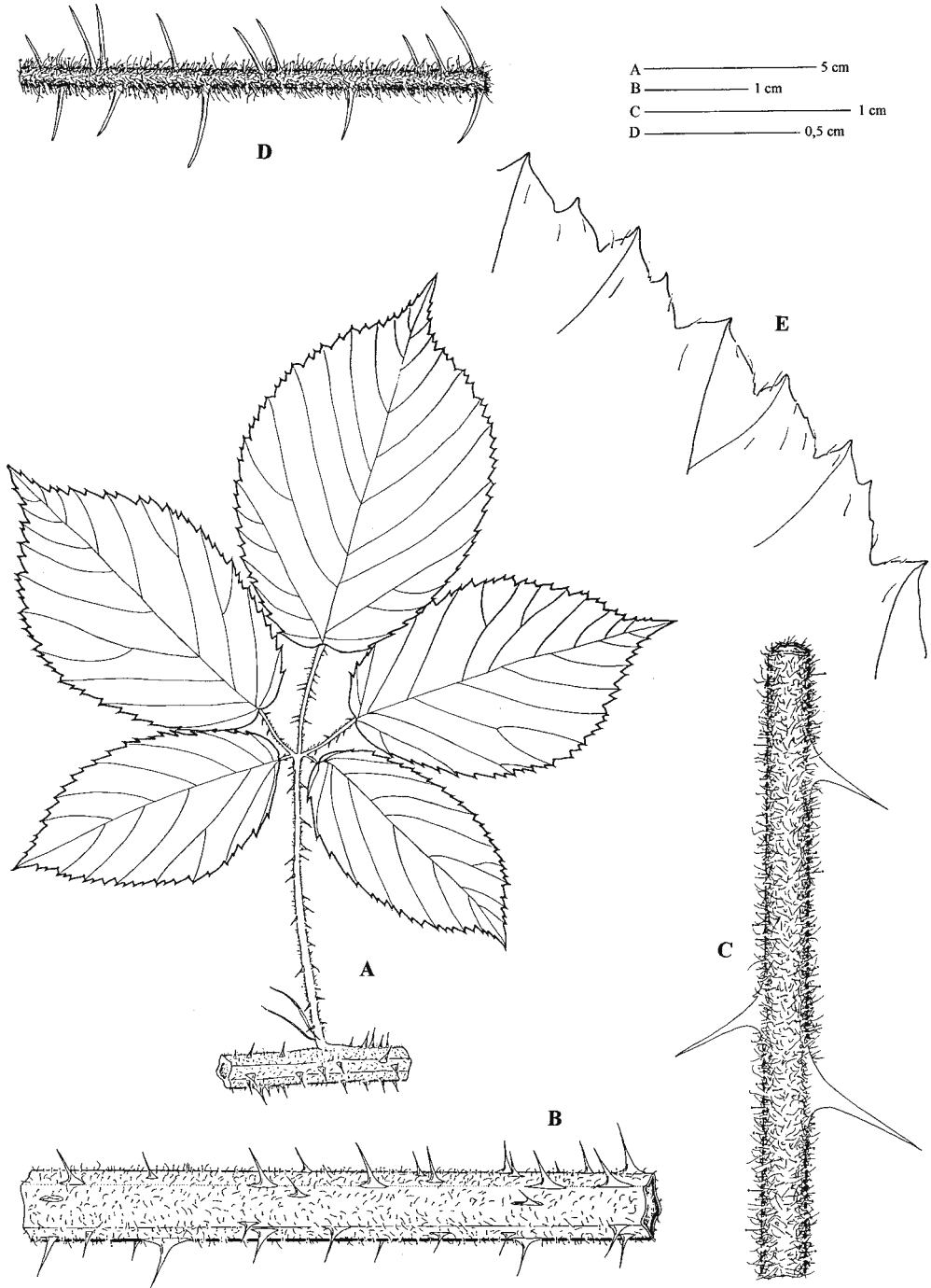


Fig. 104. *Rubus chlorothyrsos* Focke. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński s.n., KOR 10548).

37. *Rubus capricollensis* (Sprib.) Sprib.
(Figs 105–107)

Jahresb. Schles. Ges. Vaterl. Cult. **83**: 101. 1905. – *Rubus thyrsoflorus* Weihe subsp. *capricollensis* Sprib. in Schube, Fl. Schlesien: 210. 1904.

TYPE: Habelschwerdt: Wilhelmshöhe bei Landeck, 9.10.1902, *Spribille* (WRSL – LECTOTYPE, designated here).

Stems arching, angled, with flat or furrowed sides, loosely patent-hairy, with simple and tufted hairs. Prickles 10–15 per 5 cm, rather unequal, 3–5(–6) mm long, usually on the angles, slender, straight, declining or \pm curved, mixed with scattered acicles and stalked glands up to 0.5(–1) mm long. Leaves 5-foliolate, digitate or subpedate, glabrous or with few adpressed hairs above, sparsely patent-hairy beneath, without stellate hairs. Leaves not contiguous to slightly imbricate, terminal ones with mid-long petiolules (30–35%), elliptical, ovate, rarely obovate, rounded or truncate at the base, with a long-acuminate apex 20–25 mm long, evenly or \pm distinctly periodically serrate; principal teeth straight. Basal leaflets on petiolules 2–3(–4) mm long. Petioles hairy, with rather numerous \pm curved pricklets 3–3.5 mm long, besides with numerous acicles and stalked glands. Stipules filiform. Inflorescence paniculate, narrowly conical, usually short, with patent lateral branchlets, leafy to the apex, with 3–5-foliolate leaves below. Inflorescence axis with patent simple and tufted hairs, with an underlayer of stellate hairs, besides with small needle-like prickles and stalked glands. Prickles slender, subulate, straight, declining, up to 4–5 mm long. Pedicels 0.5–1.5 cm long, with dense spreading hairs; stalked glands not longer than the diameter of pedicels. Prickles few, curved or straight, 1–2 mm long. Sepals grey-green, usually with spreading hairs, numerous stalked glands and acicles. Petals white, (broadly) elliptical or obovate, 7–8 mm long. Stamens as long or shorter than styles. Anthers glabrous. Young carpels very densely hairy. Receptacle sparsely hairy. – $2n = ?$ – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled; prickles mixed with usually few small needle-like

pricklets and stalked glands; inflorescence short, with short, usually patent lateral branchlets, leafy to the apex; petals white, subpersistent; ovary densely hairy.

HABITAT. Thickets, open broadleaf forests, clearings, forest margins.

DISTRIBUTION IN POLAND. SW part of the country.

GENERAL DISTRIBUTION. Regional species occurring in Poland and in the Czech Republic.

NOTE. The species closely related to *R. chlorothyrsos* from which it differs by more sharply serrate leaflets, longer apex of terminal leaflets and different area of distribution.

SELECTED HERBARIUM SPECIMENS. BE7619 – near Górká, $16^{\circ}43\frac{1}{3}' - 50^{\circ}53\frac{1}{4}'$, 22 Jul 1905, *Spribille s.n.* (WRSL); BF0800 – Bobolice, $16^{\circ}53' - 50^{\circ}38'$, 2 Aug 1904 & 18 Jul 1905, *Kinscher s.n.* (PR & WRSL); BF1932 – near Głęboka, $17^{\circ}04' - 50^{\circ}31\frac{1}{2}'$, 22 Jul 1905, *Kinscher s.n.* (PR); BF2651 – Czerwoniak Mt. near Krosnowice, 390 m, $16^{\circ}37\frac{3}{5}' - 50^{\circ}24\frac{1}{6}'$, 17 Oct 1995, *Kosiński s.n.* (KOR 39789); BF2687 – near Oldrzychowice, 435 m, $16^{\circ}43' - 50^{\circ}22\frac{3}{5}'$, 10 Sep 1995, *Kosiński s.n.* (KOR 38951); BF3625 – a mountain W of Piotrowice Dolne, $16^{\circ}41\frac{1}{2}' - 50^{\circ}20\frac{1}{2}'$, Jul 1907, *Kinscher s.n.* (W); BF3704 – near Radochów, 460 m, $16^{\circ}48\frac{3}{6}' - 50^{\circ}21\frac{2}{3}'$, 6 Sep 1995, *Kosiński s.n.* (KOR 39748); BF3729 – a hill near Łądek Zdrój, $16^{\circ}53\frac{1}{2}' - 50^{\circ}20\frac{2}{3}'$, 9 Oct 1902, *Spribille s.n.* (WRSL); BF3732 – Koleba Mt. near Trzebieszowice, 515–535 m, $16^{\circ}47\frac{1}{4}' - 50^{\circ}20'$, 13 Sep 1995, *Kosiński s.n.* (KOR 38922 & 38925); BF3733 – SE of Trzebieszowice, 490 m, $16^{\circ}48\frac{1}{6}' - 50^{\circ}20'$, 13 Sep 1995, *Kosiński s.n.* (KOR 38939); BF3744 – near Konradów, 560 m, $16^{\circ}49' - 50^{\circ}19\frac{1}{2}'$, 14 Sep 1995, *Kosiński s.n.* (KOR 38963); BF3745 – Siniak Mt. near Kąty Bystrzyckie, 555 m, $16^{\circ}49\frac{3}{6}' - 50^{\circ}19\frac{1}{2}'$, 9 Sep 1995, *Kosiński s.n.* (KOR 38959); BF3747 – near Kąty Bystrzyckie, 570 m, $16^{\circ}51\frac{1}{2}' - 50^{\circ}19\frac{1}{2}'$, 9 Sep 1995, *Kosiński s.n.* (KOR 38760); BF4614 – Wilkanów, 420 m, $16^{\circ}40\frac{4}{5}' - 50^{\circ}15\frac{3}{5}'$, 28 Sep 1995, *Kosiński s.n.* (KOR 38774); BF4639 – Igliczna Mt. near Wilkanów, 850 m, $16^{\circ}45' - 50^{\circ}14\frac{3}{5}'$, 6 Aug 1995, *Boratyńska & Boratyński s.n.* (KOR 32281 & 32282); CF2194 – near Nowy Świętów, $17^{\circ}22\frac{1}{2}' - 50^{\circ}22\frac{3}{4}'$, 24 Jul 1904, *Spribille s.n.* (WRSL); CF2322 – between Korfantów & Biała, $17^{\circ}37\frac{3}{5}' - 50^{\circ}26\frac{1}{2}'$, 20 Jul 1988, *Tomlik & Zieliński Z. 2413* (KOR 30186); CF3152 – between Gluchołazy



Fig. 105. *Rubus capricollensis* (Sprieb.) Sprieb. (Tomlik & Zieliński, in Zieliński 2236, KOR 30187). Scale bar = 5 cm.

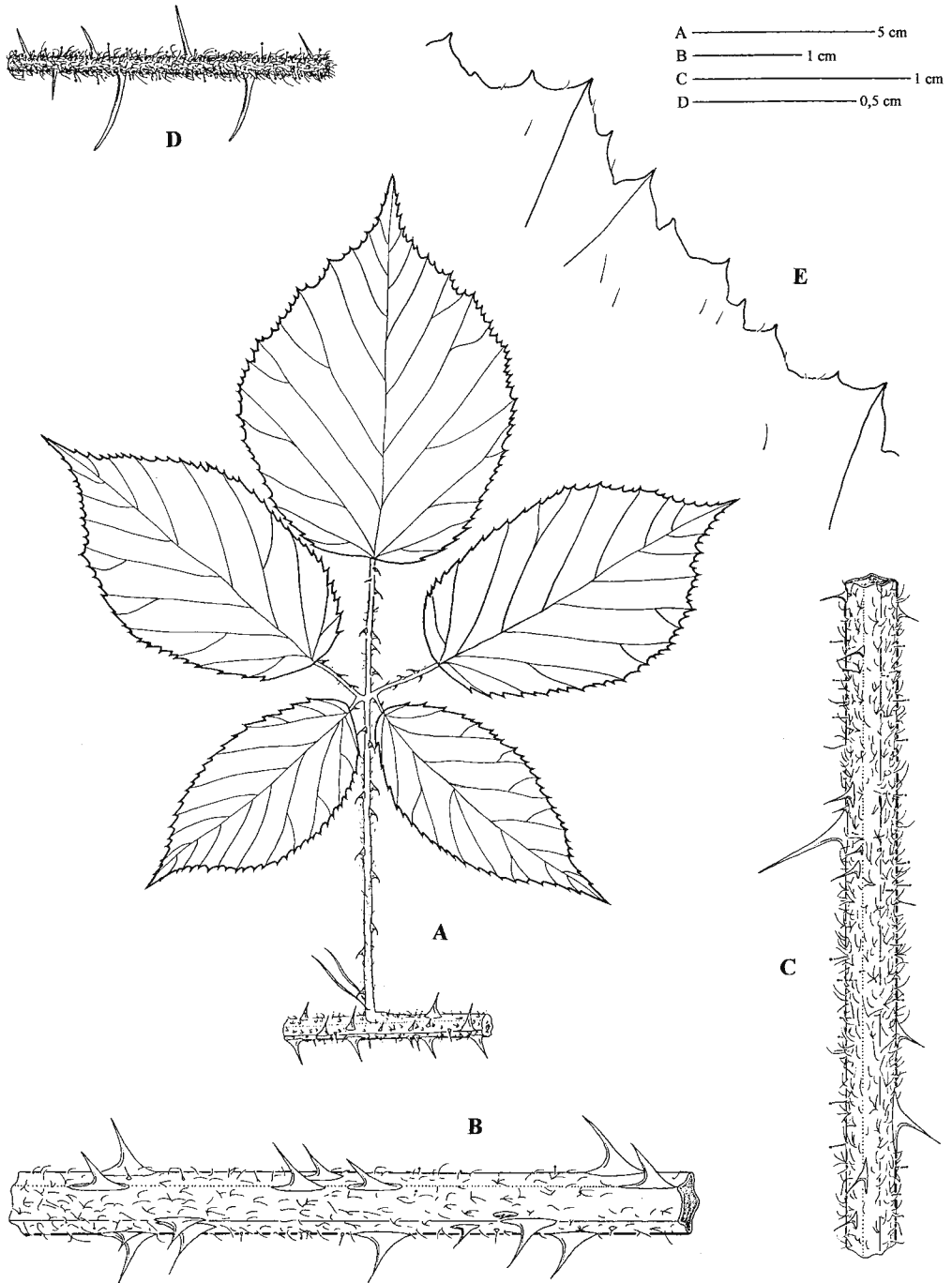


Fig. 106. *Rubus capricollensis* (Sprib.) Sprib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Tomlik & Zieliński, in Zieliński 2293, KOR 30185).

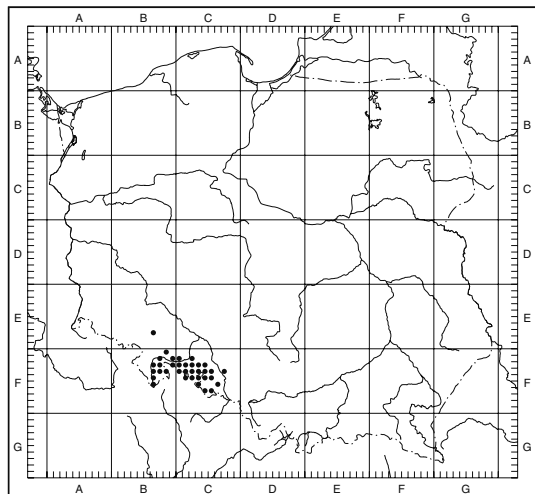


Fig. 107. Distribution of *Rubus capricollensis* (Sprib.) Sprib. in Poland.

& Gierłacie, 330 m, 17°21'–50°19½', 16 Sep 1999, *Kosiński & Zieliński Z. 182/99* (KOR 41609); CF3165 – Głucholazy, 17°23½'–50°18¾', 23 Jul 1898, *Spribille s.n.* (WRSL); CF3195 – W of Konradów, 360 m, 17°23¾'–50°17½', 26 Jul 1999, *Kosiński, Tomaszewski & Zieliński 138* (KOR 41432); CF3197 – between Jarnołtówek & Konradów, 385 m, 17°25½'–50°17½', 26 Jul 1999, *Kosiński, Tomaszewski & Zieliński 140* (KOR 41733); CF3199 – Olszak Mt. near Moszczanka, 360 m, 17°27'–50°17½', 28 Jul 1999, *Kosiński, Tomaszewski & Zieliński 162* (KOR 41749); CF3291 – Pokrzywna, 340 m, 17°28¾'–50°17½', 15 Sep 1999, *Kosiński & Zieliński 177/99* (KOR 41613); CF3297 – by the road to Dębowiec, 17°33½'–50°17½', 24 Jul 1904, *Spribille s.n.* (WRSL); CF3313 – 2 km SW of Biała, 250 m, 17°39'–50°21½', 13 Sep 1999, *Kosiński & Zieliński 94/99* (KOR 41324); CF3493 – NE of Pomorzowice, S of Raclawice Śląskie, 17°47'–50°17½', 26 Aug 1994, *Zieliński s.n.* (KOR 41275); CF3753 – near Kędzierzyn, by the road to Pogorzelec, 18°12½'–50°20½', 18 Jul 1906, *Spribille s.n.* (WRSL); CF4118 – Biskupia Kopa Mt. near Jarnołtówek, 630 m, 17°26½'–50°16½', 27 Jul 1999, *Kosiński, Tomaszewski & Zieliński 155* (KOR 41745); CF4206 – Dębowiec, 17°32½'–50°17½', 6 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 12/98* (KOR 39957); CF4217 – E of Dębowiec, 335 m, 17°33¾'–50°16½', 29 Jul 1999, *Kosiński, Tomaszewski & Zieliński 188* (KOR 41468); CF4382 – 1 km NNE of Prężynka, 260 m, 17°37½'–50°12½', 14 Sep 1999, *Kosiński & Zieliński 113/99 & 114/99* (KOR 41672 & 41671); CF4402 – Pomorzowice, 17°46'–50°17', 16 Jul

1988, *Tomlik & Zieliński Z. 2293* (KOR 30185); CF4434 – SW of Kietlice, 17°48'–50°15¾', 26 Aug 1994, *Zieliński s.n.* (KOR 41273 & 41274); CF4444 – 2 km W of Królówce, 17°48½'–50°15', 15 Jul 1988, *Tomlik & Zieliński Z. 2236* (KOR 30187); CF4462 – 2 km SE of Tarnkowa, 17°46½'–50°14', 15 Jul 1988, *Tomlik & Zieliński Z. 2238* (KOR 25594); CF4463 – Głubczyce, 17°47½'–50°14', 11 Jul 1913, *Malende s.n.* (WRSL); CF5672 – near Tlustomosty, 18°03'–50°08', 31 Jul 1906, *Spribille s.n.* (WRSL).

Series *Vestiti* (Focke) Focke

Syn. Rub. Germ.: 285. 1877.

Basionym: *Rubus* [Gruppe] *Vestiti* Focke, Abh. Naturwiss. Ver. Bremen **1**: 194. 1868.

TYPE: *Rubus vestitus* Weihe

Stems low- to high-arching, usually distinctly hairy. Prickles uniform (in our area). Leaves beneath with hairs pectinately arranged on the veins.

38. *Rubus pyramidalis* Kaltenb. (Figs 108–110)
Fl. Aachen. Beckens: 275. 1845.

TYPE: Aachen, *Beek B 604* (U – NEOTYPE; Beek 1974).

Stems arching, angled, with flat or slightly furrowed sides, loosely pubescent with simple and tufted hairs, sometimes glabrescent, occasionally with scattered stalked glands. Prickles uniform, 8–12 per 5 cm, on angles, 5–7(–8) mm long, straight or slightly curved, patent or declining. Leaves 5-foliolate, digitate or subpedate, unevenly, sparsely hairy and finally often glabrous above, softly, densely pubescent beneath, with shimmering hairs pectinately arranged on the veins; without stellate hairs. Terminal leaflets with mid-long petiolules (30–35%), obovate to suborbicular, rounded or slightly emarginate at the base, with a suddenly acuminate apex (8–)10–15 mm long, usually deeply (3–5 mm) periodically serrate; principal teeth usually distinctly prominent, ± strongly recurved. Basal leaflets with petiolules 3–4 mm long. Petioles loosely hairy, with dozen or so straight or indistinctly curved prickles. Stipules narrowly lanceolate. Inflorescence paniculate, regularly conical, with 3(–5)-foliolate leaves below. Leaves clothed and serrate like those



Fig. 108. *Rubus pyramidalis* Kaltenb. (Zieliński 118 a/95, KOR 3229). Scale bar = 5 cm.

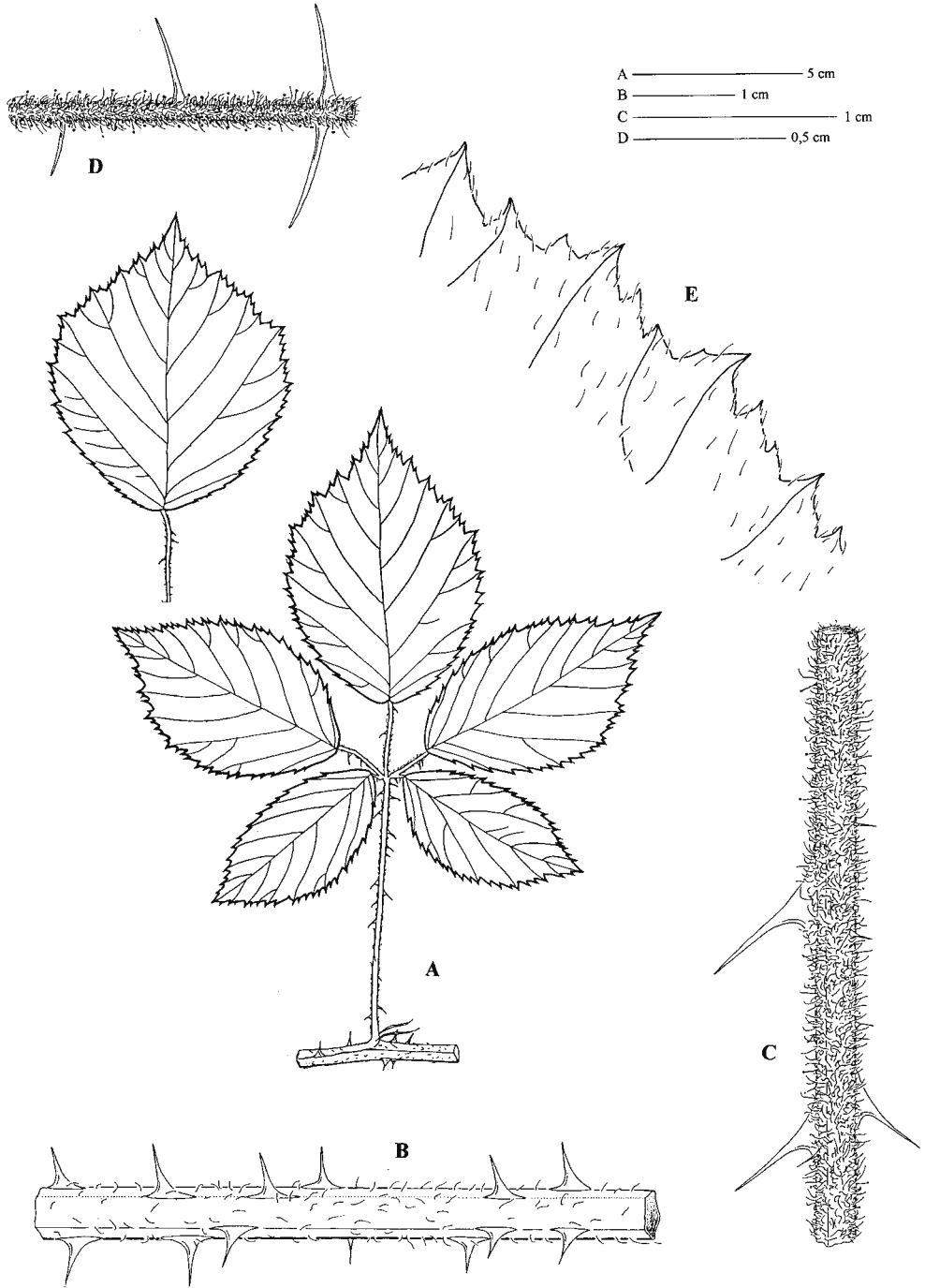


Fig. 109. *Rubus pyramidalis* Kaltenb. A – leaf from vegetative stem and terminal leaflet; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 945, KOR 8776).

of the stems. Inflorescence axis usually felted, besides with longer patent hairs, always with scattered stalked glands up to 1(–1.5) mm long. Prickles slender, straight, declining or slightly curved, up to 6(–7) mm long. Pedicels 1–1.5(–2) cm long, shortly felted and with longer patent hairs, besides with rather numerous stalked glands up to 1(–1.5) mm long and several slender straight or indistinctly curved prickles up to 2.5(–4.5) mm long. Sepals green-grey, felted, also with longer patent hairs and stalked glands, reflexed after anthesis. Petals pale pink or white, elliptical, 12–16 mm long. Stamens exceeding styles. Anthers and carpels glabrous. Receptacle hairy. – $2n = 28$ (Boratyńska 1995a). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems \pm hairy; leaves with shimmering hairs pectinately arranged on the veins beneath; leaflets with distinctly retrorse principal teeth; inflorescence regularly conical, with scattered stalked glands on the axis.

HABITAT. Thickets, deciduous or mixed forest margins, open forests, clearings.

DISTRIBUTION IN POLAND. Chiefly in the west, usually on scattered localities.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: from Great Britain in the west through Belgium, Holland, Germany to Poland in the east, from Denmark and S Sweden in the north to C France and Luxemburg in the south.

SELECTED HERBARIUM SPECIMENS. AB0786 – Pogorzelnica, $15^{\circ}07\frac{3}{4}' - 54^{\circ}06\frac{1}{3}'$, 9 Aug 1993, *Boratyńska 10/93* (KOR 29397); AB1493 – Świętoustów, $14^{\circ}38' - 53^{\circ}59\frac{1}{3}'$, 15 Jul 1977, *Zieliński 974* (KOR 8695); AB1883 – 6 km of Trzebiatów towards Gryfice, $15^{\circ}14\frac{2}{3}' - 54^{\circ}01'$, 3 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3092* (KOR 29971); AB3706 – Zaleszczyce, $15^{\circ}08\frac{2}{3}' - 53^{\circ}54\frac{1}{3}'$, 14 Jul 1977, *Zieliński 944 & 945* (KOR 8766 & 8760); AB3706 – Zaleszczyce, $15^{\circ}08\frac{2}{3}' - 53^{\circ}54\frac{1}{3}'$, 3 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3100* (KOR 29972); AC7937 – near Świerżyna, $15^{\circ}33\frac{1}{2}' - 52^{\circ}38'$, 8 Aug 1897, *Spribille s.n.* (KOR 10950); AD2999 – between Kalsk & Buków, $15^{\circ}37\frac{3}{4}' - 52^{\circ}08\frac{2}{5}'$, 26 Jul 1974, *Zieliński s.n.* (KOR 6434); BA7653 – 1 km of Darłowo towards Ustka, $16^{\circ}26' - 54^{\circ}26'$, 3 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3107* (KOR 29973); BC2574 – near Żakowo, $16^{\circ}23' -$

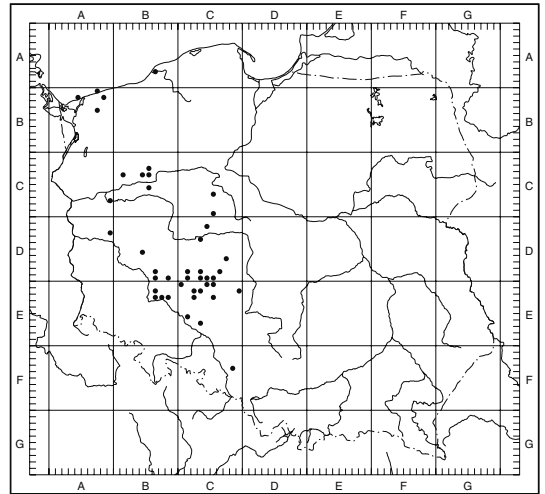


Fig. 110. Distribution of *Rubus pyramidalis* Kaltenb. in Poland.

$53^{\circ}04'$, 8 Sep 1895, *Spribille s.n.* (KOR 10951a); BC3139 – Wologoszcz, $15^{\circ}52' - 53^{\circ}00'$, 5 Aug 1889, *Gelert s.n.* (C); BC3486 – by the road between Dzierżążno Wielkie & Górnica, $16^{\circ}16' - 52^{\circ}58'$, 6 Aug 1896, *Spribille s.n.* (KOR 10949); BC3524 – by the road between Smolarnia & Trzcianka, $16^{\circ}23' - 53^{\circ}01\frac{1}{2}'$, 8 Sep 1895, *Spribille s.n.* (KOR 10951); BC5557 – Krucz, $16^{\circ}26\frac{1}{2}' - 52^{\circ}49\frac{1}{3}'$, 18 Jul 1894, *Spribille s.n.* (KOR 10952); BD9871 – between Laskowo & Korzeńsko, $16^{\circ}51\frac{1}{3}' - 51^{\circ}33\frac{1}{2}'$, 25 Jul 1996, *Zieliński 10/96* (KOR 38269); BE1688 – near Pelczyn, $16^{\circ}40\frac{1}{2}' - 51^{\circ}22'$, 28 Sep 1910, *Spribille s.n.* (WRSL); BE2679 – Żerkówek, $16^{\circ}42\frac{1}{4}' - 51^{\circ}17'$, 22 Aug 1991, *Głowacki s.n.* (WSRP); BE2732 – between Bukowice & Lipnica, $16^{\circ}44' - 51^{\circ}19'$, 25 Aug 1987, *Zieliński 1917* (KOR 23263); BE2880 – 3 km S of Rościslawice, by the road to Uraz, $16^{\circ}51' - 51^{\circ}16\frac{1}{2}'$, 25 Aug 1987, *Zieliński 1891 & 1893* (KOR 23287 & 23288); CC6527 – 2 km NW of Słaboszewko, $17^{\circ}55\frac{2}{3}' - 52^{\circ}46\frac{4}{5}'$, 6 Jul 1987, *Chmiel s.n.* (POZ); CC9551 – 1 km W of Sokołowo, $17^{\circ}50\frac{1}{4}' - 52^{\circ}29'$, 2 Jul 1988, *Chmiel s.n.* (POZ); CD1426 – 1 km NE of Staw, $17^{\circ}46\frac{1}{2}' - 52^{\circ}20'$, 6 Jul 1993, *Chmiel s.n.* (POZ); CD3381 – Brzostków, $17^{\circ}34' - 52^{\circ}05\frac{1}{2}'$, 9 Jul 1986, *Awzan & Zieliński Z. 1538* (KOR 23289); CD6778 – between Kamień & Podzborów, $18^{\circ}15' - 51^{\circ}50\frac{1}{5}'$, 23 Sep 1988, *Zieliński 2207* (KOR 31544); CD8363 – 2 km NW of Daniszyn, $17^{\circ}36\frac{1}{3}' - 51^{\circ}39\frac{3}{4}'$, 10 Jul 1995, *Zieliński s.n.* (KOR 32253); CD9152 – 1 km SW of Rakłowice, $17^{\circ}18\frac{1}{2}' - 51^{\circ}35'$, 6 Aug 1992, *Zieliński 128/92 & 129/92* (KOR 29975 & 29974); CD9162 – Pomorsko between Milicz & Rakłowice, $17^{\circ}18' - 51^{\circ}34'$, 20 Sep 1988, *Zieliński*

2140 (KOR 30616); CD9479 – Przygodzice, 17°50½′–51°34′, 18 Jul 1897, 10 Sep 1898 & 23 Jul 1899, *Spribille s.n.* (KOR 10953 & 10954, TRN & WRSL); CE0429 – ‘Wydymacz’ reserve near Antonin, 17°50½′–51°31½′, 1997, *Tomaszewska s.n.* (POZ); CE0530 – Antonin, 17°51½′–51°31′, 26 Aug 1977 & 14 Jul 1993, *Zieliński 1152–1154* (KOR 8674, 8675, 8754 & 30514); CE1282 – between Gola Mała & Twardogóra, 17°27′–51°22⅔′, 9 Nov 1910, *Spribille s.n.* (WRSL); CE1390 – Gola Wielka, by the road to Bukowina Sycowska, 17°34′–51°22′, 9 Nov 1910, *Spribille s.n.* (WRSL); CE1970 – between Klonowa & Lututów, 18°26′–51°23½′, 14 Jul 1994, *Zieliński s.n.* (KOR 30507); CE2206 – between Gola Wielka & Twardogóra, 17°31′–51°21⅓′, 9 Nov 1910, *Spribille s.n.* (WRSL); CE2548 – 2 km NNW of Hanulin, 17°58⅔′–51°19¾′, Aug 1992, *Zieliński 115/92* (KOR 29976); CE5120 – Chrzastowa Mała, 17°18′–51°04¼′, 20 Oct 1911, *Spribille s.n.* (WRSL); CE5121 – between Chrzastowa Mała & Miłoszyce, 17°18¼′–51°04′, 11 Jul 1917, *Spribille s.n.* (WRSL); CE6372 – near Rogalice, 17°37′–50°56⅓′, 2 Jul & 24 Aug 1910, *Spribille s.n.* (WRSL); CF3831 – Blachownia, 18°19½′–50°21⅓′, 26 Aug 1987, *Rostański s.n.* (KTU).

Series *Micantes* Sudre

Rubi Eur.: 284. 1913.

TYPE: *Rubus micans* Godr.

Stems low- to high-arching. Prickles uniform or mixed with rather few needle-like acicles and stalked glands. Leaves green, sparsely hairy to grey-felted beneath. Inflorescence with scattered to numerous long-stalked glands.

39. *Rubus micans* Godr. in Grenier & Godron (Figs 111–113)

Fl. Fr. 1: 546. 1848.

TYPE: Herb. Godron, in Lamalgrande, 1816 (NCY – HOLOTYPE; Beek 1974).

Stems low-arching, angled, with flat or slightly furrowed sides, often somewhat pruinose, mottled red, especially on angles, glabrous or with scattered simple and tufted hairs. The largest prickles 4–10 per 5 cm, usually on angles, straight, declining or slightly curved, 5–6(–8) mm long, reddish at the base, with yellow points, usually mixed with few to numerous needle-shaped or broad-based

pricklets and (gland-tipped) acicles. Leaves pedate, 3–4(–5)-foliolate. Leaflets not contiguous, rather thick and coriaceous, glabrous above or hairy along the margins, grey-green or greenish-grey (loosely felted) beneath, with stellate and simple hairs, those on the veins pectinately arranged, shimmering. Terminal leaflets with mid-long or long petiolules (27–44%), broadly elliptical or obovate, rounded or shallowly cordate at the base, with a suddenly acuminate apex 8–15(–20) mm long, periodically serrate; teeth sharp, apiculate, principal ones often retrorse. Petiolules of basal leaflets 3–5 mm long. Petioles with curved prickles, needle-shaped pricklets and stalked glands. Stipules filiform. Inflorescence nearly conical, truncate at the apex, with 3-foliolate leaves below, usually leafless above. Inflorescence axis with ± numerous simple and tufted hairs, rather sparse stalked glands and/or stalks. Larger prickles 3–5(–6) mm long, usually ± curved or straight and declining, reddish-brown at the base. Pedicels (1–)1.5–2.5(–3) cm long, with dense stellate hairs, sparse patent hairs, with straight patent to curved prickles up to 2.5(–3) mm long and stalked glands at least partly longer than the diameter of pedicel. Sepals densely grey-hairy with stellate and simple hairs, densely glandular, unarmed or with sparse acicles, reflexed after anthesis. Petals pink, elliptical, 12–15 mm long. Anthers glabrous. Carpels sparsely hairy or glabrous. Receptacle hairy. – 2n = 28 (Boratyńska 1998) – Flowering VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems angled, mottled red on the angles; prickles mixed with few to numerous needle-shaped pricklets and acicles; leaves 3–4(–5)-foliolate, pedate, greyish beneath, with shimmering hairs pectinately arranged on the veins.

HABITAT. Open deciduous forests, forest clearings, wood margins.

DISTRIBUTION IN POLAND. In the south, in the vicinity of Prudnik, very abundant in places.

GENERAL DISTRIBUTION. Widespread species. NW Europe: N France, Germany and on isolated stands in Moravia and Poland.



Fig. 111. *Rubus micans* Godr. (Kosiński *et al.*, in Zieliński 8/98, KOR 39961). Scale bar = 5 cm.

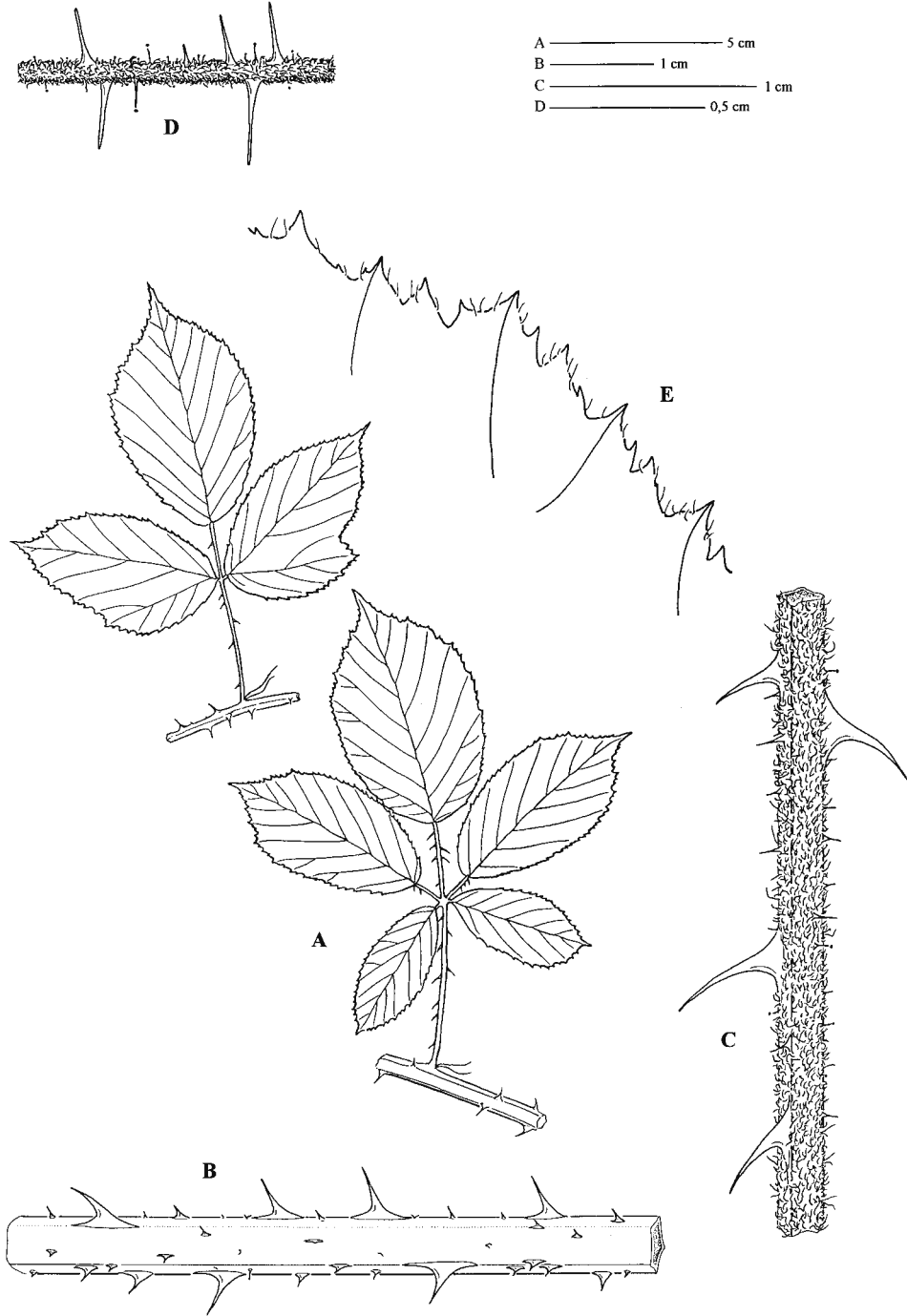


Fig. 112. *Rubus micans* Godr. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Kosiński et al.*, in *Zieliński 8/98*, KOR 39961).

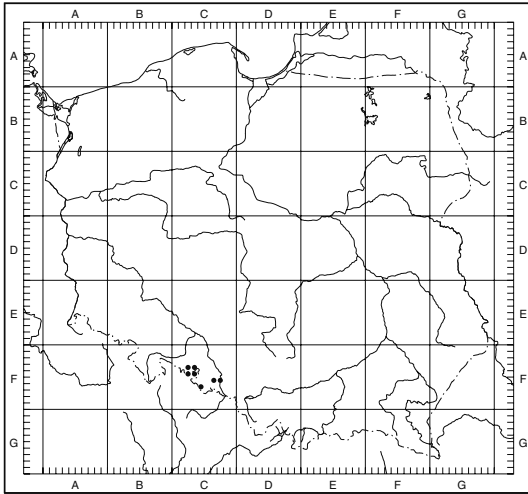


Fig. 113. Distribution of *Rubus micans* Godr. in Poland.

SPECIMENS SEEN. CF4203 – Długota Mt. near Nowa Wieś, 360 m, $17^{\circ}30\frac{1}{2}' - 50^{\circ}17'$, 29 Jul 1999, *Kosiński, Tomaszewski & Zieliński* 194 (KOR 41463); CF4206 – Dębowiec, $17^{\circ}32\frac{1}{2}' - 50^{\circ}17'$, 30 Aug 1899, *Bruchs & Kinscher s.n.* (ER); CF4206 – ibidem, $17^{\circ}32\frac{1}{2}' - 50^{\circ}17\frac{1}{6}'$, 6 Jul 1998, *Kosiński, Tomaszewski & Zieliński* Z. 8, 9, 11 & 14/98 (KOR 39961, 39960, 39958 & 39954); CF5629 – Ponięcice, 240 m, $18^{\circ}08\frac{1}{2}' - 50^{\circ}10\frac{1}{2}'$, 4 Jul 2001, *Kosiński, Tomaszewski & Zieliński* 212 (KOR 43699); CF5761 – Czerwięcice, 225 m, $18^{\circ}11\frac{1}{4}' - 50^{\circ}08\frac{3}{10}'$, 4 Jul 2001, *Kosiński, Tomaszewski & Zieliński* 224 (KOR 43698); CF6401 – 2 km N of Bliszczycze, 388 m, $17^{\circ}45\frac{1}{2}' - 50^{\circ}06\frac{1}{2}'$, 12 Sep 1999, *Kosiński & Zieliński* 62/99 & 70/99 (KOR 41715 & 41459).

40. *Rubus silesiacus* Weihe in Günther *et al.*

(Figs 114–116)

Cen. pl. sil. exs. 14, sine no. 1827.

TYPE: sine loco et die., *leg?* [verosimil. Kohler], *R. silesiacus* Weihe [Weihe scripsit] (MSTR *ex herb.* Weihe – LECTOTYPE; Weber 1998).

Stems low-arching, angled, usually with furrowed or flat sides, loosely pubescent with simple or/and tufted hairs, without or with scattered stalked glands. Prickles 7–15 per 5 cm, 5–6(–7) mm long, mostly straight, slender but broad-based, sometimes mixed with few small needle-like pricklets. Leaves 5-foliolate, digitate or subpedate, with scattered adpressed hairs above, loosely

pubescent with simple and tufted hairs beneath, sometimes mixed with \pm numerous stellate hairs and then thinly felted. Terminal leaflets with short or mid-long petiolules (25–35%), elliptical to broadly ovate, sometimes suborbicular, cordate at the base, with an acuminate apex up to 10 mm long, shallowly serrate; teeth broad, apiculate, with variously directed tips; principal ones not prominent. Basal leaflets with petiolules 1–3 mm long. Petioles patent-hairy, without or with stalked glands and with bright slightly curved or straight declining, slender prickles. Stipules lanceolate, up to 3 mm wide. Inflorescence paniculate, usually narrowly conical, leafless above, with 3-foliolate leaves below. Leaves clothed like those of the stems but with more numerous stellate hairs, often greyish beneath. Inflorescence axis covered with stellate hairs and long patent simple hairs, besides with few to numerous stalked glands. Prickles slender, slightly curved or straight, declining, 4–5 mm long. Pedicels (0.5–)1–1.5 cm long, densely covered with spreading hairs, without or most often with short-stalked glands. Prickles straight, yellow, 1.5–2 mm long. Sepals suddenly narrowed at the apex, distinctly concave, green-grey-felted, without or with few stalked glands, unarmed, reflexed after anthesis and usually adpressed to the pedicel. Petals white, elliptical, 9–10 mm long. Stamens only slightly exceeding styles. Anthers glabrous. Carpels glabrous or with sparse hairs. Receptacle hairy. – $2n = 28$ (Boratyńska 1995a). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching, hairy, usually with scattered stalked glands and few needle-like acicles; leaflets usually shallowly serrate; teeth with variously directed tips; inflorescence narrowly conical, dense; sepals reflexed after flowering, adpressed to the pedicels.

HABITAT. Open deciduous forests, forest margins, clearings.

DISTRIBUTION IN POLAND. Scattered in SW regions.

GENERAL DISTRIBUTION. Widespread species. Poland, the Czech Republic, Austria.

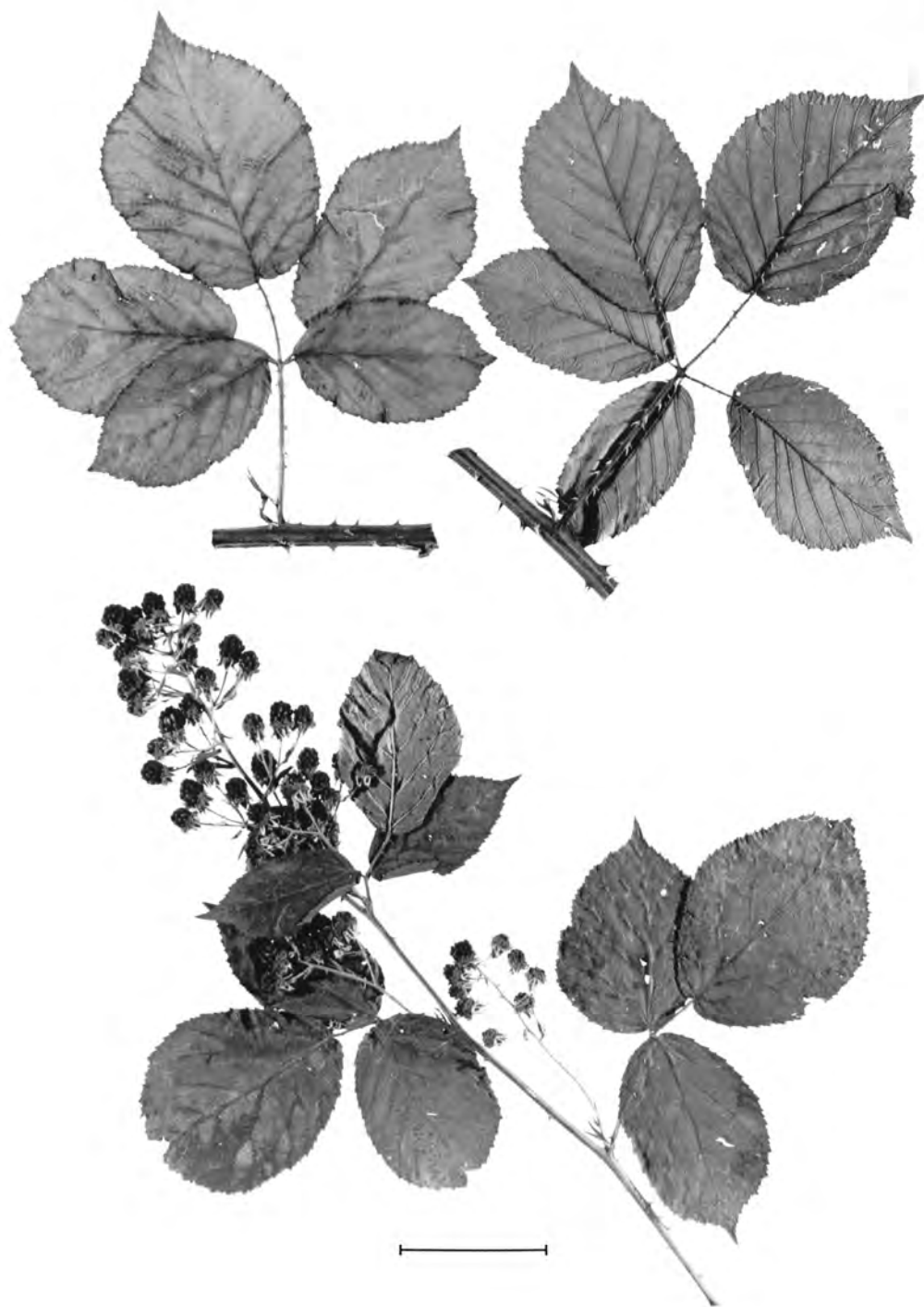


Fig. 114. *Rubus silesiacus* Weihe (Zieliński 2964, KOR 24789). Scale bar = 5 cm.

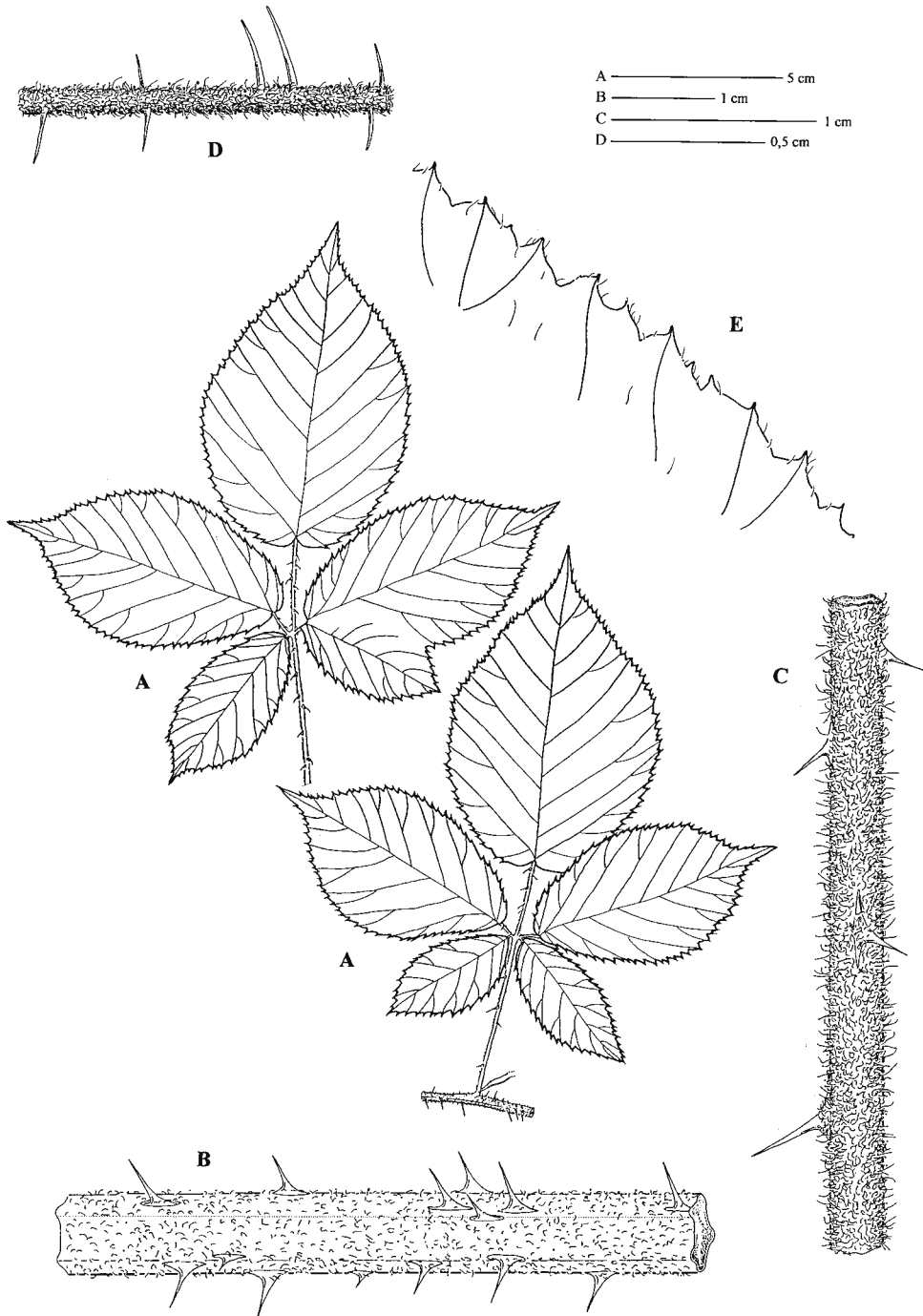


Fig. 115. *Rubus silesiacus* Weihe. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2999, KOR 24847).

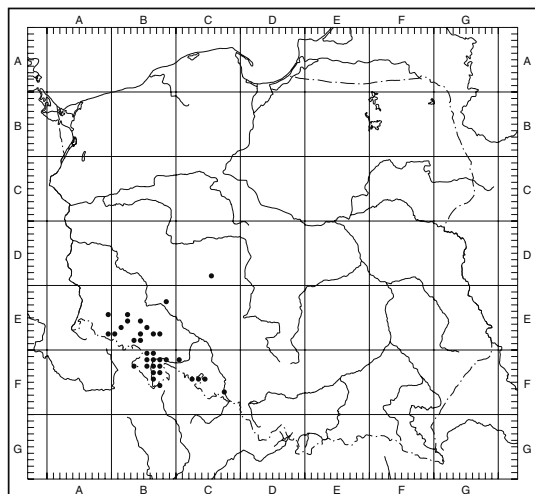


Fig. 116. Distribution of *Rubus silesiacus* Weihe in Poland.

SELECTED HERBARIUM SPECIMENS. AE4951 – Mojesz, $15^{\circ}36' - 51^{\circ}05\frac{1}{2}'$, 20 Jul 1970, *Kozioł s.n.* (KOR); AE7987 – 1 km N of Bobrowice, $15^{\circ}42' - 50^{\circ}48'$, 5 Aug 1991, *Zieliński 2973* (KOR 24793); BE2888 – Wilczyn, $16^{\circ}58' - 51^{\circ}16\frac{1}{2}'$, 1 Aug 1904, *Spribille s.n.* (WRSL); BE4280 – Dębina Mt. (411 m) near Leszczyna, $16^{\circ}00\frac{1}{2}' - 51^{\circ}04\frac{1}{2}'$, 14 Aug 1897, *Pinkwart s.n.* (WU 90–62/18 & 90–62/19); BE5415 – Damianowo, $16^{\circ}21\frac{1}{2}' - 51^{\circ}03\frac{1}{2}'$, 13 Jul 1904, *Figert & Spribille s.n.* (WRSL); BE6507 – a mountain (273 m) near Pyszczyń, $16^{\circ}32\frac{2}{3}' - 50^{\circ}59'$, 13 Jul 1904, *Figert & Spribille s.n.* (WRSL); BE7639 – Ślęza Mt., $16^{\circ}43' - 50^{\circ}52'$, sine die, *Günther s.n.* (KIEL); BE7710 – Sobótka, $16^{\circ}44\frac{1}{3}' - 50^{\circ}53\frac{1}{3}'$, 22 Jul 1905, *Spribille s.n.* (WRSL); BE8461 – a mountain (662 m) N of Kamięnsk, $16^{\circ}19\frac{1}{2}' - 50^{\circ}44\frac{2}{3}'$, 10 Sep 1987, *Boratyński & Zieliński Z. 1677* (KOR); BF0628 – Lutomierz, $16^{\circ}43' - 50^{\circ}36\frac{1}{2}'$, 4 Jul 1904, *Kinscher s.n.* (WRSL); BF1806 – by the road between Starczów & Niedźwiedz, $16^{\circ}58\frac{1}{2}' - 50^{\circ}32\frac{1}{2}'$, 16 Oct 1919, *Spribille s.n.* (WRSL); CD8545 – near Biskupice Ołoboczne, $17^{\circ}55' - 51^{\circ}41'$, 16 Jul 1997, *Zieliński 65–67/97* (KOR); CF4206 – Dębowiec, 360 m, $17^{\circ}32\frac{5}{6}' - 50^{\circ}17'$, 29 Jul 1999, *Kosiński, Tomaszewski & Zieliński 181* (KOR 41474).

41. *Rubus tabanimontanus* Figert

(Figs 117–119)

Allgem. Bot. Zeitschr. **11**: 178. 1905.

Rubus venedicus Kinscher, Repert. Spec. Regni Veg. **23**: 210. 1906.

TYPE: Liegnitz, Höhen bei 'Bremberg', 10.7.1904, *Figert s.n.* (M – LECTOTYPE; Weber 1991b).

Stems arching, bluntly angled, with slightly furrowed sides, rarely subterete, dark violet-red or violet-black on the side exposed to the sun, glabrous or with very few simple hairs, without or occasionally with few short-stalked glands. Prickles (5–)7–12(–13) per 5 cm, usually on angles, 5–7(–9) mm long, slender, mostly straight, declining or rarely patent. Leaves (4–)5-foliolate, pedate, on weaker stems also 3-foliolate, glabrous or with scattered adpressed hairs above, usually loosely hairy beneath, with simple and tufted hairs, sometimes in sunnier places, also with stellate hairs, especially on the veins, green or grey-green. Terminal leaflets with mid-long petiolules (27–35%), ovate or obovate, emarginate or cordate at the base, with a gradually acuminate apex 15–20 mm long, slightly waved along margins, usually distinctly periodically serrate; principal teeth prominent, straight or slightly recurved. Basal leaflets with petiolules 1–2(–3.5) mm long. Petioles sparsely hairy, without or with few short-stalked glands and slender, curved prickles. Stipules filiform or filiform-lanceolate. Inflorescence paniculate, short, compact, leafless above, with 3(–5)-foliolate leaves below. Leaves usually more densely hairy than those of the stems, the upper ones with numerous stellate hairs beneath, greyish, but the blade surface visible through the indumentum. Inflorescence axis, except the apical part, usually sparsely pubescent with simple and stellate hairs, besides with few stalked glands. Prickles very slender, subulate, curved or straight, declining. Pedicels usually 1–1.5 cm long, densely pubescent with long spreading hairs, usually with several long-stalked glands and thin, straight or slightly curved prickles up to 2.5(–3) mm long. Bracts and bracteoles distinct, glandular. Sepals hairy and glandular like pedicels, unarmed or with few slender pricklets up to 0.5 mm long, reflexed after anthesis. Petals white, elliptical, ca 10 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or with few hairs. Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VII–VIII.



Fig. 117. *Rubus tabanimontanus* Figert (Zieliński 207/92, KOR 31542). Scale bar = 5 cm.

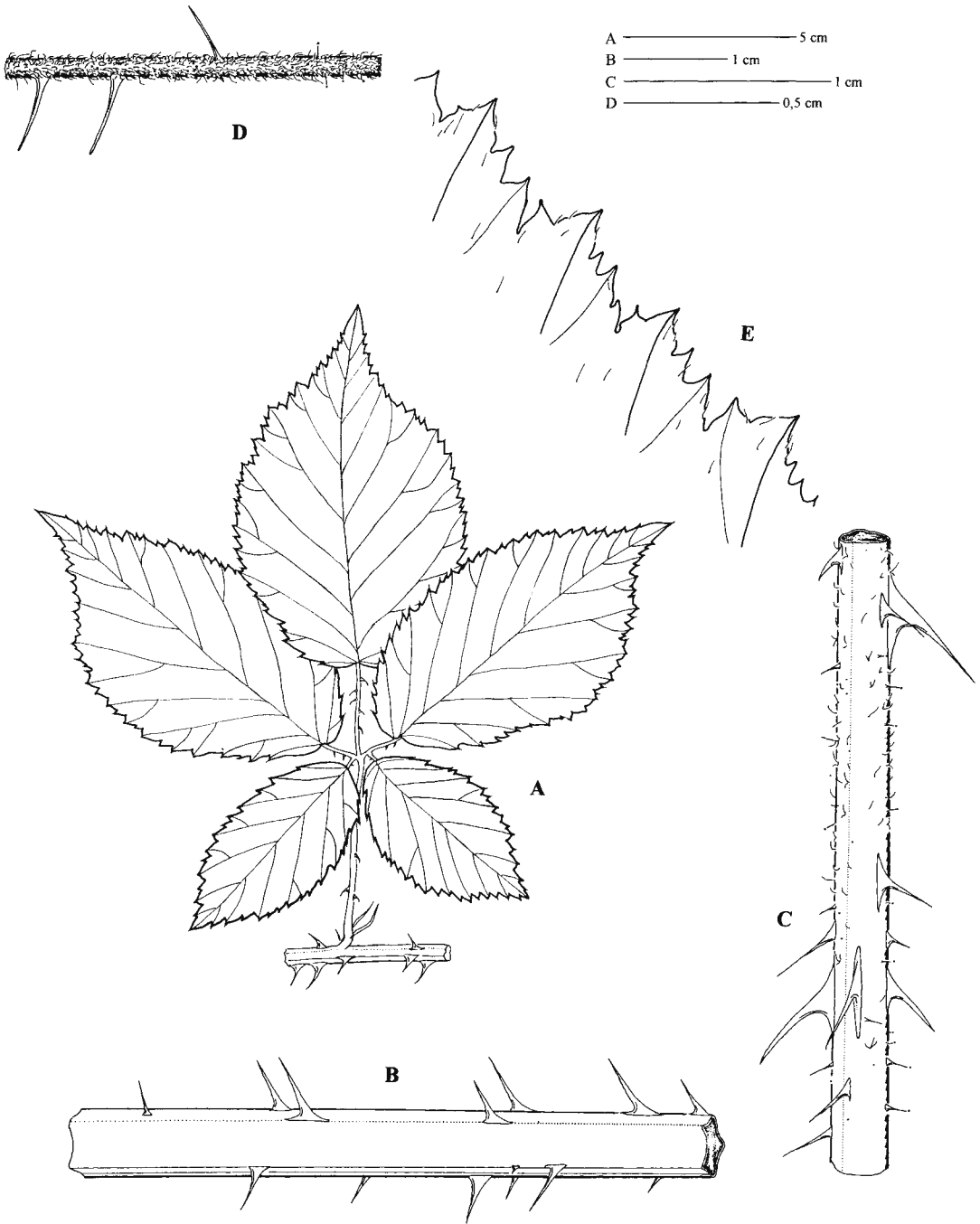


Fig. 118. *Rubus tabanimontanus* Figert. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Figert 140, WRSL).

MAIN DIAGNOSTIC CHARACTERS. Stems bluntly angled, violet-red or violet-black; leaves pedate, 4–5-foliolate; leaflets deeply serrate; inflorescence short, compact, with thin prickles and scattered long-stalked glands.

From *R. silesiacus* it differs by (red-)violet-black stems, distinctly pedate leaves, more coarsely serrate leaflets and short, compact, less regular inflorescence. *R. glivicensis* can be distinguished from *R. tabanimontanus* by green or red, grooved stems and pink flowers.

HABITAT. Deciduous forest margins, clearings.

DISTRIBUTION IN POLAND. On scattered localities in SW regions.

GENERAL DISTRIBUTION. Widespread species. SE Germany, the Czech Republic, Slovakia, Poland.

SELECTED HERBARIUM SPECIMENS. AE6638 – by the road between Ulicko & Nové Město, 15°16½′–50°55½′, 19 Jul 1904, *Spribille s.n.* (WRSL); BD4086 – near Mielno, 15°44½′–51°58′, 13 Sep 1995, *Danielewicz s.n.* (POZNF); BE4278 – Żarek, 16°07′–51°05½′, 16 Sep 1902, 15 Jul 1903, 4 Aug & 8 Sep 1904 & Jun, Jul, Aug & Sep 1907, *Figert 30, 1, 122, 194 & 242* (PRC & W); BE5205 – Górzec Mt. (445 m) SW of Męcinka, 16°04½′–51°03½′, 10 Jul 1904, *Figert 140 & 141* (W);

BF0822 – Sieroszków, 16°55′–50°36½′, 13 Jul 1906, *Kinischer s.n.* (PR); BF2651 – Czerwoniak Mt. N of Krosnowice, 16°37½′–50°24½′, 9 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 59/98* (KOR 39985); BF2696 – Bukówka Mt. near Oldrzychowice Kłodzkie, 360 m, 16°42½′–50°22½′, 9 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 50/98* (KOR 39993a); BF3612 – between Mielnik & Gorzanów, 340 m, 16°38½′–50°21′, 15 Oct 1995, *Kosiński s.n.* (KOR 39653); BF3616 – Romanowo Dolne, 405 m, 16°42½′–50°21′, 7 Sep 1995, *Kosiński s.n.* (KOR 38872); BF3732 – Koleba Mt. near Trzebiezowice, 615 m, 16°47¼′–50°20′, 13 Sep 1995, *Kosiński s.n.* (KOR 38929); BF3738 – Łądek Zdrój, 510 m, 16°52½′–50°20½′, 23 Jul 1995, *Kosiński s.n.* (KOR 39619); BF4604 – Wilkanów, 400 m, 16°40½′–50°16½′, 28 Sep 1995, *Kosiński s.n.* (KOR 38801); CE7370 – Prędocin, 17°35′–50°51′, 9 Jul 1994, *Zatorski s.n.* (POZNF); CE8316 – N of Wronów, 17°40′–50°48½′, 9 Jul 1994, *Zatorski s.n.* (POZNF); CF3196 – Pokrzywna, 315 m, 17°24½′–50°17½′, 28 Jul 1999, *Kosiński, Tomaszewski & Zieliński 157* (KOR 41752); CF4129 – Biskupia Kopa near Pokrzywna, 17°26¾′–50°16′, 27 Jul 1995, *Danielewicz s.n.* (POZNF); CF4206 – Dębowiec, 17°32½′–50°17½′, 6 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 13/98* (KOR 39956); CF4409 – 2 km SW of Szonów, 17°52′–50°17′, 16 Jul 1988, *Tomlik & Zieliński Z. 2265, 2282 & 2283* (KOR 22867, 27079 & 22813); DF2179 – Segiet, 18°51′–50°24½′, 7 Aug 1908, *Spribille s.n.* (WRSL).

42. *Rubus glivicensis* (Sprib. ex Sudre) Sprib.

(Figs 120–122)

Jahresb. Schles. Ges. Vaterl. Cult. **87**: 58. 1910. – *R. glivicensis* Sprib. Verh. Bot. Ver. Prov. Brandenb. **49**: 191. 1907, *nom. prov.*

Basionym: *R. silesiacus* subsp. *amygdalanthus* var. *glivicensis* Sprib. ex Sudre, Bat. eur.: 78, no. 265. 1908.

TYPE: Silesie: Gleiwitz, Stadtwald, 13.7.1908, *Spribille* (M – LECTOTYPE; Weber 1991b).

Stems arching, angled, with furrowed or grooved sides, wine-red on the side exposed to the sun, glabrous, exceptionally with few hairs, sometimes with scattered stalked glands and gland-tipped acicles. Prickles 8–15(–18) per 5 cm, normally on angles, (5–)7–9 mm long, straight, patent or somewhat declining, with a broad and strongly compressed base. Leaves pedate or sometimes subpedate, 5-foliolate, rarely some of them 3–4-foliolate, glabrous above, usually ± pubescent be-

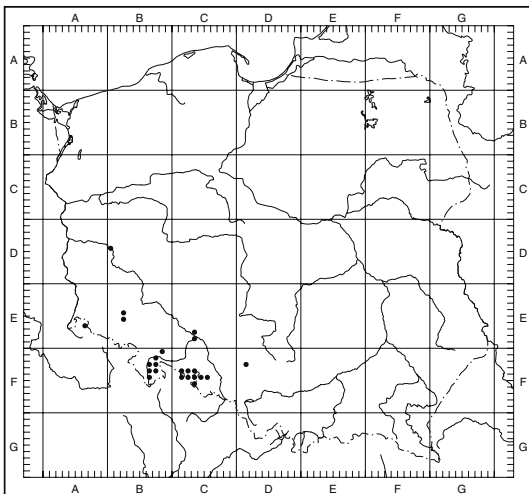


Fig. 119. Distribution of *Rubus tabanimontanus* Figert in Poland.



Fig. 120. *Rubus glivicensis* (Sprib. ex Sudre) Sprib. (Zieliński 1789, KOR 31557). Scale bar = 5 cm.

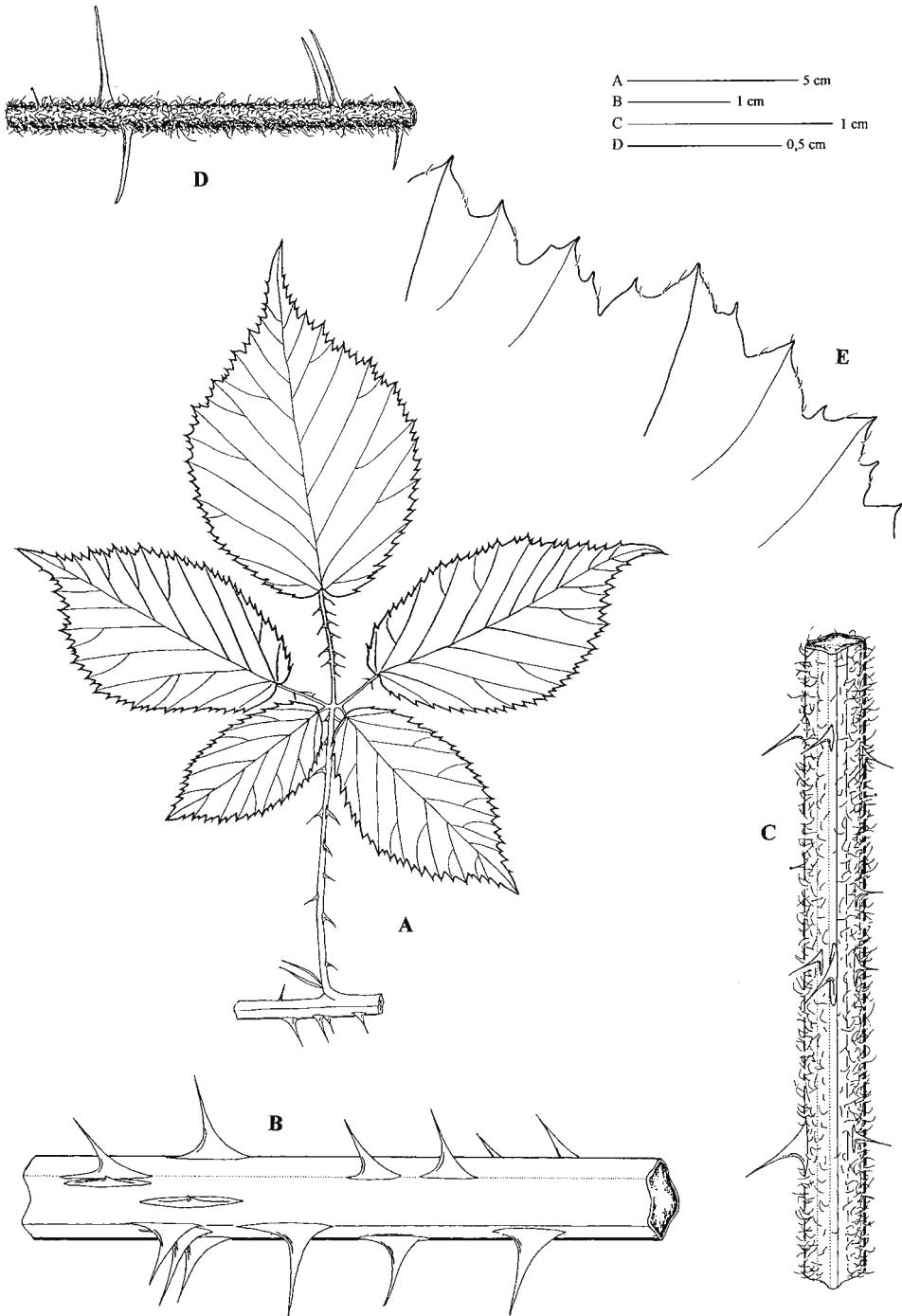


Fig. 121. *Rubus glivicensis* (Scrib. ex Sudre) Scrib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Tomlik & Zieliński, in Zieliński 2374, KOR 25858).

neath, with simple hairs and stellate hairs at least on the veins, in sunnier places stellate hairs more plentiful and then the blade surface greyish. Terminal leaflets with short to mid-long petiolules (25–35%), (broadly) ovate to obovate, shallowly cordate at the base, with an acuminate apex 15–20 mm long, periodically serrate; teeth broad, apiculate, principal ones straight or more often recurved. Basal leaflets with petiolules up to 3 mm long. Petioles longer than the basal leaflets, with numerous strong straight or slightly curved prickles, sometimes mixed with needle-like pricklets. Stipules filiform-lanceolate. Inflorescence paniculate, rather broad, obtuse at the apex, leafless above, with 3–5-foliolate leaves below. Upper leaves often more densely hairy, sometimes thinly felted beneath. Inflorescence axis angled, loosely hairy below, more densely hairy above, with spreading simple and stellate hairs. Prickles sometimes fairly strong, straight and declining, rarely curved, subulate, besides with few needle-like prickles, gland-tipped acicles and stalked glands. Lateral branches ascending, at least some of them with long-stalked glands. Pedicels up to 2(–2.5) cm long, ascending, loosely pubescent with spreading hairs, with several subulate, slightly curved prickles up to 3.5(–4) mm long. Sepals grey-green, felted, with short-stalked glands, unarmed or with few small pricklets, reflexed or patent after anthesis. Petals (narrowly) obovate, 10–12 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or with few long hairs. Receptacle hairy. Petals, stamens, styles fresh pink, often fading. – $2n = 28$ (Boratyńska 1994). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, furrowed to grooved, often wine-red; prickles strong, mostly straight, declining; leaves pedate; lateral branches of inflorescence and pedicels ascending; petals, stamens and styles usually fresh pink.

The species related to *R. tabanimontanus* (see remark at this species) and *R. silesiacus*. From the latter bramble it differs by grooved stems, stronger prickles, pedate leaves, more coarsely serrate leaflets and pink flowers.

HABITAT. Open deciduous forests, forest margins, clearings.

DISTRIBUTION IN POLAND. Chiefly in the south, locally common.

GENERAL DISTRIBUTION. Widespread species. Poland, the Czech Republic, Slovakia, W Ukraine (N of Lvov, *Paczoski s.n.*, LW 55662).

SELECTED HERBARIUM SPECIMENS. BE2762 – SE of Radeck, $16^{\circ}44\frac{1}{2}' - 51^{\circ}17\frac{1}{3}'$, 27 Aug 1991, *Głowacki s.n.* (WSRP); CD9152 – 1 km SW of Rakłowice, $17^{\circ}18\frac{1}{2}' - 51^{\circ}35'$, 6 Aug 1992, *Zieliński 127/92* (KOR 29962); CF3743 – near Kędzierzyn-Koźle, by the road to Pogorzelec, $18^{\circ}12\frac{1}{3}' - 50^{\circ}20\frac{1}{2}'$, 14 Jul 1908, *Spribille s.n.* (BREM); CF5837 – near Jankowice Rudzkie, $18^{\circ}24\frac{1}{3}' - 50^{\circ}10\frac{2}{3}'$, 24 Aug 1994, *Zieliński 136/94* (KOR 29513); CF6767 – 1 km SE of Brzezice on the Oder, $18^{\circ}16\frac{1}{3}' - 50^{\circ}03\frac{2}{3}'$, 17 Jul 1988, *Tomlik & Zieliński Z. 2333* (KOR 22818); CF6933 – between Rybnik & Niedobczyce, $18^{\circ}29' - 50^{\circ}05'$, 19 Jul 1988, *Tomlik & Zieliński Z. 2374, 2375 & 2380* (KOR); DF3088 – Gliwice, $18^{\circ}42' - 50^{\circ}18\frac{1}{3}'$, 13 Jul 1908, *Spribille s.n.* (isolectotypes – BM, BREM, PR, PRC & W); DF4898 – Ojców, $19^{\circ}49\frac{1}{4}' - 50^{\circ}12\frac{2}{3}'$, 17 Oct 1954, *Tacik s.n.* (KRAM); DF5285 – Wilkowyje, $18^{\circ}56\frac{1}{3}' - 50^{\circ}08'$, 7 Sep 1982, *Rostański s.n.* (KTU); DF6549 – 1 km SE of Zagórze, $19^{\circ}24\frac{2}{3}' - 50^{\circ}04\frac{5}{6}'$, 24 Jun 1987, *Grzegorzek s.n.* (CHRZ); DG0223 – by Jatny Stream near Jatny, $18^{\circ}55' - 49^{\circ}44'$, 1 Aug 1996, *Bistocka s.n.* (KRA); DG1939 – near

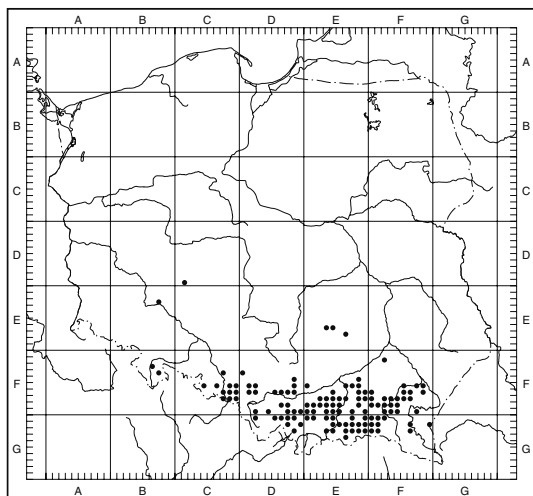


Fig. 122. Distribution of *Rubus glivicensis* (Sprib. ex Sudre) Sprib. in Poland.

Rabka, 19°58'–49°38', sine die, *col. ign.* (KRAM 29588); DG2815 – W of Końcówka, 19°45²/₃'–49°33⁴/₅', 26 Jul 1966, *Guzik & Guzikowa s.n.* (KRAM 68015–68017); EE6302 – between Mniów & Stachura, 20°28'–51°00', 11 Aug 1987, *Zieliński 1775* (KOR 25869); EE6443 – E of Tumlin, 20°37'–50°57¹/₂', 11 Aug 1987, *Zieliński 1779* (KOR 31557); EE7658 – Jastrzębi Dół, 20°58'–50°51³/₄', 1 Aug 1984, *Kapuściński s.n.* (SKPN); EF5004 – Polanowice-Goszcza, 20°02¹/₃'–50°12', 9 Jul 1990, *Kowalczyk s.n.* (KTC); EF7365 – Brzeźnica, 20°28'–49°57²/₃', 2 Jul 1993, *Stachurska s.n.* (KRA); EF7573 – Dębno, 20°43¹/₂'–49°56²/₃', 17 Sep 1973, *Pacyńska s.n.* (KRA); EG0789 – Bieśnik, 21°04'–49°39³/₄', 1 Jul 1995, *Oklejewicz s.n.* (KRA); EG1764 – Chełm Mt. near Grybów, 20°59¹/₂'–49°35³/₄', 25 Jun 1994, *Oklejewicz s.n.* (KRA); EG2950 – Smerekowiec, 21°13'–49°30³/₄', 7 Sep 1994, *Oklejewicz s.n.* (KRA); FF1250 – Jadachy, 21°41¹/₄'–50°29', 19 Jul 1996, *Oklejewicz s.n.* (KRA); FF5596 – Krzemienica, 22°10'–50°04¹/₂', 30 Sep 1999, *Oklejewicz s.n.* (KRA); FF6853 – Zalesie, 22°32'–50°00²/₃', 2 Jul & 24 Aug 1992, *Oklejewicz s.n.* (KOR 29303 & KRA); FF7344 – Przedmieście Czudeckie, 400 m, 21°51'–49°57¹/₃', 28 Aug 1997, *Oklejewicz s.n.* (KRA); FF7651 – Kanada, 22°13³/₄'–49°56', 28 Aug 1992, *Oklejewicz s.n.* (KRA); FG2683 – Czaszyn, 22°13¹/₃'–49°27¹/₂', 23 Aug 1990, *Oklejewicz s.n.* (KOR 29215).

43. *Rubus chaerophyllus* Sagorski & W. Schultze
(Figs 123–125)

Deutsche Bot. Monatsschr. 12: 1. 1894.

TYPE: Berthelsdorf, 1.7 und 16.7.1890, *Schultze 17761* (GLM – LECTOTYPE; Weber 1987).

Stems low-arching, bluntly angled or terete, usually sparsely hairy, glabrescent, without or with few stalked glands. Prickles 10–15 per 5 cm, (4)–5–7(–9) mm long, slender, straight or slightly curved, usually somewhat declining. Leaves (3)–5-foliolate, digitate or subpedate, dull green, glabrous or with few scattered hairs above, fairly densely pubescent beneath, with shimmering hairs pectinately arranged on the veins. Leaflets often imbricate, terminal ones with short petiolules (20–25%), broadly ovate or ovate-elliptical, cordate at the base, with a ± short-acuminate apex 10–15 mm long, alive slightly convex, rather evenly serrate; teeth broader than long, apiculate. Basal leaflets with petiolules 2–3 mm long, rarely sessile.

Petioles shorter or longer than basal leaflets, sparsely patent-hairy, with rather numerous ± curved prickles 3–3.5 mm long, without or rarely with stalked glands. Stipules narrowly lanceolate to linear, patent-hairy. Inflorescence paniculate, rather short and irregular, flattened at the apex, with 3-foliolate leaves below. Inflorescence axis rather stiff, zigzag, sparsely pubescent with patent simple and tufted hairs, usually mixed with stellate hairs above, besides with gland-tipped acicles 1–1.5(–2) mm long. Prickles bright, slender but broad-based, 4–5 mm long, straight or rarely some of them curved, declining. Bracts and bracteoles distinct, broad. Pedicels 1.5–2.5 cm long, covered with spreading hairs, unarmed or oftener with straight or indistinctly curved, yellow prickles up to 2.5(–3.5) mm long, also with stalked glands as long or only slightly longer than the diameter of pedicels. Sepals pubescent with spreading hairs, without or with few needle-like prickles, rather sparsely glandular, reflexed after anthesis. Petals white or rarely pinkish, (narrowly) obovate, 7–8 mm long. Stamens longer than styles. Anthers glabrous. Carpels and receptacle hairy. – 2n = 28 (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching, sparsely hairy; prickles slender, sometimes mixed with gland-tipped acicles; leaflets shallowly serrate, with shimmering pectinately arranged hairs beneath, terminal ones slightly convex; inflorescence rather short, flattened at the apex, with broad bracts and bracteoles.

HABITAT. Open deciduous forests, clearings.

DISTRIBUTION IN POLAND. Rare, chiefly in Dolny Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. SE Germany, the Czech Republic, Poland.

SPECIMENS SEEN. AE4562 – SW of Sulików, 15°02'–51°04', 20 Jul 1994, *Boratyńska et al. 108/94 & 110/94* (KOR 29454 & 29455); AE4657 – SW of Lubań, 15°15'–51°05', 9 Jul 1904, *Barber s.n.* (GLM 4381); AE5733 – near Złotniki Lubańskie, 15°20¹/₂'–51°01', 16 Jul 1900, *Barber s.n.* (GLM 4370); AE5751 – Wojkowa Mt. (502 m) near Giebultów, 15°19¹/₄'–50°59¹/₂', Jul 1883, *Barber s.n.* (GLM 4371); AE7845 – Szklarska Poręba, 15°31¹/₂'–



Fig. 123. *Rubus chaerophyllus* Sagorski & W. Schultze (*Boratyńska, Boratyński & Zieliński*, in *Zieliński* 213/92, KOR 29766). Scale bar = 5 cm.

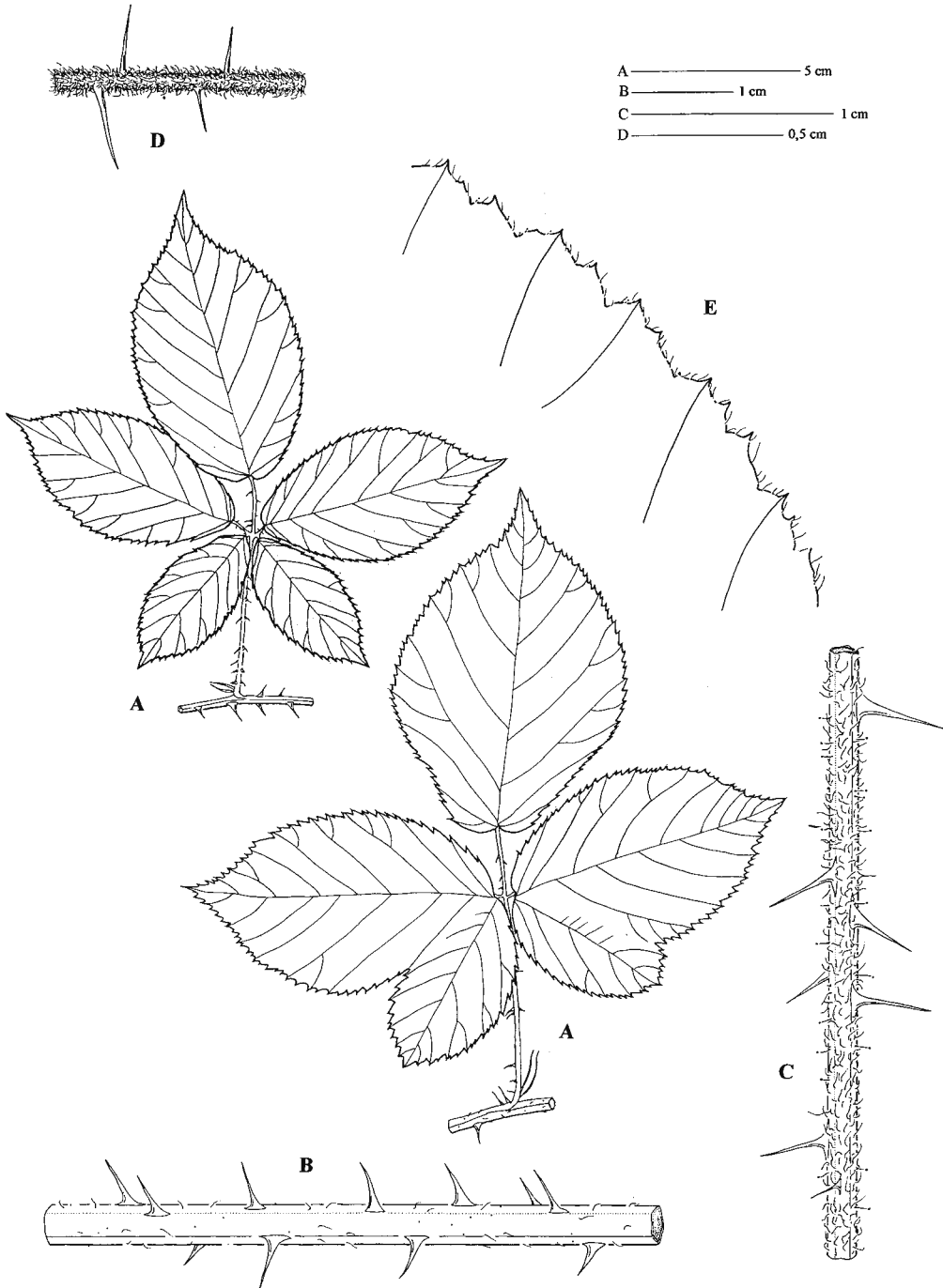


Fig. 124. *Rubus chaerophyllus* Sagorski & W. Schultze. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratyńska, Boratyński & Zieliński, in Zieliński 213.92, KOR 29766).

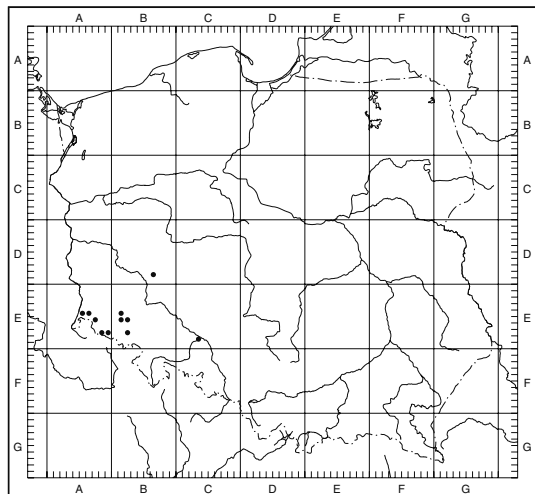


Fig. 125. Distribution of *Rubus chaerophyllus* Sagorski & W. Schultz in Poland.

50°50', 31 Aug 1891, *Wohst s.n.* (GLM 9671); BD8685 – near Ślubów, 16°37½'–51°38', 8 Aug 1997, *Zieliński 109/97 & 112/97* (KOR 39055 & 39058); BE5168 – near Jurczyce towards Muchów, 15°59'–51°00½', 19 Jul 1994, *Boratyńska et al. 80/94–83/94* (KOR 29456–29458 & 29453); BE5189 – 300 m NW of Mały Muchówek, 390 m, 16°00½'–50°59½', 1 Aug 1986, *Awzan & Boratyński SU 1137 & 1138* (KOR 31537 & 29765); BE5256 – a reserve SW of Myślubórz, 16°06½'–51°01', 10 Sep 1992, *Boratyńska, Boratyński & Zieliński 218/92 & 219/92* (KOR 29784 & 29767); BE5257 – 'Wąwóz Myśluborski koło Jawora' reserve, 16°06½'–51°01', 15 Oct 1967, *col. ign.* (SZUB); BE5266 – 0.5 km S of Jakuszowa, 16°06'–51°00½', 10 Sep 1992, *Boratyńska, Boratyński & Zieliński 213/92* (KOR 29766); BE7299 – SW slopes of Trójgarb Mt., 16°09½'–50°48½', 8 Sep 1987, *Boratyński & Zieliński Z. 1611* (KOR 30504a); CE8315 – NEE of Różyna, 17°39¼'–50°48¾', 9 Jul 1994, *Zatorski s.n.* (POZNF).

44. *Rubus chaerophylloides* Sprib.

(Figs 126–128)

Deutsche Ges. Kunst Wiss. Posen. Zeitschr. Naturwiss. Abt. 9: 120. 1902.

Rubus chaerophylloides Sprib., Verh. Bot. Ver. Brandenb. 41: 212 (1899), *nom. prov.*

TYPE: Distr. Wrocław. Inter Bukowice et Lipnica, 25.08.1987, *Zieliński 1912* (KOR – NEOTYPE, designated here).

Stems prostrate or low-arching, bluntly angled or terete, rarely with somewhat furrowed sides, usually fairly densely pubescent with ± patent simple and/or tufted hairs, often reddish-brown. Prickles 6–10(–12) per 5 cm, 4–5(–6) mm long, straight, ± declining or slightly curved, usually slender, narrow-based, usually mixed with few needle-like prickles and gland-tipped acicles. Leaves 3-foliolate or partly 4–5-foliolate and then pedate, dark green, ± hairy above, densely pubescent beneath, with shimmering pectinately arranged hairs on the veins. Terminal leaflets with short petioles (20–25%), elliptical or elliptic-ovate, shallowly emarginate at the base, with a gradually acuminate slightly curved apex 10–15 mm long, regularly grossly serrate; the serration 2–3 mm deep; teeth apiculate, straight or some of them recurved. Lateral leaflets of 3-foliolate leaves often distinctly gibbous. Petioles shorter than the basal leaflets, densely hairy, without or with few stalked glands and/or gland-tipped acicles. Prickles ± curved, rarely straight, ± declining, 2–3(–3.5) mm long. Stipules filiform or linear-lanceolate. Inflorescence paniculate, narrowly conical, leafy almost to the apex, with 3-foliolate leaves below. Leaves clothed like those of the stems but in sunnier places with an underlayer of stellate hairs. Inflorescence axis loosely pubescent with patent hairs, with an underlayer of stellate hairs, more densely hairy above, with gland-tipped acicles *ca* 2 mm long and stalked glands. Prickles slender, declining, straight or slightly curved, rather unequal, variable in size, the biggest ones up to 5 mm long. Pedicels 0.5–1.5(–2) cm long, shortly pubescent with spreading hairs, usually with few stalked glands 0.5–1 mm long, unarmed or with several straight or curved needle-like prickles up to 2(–2.5) mm long. Sepals long, narrow, grey-hairy, without or with few stalked glands or gland-tipped acicles, reflexed or rarely patent after anthesis. Petals white, elliptical, *ca* 9 mm long. Stamens longer than styles. Anthers glabrous. Carpels sparsely hairy or glabrous. Receptacle hairy. – 2n = 28 (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching, usually densely hairy, often with few

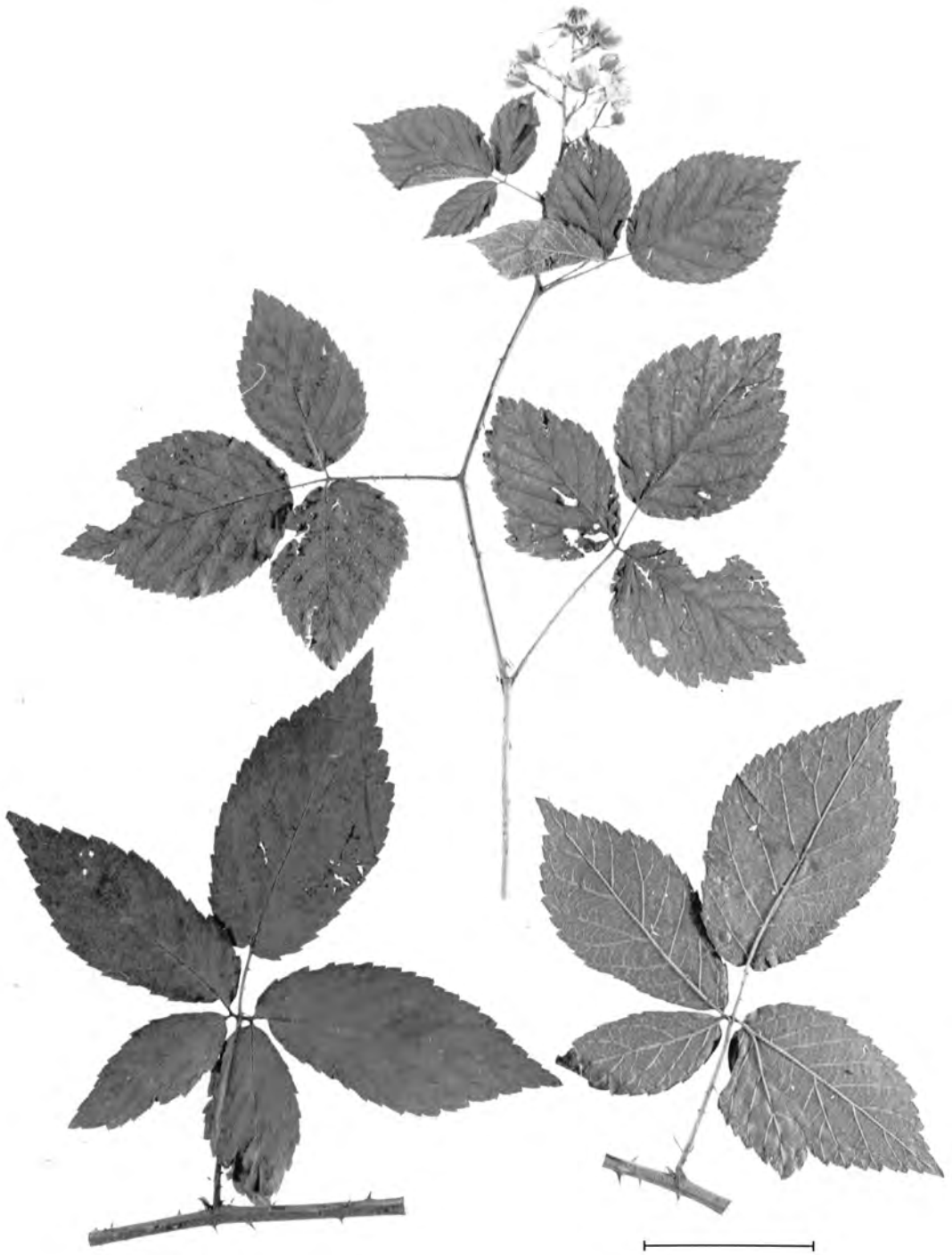


Fig. 126. *Rubus chaerophylloides* Sprib. (Zieliński 1912, KOR 29875). Scale bar = 5 cm.

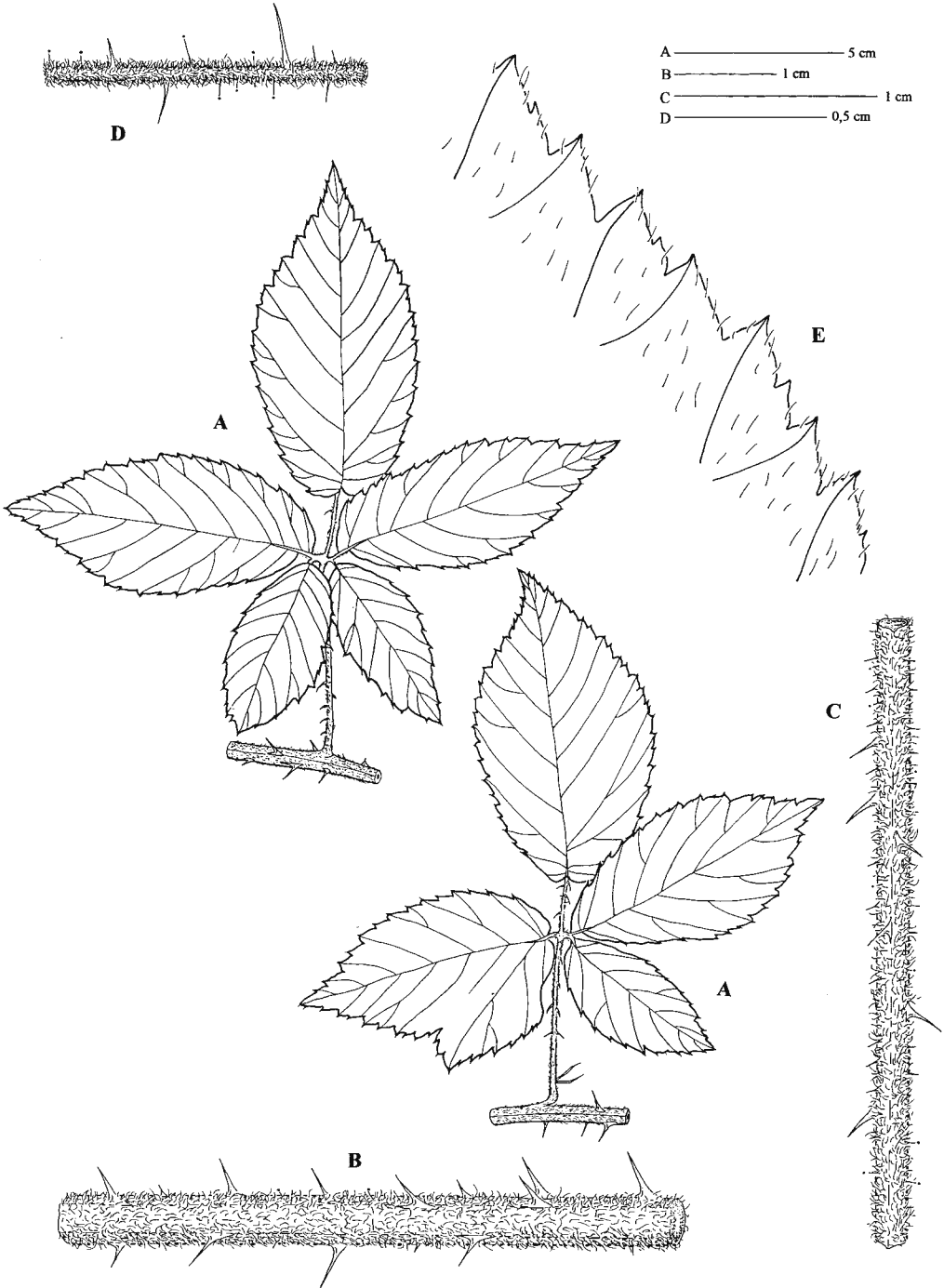


Fig. 127. *Rubus chaerophylloides* Sprib. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Spribille s.n., WRSL).

gland-tipped acicles and stalked glands; leaves 3–5-foliolate, densely hairy beneath, with pectinately arranged hairs; leaflets regularly grossly serrate; inflorescence axis with straight declining prickles.

HABITAT. Open forests, clearings, forest margins.

DISTRIBUTION IN POLAND. SW regions, chiefly Dolny Śląsk, on isolated localities in C Poland (near Skierniewice) and in Wielkopolska.

GENERAL DISTRIBUTION. Regional species. Chiefly Poland, recently found in the Czech Republic.

SELECTED HERBARIUM SPECIMENS. BD9871 – between Laskowo & Korzeńsko, 16°51½′–51°33½′, 25 Jul 1996, *Zieliński 9/96* (KOR 38270); BE0837 – 3–4 km NE of Żmigród, 16°57′–51°30′, 26 Jul 1996, *Zieliński 30/96* & *31/96* (KOR 38310 & 38309); BE1908 – trifurcation of the roads to Koniówko, Sulów & Ujeździec, 17°06½′–51°26¾′, 10 Sep 1910, *Spribille s.n.* (WRSL); BE2741 – between Bukowice & Lipnica, 16°44′–51°18½′, 25 Aug 1987, *Zieliński 1912* (KOR 29785); BE2767 – by the road Jodłowice-Rościstawice, 16°48½′–51°17½′, 15 Oct 1910, *Spribille s.n.* (WRSL); BE2805 – near Wilkowa Wielka, 16°55½′–51°21′, 4 Sep 1919, *Spribille s.n.* (WRSL); BE2845 – between Oborniki Śląskie & Kurasz-

ków, 16°55½′–51°18½′, 14 Jul 1897, *Baenitz s.n.* (BRA & WRSL); BE9935 – Romanów, 17°06′–50°42′, 17 Jul 1905, *Spribille s.n.* (WRSL); BE9964 – between Jasienica & Dobroszów, 17°04¾′–50°40½′, 15 Oct 1905, *Spribille s.n.* (WRSL); BE9972 – by the road to Skalice, 17°03′–50°39½′, 13 Aug 1909, *Spribille s.n.* (WRSL); BF0810 – Bukowa Góra (384 m) S of Baldwinowie, 16°53′–50°37½′, 10 Aug 1904, *Spribille s.n.* (WRSL); BF1685 – Boguszyn, 16°41′–50°27¾′, 15 Jul 1905, *Kinscher s.n.* (WU 2750); CD0236 – Daniele, 17°28½′–52°24¾′, 8 Jul 1994, *Boratyńska, Dolatowska & Zieliński 3/94* (KOR 29392); CD5051 – E of Mszczyszyn, 17°07½′–51°56½′, 5 Oct 1996, *Czama s.n.* (POZ); CD8586 – Kęszyce between Bibianki & Biskupice Ołoboczne, 17°56½′–51°39′, 16 Jul 1997, *Zieliński 61/97* & *62/97* (KOR 39091 & 39092); CE1035 – Skoroszów, by the road to Sulów, 17°12½′–51°25′, 24 Oct 1911, *Spribille s.n.* (WRSL); CE1056 – Skoroszów, by the road to Czeszów, 17°13½′–51°24′, 24 Oct 1911, *Spribille s.n.* (WRSL); CE1390 – near Gola Wielka, by the road to Bukowina Sycowska, 17°34′–51°22′, 9 Nov 1910, *Spribille s.n.* (WRSL); CE1399 – Ligota Rybińska, 17°42′–51°22½′, 3 Oct 1913, *Spribille s.n.* (WRSL); CE2122 – Bartków, 17°19′–51°20′, 18 Sep 1908, *Spribille s.n.* (WRSL); CE2196 – near Dobroszyce, 17°22′–51°16¾′, 9 Aug 1913, *Spribille s.n.* (WRSL); CE2206 – between Gola Wielka & Twardogóra, 17°31′–51°21½′, 9 Nov 1910, *Spribille s.n.* (WRSL); CE2458 – between Perzów & Marcinki, 17°49½′–51°19′, 21 Sep 1915, *Spribille s.n.* (WRSL); CE4193 – Chrzastowa Wielka, 17°20′–51°06′, 20 Jul 1908, *Spribille s.n.* (WRSL); CE4510 – near Rychtal, 17°51½′–51°10½′, 28 Sep 1899, *Spribille s.n.* (WRSL); CE5064 – near Kotowice, 17°13′–51°02′, 10 Nov 1909, *Spribille s.n.* (WRSL); CE5231 – between Miłocice & Sątok, 17°27½′–51°03½′, 2 Nov 1910, *Spribille s.n.* (WRSL); CE6268 – between Boryta & Lubsza, 17°33′–50°56¾′, 23 Oct 1914, *Spribille s.n.* (WRSL); CE6951 – near Biskupice, 18°27½′–50°57¾′, 6 Oct 1906, *Spribille s.n.* (WRSL); CE6961 – near Skrońsko, 18°27½′–50°57½′, 19 Jul 1908, *Spribille s.n.* (WRSL); CE6963 – Biskupice, 18°28½′–50°57′, 19 Jul 1908, *Spribille s.n.* (WRSL); CF2720 – by Góra Świętej Anny, 18°10′–50°27¼′, 6 Oct 1903, *Spribille s.n.* (WRSL); CF2726 – Czarnocin, 18°14¾′–50°27′, 23 Jul 1903 & 23 Jul 1904, *Spribille s.n.* (WRSL); CF3049 – near Gieralcice, 350 m, 17°18½′–50°20′, 16 Sep 1999, *Kosiński & Zieliński Z. 188/99* (KOR 41602); CF3659 – Koźle, 18°09′–50°20′, 20 Jul 1909, *Spribille s.n.* (PR & WU); ED5203 – between Puszcza Mariańska & Waleriany, 20°22′–51°59½′, 16 Jul 1990, *Zieliński 2579*, *2582* & *2583* (KOR 23715, 23727 & 23728).

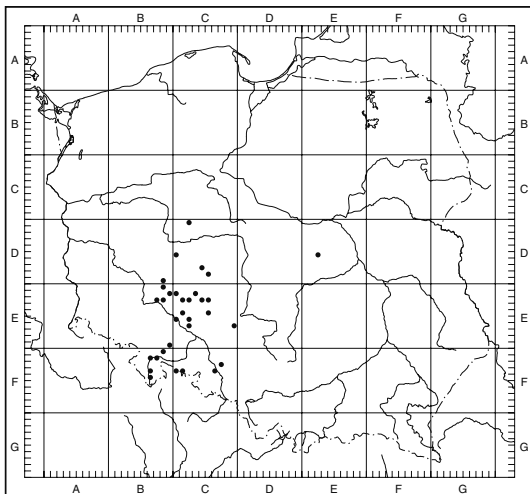


Fig. 128. Distribution of *Rubus chaerophylloides* Sprib. in Poland.

45. *Rubus acanthodes* (H. Hofmann ex Focke) Barber (Figs 129–131)

Abh. Naturf. Ges. Görlitz 27: 320. 1911.

Rubus acanthodes H. Hofmann, Pl. Crit. Sax. Exs. 101. 1900, *nom. nud.*

Basionym: *R. apiculatus* [subsp.] *acanthodes* H. Hofmann ex Focke in Ascherson & Graebner, Syn. mittell-eur. Fl. 6, 1: 583. 1903.

TYPE: Lausitzer Gebirge. Am Kahlen Berge bei Reichenau, 5.08.1899, *Hofmann 361* (JE-F – LECTOTYPE; Weber 1998).

Stems arching, angled, with flat or slightly furrowed sides, persistently patent-hairy, also on prickles. Prickles unequal, 8–12 per 5 cm, the largest ones 5–7 mm long, usually straight, declining, mixed with few small acicles and stalked glands. Leaves 5-foliolate, pedate, partly also 3–4-foliolate, with few to fairly numerous hairs above, rather densely pubescent beneath, with shimmering, pectinately arranged hairs on the veins; stellate hairs absent. Terminal leaflets with short or mid-long petiolules (25–35%), (broadly) elliptical to obovate, rounded or slightly emarginate at the base, with an acuminate apex 10–15 mm long, usually periodically serrate; teeth usually broad, apiculate, some of them retrorse. Basal leaflets with petiolules 1(–2) mm long. Petioles patent-hairy, usually with stalked glands, acicles and numerous curved or straight, declining prickles. Stipules lanceolate. Inflorescence paniculate, truncate at the apex, with 3-foliolate leaves below. Inflorescence axis densely patent-hairy, with strong, straight declining or slightly curved prickles up to 5–6 mm long, mixed with needle-like prickles and stalked glands. Pedicels (1–)1.5–2.5 cm long, long-patent-hairy, with numerous slightly curved prickles up to 4(–4.5) mm long and stalked glands. Sepals grey-green, usually with few prickles, reflexed after anthesis. Petals white, narrowly obovate, *ca* 10 mm long. Stamens longer than styles. Anthers glabrous. Carpels and receptacle hairy. – $2n = 28$ (material from the Czech Republic; Krahulcová & Holub 1998a) – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, hairy; prickles mostly straight, up to 6–7 mm long,

mixed with few acicles and stalked glands; leaves pedate, with shimmering hairs pectinately arranged on the veins; inflorescence axis with slender, usually straight prickles.

The species morphologically intermediate between *R. gracilis* and *R. koehleri*, possibly their stabilised hybrid.

HABITAT. Open forests, clearings, forest margins.

DISTRIBUTION IN POLAND. On few localities in Dolny Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Regional species with the range limited to SE Germany, W Czech Republic and SW Poland.

SPECIMENS SEEN: AE0579 – S of Dębówek, $15^{\circ}06\frac{2}{3}' - 51^{\circ}25\frac{1}{3}'$, Jul 1887, *Barber s.n.* (WRSL); AE0670 – SE of Dębówek, $15^{\circ}07' - 51^{\circ}25\frac{1}{3}'$, 18 Jul 1887, *Barber s.n.* (WRSL); AE2538 – between Dłużyna & Szklenice, $15^{\circ}06' - 51^{\circ}16\frac{2}{3}'$, 13 Aug 1888, *Barber s.n.* (WRSL); AE2549 – near Dłużyna, $15^{\circ}07\frac{1}{2}' - 51^{\circ}16'$, 1889, *Barber s.n.* (WRSL); AE5482 – Trzciniec, $14^{\circ}54\frac{1}{3}' - 50^{\circ}57\frac{1}{2}'$, 25 Jul 1906, *Hofmann s.n.* (BREM); AE6637 – between Nové Město pod Smrkiem & Świeradów Zdrój, $15^{\circ}16\frac{1}{4}' - 50^{\circ}55\frac{1}{4}'$, Sep 1864, *Kuntze s.n.* (WRSL); BD9742 – Cegielnia between Wodniki & Wąsosz, $16^{\circ}43\frac{1}{3}' - 51^{\circ}34\frac{2}{3}'$, 25 Jul 1996, *Zieliński 7/96 & 8/96*

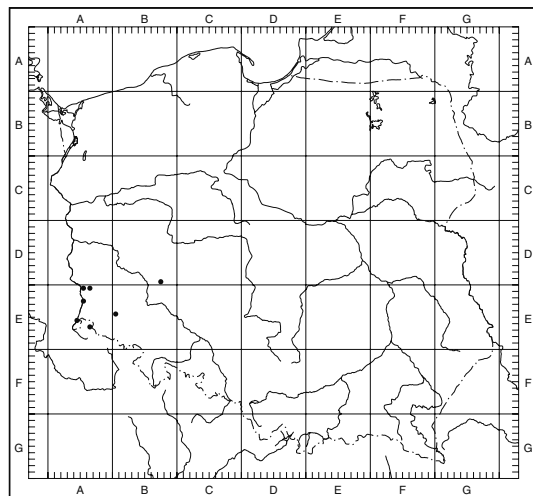


Fig. 129. Distribution of *Rubus acanthodes* (H. Hofmann ex Focke) Barber in Poland.



Fig. 130. *Rubus acanthodes* (H. Hofmann ex Focke) Barber (*Hofmann 500*, BREM). Scale bar = 5 cm.

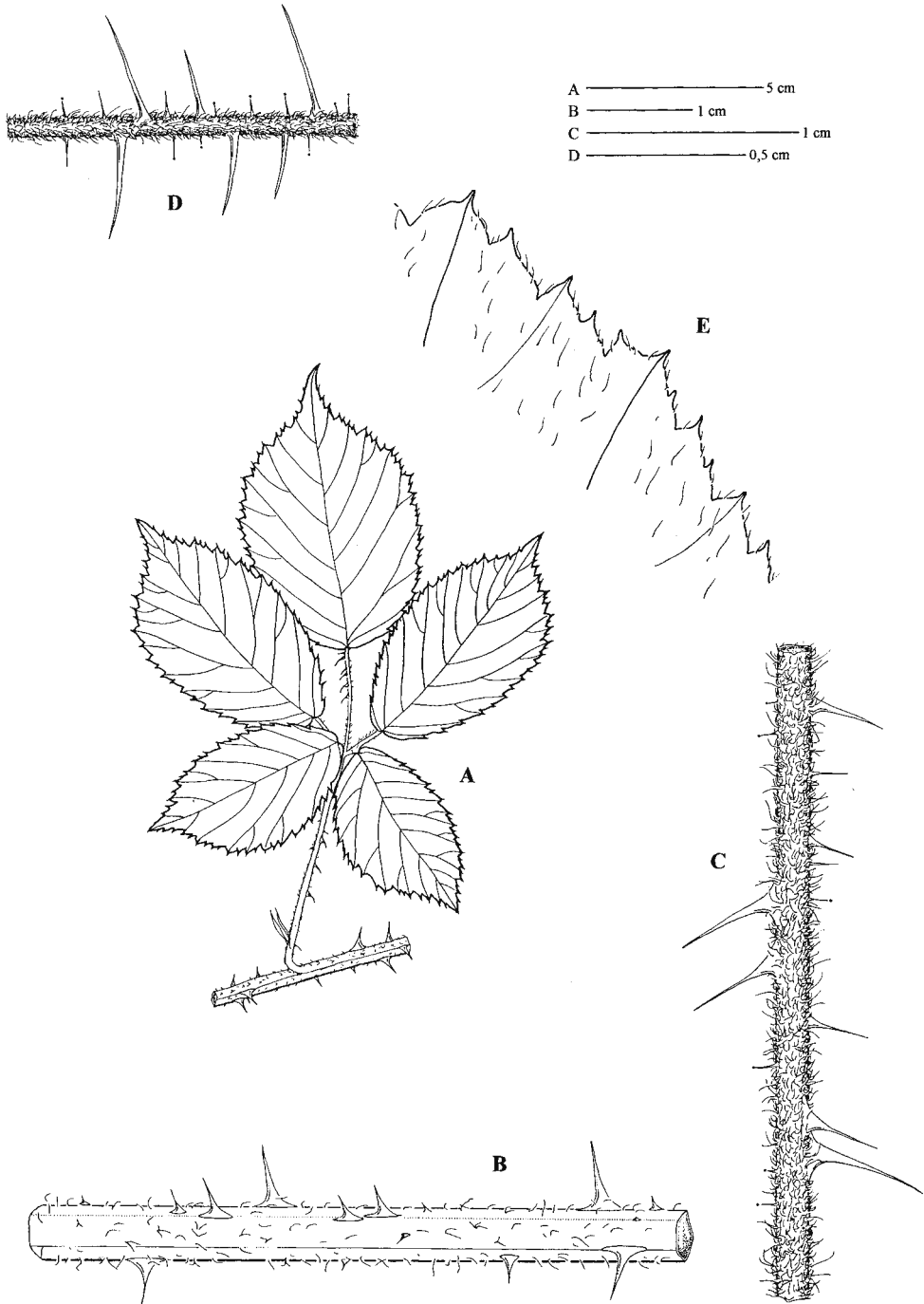


Fig. 131. *Rubus acanthodes* (H. Hofmann ex Focke) Barber. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Hofmann 500, BREM).

(KOR 38272 & 38271); BE4033 – Nowe Łąki, towards Bielanka, 15°45½'–51°07', 19 Jul 1994, *Boratyńska et al.* 91/94 (KOR 32135).

Series *Radulae* (Focke) Focke

Syn. Rub. Germ.: 317. 1877.

Basionym: *Rubus* [Gruppe] *Radulae* Focke, Abh. Naturwiss. Ver. Bremen 1: 295. 1868.

TYPE: *Rubus radula* Weihe

Stems low- to high-arching with large ± uniform prickles and numerous stalked glands, intermediates between them absent or few. Leaves usually greyish, stellate-hairy beneath.

46. *Rubus radula* Weihe in Boenn.

(Figs 132–134)

Prodr. Fl. Monast.: 152. 1824.

Rubus wotoszczakii Piotr. ex Kulesza in Szafer, Fl. Polska 4: 88. 1930. – *R. wotoszczakii* Piotr., Verh. Bot. Ver. Brandenb. 39: xxvii. 1897, *nom. nud.*

TYPE: Minden (= Menninghüffen 3718), *sine die*, *Weihe* (KIEL – LECTOTYPE; Weber 1977).

Stems arching, angular, with flat or slightly furrowed sides, usually suffused violet-red, loosely to rather densely covered with simple, tufted and stellate hairs, with numerous sessile glands, stalked glands 0.2–0.8(–1) mm long, short (gland-tipped) needle-like prickles and acicles. Prickles uniform 5–10(–15) per 5 cm, (5)–6–9(–10) mm long, straight, usually declining, rarely some of them curved; intermediates between large prickles and acicles usually absent. Leaves shortly (1–2 mm) pedate, 5-foliolate, exceptionally (3–)4-foliolate, glabrous and slightly shining above, greyish-green or grey, loosely or densely felted with stellate hairs beneath, besides with longer protruding simple hairs. Terminal leaflets with mid-long or long petiolules (30–40%), elliptic, ovate-elliptic to orbicular, rounded or cordate at the base, with an acuminate apex 10–20 mm long, periodically (2–3 mm deep) serrate(-dentate); principal teeth slightly prominent, distinctly retrorse. Basal leaflets with petiolules 2–3(–5) mm long. Petioles longer than the basal leaflets, rather densely pubescent, with very numerous stalked

glands and strong curved prickles 3–4 mm long. Stipules filiform. Inflorescence conical, rounded at the apex, with 3(–5)-foliolate leaves below. At least the uppermost leaves grey-felted underneath. Inflorescence axis with long spreading simple and tufted hairs and underlayer of stellate hairs. Stalked glands and gland-tipped acicles very numerous, partly exceeding hairs. Prickles slender but with decurrent base, straight, declining, the longest ones up to 7(–8) mm long, usually distinct from acicles. Pedicels 1–1.5 cm long, felted, also with long, patent hairs and very numerous red stalked glands 0.2–0.5 mm long, partly longer than hairs. Prickles needle-shaped, 3–4 mm long, straight, usually slightly declining. Sepals (green) grey, felted, glandular, unarmed or with few small needle-like pricklets, reflexed after anthesis. Petals white or pale pink, obovate, 9–12 mm long. Stamens exceeding styles. Anthers glabrous. Carpels sparsely hairy or glabrous. Receptacle sparsely hairy. – 2n = 28 (Boratyńska 1994). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, hairy and with numerous stalked glands; prickles uniform, large, not grading into acicles and needle-shaped prickles; leaves pedate, usually stellate-hairy and greyish underneath; terminal leaflets with retrorse principal teeth; inflorescence axis with slender, subulate, straight, declining prickles.

Rubus rudis, closely related to this species, can be distinguished by (sub)glabrous stems, leaves less hairy underneath, diffuse inflorescence and shortly hairy pedicels with very numerous protruding stalked glands.

HABITAT. Thickets, forest margins, clearings, open mixed forests.

DISTRIBUTION IN POLAND. Chiefly W and S regions, besides on isolated stands in N Małopolska.

GENERAL DISTRIBUTION. Widespread species. C and W Europe, from Spain through France, Germany to Poland and Romania in the east, from Ireland, Scotland and S Scandinavia in the north to Switzerland, Austria and Hungary in the south.

SELECTED HERBARIUM SPECIMENS. AB1936 – between Bogusławiec & Gołańcz Pomorska, 15°26'–54°04½',



Fig. 132. *Rubus radula* Weihe (Zieliński s.n. (KOR 7217)). Scale bar = 5 cm.

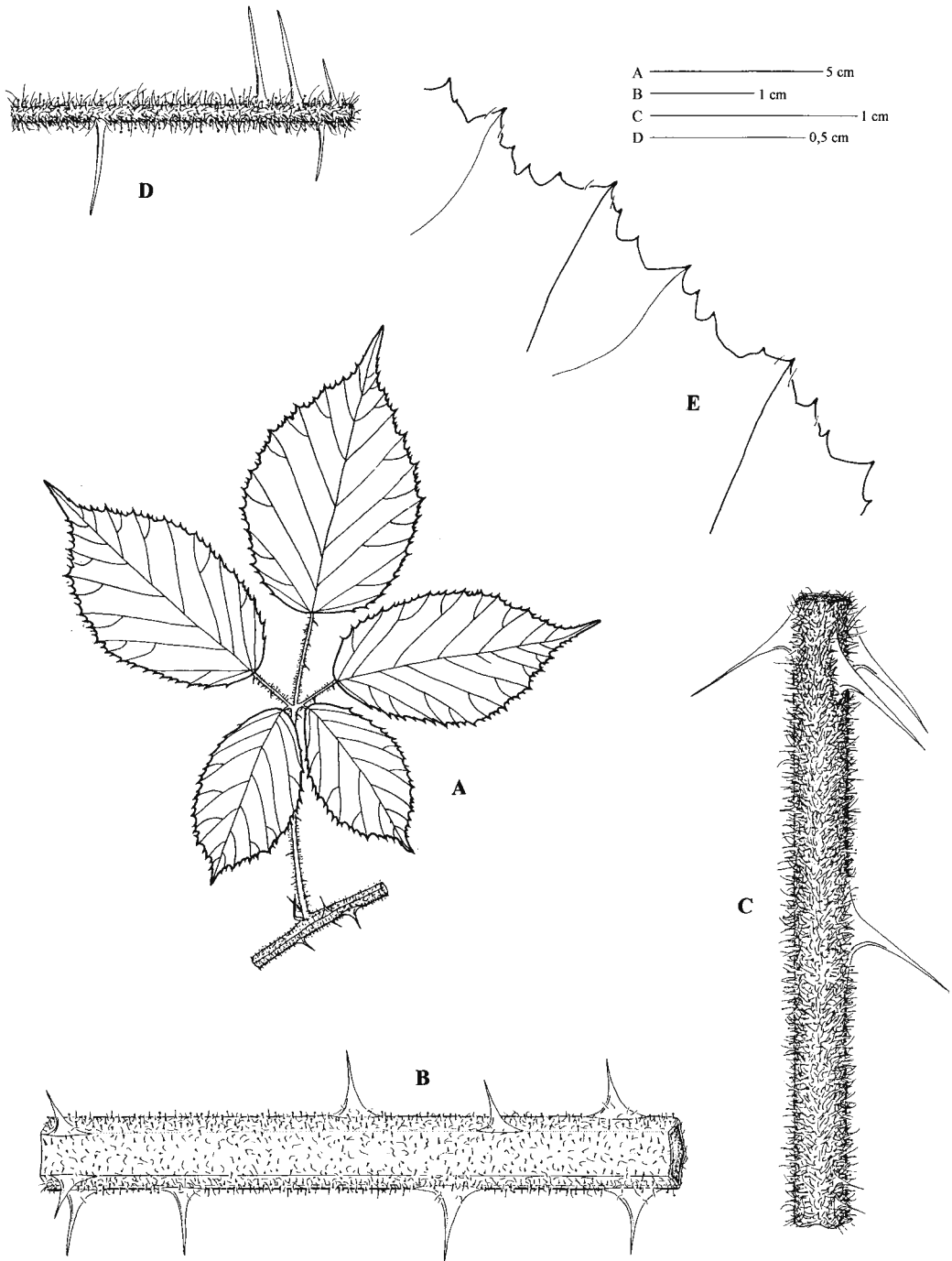


Fig. 133. *Rubus radula* Weihe. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 945, KOR 8656).

14 Jul 1977, *Zieliński* 931 & 932 (KOR 8711 & 8710); AB2658 – Stuchowo, 15°01'–53°57', 14 Jul 1977, *Zieliński* 948 (KOR 8656); AB8488 – near Wielgowo, 14°46'–53°22½', 2 Jul 1992, *Boratyńska, Dolatowska & Zieliński* Z. 3074 (KOR); AB9327 – between Podjuchy & Chlebowo, 14°36½'–53°20', 14 Jul 1856, *Wimmer s.n.* (KOR 10944); AC2923 – by Jezioro Czyste, 2 km NW of Krzęcin, 15°28'–53°05¼', 18 Nov 1995, *Danielewicz s.n.* (POZNF); AC9814 – between Goruńsko & Templewo, 15°23'–52°28', 18 Jul 1975, *Zieliński* 666 (KOR 7209 & 7210); AD0729 – 2 km N of Łagówek, 15°19'–52°22', 17 Jul 1975, *Zieliński* 623 & 627 (KOR 7218 & 7200); AD7967 – between Solniki & Cisów, 15°37½'–51°43', 20 Jun 1968, *Dzwonko s.n.* (KRA 067011); AE5639 – 100 m E of Klin near Świecie, 15°17'–51°00½', 21 Jul 1983, *Boratyński* 614 (KOR 22506); BA6659 – by the road between Jarosławiec & Rusinów, 16°31½'–54°31¾', 24 Jul 1986, *Zieliński* 1518 (KOR); BB2151 – N of Słownko, 15°40½'–53°58', 14 Jul 1977, *Zieliński* 920 (KOR 8708); BC7423 – between Dąbrowa & Sieraków, 1 km of Dąbrowa, 16°14½'–52°40', 1 Jul 1992, *Boratyńska, Dolatowska & Zieliński* Z. 3053 (KOR 29981); BC9746 – near Napaćhanie, 16°44½'–52°28½', 1 Jul 1992, *Boratyńska, Dolatowska & Zieliński* Z. 3051 (KOR 29982); CA5402 – between Wicko & Wrzeście, 17°38¾'–54°40½', 4 Jul 1992, *Boratyńska, Dolatowska & Zieliński* Z. 3112 (KOR); CA8793 – near Rekowo Lake, 18°08'–54°20', 22 Jul 1973, *Markowski s.n.* (UGDA); CC7447 – 2 km NW of Huta Pałędzka, 17°47¼'–52°40', sine die, *Chmiel s.n.* (POZ); CD0800 – 1 km E of Ościslówo, 18°16¾'–52°26¾', 13 Sep 1988, *Chmiel s.n.* (POZ); CD8822 – NW of Szczytniki, by the road to Kalisz, 18°18½'–51°42½', 22 Sep 1988, *Zieliński* 2195 (KOR); CE3661 – Laski, 18°01'–51°13', 12 Sep 1994, *Danielewicz & Maliński s.n.* (POZNF); CF0226 – between Jaczowice & Pielgrzymowice, 17°32½'–50°37½', 20 Jul 1988, *Tomlik & Zieliński* 2422 (KOR 30539a); CF1990 – between Płużnica & Błotnica, 18°27'–50°29', 14 Aug 1913, *Spribille s.n.* (WRSL); DE2926 – Jaksonek, 19°57'–51°20½', 17 Jul 1984, *Andrzejewski s.n.* (LOD); DE9635 – 'Kaliszak' reserve near Dziadówki, 19°30'–50°43', 20 Jun 1974, *Hereźniak s.n.* (LOD); DF0983 – Węgrzynów Stary, 19°54'–50°34¾', 27 Sep 1982, *Rostański s.n.* (KTU); ED1599 – Warszawa-Bemowo, 20°53½'–52°15¾', 1979, *Kwasucka s.n.* (WSRP); ED6793 – Nowa Wieś, 21°05'–51°48¾', 15 Jul 1980, *Głowacki s.n.* (WSRP); EE7590 – Otrocz Mt. near Niestachów, 20°43'–50°49½', 13 Aug 1987, *Zieliński* 1865 (KOR 22964); EE9804 – Jastrzębska Wola, 21°11'–50°43¼', Sep 1896, *Piotrowski s.n.* (LW 111143–111145 & POZ); EF7784 – between Za-

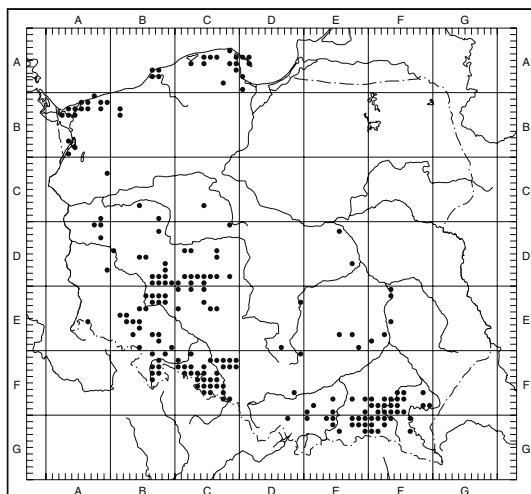


Fig. 134. Distribution of *Rubus radula* Weihe in Poland.

błędzka & Poręba Radlna, 21°01'–49°56', 18 Aug 1988, *Zieliński* 2481 (KOR); FE0397 – Puławy, 21°59½'–51°25½', 4 Jun 1946, *Rewieński s.n.* (LBL); FE5300 – Wólka near Józefów, 21°52'–51°04', 2 Aug 1964, *Fijałkowski s.n.* (LBL); FF6537 – Kraczkowa, 22°10½'–50°02¾', 8 Jul 1992, *Oklejewicz s.n.* (KOR 29299 & 29300 & KRA); FF6835 – Mirocin, 22°34'–50°02', 25 Jun 1992, *Oklejewicz s.n.* (KOR 29267 & 29290 & KRA); FG0694 – by the road between Raczkowa & Mrzyglód, 22°14½'–49°37¾', 8 Jul 1988, *Oklejewicz s.n.* (KOR 22781).

47. *Rubus rudis* Weihe in Bluff & Fingerh.

(Figs 135–137)

Comp. Fl. Germ. 1: 687. 1825.

Rubus jastrzębowski Piotr. ex Kulesza, Acta Soc. Bot. Pol. 7: 118. 1930. – *R. jastrzębowski* Piotr., Verh. Bot. Ver. Brandenb. 39: xxviii. 1897, *nom. nud.*

TYPE: '*R. rudis*' (Weihe scripsit, ex Hb. Kohler), sine loco et die (BREM – LECTOTYPE; Weber 1977).

Stems arching, suffused violet-red, angular, with furrowed or plane sides, glabrous or with very few, scattered, simple or tufted hairs usually at the base of prickles, covered with stalked glands 0.5–2 mm long and short (gland-tipped) acicles. Prickles uniform, 7–12 per 5 cm, straight or some of them curved, 4–6(–7) mm long, strongly decli-



Fig. 135. *Rubus rudis* Weihe (Zieliński s.n., KOR 6821). Scale bar = 5 cm.

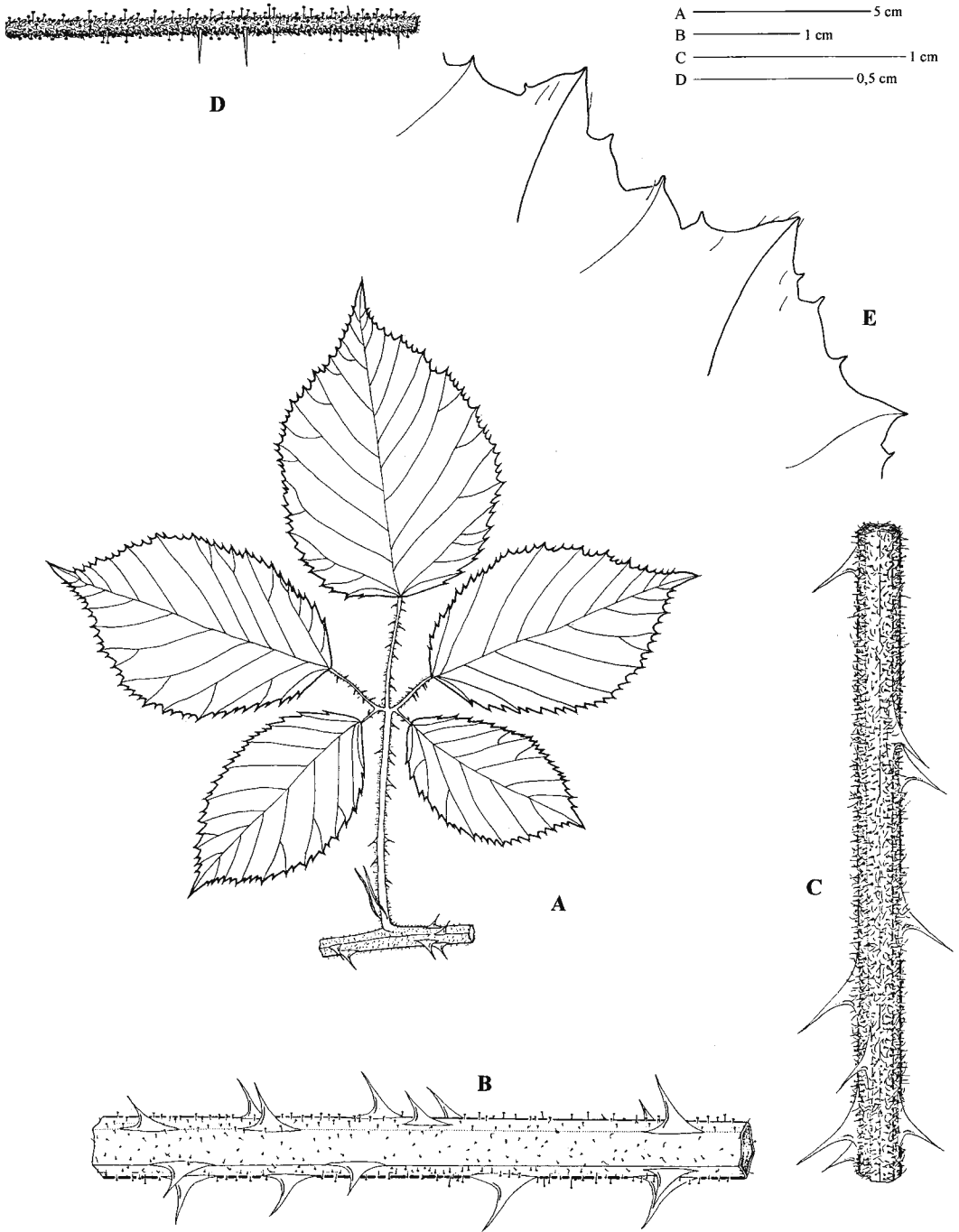


Fig. 136. *Rubus rudis* Weihe. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1044, KOR 8647).

ning, rarely some of them patent. Leaves distinctly pedate, 4–5-foliolate, sometimes also 3-foliolate, glabrous and deep green above, brighter and usually greyish beneath, covered with short stellate hairs and longer simple and tufted hairs. Terminal leaflets with mid-long petiolules (25–35%), elliptic to obovate, rarely suborbicular, rounded or cuneate at the base, with a suddenly acuminate apex 10–20 mm long, periodically dentate-serrate; teeth apiculate, principal ones prominent and distinctly retrorse. Petiolules of basal leaflets 3–5 mm long. Petioles pubescent, with numerous stalked glands especially above, and with numerous curved, usually retrorse prickles. Stipules filiform. Inflorescences rather broad, paniculate, diffuse, with 3-foliolate leaves below. Inflorescence axis angled, loosely covered with stellate and simple, patent hairs, with numerous stalked glands up to 0.5 mm long, glandular acicles and usually straight prickles (2–)3–4 mm long. Pedicels 1–2(–3) cm long, shortly densely pubescent, without or with few long simple hairs, densely glandular; glands short-stalked, deep red, 0.1–0.3 mm long, exceeding hairs. Sepals grey-green-felted, besides with long simple hairs, glandular, patent or ascending after anthesis. Petals pale pink, narrowly elliptic, 6–9 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or slightly hairy. Receptacle hairy. – $2n = 28$ (Boratyńska 1997) – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, (sub)glabrous, abundantly glandular; prickles strong, uniform; leaves distinctly pedate; terminal leaflets periodically serrate with distinctly retrorse principal teeth. Sometimes mistaken for *R. radula* (see remarks at that species).

HABITAT. Thickets, woods, wood margins, clearings.

DISTRIBUTION IN POLAND. Rather common in SE regions, rare in Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: England, Belgium, Holland, France, Switzerland, Germany, Denmark, the Czech Republic, Poland and W Ukraine.

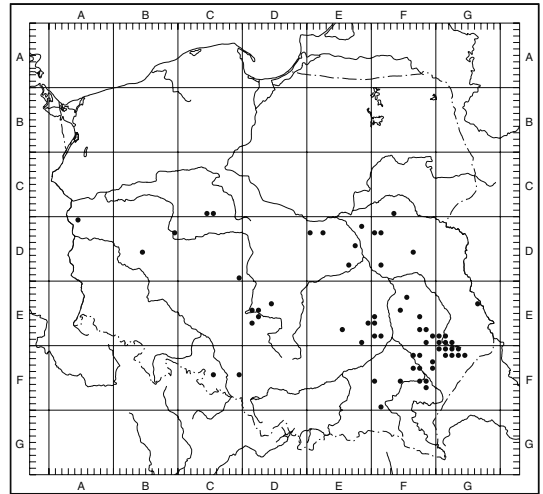


Fig. 137. Distribution of *Rubus rudis* Weihe in Poland.

SELECTED HERBARIUM SPECIMENS. AD0425 – Rzepin, $14^{\circ}49\frac{1}{2}' - 52^{\circ}21'$, 29 Jun 1997, Kozłowski *s.n.* (KOR 39361); BD2947 – 1 km SE of Konarskie, $17^{\circ}04' - 52^{\circ}13'$, 14 Jul 1987, Boratyńska & Zieliński Z. 1921 (KOR 28023); BD5410 – 1 km W of Olejnica, towards Osłonin, $16^{\circ}14\frac{2}{3}' - 51^{\circ}57\frac{1}{2}'$, 19 Jun 1998, Zieliński 5/98 (KOR 39667); CC9553 – 2 km N of Skorzęcin, $17^{\circ}52' - 52^{\circ}29'$, 24 Aug 1988, Chmiel *s.n.* (POZ); CD9989 – Oraczew, $18^{\circ}34' - 51^{\circ}34'$, 1926, *col. ign.* (LW 57034); CF4929 – between Sońnicowice & Gliwice, $18^{\circ}34' - 50^{\circ}16\frac{1}{4}'$, 24 Aug 1915, Spribille *s.n.* (WRSL); CF4583 – Debrzyce, 260 m, $17^{\circ}55\frac{2}{3}' - 50^{\circ}12\frac{3}{4}'$, 5 Jul 2001, Kosiński, Tomaszewski & Zieliński 237 (KOR 43697); DE3479 – Łuszczanowice, $19^{\circ}17' - 51^{\circ}12\frac{2}{3}'$, 5 Jul 1978, Łukasiewicz, Horawska & Piątkowska *s.n.* (LOD); DE6153 – 2 km of Krzepice, by the road to Kłobuck, $18^{\circ}46' - 50^{\circ}57\frac{2}{3}'$, 9 Aug 1974, Zieliński *s.n.* (KOR 6821); ED1812 – Wołomin, $21^{\circ}14\frac{1}{2}' - 52^{\circ}19\frac{1}{2}'$, 20 Oct 1987, Głowacki *s.n.* (WSRP); ED2085 – Braki, $20^{\circ}06' - 52^{\circ}11\frac{1}{2}'$, 30 Aug 1990, Głowacki *s.n.* (WSRP 034981); ED4743 – Orzeszyn, $21^{\circ}05\frac{1}{2}' - 52^{\circ}01\frac{3}{4}'$, 27 Aug 1990, Głowacki *s.n.* (WSRP 034958); ED7687 – Klin-Branieck, $20^{\circ}59\frac{3}{4}' - 51^{\circ}43\frac{1}{2}'$, 6 Aug 1991, Głowacki *s.n.* (WSRP); EE6915 – Wymysłów, $21^{\circ}21\frac{1}{3}' - 50^{\circ}58\frac{2}{3}'$, 11 Jul 1991, Maciejczak *s.n.* (KTC); EE7590 – Otrocz Mt. near Niestachów, $20^{\circ}43' - 50^{\circ}49\frac{1}{2}'$, 28 Jun 1934, Kaznowski *s.n.* (KOR 10973); EE9804 – near Jastrzębska Wola, $21^{\circ}11' - 50^{\circ}43\frac{1}{4}'$, Sep 1896, Piotrowski *s.n.* (POZNB); FC9399 – S of Jartypany, $22^{\circ}05' - 52^{\circ}25'$, 18 Jul 1990, Zieliński 2620 (KOR 23879); FD5615 – Zapowiednik, $22^{\circ}26' - 51^{\circ}56\frac{1}{3}'$, 19 Aug 1970, Fijałkow-

ski s.n. (LBL); FD7113 – near Przylęk, 21°40′–51°46½′, 21 Jun 1994, *Głowacki s.n.* (WSRP); FE2553 – Nałęczów, 22°12½′–51°16¾′, 1 Dec 1982, *Kapuściński s.n.* (KOR); FE5090 – Ostrowiec Świętokrzyski, 21°25½′–50°59½′, 16 Jul 1989, *Maciejczak s.n.* (KTC); FE5778 – near Gałęzów, 22°32½′–50°58¾′, 7 Jul 1958, *Fijałkowski s.n.* (LBL); FF5057 – Bobrowa Wola, 21°29′–50°08′, 3 Aug 1993, *Wayda s.n.* (KRA); GE3627 – Dorohusk, 23°49½′–51°09¾′, 15 Jun 1963, *Fijałkowski s.n.* (LBL); GE9251 – Szewnia, 23°07′–50°37½′, 21 May 1963, *Fijałkowski s.n.* (LBL); GF1433 – near Tomaszów Lubelski, 23°25′–50°27′, Jul 1929, *Koporska s.n.* (LBL).

48. *Rubus salisburgensis* Focke ex Caflisch
(Figs 138–140)

Exc.-Fl. Südöstl. Deutschl.: 93. 1878.

Rubus salisburgensis Focke, Syn. Rub. Germ.: 280. 1877, *nom. prov.*

TYPE: Waginger See, Eisengraben bei Petting, 9.1873, *Progel 68* (JE-F – LECTOTYPE; Weber 1998).

Stems procumbent or low-arching, rather thin, obtusely angled to terete, usually suffused deep purple, loosely hairy, with rather numerous stalked glands up to 0.5(–1) mm long. Prickles 3–5 per 5 cm, 3–4(–5) mm long, slender, straight and somewhat declining or indistinctly curved; intermediates between prickles and stalked glands normally missing. Leaves pedate, (4–)5-foliolate, rarely some of them 3-foliolate, rather small, green and with scattered appressed hairs above, usually densely stellate-hairy beneath, besides with longer, simple protruding hairs, grey-green, grey or rarely almost green. Terminal leaflets with mid-long or long petiolules (30–40%), broadly elliptical to suborbicular, rarely broadly obovate, cordate at the base, with a shortly acuminate apex 5–8(–10) mm long, sometimes almost acute, shallowly (up to 2 mm deep) crenate-serrate; teeth apiculate, uniform or principal ones slightly prominent. Petioles hairy, with stalked glands up to 0.7(–1) mm long and with slightly curved, small prickles. Stipules filiform. Inflorescence conical to almost cylindrical, obtuse at the apex, usually short and rather few-flowered, often leafy almost to the apex. Lower leaves 3-foliolate, their

terminal leaflets broadly obovate to orbicular, very shortly acuminate at the apex. Inflorescence axis densely felted, with longer protruding hairs, numerous stalked glands and slender, slightly curved prickles 2–4 mm long. Pedicels (0.5–)1–1.5(–2) cm long, densely hairy, with protruding stalked glands and several small, needle-like prickles 1–1.5(–2) mm long. Sepals felted, grey-green, glandular and with very small prickles, reflexed after flowering. Petals pink, elliptical, 5–7(–9) mm long. Stamens as long or usually longer than styles. Anthers, carpels and receptacle glabrous. – 2n = 28 (Boratyńska 1998). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems usually procumbent or low-arching, covered with short-stalked glands; prickles uniform, slender; leaves rather small, pedate, 3–5-foliolate, usually greyish beneath; flowers small, pink.

HABITAT. Forest clearings, loose deciduous or mixed forests, forest edges.

DISTRIBUTION IN POLAND. On scattered stands in Śląsk and Wielkopolska, locally common, as in the easternmost part of Sudety.

GENERAL DISTRIBUTION. Widespread species. Central Europe: Austria, Germany, the Czech Republic, Poland.

SELECTED HERBARIUM SPECIMENS. BD8800 – NE of Kawcze, 16°50½′–51°42½′, 6 Aug 1997, *Zieliński 50/97* (KOR); BD8803 – near Kawcze, 16°53′–51°42½′, 6 Aug 1997, *Zieliński 89/97 & 90/97* (KOR 39071 & 39307); BE7864 – SE of Suchowice, 16°56′–50°51′, 18 Jul 1903, *Schalow s.n.* (WRSL); BE7876 – between Podgaj & Głownin, 16°57½′–50°50½′, 9 Aug 1991, *Zieliński 3038 & 3039* (KOR 27968 & 27969); BF1649 – near Bardo Śląskie, 16°44½′–50°30½′, 4 Sep 1908, *Kinscher s.n.* (W); BF2572 – between Pokrzywno & Sokołówka, 600 m, 16°30½′–50°22¾′, 6 Jul 1898, *Baenitz s.n.* (BREM & PR); BF2573 – between Sokołówka & Nowy Wielisław, near Polanica Zdrój, 16°31′–50°23′, 13 Aug 1896, *Baenitz s.n.* (BRA, BRNM 17321/35, KRAM 140917, LW 055510 & PR); BF3617 – Sędzisz Mt. N of Romanów, 16°42¾′–50°21½′, 11 Jul 1991, *Szeląg s.n.* (KRAM); BF3628 – Romanowo, 450 m, 16°43½′–50°20¾′, 12 Jul 1991, *Szeląg s.n.* (KRAM); BF3707 – near Radochów, 440–450 m, 16°51¾′–

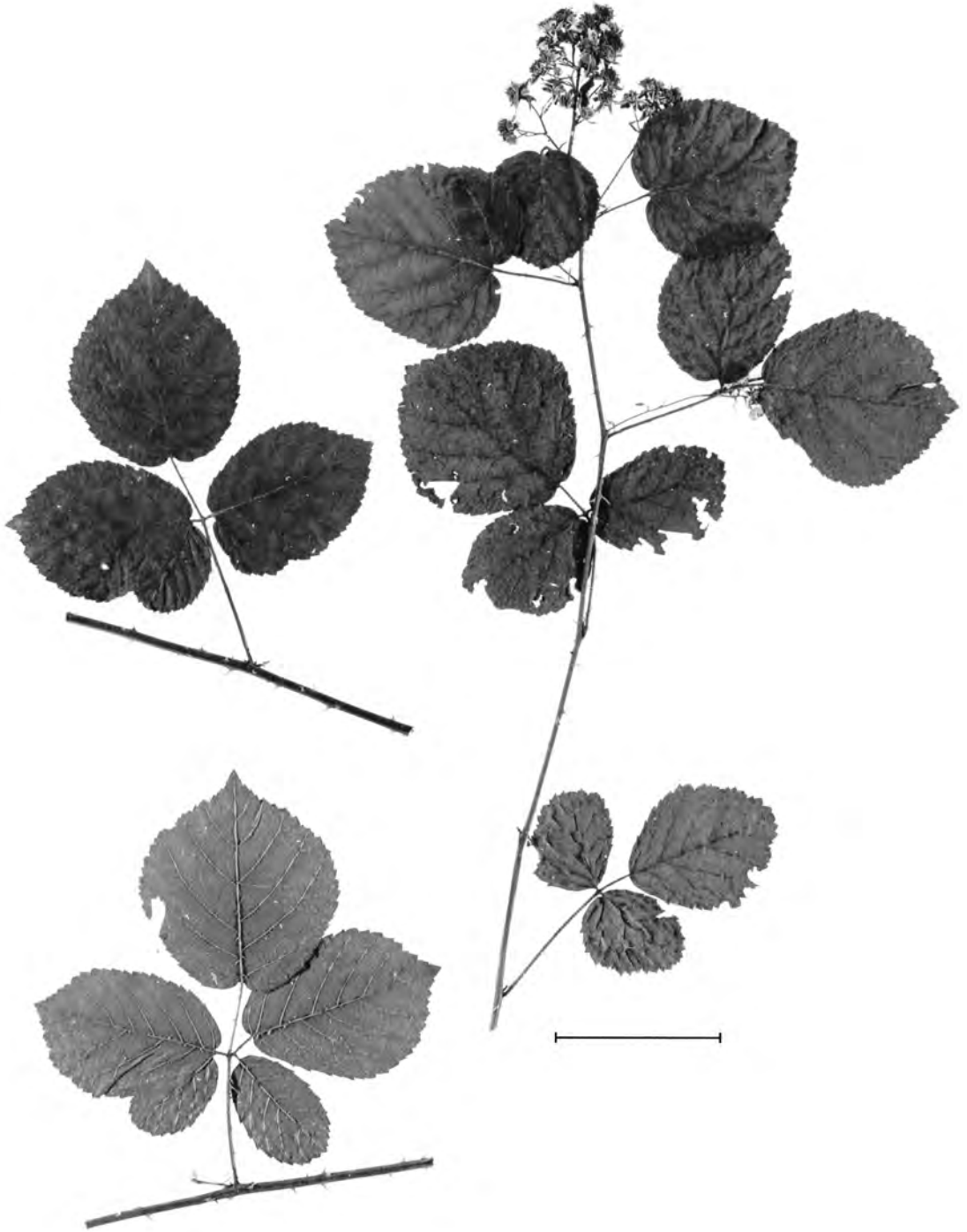


Fig. 138. *Rubus salisburgensis* Focke ex C. A. Tomlik & Z. Zielinski, in Zielinski 2366, KOR 22844). Scale bar = 5 cm.

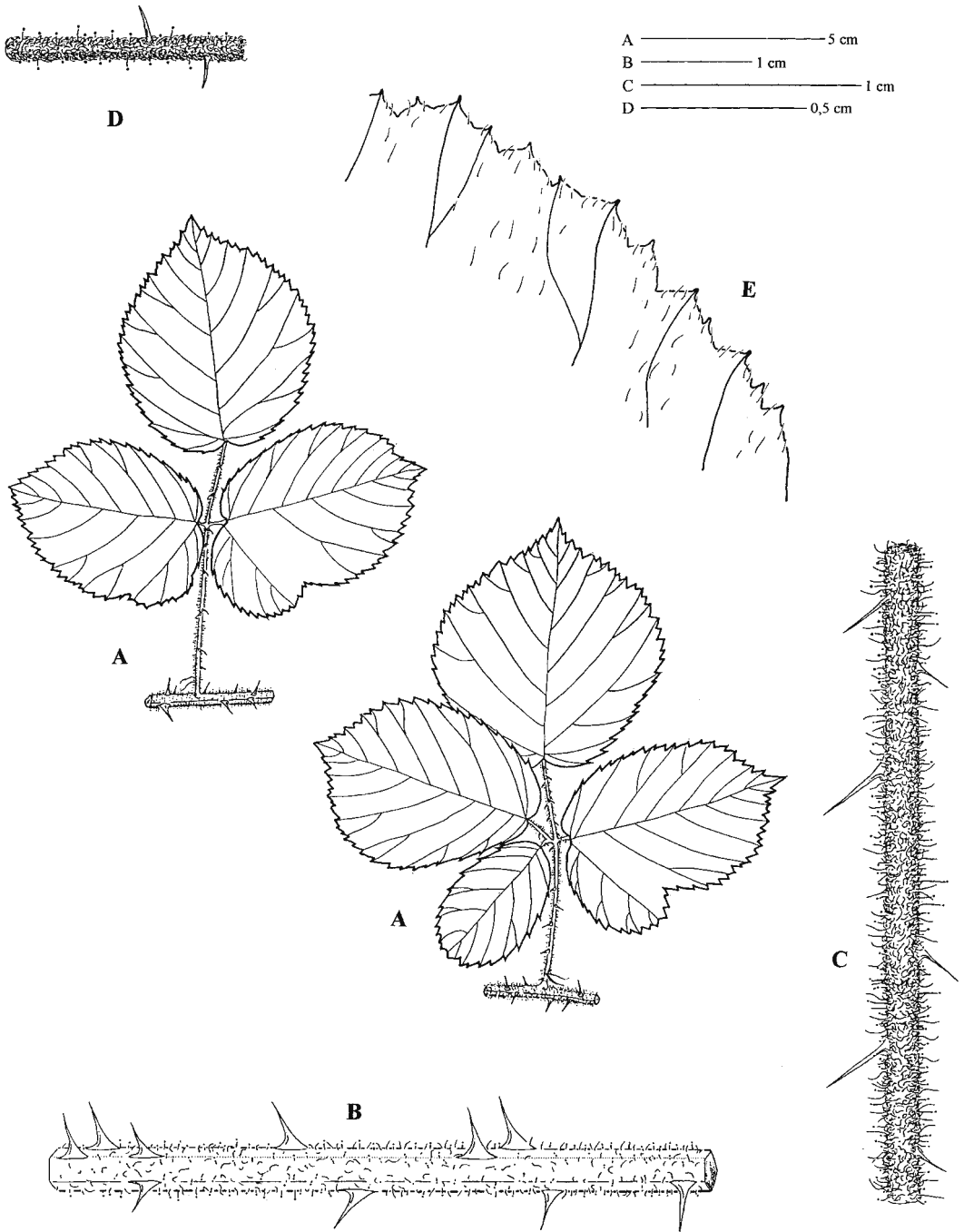


Fig. 139. *Rubus salisburgensis* Focke ex Coflisch. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Tomlik & Zieliński, in Zieliński 2366, KOR 22844).

50°21½', 11 Sep 1995, *Kosiński s.n.* (KOR 38934 & 38965); BF3718 – between Trzykrzyska Mt. & Sędzisz Mt. near Łądek Zdrój, 16°52'–50°21¼', 7 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z.* 26/98 (KOR 39963); BF3718 – SW slopes of Trzykrzyska Mt. in

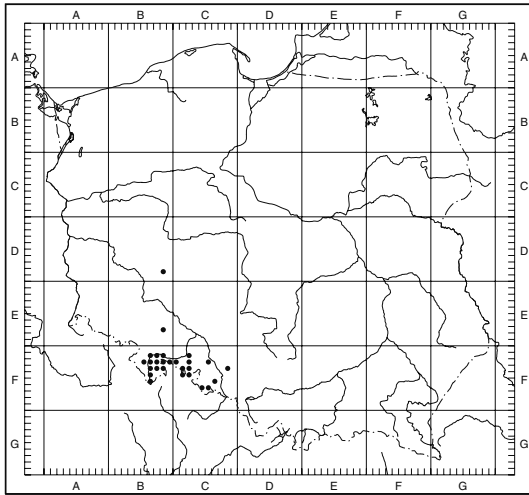


Fig. 140. Distribution of *Rubus salisburgensis* Focke ex Calisch in Poland.

Łądek Zdrój, 16°52½'–50°21', 7 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z.* 28/98 & 31/98 (KOR 39943 & 40007); BF3729 – Łądek Zdrój, 16°53½'–50°20½', Jul 1860, *col. ign.* (KOR 10809); BF3733 – SE of Trzebieszowice, 490 m, 16°48½'–50°20', 13 Sep 1995, *Kosiński s.n.* (KOR 38942 & 38943); BF3737 – SW of Łądek Zdrój, 460 m, 16°51½'–50°20½', 9 Sep 1995, *Kosiński s.n.* (KOR 38807); BF3744 – near Konradów, 440–455 m, 16°49'–50°19½', 14 Sep 1995, *Kosiński s.n.* (KOR 38937 & 38938); BF3748 – Stojków, 475 m, 16°52½'–50°19¾', 23 Jul 1995, *Kosiński s.n.* (KOR 39769); BF3801 – Lutynia, 555 m, 16°54½'–50°21¼', 26 Jul 1995, *Kosiński s.n.* (KOR 39768); BF3810 – S of Lutynia, 530 m, 16°54'–50°21¼', 25 Jul 1995, *Kosiński s.n.* (KOR 39767); BF3821 – Łądek Zdrój, 575 m, 16°54½'–50°20¾', 22 Jul 1995, *Kosiński s.n.* (KOR 39770); BF3871 – by Goszów, 668 m, 16°55'–50°18', 13 Sep 1994, *Kosiński s.n.* (KOR 39762); CF3872 – between Sławęcice & Stara Kuźnia, 18°20'–50°19', 18 Jul 1988, *Tomlik & Zieliński Z.* 2366 (KOR 22844); CF4138 – Srebrna Kopa Mt. near Jarnołtówek, 780 m, 17°26½'–50°15¼', 27 Jul 1999, *Kosiński, Tomaszewski & Zieliński* 150 (KOR 41743).

Series *Pallidi* W. C. Watson

J. Ecol. 33: 344. 1946.

TYPE: *Rubus pallidus* Weihe

As series *Radula* but leaves green, without stellate hairs beneath.

49. *Rubus pallidus* Weihe in Bluff & Fingerh.
(Figs 141–143)

Comp. Fl. Germ. 1: 682. 1825.

TYPE: Minden [*'im Pastorenholz an der Lübker Bergkette nach Süden, oberhalb Beendorf'*, 3617.43], sine die (BREM – LECTOTYPE; Weber 1977).

Stems procumbent or low-arching, terete or obtusely angled, ± densely patent-hairy, with simple and tufted hairs, stalked glands, needle-like prickles and acicles. Prickles 12–20 per 5 cm, (3–)4–5 mm long, slightly curved or straight, declining; intermediates between prickles and stalked glands absent or few. Leaves usually pedate, 3–5-foliolate, dull green and with scattered hairs above, sparsely hairy beneath, sometimes on the veins only. Leaflets not or only slightly contiguous. Terminal leaflets with mid-long petioles (25–30%), ovate to elliptical, cordate at the base, with an acuminate apex 15–20 mm long, periodically serrate; teeth apiculate, principal ones prominent, straight or only slightly retrorse. Petioles rather densely patent-hairy, with stalked glands and strongly curved prickles. Stipules filiform. Inflorescence narrowly conical, often leafy to the apex. Leaves clothed like those of the stems, lower ones 3-foliolate. Inflorescence axis rather densely hairy with straight, patent and shorter stellate hairs. Stalked glands numerous, 0.3–1 mm long, usually shorter than simple hairs. Prickles slender, bright, 3–4(–5) mm long, slightly curved or straight, retrorse. Pedicels densely, shortly hairy, with numerous stalked glands longer than diameter of pedicels. Prickles numerous, indistinctly curved, 1.5–2(–2.5) mm long. Sepals long-acuminate, greenish, white-bordered, with short needle-like prickles and stalked glands, patent or reflexed after anthesis. Petals white, elliptical, 10–12 mm long. Stamens slightly longer than



Fig. 141. *Rubus pallidus* Weihe (*Spribille s.n.*, WRSL). Scale bar = 5 cm.

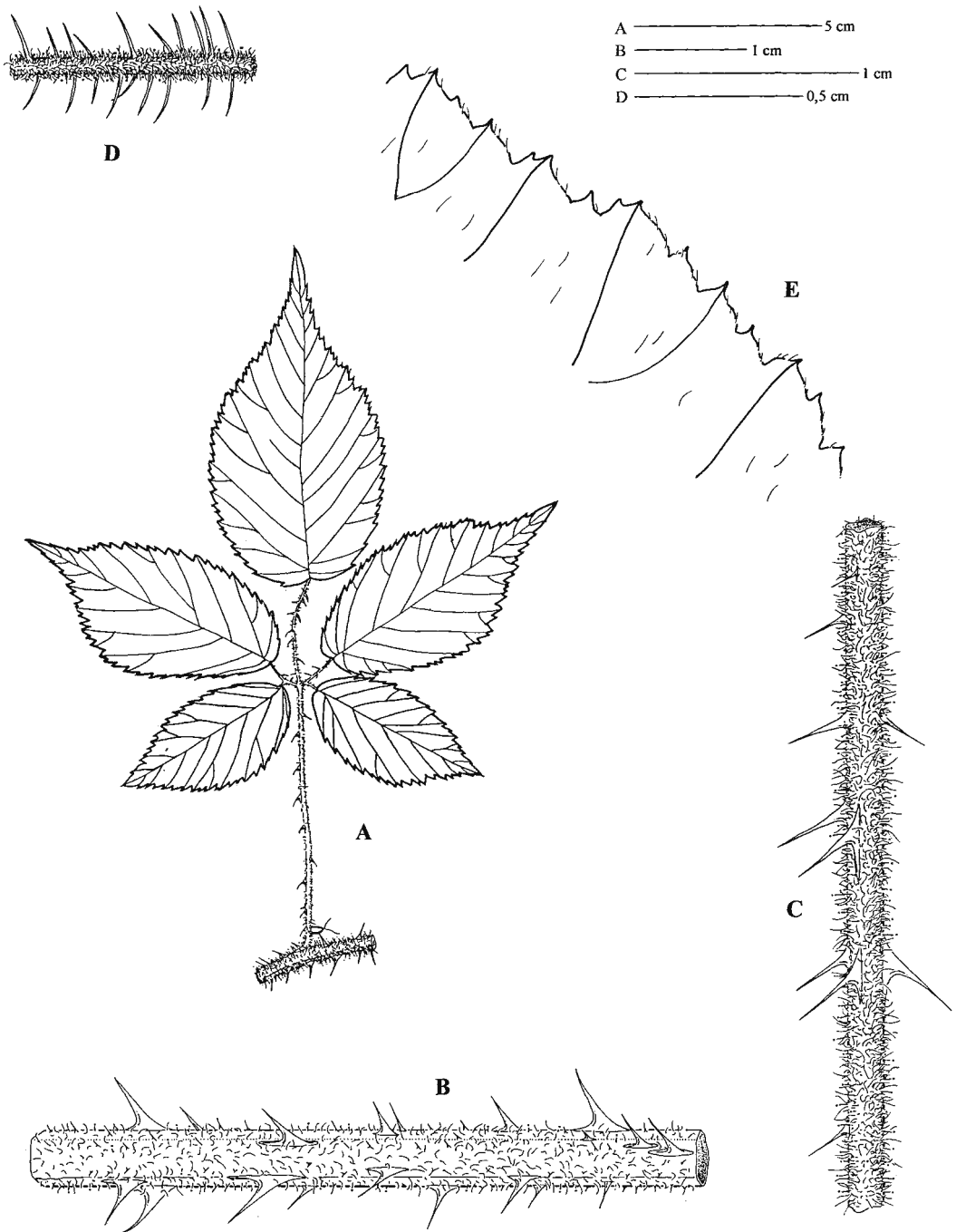


Fig. 142. *Rubus pallidus* Weihe. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribile s.n.*, WRSL).

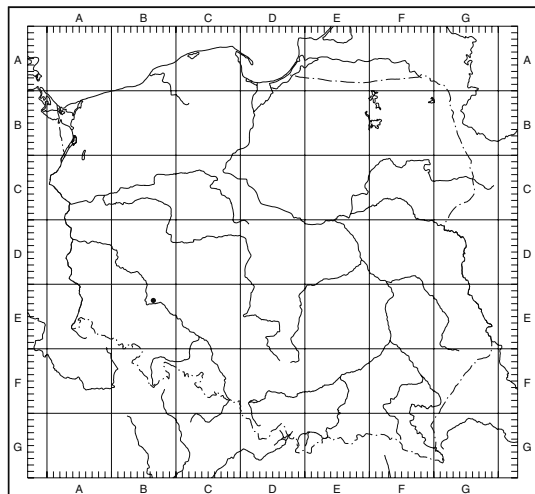


Fig. 143. Distribution of *Rubus pallidus* Weihe in Poland.

styles. Anthers and styles glabrous. Carpels glabrous. Receptacle hairy. – $2n = 28$ (Gustaffson 1933). – Flowering VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching; prickles slender, mixed with small needles and stalked glands; leaves pedate, (almost) glabrous; pedicels with numerous prickles (see remarks at *R. posnaniensis*).

HABITAT. Woods, wood margins.

DISTRIBUTION IN POLAND. Species collected only ones in the vicinity of Wołów in Dolny Śląsk.

GENERAL DISTRIBUTION. Widespread species. NW Europe: Ireland, England, Denmark, Germany, Poland.

SPECIMEN SEEN. BE2602 – near Wołów, by the road to Rudno, $16^{\circ}35\frac{1}{2}' - 51^{\circ}20\frac{1}{2}'$, 14 Sep 1910 & 5 Jul 1912, *Spribille s.n.* (WRSL).

50. *Rubus posnaniensis* Sprib. (Fig. 144–146)

Deutsche Ges. Kunst Wiss. Posen. Zeitschr. Naturwiss. Abt. 9: 123. 1902.

Rubus pallidus subsp. *posnaniensis* (Sprib.) Sprib. in Schube, Fl. Schles.: 211. 1904. – *R. posnaniensis* Sprib., Verh. Bot. Ver. Brandenb. 39: 49. 1897, *nom. prov.*

TYPE: Krotoschin: Wald am Wege nach Chwalischew, 26.08.1899, *Spribille* (WRSL – LECTOTYPE, designated here).

Stems arching, terete to bluntly angled, densely, grey-hairy with simple and tufted hairs, usually \pm pruinose. Prickles 10–15 per 5 cm, 3–4.5 mm long, broad at the base, straight and declining or slightly curved, mixed with small needle-like gland-tipped prickles and stalked glands; intermediates between the largest prickles and stalked glands rather numerous or almost absent. Leaves pedate, 5-foliolate, some of them also 3-foliolate, dull green and rather sparsely hairy to glabrous above, hairy especially on the veins beneath, with simple and tufted hairs. Terminal leaflets with short to mid-long petiolules (20–30%), ovate-elliptical, usually elongate with almost parallel sides, cordate at the base, with a long-acuminate apex 20–25(–30) mm long, (indistinctly) periodically serrate; the serration 3 mm deep; teeth broad, apiculate, the principal ones usually prominent, straight or retrorse. Petiolules of basal leaflets 2–3 mm long. Petioles as long or shorter than the basal leaflets, densely hairy, with curved prickles, small straight pricklets and stalked glands. Stipules usually filiform. Inflorescence narrowly conical, rather compact, leafy almost to the apex, with 3-foliolate leaves below. Inflorescence axis rather densely hairy, its surface scarcely visible through the indumentum. Prickles 3–5 mm long, slender but strong, straight or curved and declining. Straight needle-like pricklets and stalked glands numerous, the latter usually not exceeding the hairs. Pedicels 1–1.5(–2) cm long, densely hairy. Prickles usually numerous 2–2.5(–3) mm long, straight or indistinctly curved, sometimes somewhat declining. Stalked glands 0.3–0.8 mm long, the longest ones exceeding hairs. Sepals narrow, grey-green, glandular and acicular, patent or somewhat reflexed after anthesis. Petals white, narrowly elliptical, 9–10(–11) mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or hairy. Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems terete or obtusely angled, hairy, \pm pruinose; leaves



Fig. 144. *Rubus posnaniensis* Sprib. (*Kinscher s.n.*, PR). Scale bar = 5 cm.

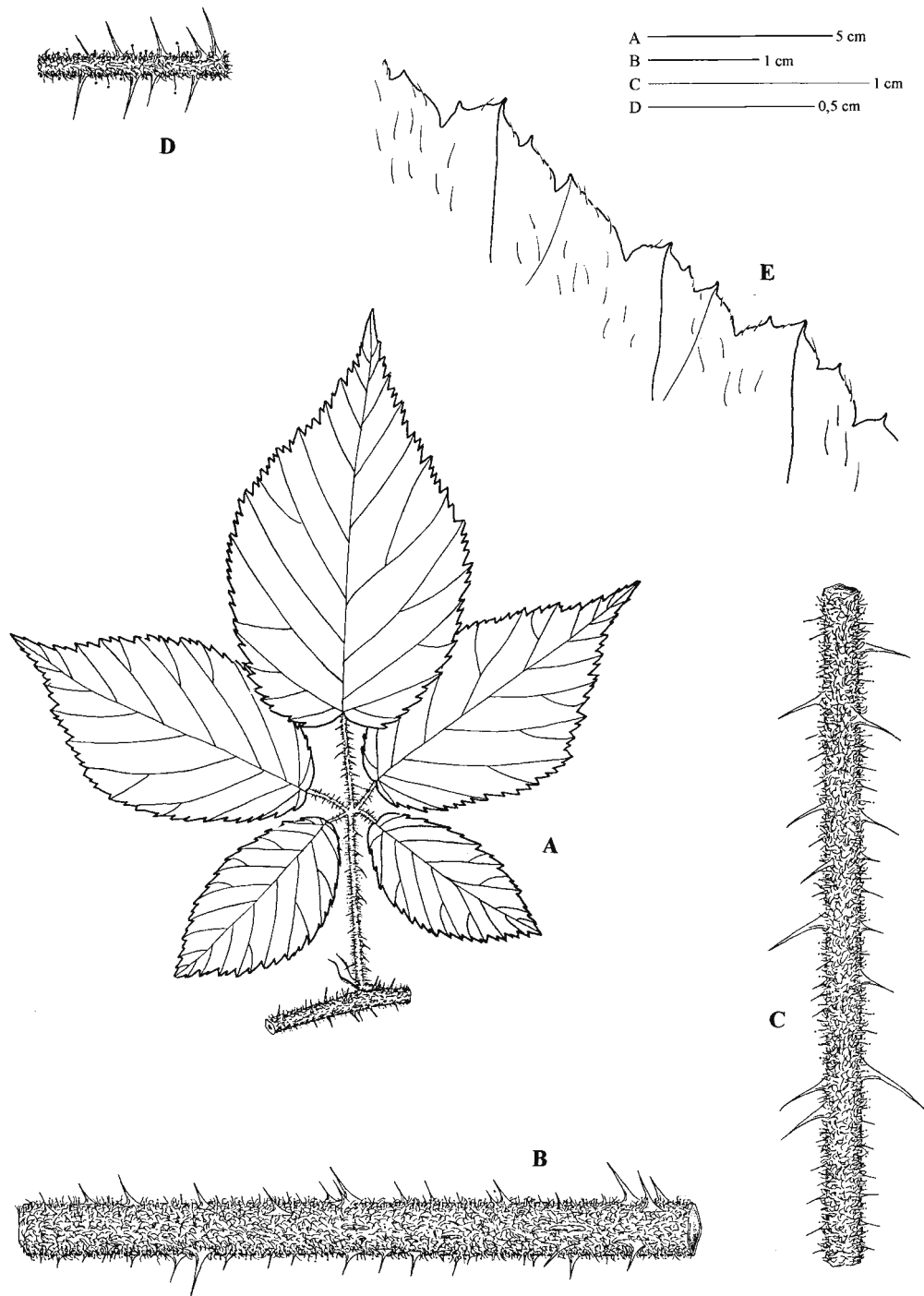


Fig. 145. *Rubus posnaniensis* Strib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribille s.n.*, BREM).

(3–)5-foliolate, terminal leaflets elongate with almost parallel sides.

Species closely related to *R. pallidus*, from which it differs by densely pubescent, glaucous stems, more hairy leaves and different area of distribution.

HABITAT. Wood margins, clearings, forest way-sides.

DISTRIBUTION IN POLAND. S Wielkopolska, Śląsk.

GENERAL DISTRIBUTION. Regional species known mainly from Poland. Recently found by the author in several places in NE Czech Republic (vouchers in Kórnik, e.g. *Zieliński 98/118*, KOR 39908).

SELECTED HERBARIUM SPECIMENS. BF1632 – Wojbórz, 16°38½'–50°30¾', 3 Jul 1905, *Kinscher s.n.* (PR); BF1809 – between Niedźwiedz & Starczów, 17°01'–50°32½', 16 Oct 1910, *Spribille s.n.* (WRSL); BF2563 – Nowa Sokołówka, 16°31'–50°23½', 8 Oct 1902, *Spribille s.n.* (WRSL); BF4604 – Wilkanów, 405 m, 16°40½'–50°16½', 28 Sep 1995, *Kosiński s.n.* (KOR 38771); CC9854 – 1 km N of Skulsk, 18°20'–52°29½', 12 Jul 1993, *Chmiel s.n.* (POZ); CD6463 – near Taczanów, 17°44½'–51°50½', 1998, *Czarna s.n.* (POZ); CD8155 – 1.5 km SE of Hadrianów, 17°20½'–51°40', 8 Aug 1996, *Zieliński 64/96* (KOR 38274); CD8282 –

1 km E of Chachalnia, 17°27'–51°38½', 10 Jul 1995, *Zieliński s.n.* (KOR 32256, 32258 & 32259); CD9767 – between Brzeziny & Ostrów Wielkopolski, 18°14½'–51°35', 28 Jul 1977, *Zieliński 1096* (KOR 8693); CE1037 – near Skoroszów towards Milicz, 17°14'–51°25', 26 Oct 1911, *Spribille s.n.* (WRSL); CE5063 – between Siechnice & Święta Katarzyna, 17°12'–51°01¾', 6 Jul 1911, *Spribille s.n.* (WRSL); CE6106 – Gorzucha SE of Nowy Dwór, 17°23½'–51°00', 22 Jul 1902, *Spribille s.n.* (WRSL); CE6328 – between Miodary & Żaba, 17°42'–50°59¼', 8 Oct 1913, *Spribille s.n.* (WRSL); CF0442 – between Szydłów & Komprachcice, 17°46'–50°36¾', 9 Oct 1909, *Spribille s.n.* (WRSL); CF0779 – between Rozmierka & Kadłub, 18°17'–50°35', 6 Sep 1907, *Spribille s.n.* (WRSL); CF1790 – Wysoka, 18°09½'–50°28½', 27 Jul 1899, *Spribille s.n.* (WRSL); CF1990 – by the road between Blotnica Strzelecka & Płużnica Wielka, 18°26½'–50°29', 14 Aug 1913, *Spribille s.n.* (WRSL); CF2944 – Boguszyce, 18°30'–50°26¼', 26 Aug 1916, *Spribille s.n.* (WRSL); CF3179 – 2 km NW of Moszczanka, 330 m, 17°27'–50°18½', 28 Jul 1999, *Kosiński, Tomaszewski & Zieliński 170* (KOR 41726); CF3270 – 2 km NW of Moszczanka, 330 m, 17°27½'–50°18½', 28 Jul 1999, *Kosiński, Tomaszewski & Zieliński 169* (KOR 41727); CF3297 – near Prudnik by the road to Dębowiec, 17°33½'–50°17¾', 29 Jul 1902, *Spribille s.n.* (WRSL); CF3641 – between Twardawa & Pokrzywnica, 18°02'–50°20½', 9 Aug 1907, *Spribille s.n.* (WRSL); CF3753 – near Kędzierzyn-Koźle by the road to Pogorzelec, 18°12½'–50°20½', 14 Oct 1905, *Spribille s.n.* (WRSL); CF4409 – 2 km SE of Szonów, 17°52'–50°17½', 16 Jul 1988, *Tomlik & Zieliński Z. 2262* (KOR 22871); CF5838 – between Kolonia Renerowska & Jankowice Rudzkie, 18°25'–50°10¾', 17 Aug 1918, *Spribille s.n.* (WRSL); CF6401 – 2 km N of Bliszczyce, 388 m, 17°45½'–50°06½', 12 Sep 1999, *Kosiński & Zieliński 72/99* (KOR 41707); DE4147 – between Krzeczów & Szczyty, 18°49½'–51°09¼', 26 Jul 1977, *Zieliński 1031* (KOR 8681); DF1161 – near Brynek, 18°44½'–50°30½', 6 Aug 1908, *Spribille s.n.* (WRSL).

51. *Rubus schnedleri* H. E. Weber

(Figs 147–149)

Osnabrücker Naturwiss. Mitt. **15**: 109. 1989.

TYPE: Böschung am Forstweg in Abt. 44, Osthang 'Hainbühl' südwestlich Modau. 1.7.1989, 20.8.1989. *Schnedler 536/89* (B – HOLOTYPE).

Stems high-arching, obtusely angled to subterete, suffused violet-red, loosely-patent-hairy with simple

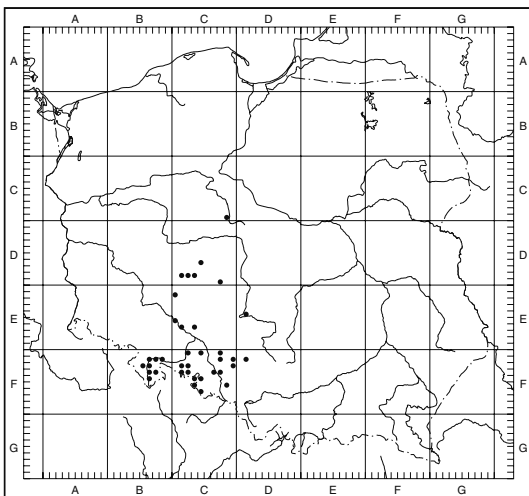


Fig. 146. Distribution of *Rubus posnaniensis* Sprib. in Poland.



Fig. 147. *Rubus schnedleri* H. E. Weber (*Zieliński* 2616, KOR 24371). Scale bar = 5 cm.

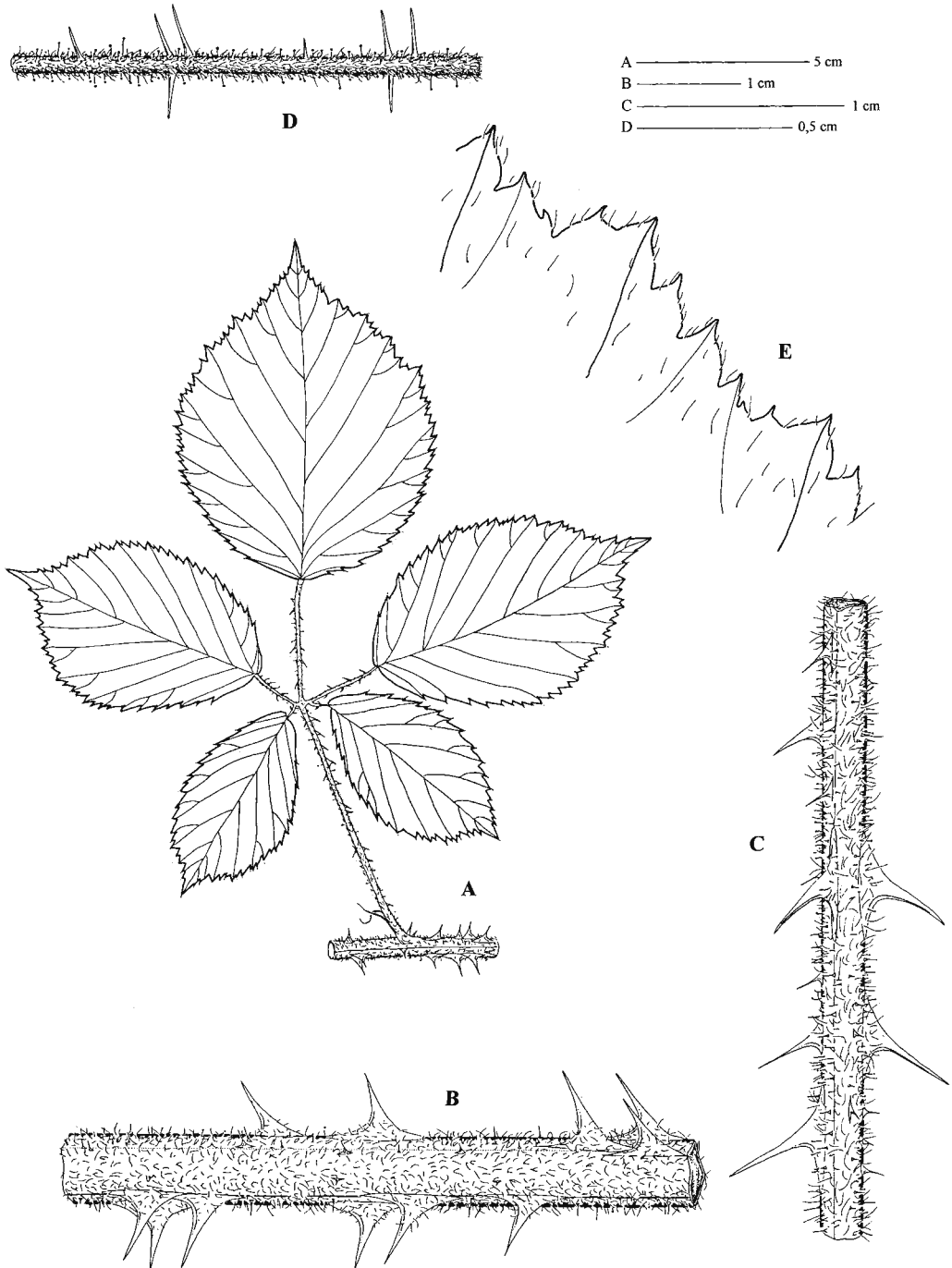


Fig. 148. *Rubus schnedleri* H. E. Weber. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Zieliński 1730, KOR 24375*).

and tufted hairs, sometimes also with stellate hairs. Stalked glands or only stalks rather numerous, 0.5–0.8 mm long. Prickles straight, slightly declining, rather stout-based, (4–)5–6 mm long, 10–15 per 5 cm, usually hairy, at least at the base. Intermediates between largest prickles and stalked glands absent or few. Leaves mostly 5-foliolate, pedate, rarely 3–4-foliolate, with scattered hairs above, usually sparsely hairy beneath, without stellate hairs. Terminal leaflets with mid-long or long petiolules (30–45%), broadly ovate, broadly elliptical to suborbicular, rounded or shallowly cordate at the base, with a shortly acuminate, recurved apex 10–15 mm long, periodically serrate; principal teeth prominent, some of them recurved. Petioles usually distinctly longer than basal leaflets, loosely, patent-hairy, with stalked glands and curved or straight, distinctly retrorse prickles. Stipules (linear-)lanceolate. Inflorescence rather regularly conical, paniculate, occasionally also racemose, leafless above, with 3-foliolate leaves at the base. Inflorescence axis patent-hairy mainly with long simple and tufted hairs, but also with few stellate hairs above, besides with numerous stalked glands and strongly curved to almost straight, declining prickles. Pedicels 1–2 cm long, rather loosely hairy, with stalked glands 0.5–1(–1.5) mm

long. Prickles straight, needle-like, 1–1.5 mm long. Sepals felted, besides with long patent hairs, stalked glands and needle-like pricklets, embracing the fruit or partly patent. Petals elliptical, 9–12 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous. Receptacle sparsely hairy. Petals, stamens, styles purple or pink (in sunny places), at least when alive. – $2n = 28$ (Boratyńska 1994). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Easy to recognise by usually deep purple flowers, sparsely hairy leaves, patent-hairy, glandular stems and uniform prickles. It resembles *R. radula*, but the latter species has usually white or pale pink flowers and leaves stellate-hairy beneath.

HABITAT. Wood margins, clearings, on rather rich and moderately wet soils.

DISTRIBUTION IN POLAND. C and E regions, abundantly in places, in scattered sites in W part of the country.

GENERAL DISTRIBUTION. Widespread species with the disjunctive range. Poland and SW Germany (Hessia), both areas being separated by a distance of about 750 km.

SELECTED HERBARIUM SPECIMENS. BD1842 – Wiry, $16^{\circ}50\frac{1}{3}' - 52^{\circ}18'$, 13 Sep 1995, Zieliński s.n. (KOR 32696); CD8586 – Kęszyce, $17^{\circ}56\frac{1}{2}' - 51^{\circ}39\frac{1}{6}'$, 16 Jul 1997, Zieliński 63/97 (KOR 39090); DD7657 – Łódź, $19^{\circ}32\frac{1}{2}' - 51^{\circ}46'$, Jul 1989, Witostawski s.n. (LOD); DE2927 – Jaksonek, $19^{\circ}58' - 51^{\circ}20\frac{1}{2}'$, Zieliński s.n. 13, 19, 25 & 26 Jul 1984, Andrzejewski s.n. (LOD); EC6997 – Dalekie-Tartak, $21^{\circ}29' - 52^{\circ}41\frac{2}{3}'$, 13 Aug 1990, Głowacki s.n. (WSRP 034844); EC8781 – Łacha, $21^{\circ}05\frac{1}{2}' - 52^{\circ}32'$, 7 Sep 1995, Głowacki s.n. (WSRP); EC9397 – Henrysin, $20^{\circ}35' - 52^{\circ}26\frac{3}{4}'$, 2 Jul 1990, Głowacki s.n. (WSRP 034492); ED2085 – Braki, $20^{\circ}06' - 52^{\circ}11'$, 30 Aug 1990, Głowacki s.n. (WSRP 034975); ED3536 – Suchy Las, $20^{\circ}50\frac{1}{2}' - 52^{\circ}08'$, 12 Oct 1989, Głowacki s.n. (WSRP 34381); ED7687 – Klin-Branieck, $20^{\circ}59\frac{3}{4}' - 51^{\circ}43\frac{1}{2}'$, 6 Aug 1991, Głowacki s.n. (WSRP); ED8435 – Dąbrowa, $20^{\circ}39\frac{5}{6}' - 51^{\circ}41\frac{1}{2}'$, 26 Jun 1971, Gabara s.n. (LOD); ED9098 – Konewka, $20^{\circ}08' - 51^{\circ}33\frac{1}{4}'$, 10 Jul 1952, Bugała s.n. (KOR 109); EE1888 – Grzmucin, $21^{\circ}16\frac{1}{2}' - 51^{\circ}21\frac{5}{6}'$, 13 Aug 1993, Głowacki s.n. (WSRP 36710); FC7575 – Holendernia, $22^{\circ}20' - 52^{\circ}36\frac{3}{5}'$, 3 Jul 1981, Głowacki s.n. (WSRP 033686); FC9389 – Jarty-

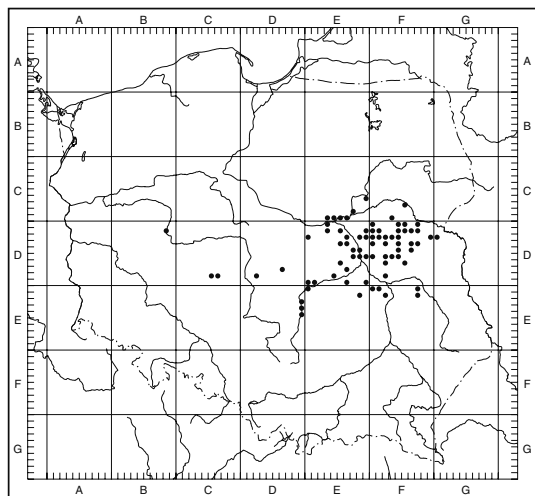


Fig. 149. Distribution of *Rubus schnedleri* H. E. Weber in Poland.

pory, 22°05'–52°25½', 18 Jul 1990, *Zieliński 2619* (KOR 23881); FD0752 – W of Bartków Nowy, 22°33½'–52°20½', 30 Jul 1991, *Głowacki s.n.* (WSRP); FD2972 – Huszlew, 22°50'–52°08½', 1 Jul 1989, *Wereszczyńska s.n.* (WSRP 034808); FD4671 – 1 km SW of Wólka Zagórnica, 22°22'–51°58½', 20 Jul 1990, *Zieliński 2642* (KOR); FD8230 – Życzyn Mika, 21°45½'–51°40', 3 Aug 1990, *Głowacki s.n.* (WSRP 034876); FE1703 – Dąbrówka, 22°30'–51°24½', 17 Jun 1964, *Fijałkowski s.n.* (LBL); GD2022 – Kępa, 22°59'–52°10¾', 26 Jun 1999, *Głowacki s.n.* (WSRP).

52. *Rubus oboranus* (Sprib.) Sprib.

(Figs 150–152)

Verh. Bot. Ver. Brandenb. **93**: 194. 1907.

Rubus oboranus Sprib., Verh. Bot. Ver. Brandenb. **42**: 167. 1900, *nom. prov.*

Basionym: *R. mucronatus* var. *oboranus* Sprib., Jahresh. Schl. Ges. Vaterl. Cult. **53**: 167. 1905.

TYPE: 'Obora' (not found); Groß Strehlitz: Balzano-witzer Wald, 8.9.1916, *Spribille s.n.* (WRSL – NEO-TYPE, designated here).

Stems procumbent or low-arching, terete or obtusely angled, patent-hairy with simple and tufted hairs, with slender (glandular) acicles and stalked glands, rarely the latter absent. Prickles rather unequal, 10–20 per 5 cm, 3–5 mm long, curved, rarely straight, declining, stout-based. Intermediates between prickles and stalked glands rather numerous or almost missing. Leaves 3-foliolate, dull, glabrous or with scattered, adpressed hairs above, sparsely hairy beneath, without stellate hairs. Terminal leaflets with short or mid-long petiolules (25–35%), suborbicular to broadly obovate, entire and cordate at the base, with a suddenly or gradually acuminate apex 5–10(–15) mm long, finely and evenly serrate. Petiolules of lateral leaflets 4–5 mm long. Petioles hairy, with rather numerous weakly curved, declining prickles, needle-like pricklets and stalked glands. Stipules narrowly lanceolate to filiform. Inflorescence shortly conical, usually leafy almost to the top, with 3-foliolate leaves below. Inflorescence axis hairy, with stalked glands and needle-like acicles. Prickles 2–3(–5) mm long, straight, slender, retrorse. Pedicels 1–1.5(–2) cm long, shortly hairy, with few to numerous stalked glands exceeding hairs. Sepals

grey-felted, with needle-like pricklets and stalked glands, patent after anthesis. Petals pale-pink (?). Stamens longer than styles. Carpels densely hairy. Receptacle hairy. – 2n = ? – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. The largest prickles curved, broad-based; leaves 3-foliolate, sparsely hairy, without stellate hairs; terminal leaflets suborbicular to broadly obovate, evenly, finely serrate; carpels densely hairy. The species known chiefly from old herbarium specimens. Its distribution needs further investigations.

HABITAT. Open broad-leaf forests, clearings, forest edges.

DISTRIBUTION IN POLAND. Known only from the valley of upper course of the Odra River in Śląsk.

GENERAL DISTRIBUTION. Regional species, probably endemic to Poland.

SPECIMENS SEEN. BE9926 – between Romanów & Krzywina, 17°07'–50°42½', 26 Jun & 28 Aug 1914, *Spribille s.n.* (WRSL); CF0779 – between Rozmierka & Kadłub, 18°17'–50°35', 6 Sep 1907, *Spribille s.n.* (WRSL); CF1832 – Strzelce Opolskie, 18°19½'–50°32', 24 Aug 1907, *Spribille s.n.* (WRSL); CF1898 – near Blotnica Strzelecka towards Toszek, 18°25'–50°28¾', 14 Aug 1913, *Spribille s.n.* (WRSL); CF2601 – Obrowiec, 18°02½'–50°28½', 31 Aug 1907, *Spribille s.n.* (WRSL); CF2614 – between Obrowiec & Krępna, 18°05'–50°27½', 31 Aug 1907, *Spribille s.n.* (WRSL); CF2720 – Święta Anna Mt. near Leśnica, 18°10'–50°27¼', 6 Aug 1905, *Spribille s.n.* (WRSL); CF2729 – SE of Olszowa, 18°17½'–50°27', 5 Aug & 3 Sep 1907, *Spribille s.n.* (WRSL); CF2749 – Klucz, 18°17'–50°26', 7 Sep 1907, *Spribille s.n.* (WRSL); CF2752 – by the road between Księża Wieś & Leśnica, 18°11½'–50°25½', 29 Jul 1899, *Spribille s.n.* (WRSL); CF2752 – Leśnica, 18°11½'–50°25½', 31 Jul 1905, *Spribille s.n.* (WRSL); CF2805 – Balczarowice, 18°22½'–50°28', 8 Sep 1916, *Spribille s.n.* (WRSL); CF2844 – near Jaryszów, N of the road between Jaryszów & Nogawczyce, 18°22'–50°26¼', 8 Sep 1916, *Spribille s.n.* (WRSL); CF2900 – Płużnica Wielka, 18°27'–50°28½', 14 Aug 1913, *Spribille s.n.* (WRSL); CF2944 – Boguszyce, 18°30'–50°26¼', 26 Aug 1916, *Spribille s.n.* (WRSL); CF2985 – near Bycina, 18°31'–50°24', 25 Aug 1915, *Spribille s.n.* (WRSL); CF3851 – near Sławięcice, 18°19½'–50°20', 29 Aug 1917, *Spribille s.n.* (WRSL); CF3944 – between Rudzaniec & Kleszczów, 18°30'–50°20¾', 24 Aug 1915,

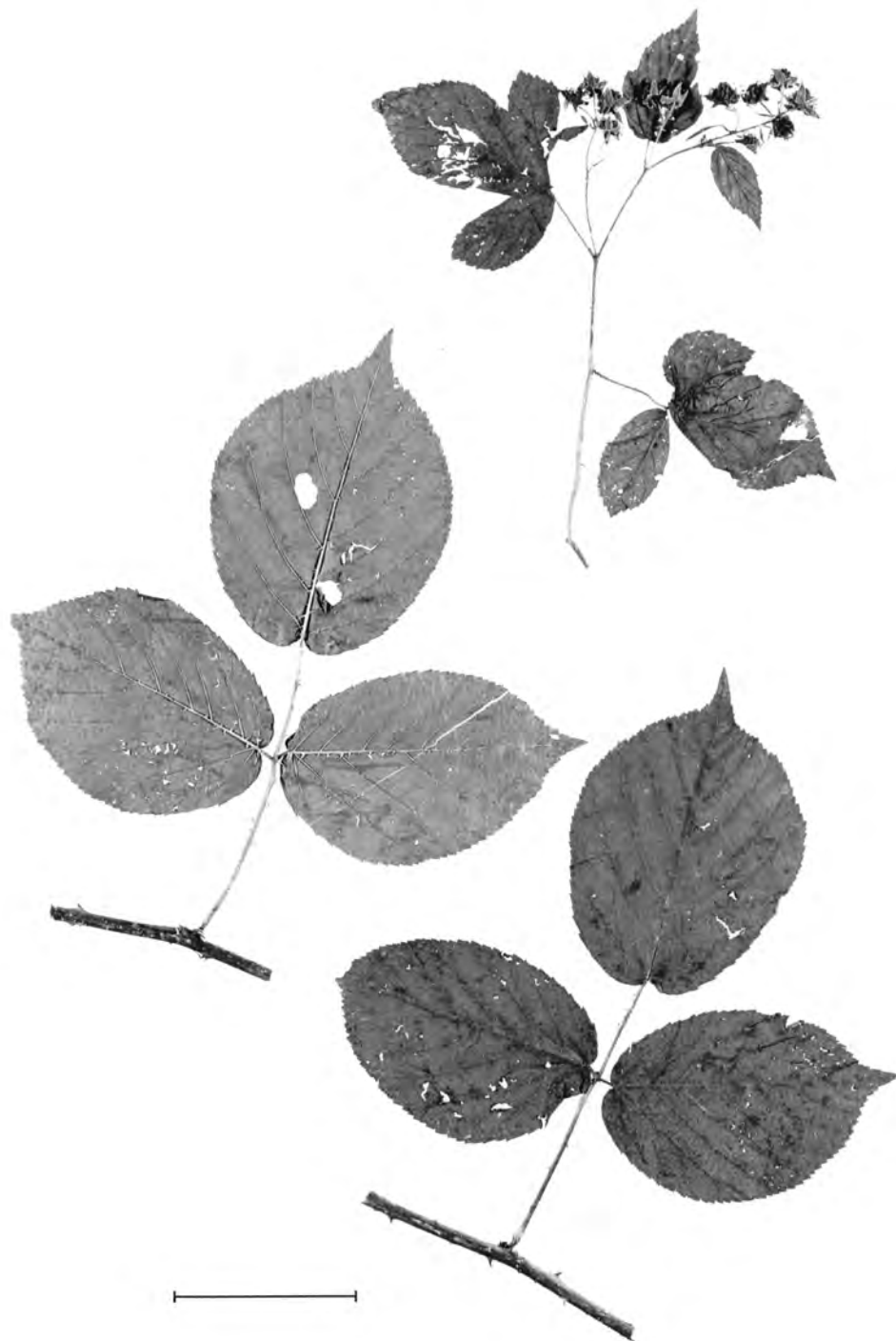


Fig. 150. *Rubus oboranus* (Sprib.) Sprib. (*Spribille s.n.*, WRSL). Scale bar = 5 cm.

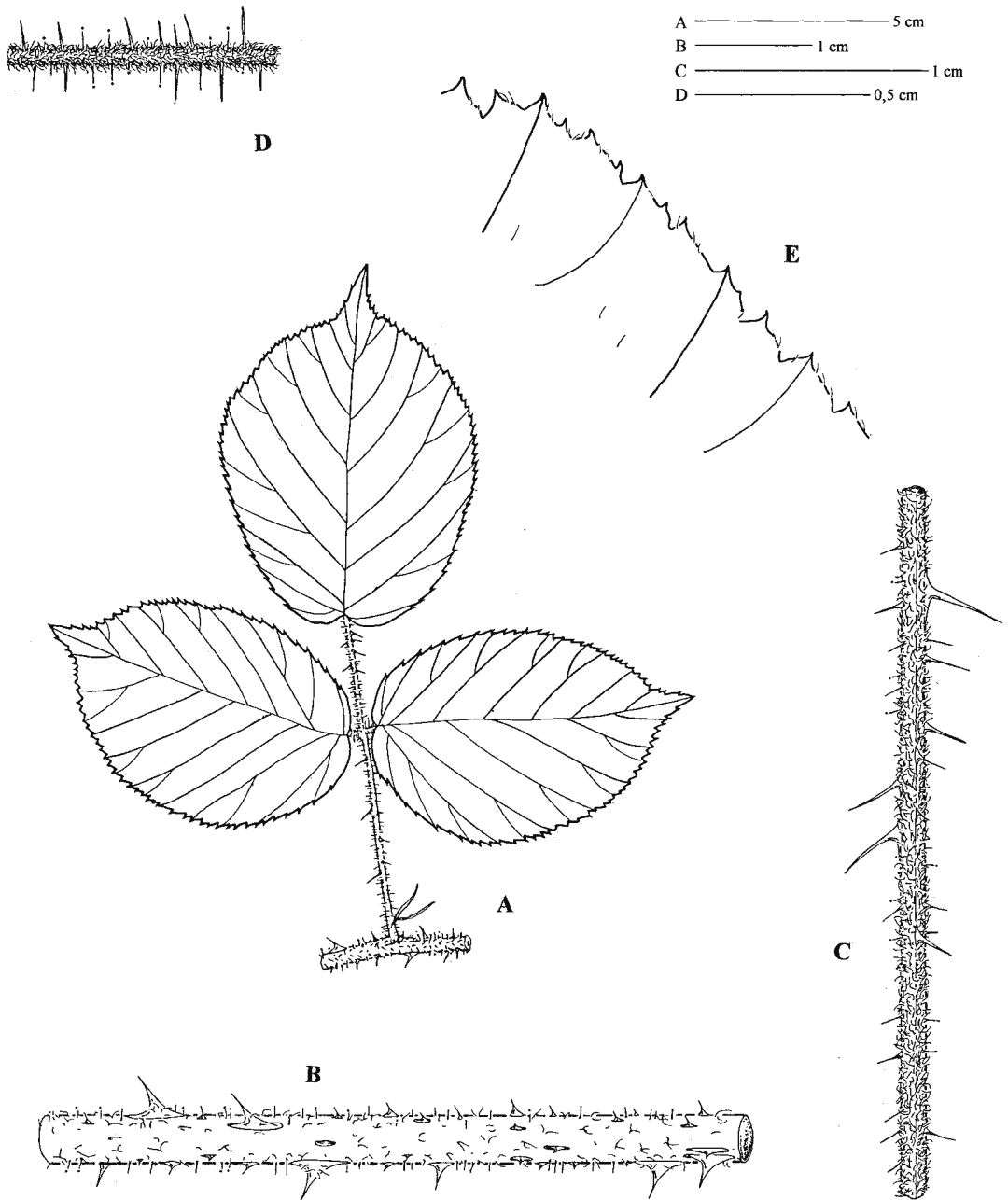


Fig. 151. *Rubus oboranus* (Scrib.) Scrib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribille s.n.*, WRSL).

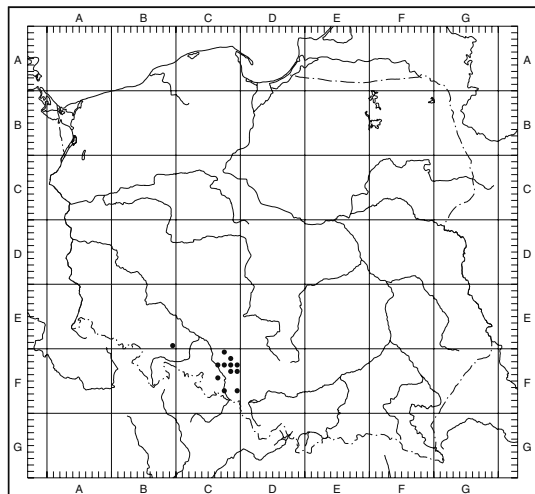


Fig. 152. Distribution of *Rubus oboranus* (Spr.) Spr. in Poland.

Sprille s.n. (WRSL); CF4607 – Długomiłowice, 18°07½'–50°17¼', 1 Aug 1906 & 9 Aug 1907, *Sprille s.n.* (WRSL); CF6727 – Obora, 18°16'–50°05¾', May 1963, *Żurek s.n.* (WRSL 14838 p.p.); CF6914 – between Rybnik & Zebrzydowice, 18°30½'–50°06', 17 Aug 1909, *Sprille s.n.* (WRSL).

53. *Rubus scaber* Weihe in Bluff & Fingerh.
(Figs 153–155)

Comp. Fl. Germ. 1: 683. 1825.

TYPE: sine loco et die, *Weihe* (BREM – LECTOTYPE; Weber 1977).

Stems procumbent or low-arching, terete to bluntly angled, suffused violet-red, rather sparsely hairy with simple and tufted hairs. Stalked glands or only stalks numerous, up to 0.6(–0.8) mm long. Prickles straight or slightly curved, strongly declining (2.5–)3–4 mm long, up to 12 per 5 cm. Intermediates between prickles and stalked glands absent or rather few. Leaves 3-foliolate, rarely some of them 4–5-foliolate and then pedate, with rather numerous hairs above, sparsely hairy beneath, without stellate hairs. Terminal leaflets with short to mid-long petiolules (25–38%), elliptical to obovate, cordate or rounded at the base, with a suddenly acuminate apex 15–20 mm long, evenly or slightly periodically serrate; principal

teeth prominent or not, straight or recurved. Petiolules of lateral leaflets 3–5 mm long. Petioles patent-hairy, with scattered stalked glands and slender, curved prickles 1.5–2.5 mm long. Stipules filiform or linear. Inflorescence conical, truncate at the top, generally short, with 3-foliolate leaves below. Inflorescence axis rather densely hairy, with simple and tufted hairs, with an underlayer of stellate hairs, (glandular) acicles and with slender, slightly curved or straight, declining prickles up to 4 mm long. Pedicels 1.5–2 cm long, rather densely hairy with simple, tufted and stellate hairs. Stalked glands up to 0.5(–0.6) mm long, mostly shorter than the diameter of pedicels. Prickles slightly curved or straight up to 1.5 mm long. Sepals grey-green-felted, glandular and acicular, patent after anthesis. Petals white, elliptical, 11–13 mm long. Stamens longer than styles. Anthers glabrous. Carpels hairy at the top. Receptacle hairy or glabrous. – 2n = 28 (Boratynska 1998). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems procumbent or low-arching, glandular; prickles strongly declining; leaves usually 3-foliolate, with elliptical or obovate, gradually acuminate terminal leaflets.

HABITAT. Forest edges, clearings, usually on rich soils.

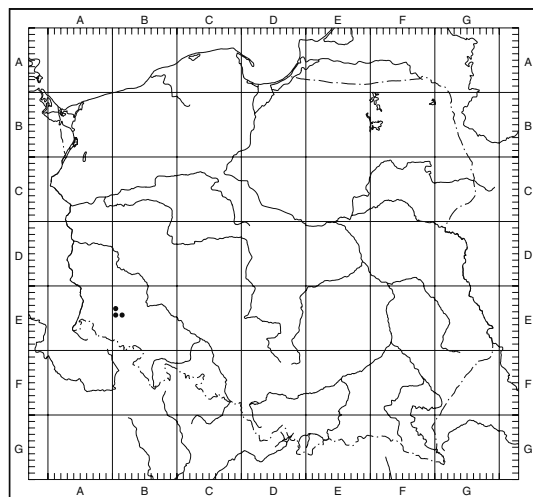


Fig. 153. Distribution of *Rubus scaber* Weihe in Poland.



Fig. 154. *Rubus scaber* Weihe (Pinkwart s.n., WRSL). Scale bar = 5 cm.

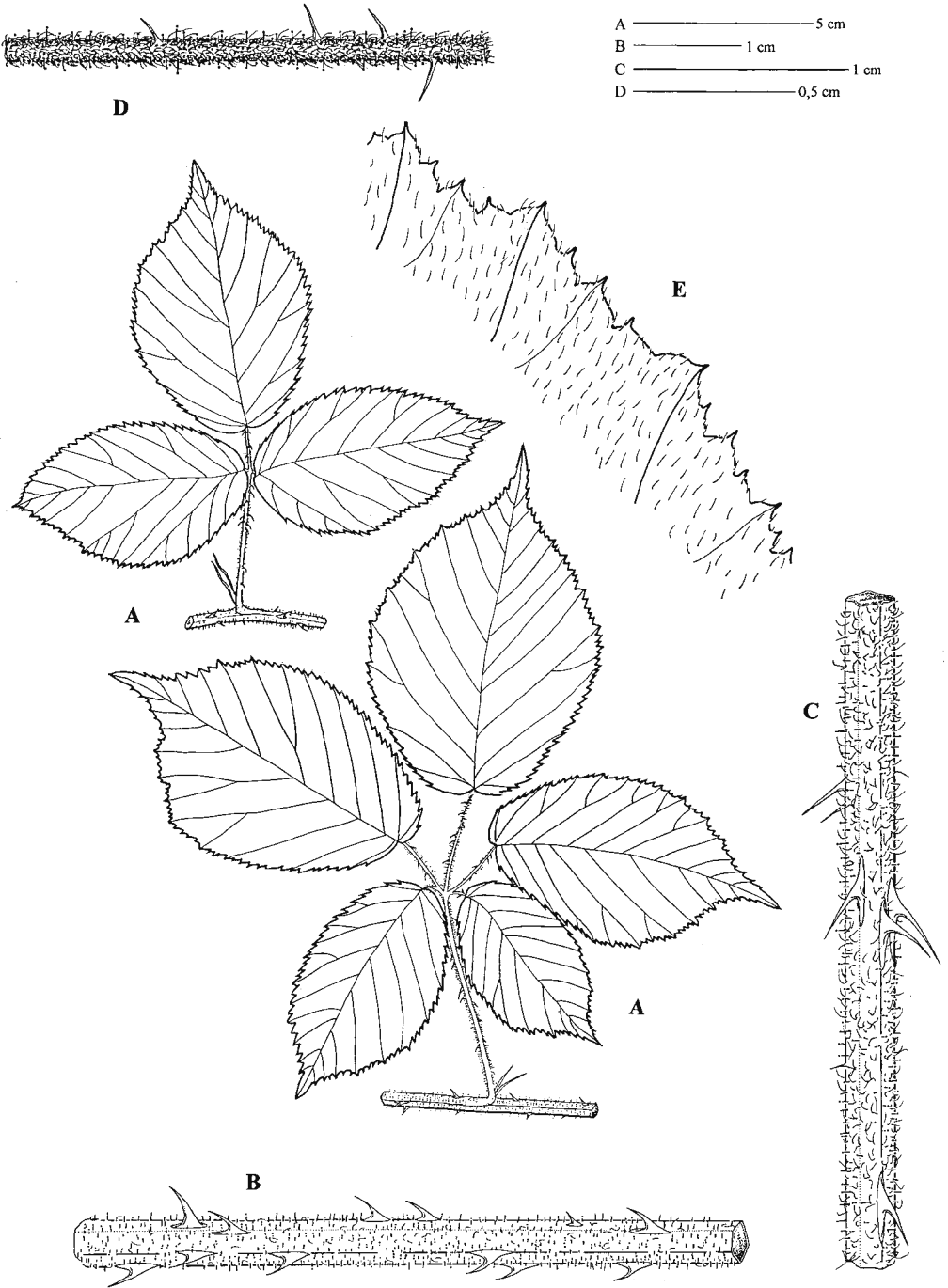


Fig. 155. *Rubus scaber* Weihe. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribille s.n.*, WRSL).

DISTRIBUTION IN POLAND. Known only from several sites in Dolny Śląsk, in the vicinity of Złotoryja and Zgorzelec.

GENERAL DISTRIBUTION. Widespread species with the disjunctive range. Great Britain, Germany, the Czech Republic, Poland.

SPECIMENS SEEN. BE3053 – Jurków, $15^{\circ}45\frac{1}{2}' - 51^{\circ}11\frac{1}{4}'$, 12 Jul 1899, *Pinkwart s.n.* (WRSL); BE4033 – near Nowe Łąki towards Bielanka, $15^{\circ}45\frac{1}{2}' - 51^{\circ}07'$, 19 Jul 1994, *Boratyńska et al. 94/94.* (KOR 32133); BE4151 – Polna, $15^{\circ}53' - 51^{\circ}06'$, 16 Jul 1896, *Pinkwart s.n.* (BRNM 17283/36); BE4154 – Wilkołak Mt. (373 m) S of Złotoryja, $15^{\circ}55' - 51^{\circ}06\frac{1}{3}'$, 10 Aug 1898, *Pinkwart s.n.* (WRSL).

54. *Rubus pfuhlianus* Sprib. (Figs 156–158)

Deutsche Ges. Kunst Wiss. Posen. Zeitschr. Naturwiss. Abt. 15: 20. 1908.

TYPE: 'Walde bei Gondek (Kreis Schrimm)' [not found] – Gądkki inter Poznań et Kórmik, 25.07.1996, *Zieliński 47/96* [KOR – NEOTYPE *ex loco classico*, designated here].

Stems low-arching or procumbent, terete to obtusely angled, dull, rather densely patent-hairy with long, simple hairs, with a loose layer of stellate hairs and scattered or rarely numerous stalked glands 0.8–1(–1.5) mm long. Small needle-like, gland-tipped pricklets few to rather numerous. Prickles (10–)20–25 per 5 cm, strongly declining, straight or slightly curved, laterally compressed, 2.5–5(–5.5) mm long, with stout decurrent long base [3–5(–5.5) mm]. Leaves 3-foliolate or 4–5-foliolate and then pedate or subpedate, with scattered, adpressed hairs above, with shimmering, pectinately arranged hairs on the veins beneath. Terminal leaflets with short petiolules (20–25%), elliptical to (broadly) ovate, cordate at the base, with an acuminate apex 10–20 mm long, usually indistinctly, periodically serrate; teeth broad, apiculate, principal ones prominent, usually recurved. Lateral leaflets of 3-foliolate leaves distinctly gibbous. Petiolules of basal leaflets of 5-foliolate leaves 3–5 mm long. Petioles patent-hairy. Stalked glands rather numerous, 0.5–1.8 mm long. Prickles slightly curved, abruptly broadened at the base, strongly declining, up to 3 mm long. Stipules narrowly lanceolate, with long simple

hairs and stalked glands. Inflorescence conical, usually leafy to the top. Leaves usually more densely hairy than those of the stem, lower ones 3-foliolate. Inflorescence axis rather loosely covered with long patent, simple or tufted hairs, with a thin layer of stellate hairs, its surface visible through the indumentum. Stalked glands 0.5–1.2 mm long, rather numerous. Gland-tipped needle-like pricklets few. Prickles curved, sometimes hooked, bright, 2.5–3 mm long. Pedicels 0.5–1.5 cm long, shortly hairy, with small, slightly curved prickles 0.5–1.5(–2) mm long and stalked red glands 0.3–0.8 mm long. Sepals green or grey-green, loosely stellate-hairy on the back, besides with longer patent hairs and stalked glands, reflexed after flowering. Petals white, small, elliptical, 7–8 mm long, 3 mm wide. Stamens longer than styles. Anther glabrous. Carpels hairy, glabrescent. Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching or procumbent, hairy and glandular; prickles rather small, strongly declining; leaves 3–5-foliolate, with shimmering hairs, pectinately arranged on the veins beneath.

HABITAT. Open deciduous and mixed forests, clearings, forest roads.

DISTRIBUTION IN POLAND. C Wielkopolska, Dolny Śląsk (NE of Wrocław).

GENERAL DISTRIBUTION. Regional species, endemic to Poland. Its distribution needs further studies.

SPECIMENS SEEN. BD1946 – Gądkki, $17^{\circ}02\frac{1}{2}' - 52^{\circ}18'$, 30 Oct 1927, *Urbański s.n.* (LBL); BD1957 – Gądkki, by the road to Poznań, $17^{\circ}03' - 52^{\circ}17\frac{3}{4}'$, 1 Aug 1996, *Zieliński 47/96* (KOR 38293); BD1978 – Borówiec, $17^{\circ}04' - 52^{\circ}16\frac{4}{5}'$, 23 Jul 1993, *Boratyńska, Dolatowska & Zieliński Z. 30/93, 29/93, 31/93, 23/93 & 20/93* (KOR 29614, 29613, 29615, 30522 & 30527); BD1978 – Skrzynki, $17^{\circ}04' - 52^{\circ}16\frac{2}{5}'$, 1 Aug 1974, *Zieliński s.n.* (KOR 6416, 6419, 6420, 6422 & 6423); BD1993 – between Kamionki & Mieczewo, $17^{\circ}00' - 52^{\circ}15\frac{1}{2}'$, 8 Jul 1986, *Zieliński 1489 & 1491* (KOR 29610 & 29608); CD2187 – 2 km of Brodowo by the road to Nowe Miasto nad Wartą, $17^{\circ}21\frac{1}{2}' - 52^{\circ}10\frac{2}{3}'$, 9 Jul 1986, *Awzan & Zieliński Z. 1511–1513* (KOR 29609, 29611 & 29612); CE1353 – between Klonów & Cieszyn, $17^{\circ}36\frac{1}{2}' - 51^{\circ}24\frac{1}{2}'$, 20 Sep 1902, *Spribile s.n.* (WRSL); CE2176 –

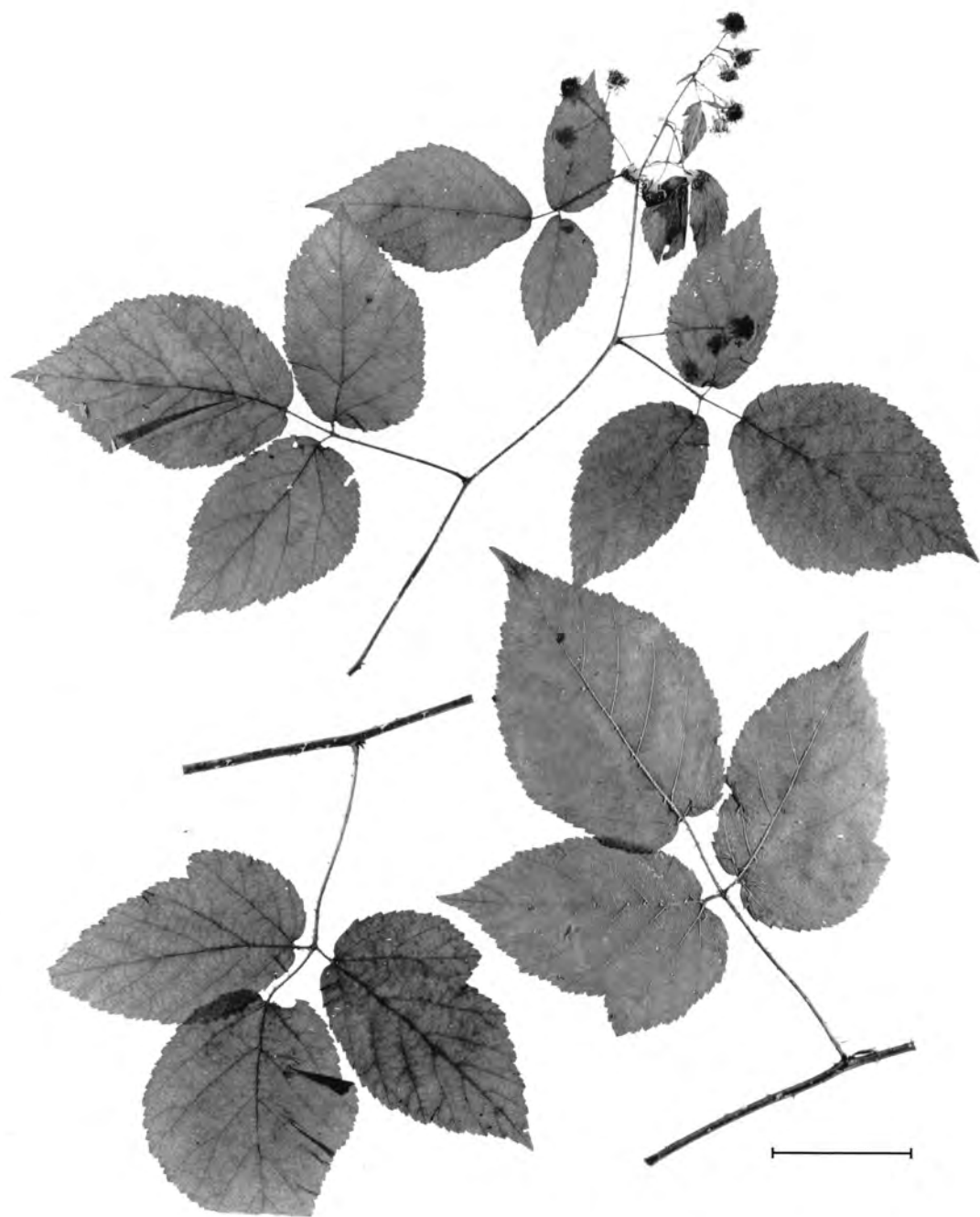


Fig. 156. *Rubus pfuhlianus* Sprib. (Zieliński 1492, KOR 31546). Scale bar = 5 cm.

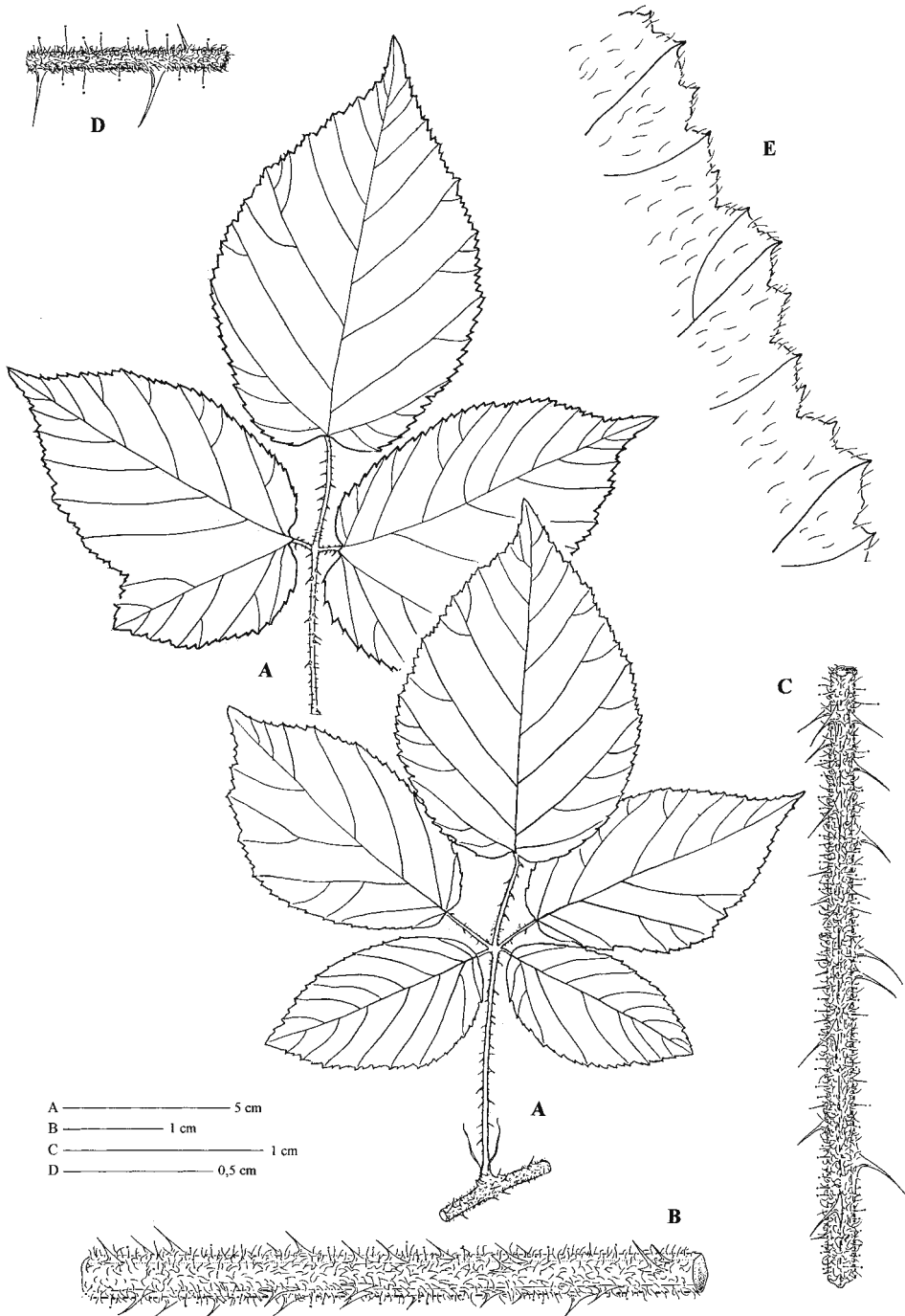


Fig. 157. *Rubus pfuhlianus* Sprib. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1491, KOR 29606).

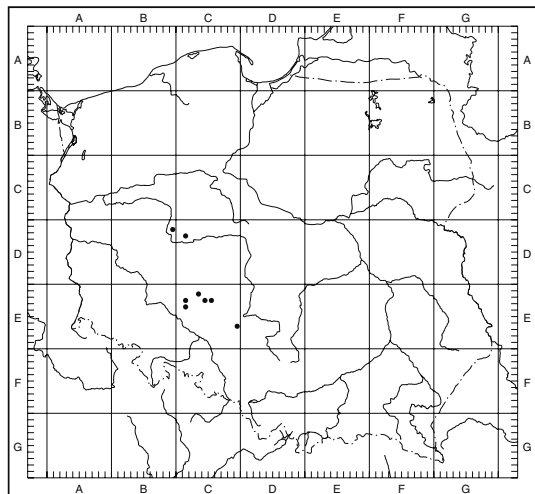


Fig. 158. Distribution of *Rubus pfuhlianus* Sprib. in Poland.

near Dobroszyce, $17^{\circ}22' - 51^{\circ}17\frac{1}{2}'$, 18 Oct 1911 & 28 Aug 1912, *Spribille s.n.* (WRSL); CE2177 – between Dobroszyce & Strzelce, $17^{\circ}23' - 51^{\circ}17\frac{1}{2}'$, 18 Oct 1911, *Spribille s.n.* (WRSL); CE2458 – between Marcinki & Perzów, $17^{\circ}49\frac{1}{2}' - 51^{\circ}19'$, 21 Sep 1915, *Spribille s.n.* (WRSL); CE2520 – between Marcinki & Czermin, $17^{\circ}51\frac{1}{4}' - 51^{\circ}20\frac{1}{2}'$, 21 Sep 1915, *Spribille s.n.* (WRSL); CE2572 – between Bralin & Tabor Mały, $17^{\circ}53' - 51^{\circ}18'$, 21 Sep 1915, *Spribille s.n.* (WRSL); CE3104 – Dobroszyce, $17^{\circ}21' - 51^{\circ}16'$, 28 Aug 1912, *Spribille s.n.* (WRSL); CE6963 – near Biskupice, $18^{\circ}29' - 50^{\circ}57'$, 6 Oct 1906, *Spribille s.n.* (WRSL); CE6982 – ibidem, $18^{\circ}28' - 50^{\circ}56'$, 6 Oct 1906, *Spribille s.n.* (WRSL).

Series *Hystrix* Focke

Rub. Germ.: 342. 1877.

TYPE: *Rubus hystrix* Weihe

The largest prickles on the stems stout-based, grading into small needle-like pricklets, gland-tipped acicles and stalked glands. Inflorescence axis with unequal prickles, acicles and stalked glands.

55. *Rubus koehleri* Weihe in Bluff & Fingerh.

(Figs 159–161)

Comp. Fl. Germ. 1: 681. 1825.

TYPE: *Rubus koehleri* Weihe, sine loco et die (MSTR – LECTOTYPE; Weber 1986).

Stems arching, obtusely angled or terete, usually suffused violet-red or red-brown, loosely hairy with patent long hairs. Prickles very unequal, numerous, crowded, the largest ones usually 15–25(–30) per 5 cm, 4–6(–7) mm long, slender, usually straight, patent or slightly declining, grading into small pricklets, (gland-tipped) acicles and numerous long-stalked glands. Leaves pedate, 5-foliolate, sometimes partly 3–4-foliolate, very sparsely hairy or glabrous above, loosely, softly hairy beneath with long simple or/and tufted hairs. Terminal leaflets with mid-long or long petiolules (30–40%), broadly elliptical or broadly ovate, broadly obovate to suborbicular, rounded, slightly emarginate or truncate at the base, with a narrowly acuminate apex 15–20 mm long, periodically serrate; the serration 2–4 mm deep; principal teeth usually prominent, at least some of them recurved. Petiolules of basal leaflets 2–4 mm long. Petioles hairy, especially above, with numerous, straight or slightly curved declining prickles, besides with numerous acicles and stalked glands. Stipules linear. Inflorescence regularly conical, leafy to the top, with 3-foliolate leaves below. Inflorescence axis patent-hairy with simple and tufted hairs. Prickles numerous, unequal, like those of the stems but more slender, awl-shaped, especially above, the largest ones up to 6(–7) mm long. Pedicels 1–1.5(–2) cm long, loosely hairy, with numerous stalked glands, longer than the diameter of pedicels. Prickles slender, needle-like, up to 4 mm long. Sepals green-grey, glandular, with small acicular pricklets, reflexed after anthesis. Petals white to pale pink, elliptical, 10–12 mm long. Stamens longer than styles. Anthers glabrous, exceptionally some of them hairy. Carpels glabrous. Receptacle glabrous or hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Prickles very unequal, numerous, crowded; leaves 5-foliolate; terminal leaflets broad, periodically serrate; inflorescence axis with very numerous, straight and slender prickles. From *R. schleicheri* it differs by 5-foliolate leaves, bigger, erect inflorescence, from *R. apricus* by more prickly stems and reflexed sepals.

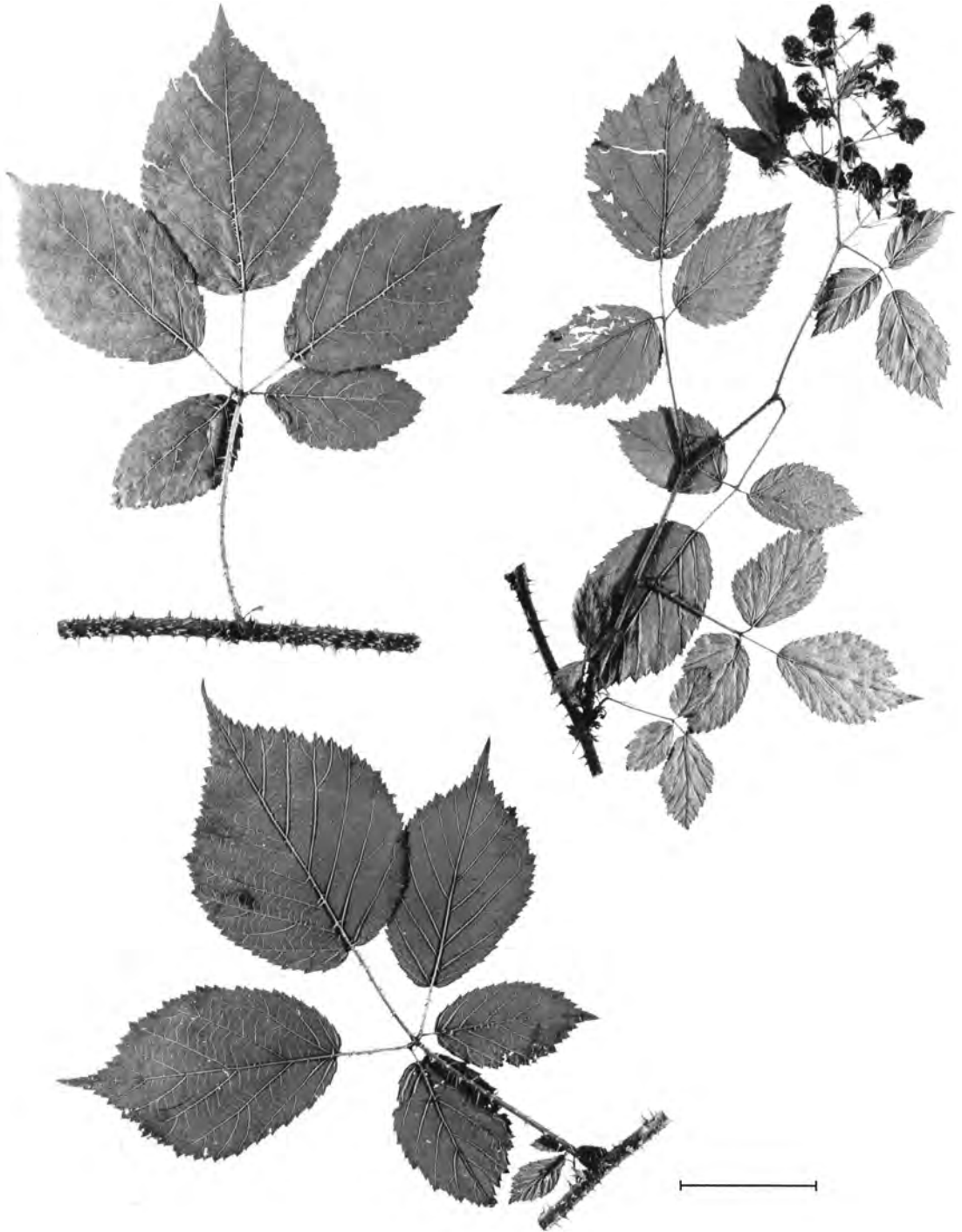


Fig. 159. *Rubus koehleri* Weihe (Zieliński 2470, KOR 31551). Scale bar = 5 cm.

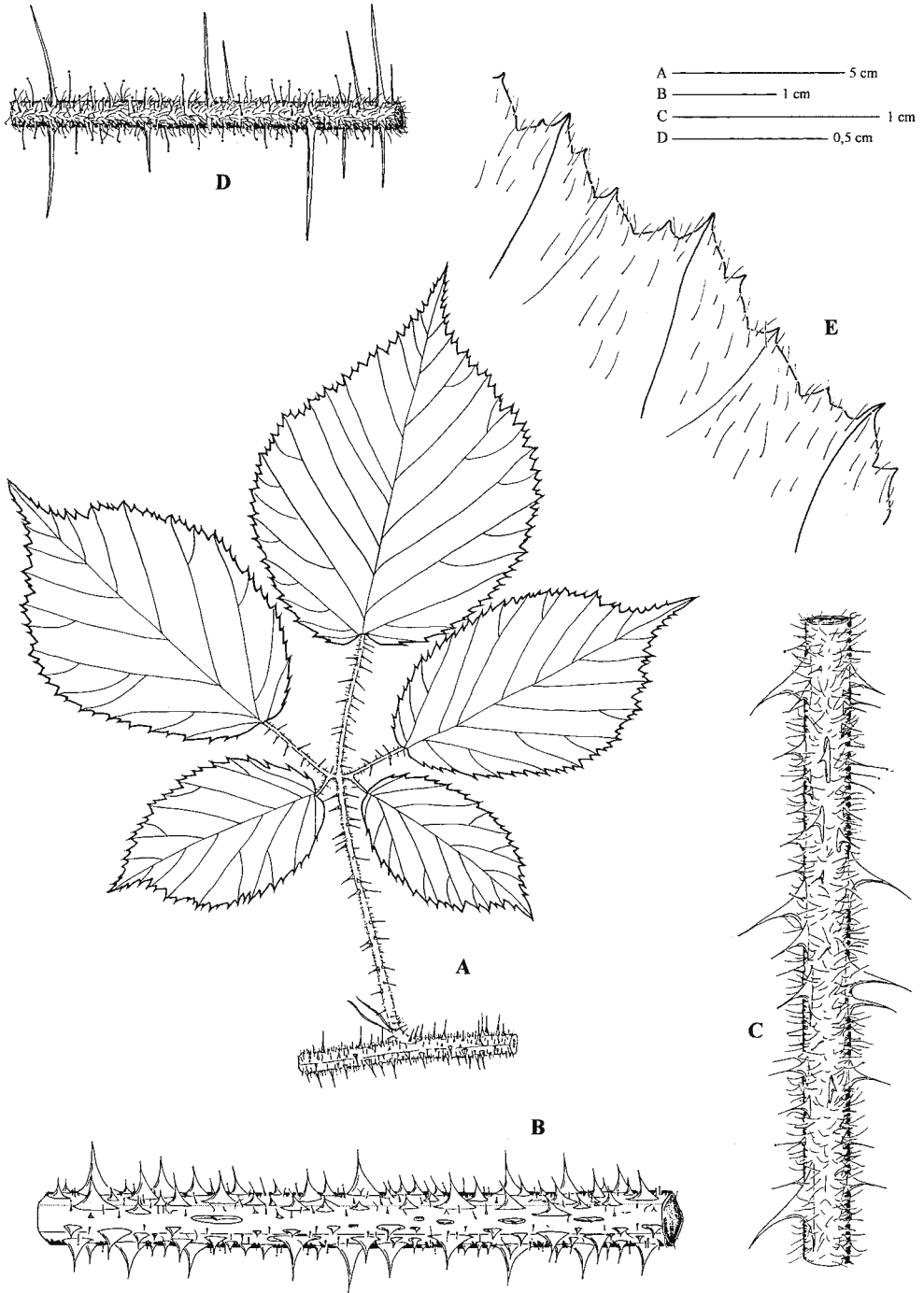


Fig. 160. *Rubus koehleri* Weihe. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Kaznowski s.n.*, KOR 10482).

HABITAT. Margins of broad-leaf forests, clearings.

DISTRIBUTION IN POLAND. Mainly in SW and S regions, besides on scattered stands in Małopolska.

GENERAL DISTRIBUTION. Widespread species. Central Europe: Germany, the Czech Republic and Poland. Information about the occurrence of this species in other regions needs confirmation.

SELECTED HERBARIUM SPECIMENS. AE1788 – W of Osiecznica, 15°23'–51°20', 3 Aug 1895, *Barber s.n.* (GLM 4227); AE2961 – Bolesławiec, 15°34½'–51°15½', 26 Jul 1868, *Zimmermann s.n.* (LW 055856); AE4662 – Czubatka Mt. near Sulików, 15°10½'–51°04½', 7 Aug 1868, *Zimmermann s.n.* (BREM); BD4701 – between Kurzagóra & Racot, 16°41'–52°04', 13 Aug 1898, 21 Jul 1899 & 11 Aug 1911, *Spribille s.n.* (BREM, POZ & TRN); BD5912 – SE of Łagowo, 17°00'–51°58', 12 Sep 1996, *Czarna s.n.* (POZ); BD6163 – Wojków, 15°51½'–51°48½', 29 Jul 1860, *Strasser s.n.* (BREM); BE1719 – near Piotrkowice, 16°50½'–51°25½', 5 Aug 1991, *Zieliński 2949* (KOR 24783a); BE3935 – Wisznia Mała, 17°04½'–51°14½', 25 Jul 1898, *Baenitz s.n.* (LE); BE4137 – S of Kopacz, 15°57½'–51°07½', 22 Sep 1895, *Pinkwart s.n.* (BREM); BE8433 – near Stary Julianów, 16°21½'–50°46½', 29 Jun 1988, *Boratyński 1262* (KOR 22507); BF1457 – between Radków & Wambierzyce, 420 m, 16°26'–50°29½', 14 Jul 1996, *Świerkosz s.n.* (WRSL); BF2583 –

near Sokółówka, 16°31'–50°22½', 19 Jul 1898, *Baenitz s.n.* (BREM, LE & PR); CD3198 – E of Komorze, 17°22½'–52°05½', 25 Jun 1994, *Czarna s.n.* (POZ); CD4183 – S of Chwałkowo Kościelne, 17°18½'–52°00½', 26 Aug 1996, *Czarna s.n.* (POZ); CD8359 – E of Sulisław, 17°41¾'–51°40½', 17 Jul 1997, *Zieliński 74/97* (KOR 39081); CD8433 – NW of Jelitów, 17°45½'–51°41¾', 16 Jul 1896, *Spribille s.n.* (POZ); CD9989 – Oraczew, 18°34'–51°34', 1926, *col. ign.* (LW 56785); CF2574 – near Jarczowice, 17°56½'–50°24½', 1901, *Richter s.n.* (WRSL); CF3640 – between Twardawa & Pokrzywnica, 200 m, 18°01½'–50°20½', 15 Sep 1999, *Kosiński & Zieliński 146/99* (KOR 41643); CF3955 – between Kleszczów & Bojszów, 18°31'–50°20½', 6 Sep 1913, *Werner s.n.* (WRSL); DF6013 – near Rybnik towards Belk, 18°38'–50°06', 24 Jul 1901, *Ziesché s.n.* (G); EE5635 – Żarnowa Góra near Mostki, 20°55½'–51°03½', 29 Jun & 13 Jul 1932, *Kaznowski s.n.* (POZNB); EE7387 – Słowik-Willa, 20°31½'–50°50½', 24 & 26 Jul 1932 & 11 Jul 1933, *Kaznowski s.n.* (KOR 10805, KRAM 143817, 143818 a, b & POZNB); EF1976 – near Strużki, 21°20½'–50°28½', 20 Oct 1977, *Kapuściński s.n.* (HB. KAP.); EF9912 – near Szerzyny, by the road to Maślaki, 21°15½'–49°49', 18 Aug 1988, *Zieliński 2470* (KOR).

56. *Rubus bavaricus* (Focke) Hruby in Domin & Podpéra (Figs 162–164)

Klíč Kvet. Úplné Rep. Českoslov.: 277. 1928.

Basionym: *R. koehleri* subsp. *bavaricus* Focke, Syn. Rub. Germ.: 351. 1877.

TYPE: Augsburg, Wald bei Wolfertshausen, 7.8.1870, *Caflich*, Focke, Rubi Sel. no. 50 (BREM – LECTOTYPE, W – ISOLECTOTYPE; Weber 1998).

Stems low-arching or procumbent, terete or bluntly angled, patent-hairy. Prickles very unequal, often reddish at the base, the largest ones up to 6(–7) mm long, slightly curved, grading into (glandular) bristles, acicles and stalked glands. Leaves 3-foliolate or 4–5-foliolate and then pedate, contiguous or imbricate, glabrous above or with few scattered hairs, distinctly hairy beneath, usually with stellate hairs, sometimes felted and grey-green or grey, besides with longer, shimmering hairs pectinately arranged on the veins. Terminal leaflets usually with short or mid-long petiolules [(24–)25–30(–37)%], broadly ovate to broadly obovate, rounded or emarginate at the base, with a suddenly acuminate apex 12–15 mm

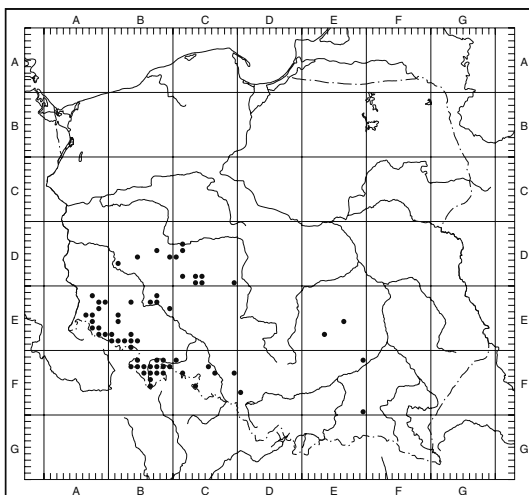


Fig. 161. Distribution of *Rubus koehleri* Weihe in Poland.



Fig. 162. *Rubus bavaricus* (Focke) Hruby (Zieliński 96/97, KOR 40142). Scale bar = 5 cm.

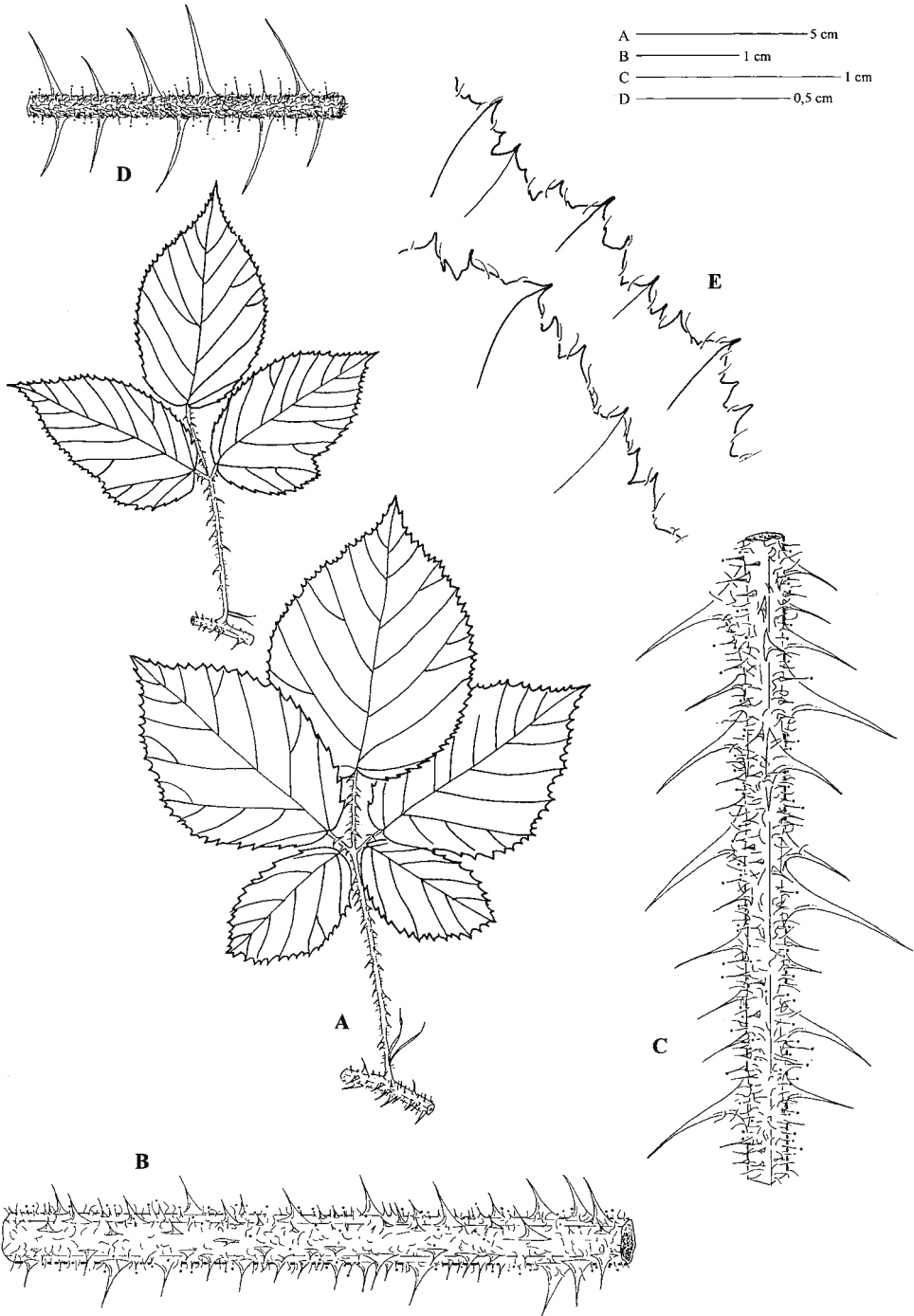


Fig. 163. *Rubus bavaricus* (Focke) Hruby. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflets margins (Zieliński 96/97, KOR 40142).

long, evenly to periodically serrate; the serration 2(–2.5) mm deep, teeth apiculate, principal ones retrorse. Basal leaflets of 4–5-foliolate leaves with petiolules 2–3 mm long, lateral leaflets of 3-foliolate leaves with petiolules 5(–6) mm long. Petioles hairy, with curved prickles, besides with acicles, short (gland-tipped) bristles and stalked glands. Stipules filiform. Inflorescence narrowly conical, leafy almost to the apex or leafless in the upper 1/4. Leaves hairy like those of the stems, lower ones 3-foliolate. Inflorescence axis with stellate, fascicled and simple hairs. Prickles very numerous, unequal, up to 5(–6) mm long, \pm curved, grading into (gland-tipped) bristles, acicles and stalked glands. Bracts and bracteoles linear, 0.75–1 mm wide, sometimes 3-lobed. Pedicels 10–15(–20) mm long, rather loosely hairy (surface visible); stalked glands numerous, some of them longer than the pedicel diameter. Prickles numerous up to 3.5(–4) mm long, straight or slightly curved. Sepals densely hairy, grey-green, with many pricklets and stalked glands on the back, reflexed after anthesis. Petals elliptic or obovate, 8–10 mm long, pink. Stamens exceeding styles. Anthers glabrous. Carpels and receptacle hairy. – $2n = 28$ (material from the Czech Republic; Krahulcová & Holub 1997b). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems terete or bluntly angled, hairy; prickles numerous, very unequal, slightly curved, grading into acicles and stalked glands; leaflets 3–5-foliolate, grey-green and with stellate hairs underneath; inflorescences axis with unequal, curved prickles; petals pink.

HABITAT. Woods, wood margins, clearings.

DISTRIBUTION IN POLAND. Known from only 1 site found recently in S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. Germany, the Czech Republic, Poland.

SPECIMENS SEEN. BD6796 – SE of Robczysko, 16° 46½'–51°48', 7 & 8 Aug 1997, Zieliński 96/97 & 113/97 (KOR 40142 & 40143).

57. *Rubus schleicheri* Weihe ex Tratt.

(Figs 165–167)

Rosac. Monogr. 3: 22. 1823.

TYPE: Helvetia, Herb. Portenschlag [not found]; Minden [= Mennighüffen, 3718], sine die, *Weihe* (KIEL – NEOTYPE; Weber 1977).

Stems procumbent or low-arching, loosely hairy with simple and tufted hairs. Prickles numerous, very unequal, crowded, yellow, often suffused with red-brown, the largest ones 5–7(–8) mm long, 10–18 per 5 cm, stout-based, curved, rarely some of them straight and declining, grading into (gland-tipped) acicles and stalked glands. Leaves 3-foliolate, rarely partly 4–5-foliolate and then pedate, green on both sides, loosely hairy, without stellate hairs. Terminal leaflets with short petiolules (20–25%), obovate, narrowly rounded or shallowly cordate at the base, with an acuminate recurved apex 15–20 mm long, indistinctly periodically serrate; the serration up to 2 mm deep; teeth apiculate, principal ones somewhat prominent, straight or slightly recurved. Petioles hairy on the upper side, with numerous, strongly curved prickles up to 2–3 mm long, besides with numerous gland-tipped acicles and stalked glands. Stipules filiform to linear. Inflorescences rather regular, usually narrow and weakly branched, few-flowered, with slightly nodding apex. Lower leaves 3-foliolate. Inflorescence axis rather dense-

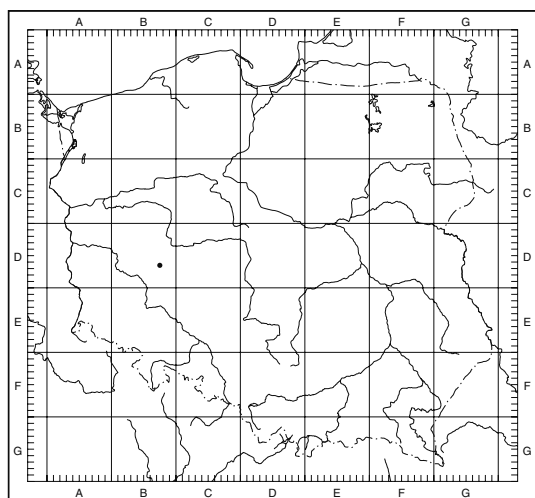


Fig. 164. Distribution of *Rubus bavaricus* (Focke) Hruby in Poland.



Fig. 165. *Rubus schleicheri* Weihe ex Tratt. (Boratyńska et al., in Zieliński 125/94, KOR 29479). Scale bar = 5 cm.

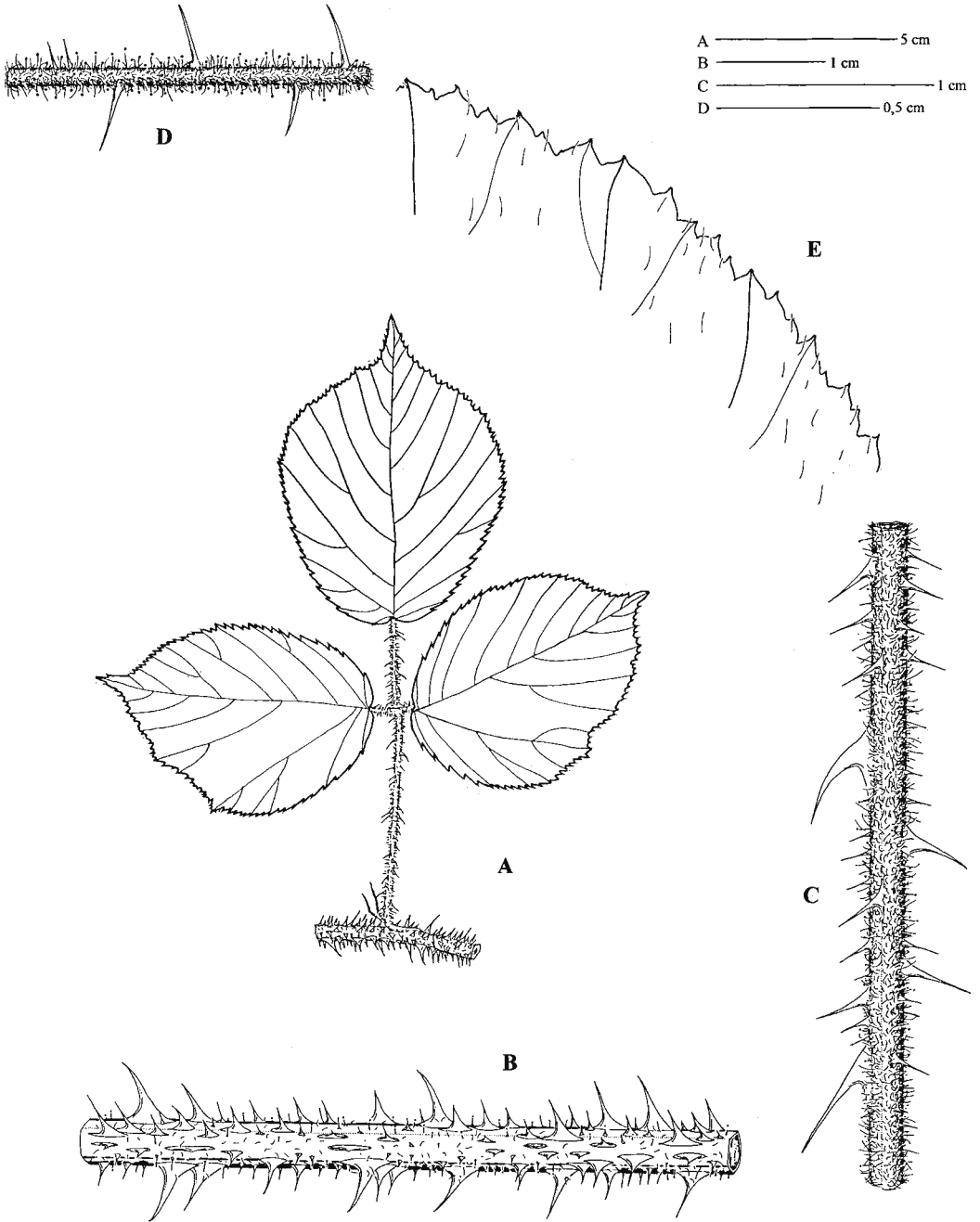


Fig. 166. *Rubus schleicheri* Weihe ex Tratt. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin. From Boratyński & Zieliński, in Zieliński 1627, KOR 23405).

ly patent-hairy, with an underlayer of stellate hairs above. Stalked glands and (gland-tipped) acicles numerous. Prickles partly straight, partly curved, 3–4(–6) mm long. Pedicels 1–2(–2.5) cm long, rather densely stellate-hairy, besides with longer, patent hairs. Prickles straight, yellow, often suffused with red, 1.5–2.5 mm long. Sepals greenish, hairy both with stellate and simple long hairs, glandular, aciculate, reflexed or patent after anthesis. Petals white, narrowly obovate, 9–11 mm long. Stamens longer than styles. Anthers glabrous. Carpels and receptacle hairy. – $2n = 28$ (Boratyńska 1995a). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching with numerous rather strong, curved prickles, grading into acicles and stalked glands; leaves usually 3-foliolate; inflorescence narrow, nodding at the top.

HABITAT. Open deciduous forests, clearings, forest edges.

DISTRIBUTION IN POLAND. Mainly in Śląsk and in S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. Central Europe: chiefly Germany, besides in the Czech Republic and Poland.

SELECTED HERBARIUM SPECIMENS. AE2993 – Łaziska, $15^{\circ}36\frac{2}{3}' - 51^{\circ}14\frac{1}{2}'$, 19 Jul 1805, *Schwarzer s.n.* (BREM); AE3872 – near Gościszów towards Ocice, $15^{\circ}28' - 51^{\circ}09\frac{5}{6}'$, 21 Jul 1994, *Boratyńska et al. 116/94* (KOR 32136); AE3885 – between Niwnice & Kotliska, $15^{\circ}30' - 51^{\circ}09\frac{1}{3}'$, 21 Jul 1994, *Boratyńska et al. 125/94* (KOR 29479); AE4648 – W of Kościelnik, $15^{\circ}16' - 51^{\circ}05\frac{2}{3}'$, 20 Jul 1994, *Boratyńska et al. 99/94 & 98/94* (KOR 29444 & 29445); AE4744 – between Olszyna & Radostów Górny, $15^{\circ}21\frac{1}{2}' - 51^{\circ}05\frac{1}{2}'$, 21 Jul 1994, *Boratyńska et al. 113/94 & 112/94* (KOR 29494 & 29495); AE5751 – Wojkowa Mt. (502 m) near Giebułtów, $15^{\circ}19\frac{1}{4}' - 50^{\circ}59\frac{1}{2}'$, Jul 1895, *Barber s.n.* (GLM 4142); AE6763 – N slope over the Kwisa River, $15^{\circ}21\frac{1}{2}' - 50^{\circ}53\frac{2}{3}'$, 25 Aug 1982, *Boratyńska & Boratyński 293* (KOR); BE2331 – Karczowiska, $16^{\circ}09\frac{1}{2}' - 51^{\circ}18\frac{1}{4}'$, 12 Aug 1995, *Głowacki s.n.* (WSRP); BE2871 – N of Jary, $16^{\circ}52\frac{1}{3}' - 51^{\circ}17\frac{1}{3}'$, 18 Aug 1995, *Głowacki s.n.* (WSRP); BE5125 – S of Międzydroże, $15^{\circ}56\frac{1}{4}' - 51^{\circ}02\frac{1}{4}'$, 14 Jun 1986, *Boratyński & Zieliński s.n.* (KOR); BE5494 – Góra Zwycięstwa (350 m) near Graniczna, $16^{\circ}21\frac{2}{3}' - 50^{\circ}59\frac{1}{2}'$, 21

Jul & 16 Aug 1867, 17 Jul & 5 Sep 1864, *Schwarzer s.n.* (LE & WU); BE7078 – Bukowa Mt. near Wojków, $15^{\circ}51' - 50^{\circ}48\frac{3}{4}'$, 9 Sep 1987, *Boratyński & Zieliński Z. 1627* (KOR 23405); BE7088 – Wojków, $15^{\circ}51\frac{1}{2}' - 50^{\circ}48\frac{1}{2}'$, sine die, *Wimmer s.n.* (KOR 10962); BE7097 – Kowary, $15^{\circ}50\frac{1}{2}' - 50^{\circ}47\frac{1}{2}'$, sine die, *Köhler s.n.* (KIEL); BF3629 – Romanowo Górne, 485 m, $16^{\circ}44\frac{2}{3}' - 50^{\circ}20\frac{1}{4}'$, 8 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 38/98* (KOR 40003); CC8062 – Zielonka, $17^{\circ}07' - 52^{\circ}33\frac{1}{4}'$, 16 Aug 1995, *Danielewicz s.n.* (POZNF); CD1416 – 1 km NE of Staw, $17^{\circ}46\frac{2}{3}' - 52^{\circ}20\frac{1}{2}'$, 6 Jul 1993, *Chmiel s.n.* (POZ); CD6472 – near Taczanów, $17^{\circ}43\frac{1}{2}' - 51^{\circ}50\frac{1}{4}'$, 1998, *Czarna s.n.* (POZ); CD6473 – W of Taczanów, $17^{\circ}44\frac{1}{2}' - 51^{\circ}50\frac{1}{3}'$, 2 Aug 1996, *Czarna s.n.* (POZ); CD7424 – near Taczanów, $17^{\circ}45\frac{1}{4}' - 51^{\circ}47\frac{3}{4}'$, 1998, *Czarna s.n.* (POZ); CD8263 – between Krotoszyn & Chwaliszew by the road to Sulmierzyce, $17^{\circ}28' - 51^{\circ}40'$, 23 Aug 1994, *Zieliński 97/94 & 98/94* (KOR 29791 & 29792b); CD9087 – between Stawiec & Piękokocin Nowy, $17^{\circ}14' - 51^{\circ}33'$, 24 Aug 1995, *Zieliński*

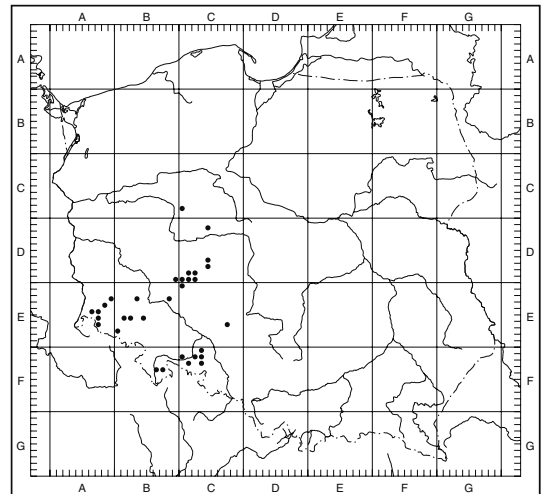


Fig. 167. Distribution of *Rubus schleicheri* Weihe ex Tratt. in Poland.

110/95 & 112/95 (KOR 32438 & 32436); CD9172 – near Pomorsko, $17^{\circ}18' - 51^{\circ}33\frac{1}{2}'$, 20 Sep 1988 & 24 Aug 1995, *Zieliński 2139* (KOR 23404); CE0019 – Milicz, $17^{\circ}16' - 51^{\circ}31\frac{3}{4}'$, 6 Aug 1996, *Zieliński 59/96* (KOR 38279); CE6746 – Kluczbork, $18^{\circ}14\frac{1}{3}' - 50^{\circ}58'$, Jul 1907, *Kinscher s.n.* (KRAM 143187 & 143187b); CF0330 – between Lipno & Jaczowice, $17^{\circ}36' - 50^{\circ}36\frac{3}{4}'$, 20 Jul 1988, *Tomlik & Zieliński Z. 2418* (KOR 25576); CF1321 – between Wierzbie & Sowin, $17^{\circ}37' -$

50°32', 20 Jul 1988, *Tomlik & Zieliński Z. 2415* (KOR 25573); CF2332 – W of Grabina, 205 m, 17°37½'–50°26½', 14 Sep 1999, *Kosiński & Zieliński Z. 131/99* (KOR 41656).

58. *Rubus apricus* Wimm. (Figs 168–170)

Jahresb. Schles. Ges. Vaterl. Cult. **33**: 87. 1856.

TYPE: Streitberg bei Striegau in Schlesien, sine die, *Wimmer 42*, '*R. apricus mihi*' [KOR – LECTOTYPE, designated by Weber & Zieliński (Weber 1998)].

Stems low-arching, terete, rarely bluntly angled, usually suffused red-brown, rather densely, patent-hairy with simple and tufted hairs. Prickles unequal, up to 15(–20) per 5 cm, the largest ones 4–6 mm long, straight and declining or slightly curved, slender, often hairy and with stalked glands at the base, gradually passing into small (gland-tipped) acicles and stalked glands. Leaves pedate, 5-foliolate or partly also 3–4-foliolate, adpressed-hairy above, loosely pubescent with long, patent hairs beneath. Terminal leaflets with short or mid-long petiolules (25–35%), elliptical or obovate, rounded or shallowly cordate at the base, with a (long-)acuminate apex 15–25 mm long, periodically serrate; the serration 3–4(–5) mm deep; principal teeth prominent, straight or recurved. Petiolules of basal leaflets 2–3 mm long. Petioles hairy, with numerous curved prickles, acicles and stalked glands. Stipules filiform. Inflorescence conical to almost cylindrical, usually leafy to the apex. Uppermost leaves simple, grossly serrate, often 2–3-lobed, broadly rounded or cordate at the base. Lower leaves 3-foliolate. Inflorescence axis densely, patent-hairy, with numerous short- or long-stalked glands. Prickles straight or curved, up to 5 mm long. Pedicels 0.5–1.5(–2) cm long, densely hairy, densely glandular and aciculate, besides with slender, slightly curved prickles 2–3(–4) mm long. Sepals grey-hairy, glandular and with small needle-like pricklets, patent or rarely slightly reflexed after anthesis. Petals white, elliptical to obovate, 8–12 mm long. Stamens longer than styles. Anthers glabrous. Carpels hairy or glabrous. Receptacle hairy or glabrous. – $2n = 28$ (Boratyńska 1995 b). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems terete to bluntly angled, patent-hairy and glandular; prickles slender; uppermost leaves of the inflorescence often simple, broadly rounded or cordate at the base, grossly serrate, often lobed. From *R. koehleri* it differs by more hairy leaves, weaker, not crowded prickles, narrower terminal leaflets and usually patent sepals, from *R. siemianicensis* by stronger prickles, deeply serrate leaflets and inflorescences leafy to the apex.

HABITAT. Forest margins, clearings.

DISTRIBUTION IN POLAND. S regions, mainly Dolny Śląsk, S Wielkopolska and Małopolska.

GENERAL DISTRIBUTION. Widespread species. Central Europe: Germany, the Czech Republic and Poland.

SELECTED HERBARIUM SPECIMENS. AE6762 – between Polana Izerska & Świeradów, 15°20½'–50°53¾', 25 Aug 1982, *Boratyńska & Boratyński 294* (KOR); AE7942 – Żar Mt. near Jagniatków, 540 m, 15°38'–50°50', 18 Aug 1982, *Boratyńska & Boratyński 197* (KOR 28036); BC7985 – Kąty, 17°00½'–52°37½', Oct 1930, *Kulesza s.n.* (POZNB); BD4495 – Starkowo, 16°18¾'–51°58¾', 17 Jul 1979, *Zieliński 1253* (KOR 8961); BD8849 – 2 km N of Miejska Górka, 16°57¾'–51°40½', 4 Aug 1997, *Zieliński 86a/97* (KOR 39045); BE2219 – Zimna Woda, 16°07½'–51°19¼', 12 Aug 1995, *Głowacki s.n.* (WSRP); BE2624 – Wołów-Gąsior, 16°37¾'–51°19½', 24 Aug 1987, *Zieliński 1879* (KOR); BE2741 – between Bukowice & Lipnica, 16°44'–51°18½', 25 Aug 1987, *Zieliński 1916* (KOR); BE2872 – NE of Jary, 16°52¾'–51°17½', 18 Aug 1995, *Głowacki s.n.* (WSRP); BE5028 – near Sokolowice, 360 m, 15°50¾'–51°02½', 30 Jul 1986, *Awzan & Boratyński SU 1080 & 1081* (KOR); CD4289 – Deczno, 17°31¾'–52°00', 27 Aug 1996, *Czarna s.n.* (POZ); CD8650 – S of Śliwniki Stare, 17°59½'–51°40½', 16 Jul 1997, *Zieliński 64/97* (KOR); CD8822 – NW of Szczytniki by the road to Kalisz, 18°18¾'–51°42¼', 22 Sep 1989, *Zieliński 2191 p.p.* (KOR 25561a); CE5976 – near Strojec, 18°31'–51°02', 24 Jul 1991, *Zieliński 2942* (KOR 24820); CF3883 – N of Stara Kuźnia, 18°20½'–50°18½', 18 Jul 1988, *Tomlik & Zieliński Z. 2369* (KOR 22850); DB6799 – near Grzmiąca, 19°43'–51°49½', 6 Sep 1988, *Zieliński 2487* (KOR 24857); DE0354 – Sędziejowice, 19°04'–51°30', 9 Aug 1928, *Niedziatkowski s.n.* (WA); DE6647 – Włynice, 19°31¾'–50°58½', Aug 1924, *Kulesza s.n.* (LW 056728 & 111140); ED1383



Fig. 168. *Rubus apricus* Wimm. (Tomlik & Zieliński, in Zieliński 2224, KOR 31563). Scale bar = 5 cm.

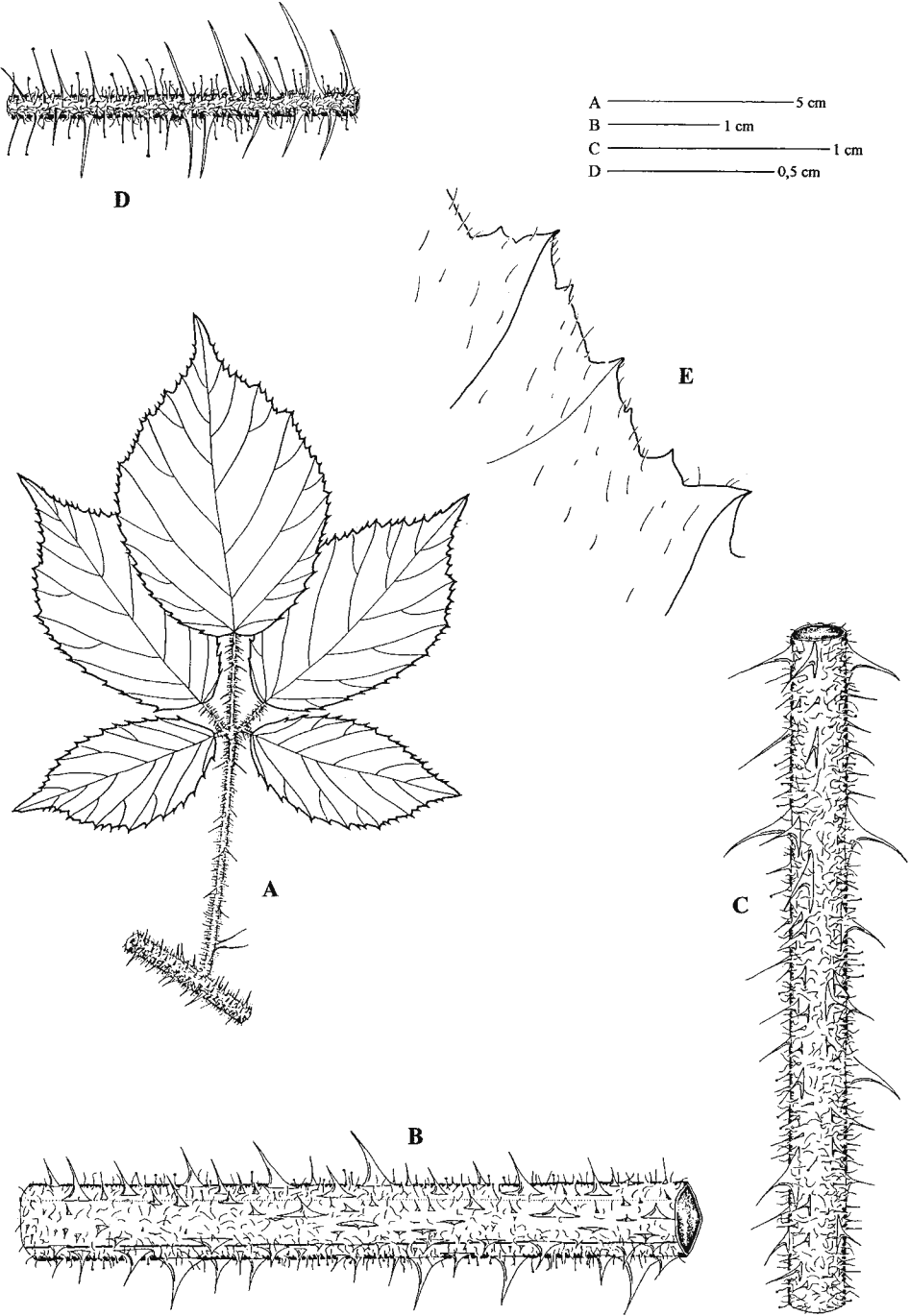


Fig. 169. *Rubus apricus* Wimm. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Tomlik & Zieliński, in Zieliński 2224, KOR 31563).

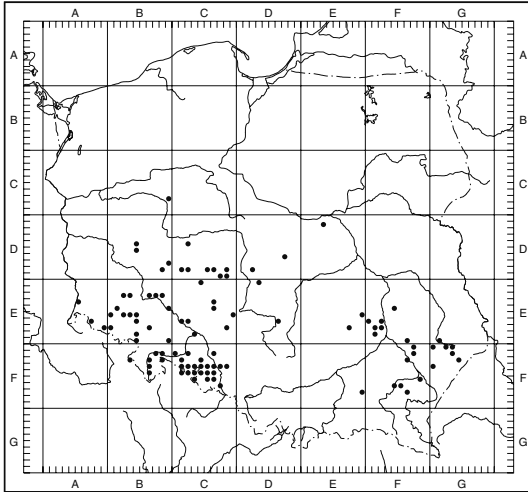


Fig. 170. Distribution of *Rubus apricus* Wimm. in Poland.

– Korfowe, $20^{\circ}31' - 52^{\circ}16\frac{1}{2}'$, 24 Aug 1990, *Głowański s.n.* (WSRP); EE5999 – near Ostrowiec Świętokrzyski, $21^{\circ}25' - 50^{\circ}59\frac{2}{3}'$, 16 Jul 1989, 19 & 21 Jul 1990, *Maciejczak s.n.* (KTC); EE7715 – near Serwis, $21^{\circ}04\frac{1}{2}' - 50^{\circ}53\frac{1}{3}'$, 29 Sep 1986, *Kapuściński 61* (SKPN); FE4493 – Ludwików, $22^{\circ}03' - 51^{\circ}04'$, 3 Aug 1964, *Fijałkowski s.n.* (LBL); FE6294 – near Lasocin, $21^{\circ}45\frac{1}{2}' - 50^{\circ}53\frac{3}{4}'$, Sep 1896, *Piotrowski 587 & 590* (LW 055727 & 055728); FE9662 – Łązek Ordynacki, $22^{\circ}17\frac{1}{2}' - 50^{\circ}38\frac{1}{3}'$, 3 Aug 1993, *Oklejewicz s.n.* (KOR 30563); GE9166 – near Kosobudy towards Zwierzyniec, $23^{\circ}03\frac{1}{4}' - 50^{\circ}37'$, 26 Aug 1993, *Boratyńska et al. 51/93* (KOR 31412); GF0077 – near Tereszpol Kukielki, $22^{\circ}55' - 50^{\circ}31\frac{1}{2}'$, 25 Aug 1993, *Boratyńska et al. 47/93* (KOR 31169); GF2496 – Huta Lubycka, $23^{\circ}26\frac{1}{2}' - 50^{\circ}18\frac{1}{3}'$, 13 May 1965, *Fijałkowski s.n.* (LBL); GF3006 – Wola Obszańska, $22^{\circ}52\frac{3}{4}' - 50^{\circ}19'$, 2 Sep 1964, *Fijałkowski s.n.* (LBL).

59. *Rubus lignicensis* Figert (Figs 171–173)

Allgem. Bot. Zeitschr. Syst. 12: 56. 1906.

TYPE: Liegnitz: Höhen bei Bremberg, 16.9.1902, *Figert*, Herb. Zinsmeister (M – LECTOTYPE, W – ISOLECTOTYPE; Weber 1987).

Stems procumbent or low-arching, obtusely angled, glabrous or with few scattered or tufted hairs. Prickles 10–15 per 5 cm, rather uniform, 3–5 mm long, \pm curved or straight, strongly de-

clining, with stout, decurrent base, both on the angles and between them. Acicular prickles few. Stalked glands numerous, 0.5–1 mm long. Intermediates between prickles and stalked glands few or absent. Leaves (4–)5-foliolate, pedate, with scattered hairs above, sparsely hairy on the veins beneath, without stellate hairs. Terminal leaflets with short or mid-long petiolules (25–35%), (ovate-)elliptical, cordate at the base, with a gradually acuminate apex 20–25 mm long, periodically, rather shallowly serrate, principal teeth indistinctly prominent, usually recurved. Basal leaflets of 4-foliolate leaves usually gibbous. Petioles loosely hairy with tufted hairs. Prickles rather numerous, \pm curved, 2–2.5 mm long. Stalked glands 0.5–1.5 mm long. Stipules filiform to linear. Inflorescence usually short, rather weakly branched. Lower leaves 3-foliolate, usually more densely hairy than those of the stems. Inflorescence axis hairy but its surface visible through the indumentum. Prickles rather numerous, slender, slightly curved or straight, declining, partly acicular. Stalked glands 0.5–1 mm long, the longest ones exceeding hairs. Sepals densely grey-hairy, with acicles and sessile glands, patent or reflexed after anthesis. Petals obovate, white. Stamens longer than styles. Anthers glabrous. Carpels glabrous or subglabrous. Receptacle sparsely hairy. – $2n = ?$ – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems procumbent or low-arching; prickles fairly uniform, strongly declining; leaves 4–5-foliolate, pedate; terminal leaflets usually elliptical, grossly but shallowly serrate.

HABITAT. Thickets, forest margins, clearings in deciduous forests.

DISTRIBUTION IN POLAND. Very rare in Dolny Śląsk, between Legnica and the Nysa Łużycka valley, possibly undercollected.

GENERAL DISTRIBUTION. Regional species. SW Poland and SE Germany (Lausitz).

According to Figert (1906) the species is rather widespread in Śląsk. In spite of the special search I did not find it in the field.

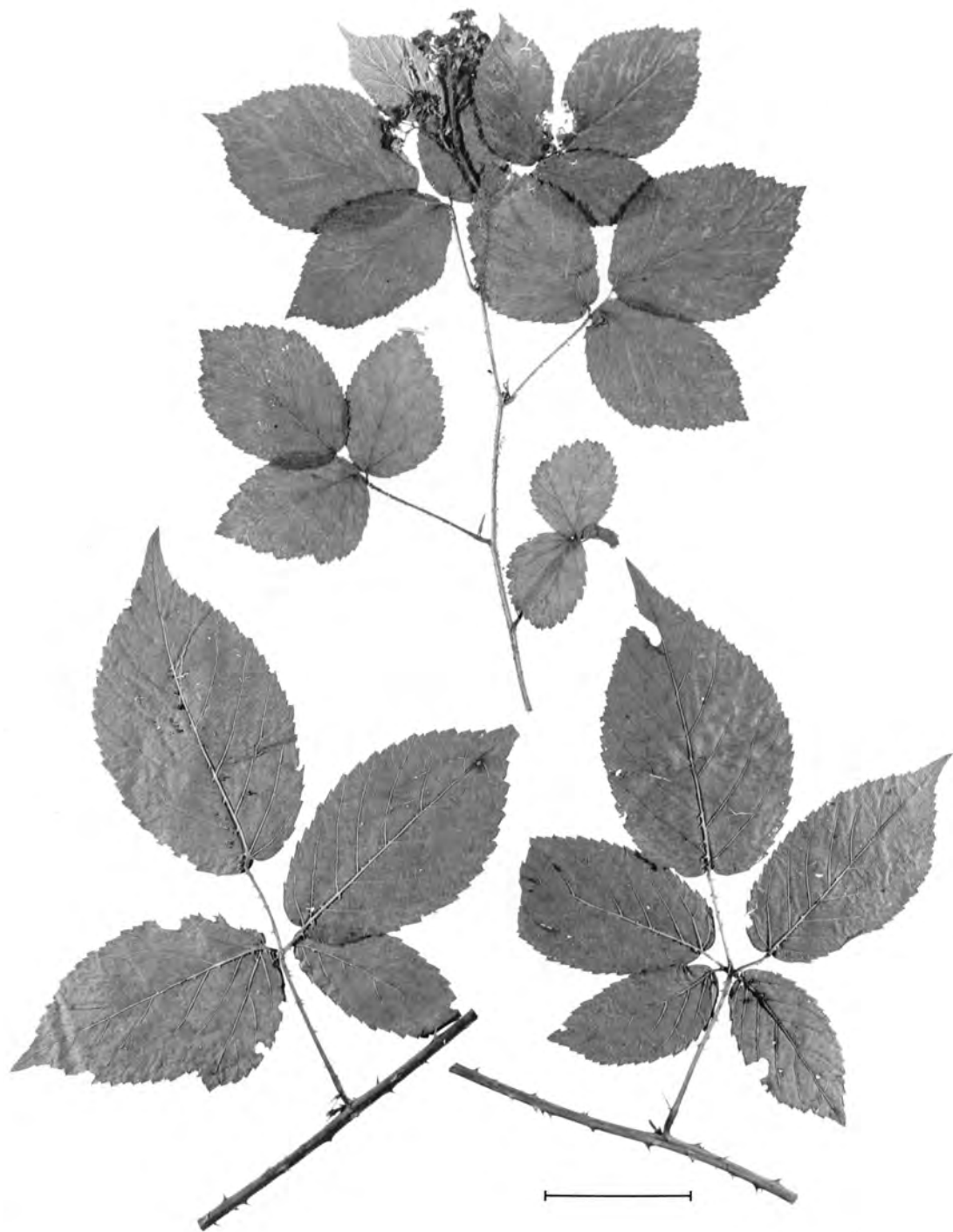


Fig. 171. *Rubus lignicensis* Figert (Figert s.n., W). Scale bar = 5 cm.

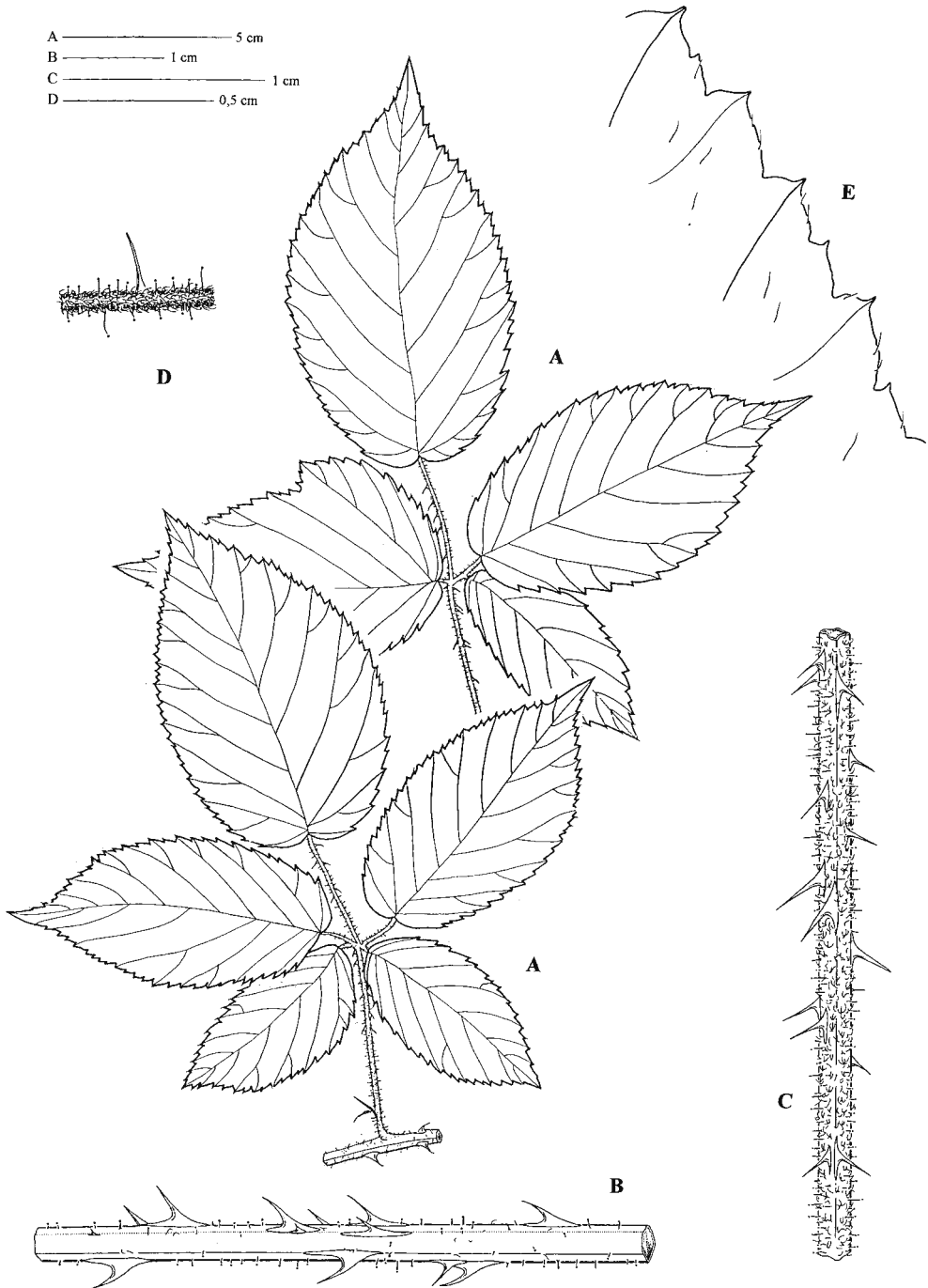


Fig. 172. *Rubus lignicensis* Figert. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Figert s.n., W).

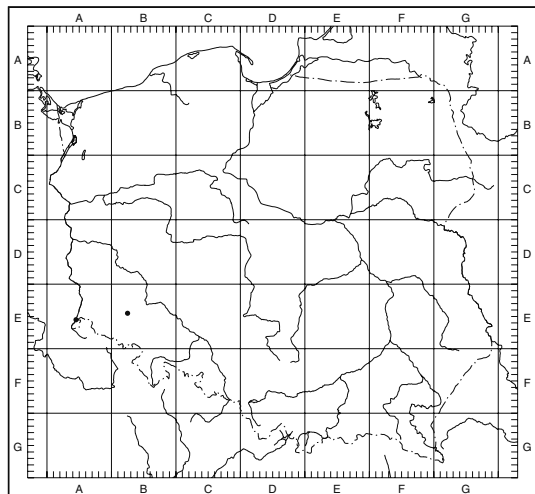


Fig. 173. Distribution of *Rubus lignicensis* Figert in Poland.

SPECIMENS SEEN. AE5434 – on the bank of the Nysa Łużycka River, near Bratków, 14°56′–51°00′, 24 Jul 1901, *Barber s.n.* (GLM 6147 & 6148); BE4278 – Żarek, 16°07½′–51°05½′, 16 Sep 1902, *Figert s.n.* (W).

Series *Glandulosi* (Wimm. & Grab.) Focke

Syn. Rub. Germ.: 355. 1877.

Basionym: *Rubus b. Glandulosi* Wimmer & Grab. Fl. Silles. 2/1: 33. 1829.

TYPE: *Rubus glandulosus* Bellardi

Stems procumbent or low-arching. Prickles usually slender, awl-shaped, straight, decurrent at the base or not, grading into needle-like pricklets and long-stalked glands. Inflorescence axis armed like the stems.

NOTES. Contrary to the other series of the subgenus *Rubus* within the series *Glandulosi* the sexual reproduction plays similar role as the apomixis, thus the number of stabilized morphotypes, which could be treated as agamic species, is rather low. The representatives of *Glandulosi* are innumerable mainly local morphotypes playing an important role in forest communities, chiefly in submontane regions. This group is strikingly differentiated morphologically, but there are no perceptible correlations between their characters.

Practical classification of the series *Glandulosi* needs further studies. Traditionally the forms with dark (red, violet or black) stalked glands are separated from forms with bright (yellowish or grey) glands as *R. hirtus* Waldst. & Kit. *s.l.* (Weber 1883). This division, however, is fully artificial because the colour of glands is not correlated with other characters, besides there are very numerous morphotypes with an intermediate colour of glands. It is possible that the name *R. glandulosus* Bellardi (as the older one) should be used instead of *R. hirtus*, but the latter name is commonly used in floristic and geobotanical studies.

60. *Rubus holzfussii* Sprib. (Figs 174–176)

Festschrift P. Ascherson's siebzigsten Geburtstag: 344. 1904.

TYPE: Kreis: Groß Strehlitz: Olschowaer Wald, 22.7.1903, *Spribille s.n.* (WRSL – LECTOTYPE, designated here).

Stems low-arching or procumbent, terete or bluntly angled, glabrous or exceptionally with very few, scattered hairs. Prickles 10–16(–20) per 5 cm, straight, usually slightly declining, slender, yellowish, 4–5 mm long, grading into small needle-like prickles and stalked glands. Leaves 5-foliolate, digitate or subpedate, with few adpressed hairs or glabrous above, loosely hairy on the veins beneath. Leaflets not contiguous, terminal ones with mid-long petiolules (28–30%), elliptical or obovate, narrowly rounded or emarginate at the base, with a long-acuminate apex 12–15 mm long, rather evenly serrate; principal teeth not or only slightly prominent. Petiolules of basal leaves 2–3 mm long. Petioles sparsely hairy, with straight or slightly curved, declining, awl-like prickles 2–3 mm long. Stalked glands 0.3–1.2 mm long. Stipules narrowly lanceolate to filiform. Inflorescence narrowly conical, usually leafless above, with 3-foliolate leaves below. Inflorescence axis sparsely hairy, with slender, straight, declining prickles 2(–3) mm long and numerous stalked glands 0.5–1.5 mm long. Pedicels 0.5–1.5 cm long, densely hairy, with needle-like, very slender, straight, yellow prickles 1–3 mm long. Glands short- to long-stalked, at least partly



Fig. 174. *Rubus holzfussii* Sprib. (Spribille s.n., BREM). Scale bar = 5 cm.

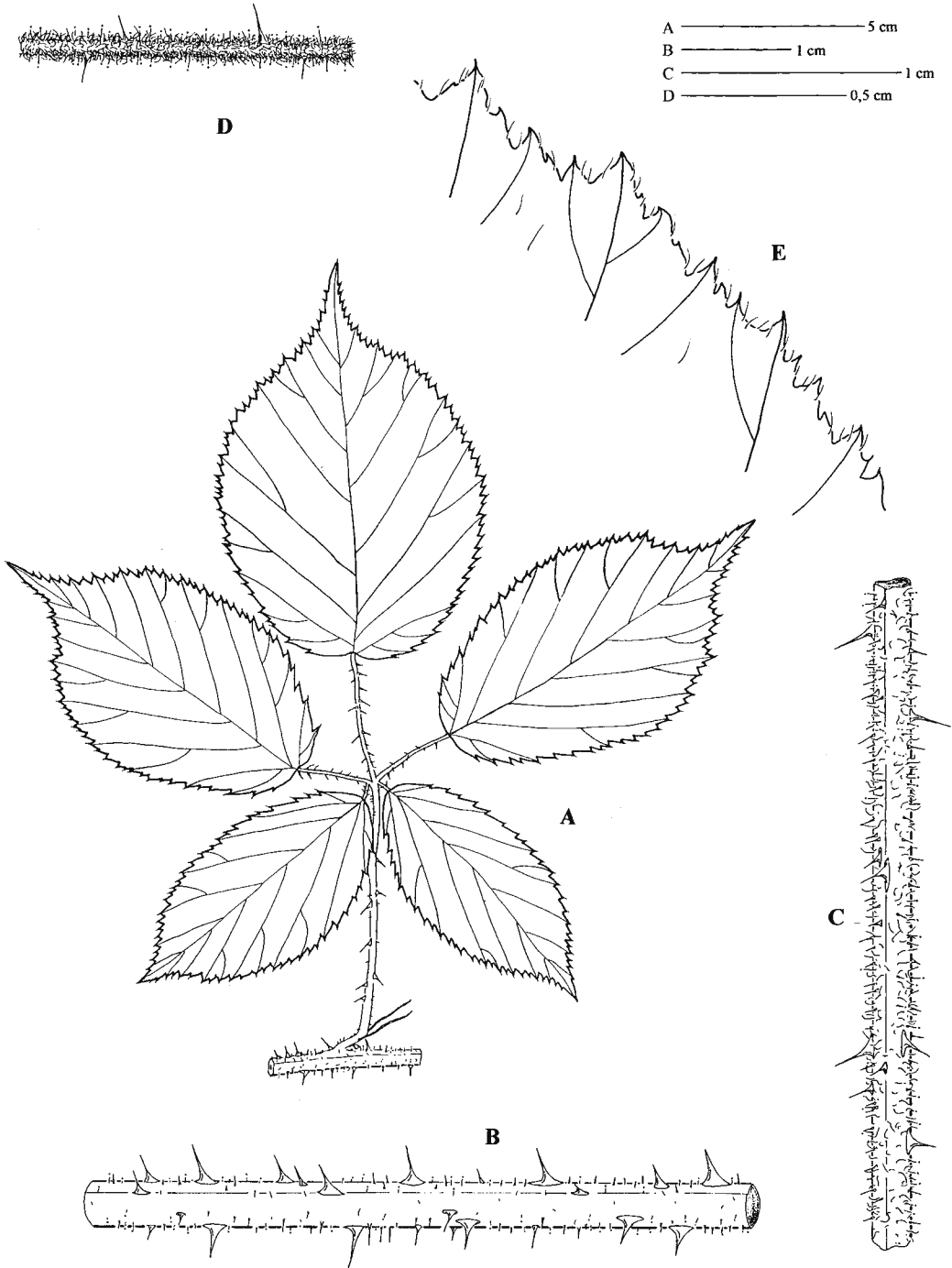


Fig. 175. *Rubus holzfussii* Sprib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribille s.n.*, BREM).

longer than the diameter of pedicels. Sepals grey-felted, with stalked glands and needle-like prickles, reflexed or patent after anthesis. Petals white, obovate, 8–9 mm long. Stamens longer than styles. Anthers glabrous. Carpels and receptacle glabrous. – $2n = ?$ – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems glabrous; prickles yellowish mixed with needle-like acicles and stalked glands; terminal leaflets ovate or obovate, long-acuminate; inflorescence narrow; sepals patent or reflexed.

HABITAT. Forest margins, clearings, on rich, moderately wet soils.

DISTRIBUTION IN POLAND. Dolny Śląsk, chiefly in the Opole district.

GENERAL DISTRIBUTION. Regional species, known only from Poland.

SPECIMENS SEEN. BF0810 – Bukowa Góra (384 m) S of Baldwinowice & E of Bobolice, $16^{\circ}53' - 50^{\circ}37\frac{1}{2}'$, 1 Aug 1904, 18 Jul 1905 & 13 Aug 1908, *Kinscher s.n.* (BM, PR & WRSL); CF2194 – near Nowy Świątów, $17^{\circ}22\frac{1}{2}' - 50^{\circ}22\frac{3}{4}'$, 24 Jul 1904, *Spribille s.n.* (WRSL); CF2647 – Rozwadza, $18^{\circ}07\frac{1}{2}' - 50^{\circ}25\frac{3}{4}'$, 1 Aug 1906, *Spribille s.n.* (WRSL); CF2729 – SE of Olszowa, $18^{\circ}17\frac{1}{2}' - 50^{\circ}27'$, 22 Jul 1903 & 30 Jul 1904, *Spribille s.n.* (BREM & WRSL); CF3640 – Twardawa, $18^{\circ}01\frac{1}{2}' -$

$50^{\circ}20\frac{1}{2}'$, 1901, *Rinser s.n.* (WRSL); CF3753 – near Kędzierzyn-Koźle by the road to Pogorzelec, $18^{\circ}12\frac{1}{3}' - 50^{\circ}20\frac{1}{3}'$, 18 Jul 1906, *Spribille s.n.* (WRSL); CF4463 – Głubczyce Las, $17^{\circ}47' - 50^{\circ}14'$, 24 Jul 1904, *Spribille s.n.* (WRSL); CF4607 – near Długomiłowice, $18^{\circ}07\frac{1}{2}' - 50^{\circ}17\frac{1}{4}'$, 1 Aug 1906, *Spribille s.n.* (WRSL); CF4692 – Radoszowy, $18^{\circ}03\frac{1}{2}' - 50^{\circ}12\frac{1}{2}'$, 7 Aug 1905, *Spribille s.n.* (WRSL); CF5615 – Wronin, $18^{\circ}06' - 50^{\circ}11\frac{2}{5}'$, 7 Aug 1905, *Spribille s.n.* (WRSL); CF5653 – NNW of Krowiarki, $18^{\circ}04\frac{1}{2}' - 50^{\circ}09\frac{1}{3}'$, 12 Aug 1908, *Spribille s.n.* (WRSL).

61. *Rubus ostroviensis* Sprib. (Figs 177–179)

Deutsche Ges. Kunst Wiss. Posen. Zeitschr. Naturwiss. Abt. **9**: 142. 1902.

Rubus ostroviensis Sprib., Abh. Bot. Ver. Brandenb. **39**: 49. 1897, *nom. prov.*

TYPE: Os.: Wturker Wald, 11.9.1898 (WRSL – LECTOTYPE, designated here).

Stems low-arching, bluntly angled, loosely patent-hairy. Largest prickles 7–15 per 5 cm, on angles or between them, 3–5 mm long, straight, declining, with a markedly decurrent (up to 7 mm), violet-red base, grading into small needle-like prickles and scattered stalked glands. Leaves 5-foliolate, pedate, rarely also 3-foliolate, dull and with few scattered hairs above, with pectinately arranged, shimmering hairs on the veins beneath, without stellate hairs. Terminal leaflets with mid-long petiolules (about 30%), (broadly) elliptical, rarely ovate-elliptical, shallowly cordate at the base, with a long-acuminate apex (15–)20–30 mm long, sharply, periodically serrate, principal teeth prominent, straight or slightly recurved. Petiolules of basal leaflets 3–6 mm long. Petioles usually longer than the basal leaflets, loosely hairy on the upper side, with few small acicles and stalked glands. Prickles slender, declining, slightly curved, 2–3 mm long, violet-red at the base. Stipules filiform. Inflorescences broadly conical, widely branched. Lower leaves 3-foliolate, more densely hairy than those of the stem. Inflorescence axis rather loosely hairy with tufted hairs, curled adpressed hairs and long patent hairs. Prickles fairly few, 3–4 mm long, slender, straight or slightly curved, retrorse, markedly decurrent, suffused violet-red, grading into smaller needle-like prick-

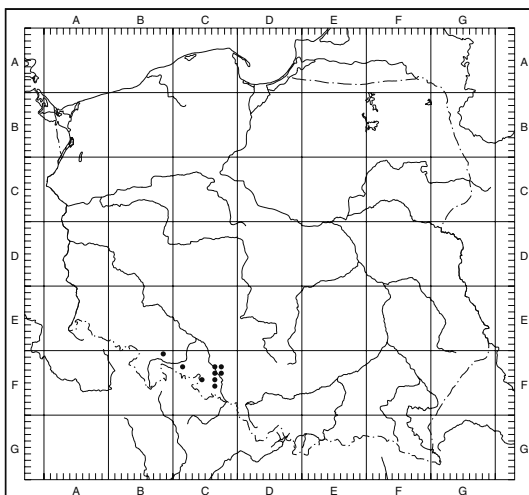


Fig. 176. Distribution of *Rubus holzfussii* Sprib. in Poland.



Fig. 177. *Rubus ostroviensis* Sprib. (*Spribille s.n.*, WRSL). Scale bar = 5 cm.

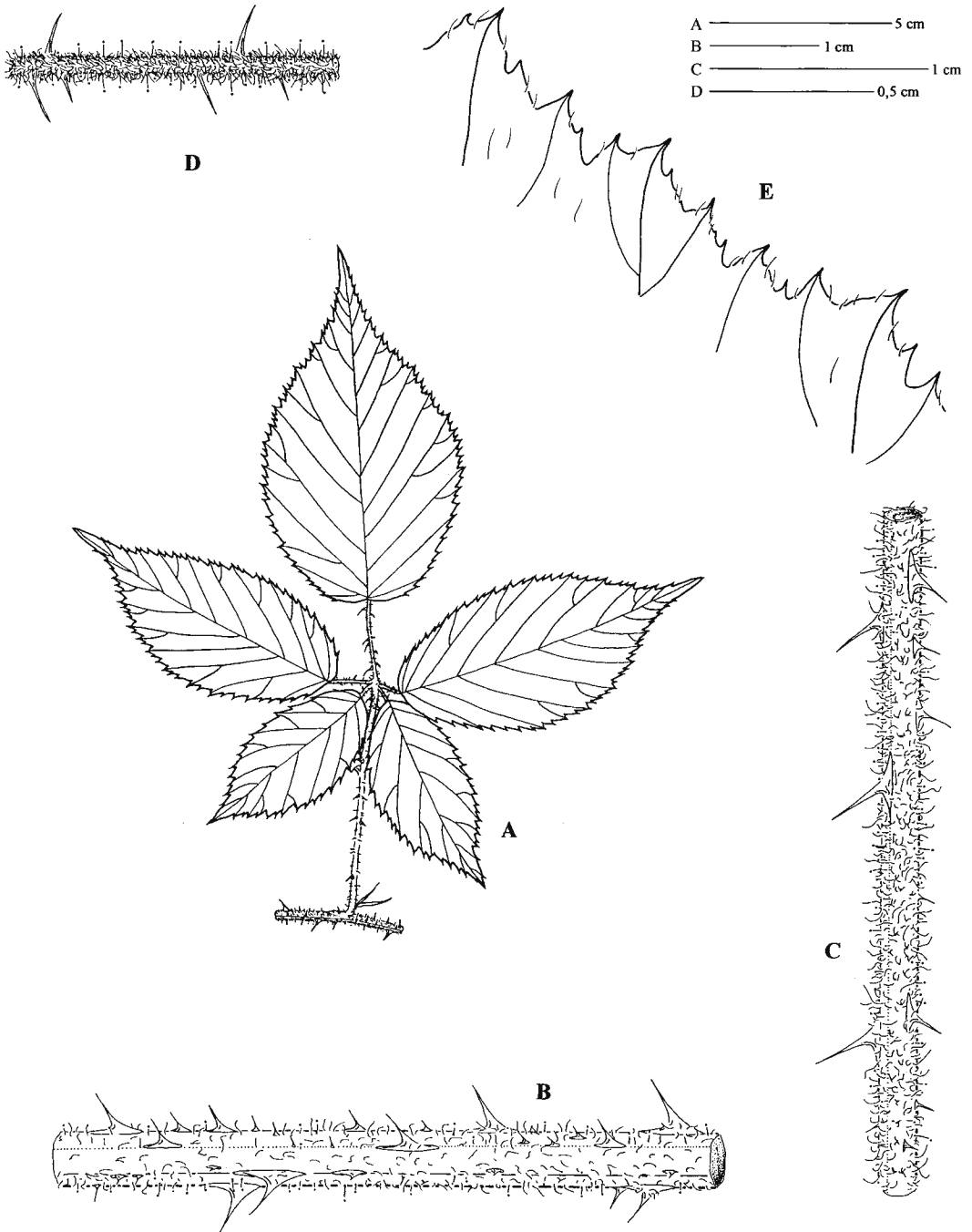


Fig. 178. *Rubus ostroviensis* Sprib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 100/94, KOR 29616).

lets and scattered stalked glands up to 1 mm long. Pedicels 0.5–1.5 cm long, shortly hairy; hairs shorter than the diameter of pedicel. Prickles up to 1.5(–2) mm long, straight or slightly curved. Stalked glands mostly not longer than the diameter of pedicel, partly exceeding the indumentum. Sepals green-grey, densely adpressed-hairy, with some longer patent hairs, small acicles and stalked glands, reflexed or patent after anthesis. Petals white. Stamens longer than styles. Anthers and carpels glabrous. Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems low arching, patent-hairy; prickles strongly declining, distinctly decurrent, reddish at the base, grading into acicles and stalked glands; leaflets sharply, periodically serrate, with shimmering hairs, pectinately arranged on the veins; inflorescence widely branched.

Species closely related to *R. siemianicensis*, from which it differs by angled, less hairy stems, periodically serrate leaflets and broader, more branched inflorescences.

HABITAT. Woods, wood margins, clearings.

DISTRIBUTION IN POLAND. Mainly S Wielkopolska and Dolny Śląsk.

GENERAL DISTRIBUTION. Regional species, endemic to Poland.

SELECTED HERBARIUM SPECIMENS. BD1842 – Wiry, $16^{\circ}50' - 52^{\circ}18'$, 12 Sep 1995, *Zieliński s.n.* (KOR 32775); BD7994 – near Gogolewo, $17^{\circ}02' - 51^{\circ}43\frac{1}{6}'$, 6 Aug 1997, *Zieliński 93/97* (KOR 39068); CD4094 – Włociszewice-Ługi, $17^{\circ}10\frac{3}{4}' - 51^{\circ}59\frac{1}{4}'$, 3 Jul 1996, *Czarna s.n.* (POZ); CD5030 – near Mszczyszczyn, $17^{\circ}07' - 51^{\circ}57'$, 8 Sep 1994, *Boratyńska, Dolatowska & Zieliński Z. 184/94* (KOR 29388); CD5040 – 2 km NE of Mszczyszczyn, $17^{\circ}07' - 51^{\circ}56\frac{3}{4}'$, 8 Aug 1996, *obs. Zieliński*; CD6018 – 0.5 km of Siedmiorogów, $17^{\circ}13\frac{3}{5}' - 51^{\circ}53'$, 8 Aug 1996, *obs. Zieliński*; CD6472 – near Taczanów, $17^{\circ}43\frac{1}{2}' - 51^{\circ}50\frac{1}{4}'$, 1998, *Czarna s.n.* (POZ); CD6484 – near Taczanów, $17^{\circ}45\frac{1}{4}' - 51^{\circ}49\frac{2}{3}'$, 1998, *Czarna s.n.* (POZ); CD7424 – near Taczanów, $17^{\circ}45\frac{1}{3}' - 51^{\circ}47\frac{3}{4}'$, 1998, *Czarna s.n.* (POZ); CD7465 – E of Bieganin, NW of Górzno, $17^{\circ}46\frac{1}{2}' - 51^{\circ}45\frac{1}{2}'$, 17 Jul 1997, *Zieliński 72/97* (KOR 39082); CD7476 – W of Biniew, $17^{\circ}47\frac{1}{2}' - 51^{\circ}44\frac{2}{3}'$, 10 Jul 1998, *Czarna s.n.* (POZ);

CD7485 – NW of Biniew, $17^{\circ}46\frac{1}{2}' - 51^{\circ}44\frac{1}{2}'$, 17 Jul 1997, *Zieliński 73/97* (KOR); CD8263 – between Krotoszyn & Chwaliszew by the road to Sulmierzyce, $17^{\circ}28' - 51^{\circ}40'$, 23 Aug 1994, *Zieliński 100/94 & 95/94* (KOR 29616 & 29736); CD8369 – between Łąkociny & Lamki, $17^{\circ}41\frac{1}{2}' - 51^{\circ}39\frac{2}{3}'$, 17 Jul 1997, *Zieliński 79/97* (KOR); CD8381 – E of Chwaliszew, by the road between Biadki & Chruszczyn, $17^{\circ}34\frac{1}{2}' - 51^{\circ}38\frac{2}{3}'$, 10 Jul 1995, *Zieliński 10/95, 12/95 & 9/95* (KOR 32883–32886); CD8418 – 1.5–2 km SE of Szczurowice, $17^{\circ}49' - 51^{\circ}42\frac{2}{3}'$, 17 Jul 1997, *Zieliński 71/97* (KOR 39083); CD8573 – Wtorek, $17^{\circ}53\frac{2}{3}' - 51^{\circ}39\frac{1}{4}'$, 11 Sep 1898, *Spribille s.n.* (WRSL); CD8682 – SE of Psary, $18^{\circ}01\frac{1}{3}' - 51^{\circ}39'$, 15 Jul 1997, *Zieliński 60/97* (KOR); CD9302 – S of Chruszczyn, by the road between Sulmierzyce & Piaski, $17^{\circ}35\frac{1}{2}' - 51^{\circ}37\frac{2}{3}'$, 25 Aug 1995, *Zieliński 137/95* (KOR 32415); CD9334 – Wisławka, $17^{\circ}37' - 51^{\circ}36'$, 9 Jul 1998, *Pawłowski s.n.* (POZ); CD9427 – between Janków Przygodzicki & Ostrów Wielkopolski, $17^{\circ}48\frac{2}{3}' - 51^{\circ}37'$, 23 Aug 1995, *Zieliński 107/95* (KOR 32441); CE0196 – S of Krośnice, by the road to Bukowice, $17^{\circ}22' - 51^{\circ}27\frac{1}{3}'$, 28 Aug 1912, *Spribille s.n.* (WRSL); CE1046 – near Skoroszów, $17^{\circ}13\frac{1}{3}' - 51^{\circ}24\frac{2}{3}'$, 24 Oct 1911, *Spribille s.n.* (WRSL); CE1362 – between Kamień & Wydzierno, $17^{\circ}36' - 51^{\circ}23\frac{3}{4}'$, 20 Sep 1912, *Spribille s.n.* (WRSL); CE6746 – Kluczbork, $18^{\circ}14\frac{1}{3}' - 50^{\circ}58'$, 4 Jul 1907, *Kinscher s.n.* (PR); CE6950 – near Skrońsko by the road to Boroszów, $18^{\circ}26\frac{1}{2}' - 50^{\circ}57\frac{2}{3}'$, 19 Jul 1908, *col. ign.* (WRSL); CE6963 – Biskupice, $18^{\circ}28\frac{1}{2}' - 50^{\circ}57'$, 6 Oct 1906, *Spribille s.n.* (WRSL); CF4455 – 1 km N of Królowe, $17^{\circ}49' - 50^{\circ}14\frac{2}{3}'$, 25 Aug 1994, *Zieliński*

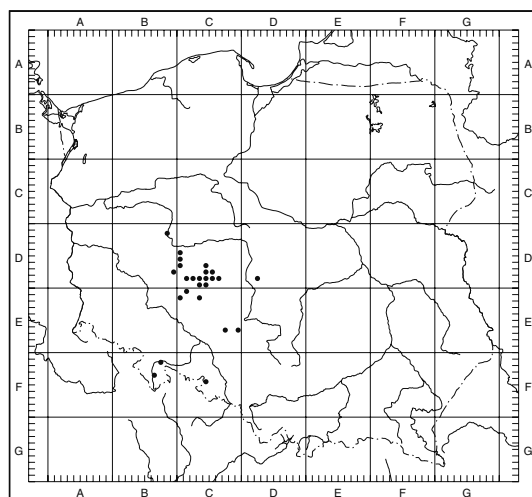


Fig. 179. Distribution of *Rubus ostroviensis* Sprib. in Poland.

ski 159/94 (KOR 29631); CF4473 – NW of Głubczyce, 270 m, 17°47½'–50°13¾', 12 Sep 1999, *Kosiński & Zieliński 86/99* (KOR 41695).

62. *Rubus siemianicensis* Sprib. (Figs 180–182)

Deutsche Ges. Kunst Wiss. Posen. Zeitschr. Naturwiss. Abt. 9: 124. 1902. – *Rubus siemianicensis* Sprib., Verh. Bot. Ver. Brandenb. 40:16. 1898, *nom. prov.* – *R. glaucovirens* Maass var. *siemianicensis* Sprib., Verh. Bot. Ver. Brandenb. 41: 212. 1899, *nom. nudum* – *R. glaucovirens* Maass var. *siemianicensis* Sprib., Jahresb. Preuss. Bot. Ver. 1898/99: 13. 1899, *nom. prov.*

TYPE: Marianka Siemiańska, 3 km SWW of Siemianice, 7.08.1992, *Zieliński 102/92* (KOR – NEOTYPE *ex loco classico*, designated here).

Stems low-arching or prostrate, terete or bluntly angled, with very numerous short and long simple and tufted hairs. Prickles 12–20 per 5 cm, 3–5 mm long, rather slender, slightly curved, retrorse, red at the base, with yellow or brown-yellow tips, usually grading into acicles, pricklets and rather sparse stalked glands. Leaves 5-foliolate, pedate or partly 3-foliolate, with sparse to numerous adpressed hairs above, with simple, usually pectinately arranged hairs on the veins beneath. Terminal leaflets with mid-long petiolules (26–35%), elliptical or obovate, rounded or emarginate at the base, with an acuminate apex 15–20(–25) mm long, usually convex, rather irregularly serrate; teeth apiculate, principal ones often distinctly recurved. Petiolules of basal leaflets 2–3(–4) mm long. Petioles longer or shorter than the basal leaflets, with patent hairs, few stalked glands and slender, straight or slightly curved prickles 2–2.5 mm long. Stipules filiform to filiform-linear, with sparse long hairs, without or with stalked glands. Inflorescence narrowly conical, rather short, weakly branched, sometimes racemose, leafless above, with 3-foliolate leaves below, slightly nodding at the apex. Inflorescence axis usually with very numerous long simple and tufted hairs, bright stalked glands and sessile orange-yellow glands hidden in hairs. Prickles 2–3(–5) mm long, slender but with a decurrent base, slightly curved or straight, patent or somewhat declining, grading into pricklets, gland-tipped acicles and stalked

glands. Pedicels 1–2 cm long, densely shortly hairy, with few longer patent hairs. Stalked glands 0.3–0.8(–1) mm long exceeding hairs, partly longer than the pedicel diameter. Prickles slender, slightly curved or straight, patent, yellow, 0.5–2 (–2.5) mm long. Sepals long, narrow, grey-green, densely hairy, reflexed or patent after anthesis. Petals white, narrowly obovate or elliptical, 7–9 mm long. Stamens longer than styles. Anthers and carpels glabrous. Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems usually prostrate, densely hairy, with rather few stalked glands; prickles short, reddish at the base; terminal leaflets usually convex; inflorescence rather short, normally weakly branched, sometimes racemose, usually slightly nodding.

HABITAT. Deciduous and mixed forests, usually on rich soils.

DISTRIBUTION IN POLAND. Mainly in the south, S Wielkopolska and S regions of Dolny Śląsk, locally very common.

GENERAL DISTRIBUTION. Widespread species, but known mainly from Poland; recently found by the author in NE part of the Czech Republic (vouchers in Kórnik, e.g. *Zieliński 100/98*, KOR 39912).

SELECTED HERBARIUM SPECIMENS. BF0781 – Grochowa, 16°45½'–50°33¼', 2 Jul 1905, *Kinscher s.n.* (PR & W); CD5030 – NE of Mszczyszyn, 17°07'–51°57', 20 Sep 1988, *Zieliński 2118 & 2119* (KOR 27979 & 27855); CD8132 – 1 km NE of Baszków, 17°18'–51°41½', 7 Aug 1996, *Zieliński 61/96* (KOR 38277); CE2474 – between Syców & Gola, 17°46½'–51°18', 26 Aug 1977, *Zieliński 1142* (KOR 8733); CE2537 – 5–6 km NW of Kępno, 17°57¾'–51°20', 23 Aug 1994, *Zieliński 115/94* (KOR 29626); CE4710 – Łęka Opatowska, 18°08¾'–51°10¾', 27 Aug 1899, *Spribille s.n.* (POZ); CE6139 – by the road from Bystrzyca to Wojcice, 17°25½'–50°58½', 22 Jul 1902, *Spribille s.n.* (BREM, KOR 29618 & WRSL); CE6963 – Biskupice, 18°28½'–50°57', 31 Jul 1907, *Spribille s.n.* (WRSL); CE7734 – 2 km of Jasienie towards Opole, 18°12½'–50°53½', 6 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 6/98* (KOR 39962); CE8134 – Przylesie, 17°22'–50°47½', 20 Oct 1914, *Spribille s.n.* (WRSL); CE9158 – Grodków,



Fig. 180. *Rubus siemianicensis* Sprib. (Zieliński 102/92, KOR 29362). Scale bar = 5 cm.

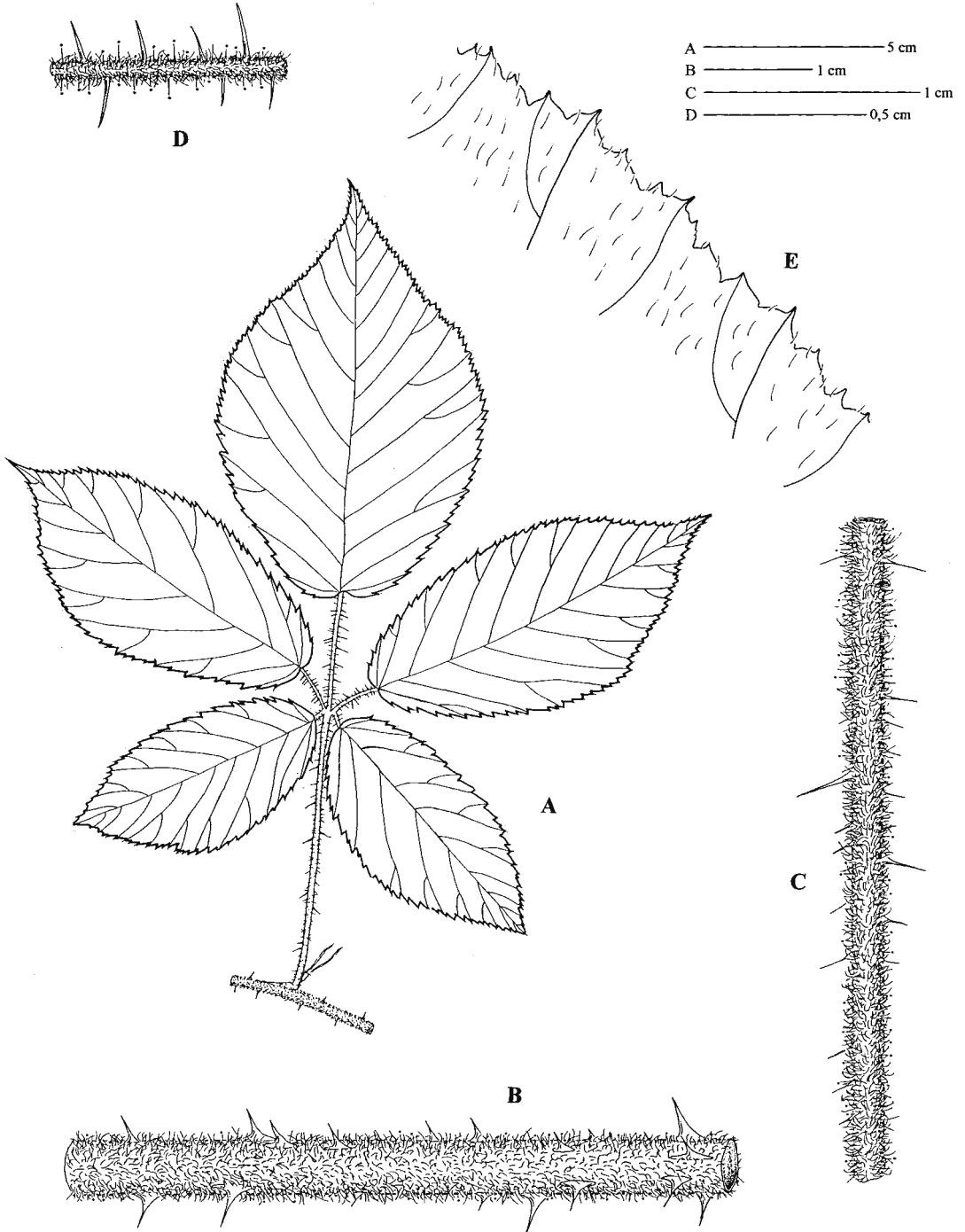


Fig. 181. *Rubus siemianicensis* Sprib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 129/94, KOR 29633).

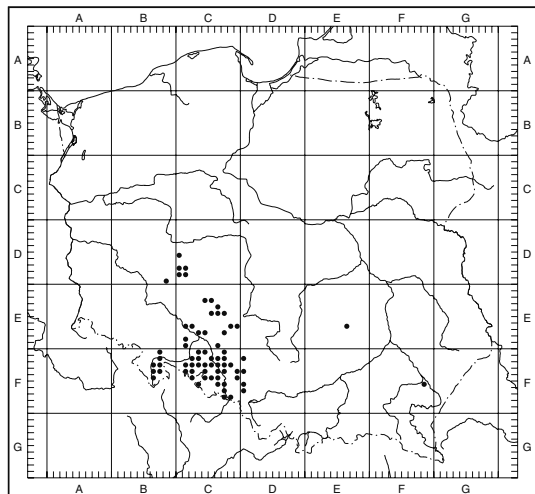


Fig. 182. Distribution of *Rubus siemianicensis* Sprib. in Poland.

17°25½'–50°41½', 9 Oct 1914, *Spribille s.n.* (WRSL); CE9605 – Turawa, 18°05½'–50°44½', 22 Aug 1996, *Danielewicz & Maliński s.n.* (POZNF); CF0779 – between Rozmierka & Kadłub, 18°17'–50°35', 6 Sep 1907, *Spribille s.n.* (WRSL); CF1745 – Szymiszów, 18°13½'–50°31¼', 9 Sep 1907, *Spribille s.n.* (WRSL); CF7855 – between Rogów & Czyżowice, SWW of Wodzisław Śląski, 18°23'–49°58½', 25 Aug 1994, *Zieliński 154/94* (KOR 29627); DF1020 – near Kielcza, by the road to Gliwice, 18°35'–50°32½', 24 Aug 1994, *Zieliński 119/94 & 122/94* (KOR 29624 & 29629); DF3043 – Gliwice-Łąbędy, 18°37½'–50°21', 24 Aug 1994, *Zieliński 127/94* (KOR 29628); DF5089 – Bełk, 18°43'–50°07¾', 24 Jul 1903, *Spribille s.n.* (WRSL); DF6000 – Paruszowiec, 18°35'–50°06½', 11 Aug 1908, *Spribille s.n.* (WRSL); EE6684 – Podgórze, by Psarska Góra, 20°55'–50°55½', 12 Aug 1987, *Zieliński 1813* (KOR 31413); FF5832 – between Wólka Małkowa & Gniewczyzna Tryniecka, 22°32'–50°07½', 25 Aug 1999, *Zieliński 24/99* (KOR 41315).

63. *Rubus pedemontanus* Pinkw. in Baenitz
(Figs 183–185)

Herb. eur. 9950. 1898, pro hybr. *Rubus macrophyllus* × (*bellardii* × *serpens*).

Rubus bellardii sensu Weihe in Bluff & Fingerh., Comp. Fl. Germ. 1: 688. 1825, *typo excl., nom. superfl.*

TYPE: Flora Silesiaca: Bürgerberg bei Goldberg, 3.7 & 24.8.1897, *Pinkwart*, in Baenitz, Herb. eur. 9550

(MANCH – LECTOTYPE, BREM and M – ISOLECTOTYPES; Weber 1983).

Stems prostrate or low-arching, usually terete, unevenly suffused violet-red, usually pruinose, with sparse simple and tufted hairs. Prickles unequal, the largest ones 10–15 per 5 cm, 3–4 mm long, subulate but with a decurrent base, declining, straight or slightly curved, grading into (gland-tipped) acicles and stalked glands. Leaves normally 3-foliolate, occasionally also 3–4-foliolate and then pedate, with sparse, adpressed hairs above, more densely hairy beneath, without stellate hairs. Terminal leaflets with short or mid-long petiolules (20–30%), elliptical or (indistinctly) obovate, rounded or emarginate at the base, with a suddenly acuminate usually recurved apex 15–25 mm long. Margin finely (1–2 mm deep) serrate, principal teeth (usually) slightly prominent and recurved. Petiolules of lateral leaves 3–6 mm long. Petioles with numerous stalked glands and needle-like, declining prickles. Stipules filiform. Inflorescence short, few-flowered, weakly branched, with patent lateral branchlets, small simple leaves above and 3-foliolate leaves below. Inflorescence axis with stellate hairs, sparse simple patent hairs, stalked glands and yellow straight or slightly curved needle-like prickles up to 2.5(–3) mm long. Pedicels 1.5–2.5 cm long, densely shortly hairy, besides with numerous stalked glands exceeding hairs, and with pricklets up to 2 mm long. Sepals greenish, with red stalked glands and numerous acicles, embracing the fruit. Petals white, narrowly elliptical, 10–13 mm long. Stamens somewhat longer than styles. Anthers and carpels glabrous. Receptacle glabrous or glabrescent. – $2n = 28$ (Czapik 1987), $2n = 35$ (Boratynska 1995). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems terete, usually pruinose; prickles unequal, subulate; leaves 3-foliolate; terminal leaflets elliptical, finely serrate and with a long, suddenly acuminate apex; inflorescence few-flowered, rather broad, with patent lateral branchlets.

HABITAT. Open deciduous and mixed forests, clearings, forest margins.

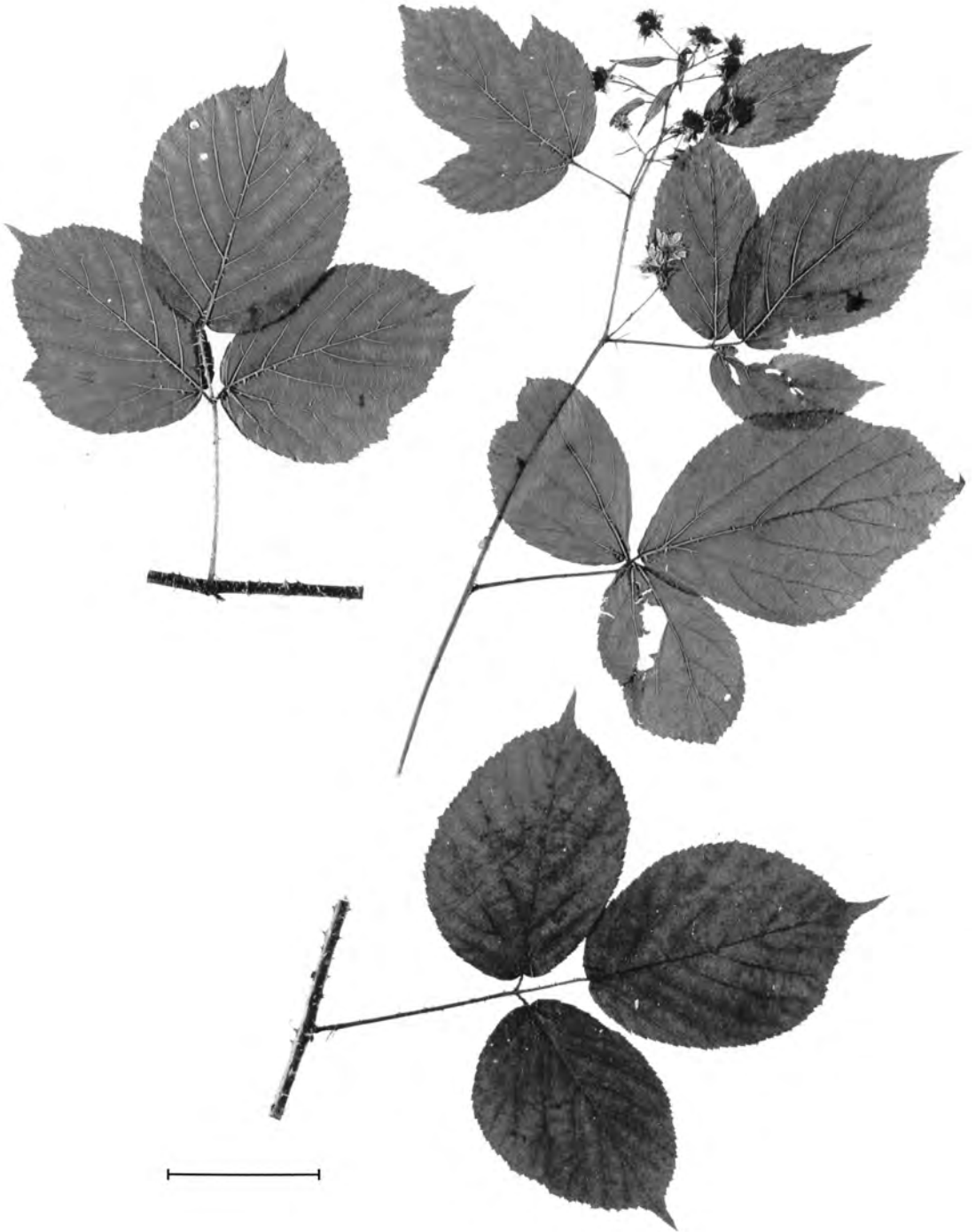


Fig. 183. *Rubus pedemontanus* Pinkw. (Tomlik & Zieliński s.n., KOR 31547). Scale bar = 5 cm.

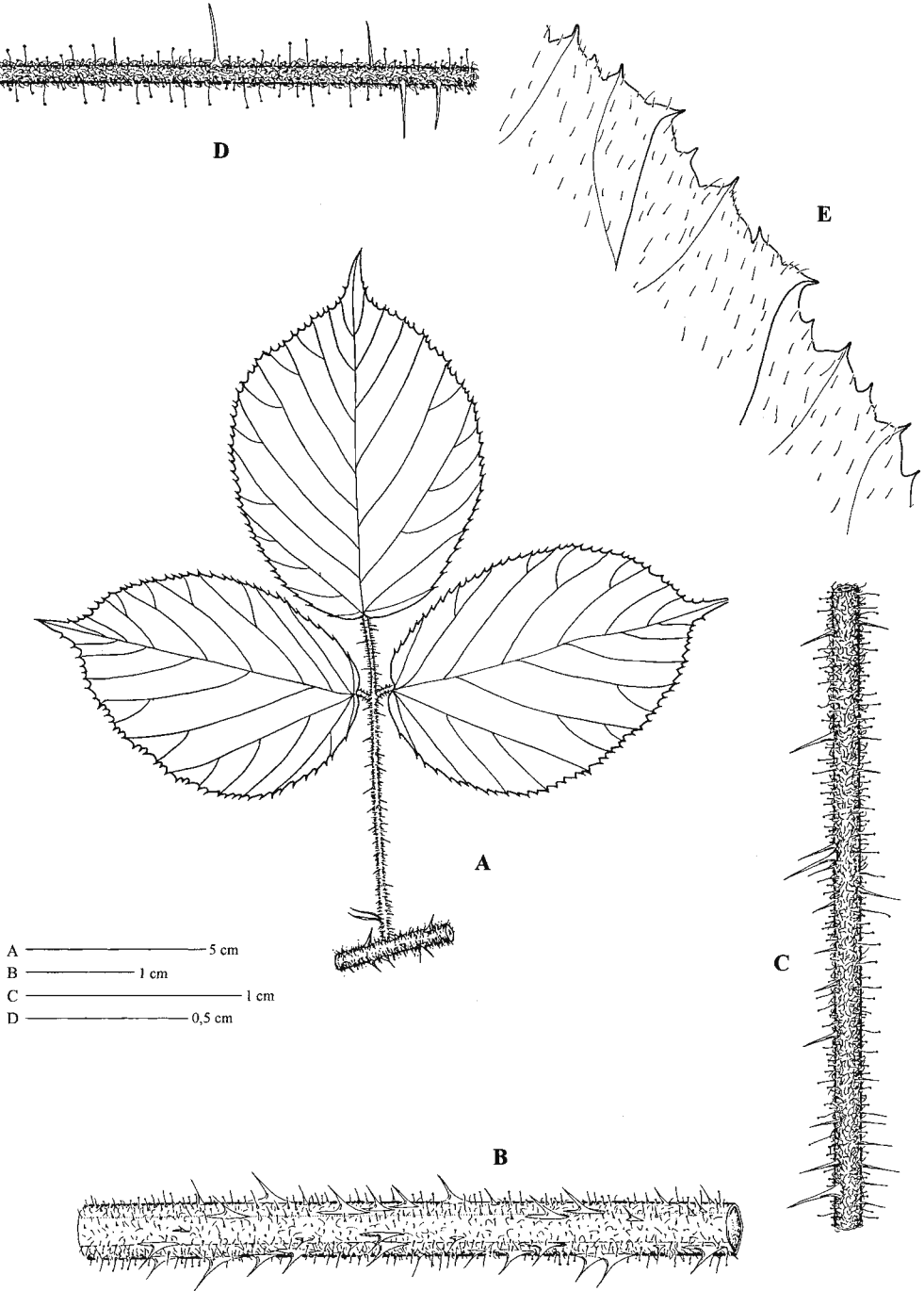


Fig. 184. *Rubus pedemontanus* Pinkw. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1853, KOR 22876).

DISTRIBUTION IN POLAND. C and S regions of the country, N Pomorze Zachodnie and NW Mazury.

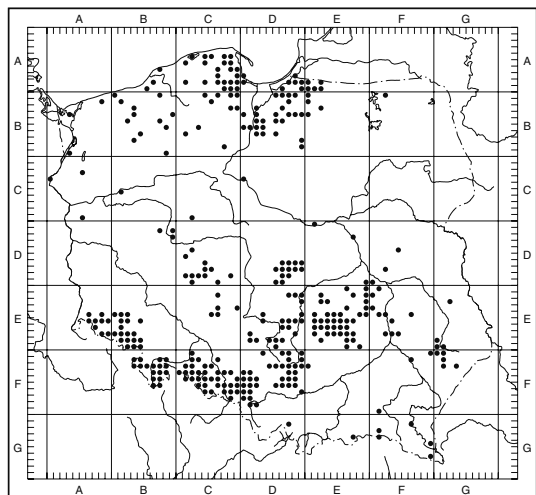


Fig. 185. Distribution of *Rubus pedemontanus* Pinkw. in Poland.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: from England and Austria in the west to SE Poland in the east.

SELECTED HERBARIUM SPECIMENS. AB1883 – between Kłodkowo & Trzebiatów, $15^{\circ}14\frac{2}{3}'$ – $54^{\circ}01'$, 3 Jul 1992, *Boratyńska, Dolatowska & Zieliński* Z. 3095 (KOR 29967); AB3325 – near Karnocice, $14^{\circ}31'$ – $53^{\circ}52'$, 25 Aug 1978, *Piotrowska s.n.* (KOR 10566); AB9307 – Podjuchy, $14^{\circ}36\frac{1}{4}'$ – $53^{\circ}21\frac{1}{6}'$, 8 Jul 1961, *Celiński s.n.* (KOR 10550); AE4899 – W of Pławna Średnia, 320 m, $15^{\circ}34\frac{1}{4}'$ – $51^{\circ}03\frac{1}{3}'$, 31 Jul 1986, *Awzan & Boratyński SU 1112* (KOR 22905); BA6790 – 1 km S of Bylica, $16^{\circ}32\frac{3}{4}'$ – $54^{\circ}29\frac{1}{6}'$, 31 Jul 1986, *Zieliński 1529 & 1531* (KOR 22902 & 22903); BB0014 – near Kołobrzeg, by the Parsęta River, $15^{\circ}33'$ – $54^{\circ}10\frac{3}{4}'$, 18 Jul 1881, *Baenitz s.n.* (PR); BB5882 – Czarnobór, $16^{\circ}46'$ – $53^{\circ}42'$, 29 Jun 1932, *col. ign.* (TRN); BB6482 – by Drawsko Lake, $16^{\circ}10'$ – $53^{\circ}35\frac{1}{2}'$, 2 Jul 1980, *Rutkowski s.n.* (TRN); BE5437 – Konary, $16^{\circ}23\frac{1}{2}'$ – $51^{\circ}02\frac{1}{2}'$, 19 Jun 1868, *Schwarzer s.n.* (LE); BE9423 – Głuszyca, $16^{\circ}22'$ – $50^{\circ}41\frac{1}{3}'$, 14 Aug 1995, *Głowacki s.n.* (WSRP); BF1809 – between Niedźwiedz & Starczów, $17^{\circ}01'$ – $50^{\circ}32\frac{4}{5}'$, 7 Jul 1920, *Sprille s.n.* (WRS�); CB1527 – near Łubiana, $17^{\circ}53\frac{1}{2}'$ – $54^{\circ}07\frac{1}{2}'$, 31 Jul 1944, *Kalkreuth s.n.* (TRN); CB2932 –

Czarnocin, $18^{\circ}26'$ – $54^{\circ}01\frac{1}{2}'$, 7 Aug 1916, *Kalkreuth s.n.* (TRN); CB6115 – W of Człuchów, $17^{\circ}16'$ – $53^{\circ}40\frac{1}{2}'$, 19 Jul 1889, *Grütler s.n.* (TRN); CD4202 – by the road Nowe Miasto nad Wartą–Pleszew, $17^{\circ}26'$ – $52^{\circ}04\frac{1}{2}'$, 22 Jul 1859, *Wimmer s.n.* (KOR 43); CD8850 – near Sikorzyno, $18^{\circ}16\frac{3}{4}'$ – $51^{\circ}41'$, 26 Jul 1972, *Markowski s.n.* (UGDA); DB6321 – Krzykosy, $19^{\circ}01'$ – $53^{\circ}41'$, 11 Jul 1976, *Rutkowski s.n.* (TRN); DD6993 – Rogów, $19^{\circ}55'$ – $51^{\circ}49\frac{1}{2}'$, 13 Jul 1927, *Niedziatkowski s.n.* (WA 059271 & 059273); DD7620 – Łódź, $19^{\circ}26\frac{1}{2}'$ – $51^{\circ}48'$, Aug 1989, *Witostawski s.n.* (LOD); EA9173 – near Pluty, $20^{\circ}17'$ – $54^{\circ}15\frac{1}{3}'$, 8 Sep 1993, *Tomlik s.n.* (KOR 29793); EB2223 – Smolajny, $20^{\circ}26'$ – $54^{\circ}02'$, sine die, *Bail s.n.* (TRN); EE0957 – between Pionki & Brzeziny, $21^{\circ}25'$ – $51^{\circ}28\frac{2}{3}'$, 9 Sep 1988, *Zieliński 2531* (KOR); EE1279 – between Kraszków & Gielnów, $20^{\circ}25\frac{1}{2}'$ – $51^{\circ}23\frac{1}{3}'$, 7 Sep 1988, *Zieliński 2506* (KOR 24854); EE3690 – S of Szydłowiec, by the road to Skarżysko, $20^{\circ}52'$ – $51^{\circ}11'$, 9 Sep 1988, *Zieliński 2537* (KOR 24881); EG3721 – SE slopes of Kopciowa Mt., $20^{\circ}57\frac{1}{3}'$ – $49^{\circ}27'$, 1–15 Aug 1988, *Gazda s.n.* (KRFB); FD7237 – Borucicha, $21^{\circ}52'$ – $51^{\circ}45\frac{1}{2}'$, 25 Jun 1994, *Głowacki s.n.* (WSRP); FE5304 – Świdry, $21^{\circ}55'$ – $51^{\circ}03\frac{2}{3}'$, 3 Aug 1964, *Fijałkowski s.n.* (LBL); FE7491 – Wólka Szczeczka, $21^{\circ}59\frac{2}{3}'$ – $50^{\circ}48\frac{1}{4}'$, 2 May 1965, *Fijałkowski s.n.* (LBL); FF1659 – 2 km S of Dąbrowica, $22^{\circ}22\frac{1}{3}'$ – $50^{\circ}28\frac{1}{4}'$, 19 Aug 1993, *Oklejewicz s.n.* (KOR 30446); FF9154 – near Bierówka, $21^{\circ}34'$ – $49^{\circ}46\frac{1}{2}'$, 23 Jul 1955, *col. ign.* (KOR 605); GE9172 – Zwierzyniec, $22^{\circ}59\frac{2}{3}'$ – $50^{\circ}36\frac{3}{4}'$, 4 Jul 1981, *Izdebski s.n.* (LBL); GF2349 – Lipsko, $23^{\circ}20\frac{3}{4}'$ – $50^{\circ}21'$, 15 Jun 1975, *Fijałkowski s.n.* (LBL).

64. *Rubus hercynicus* G. Braun (Figs 186–188)

Herb. Rub. Germ., no 19. 1877. – *Rubus hirtus* subsp. *hercynicus* (G. Braun) Sudre, Rubi Eur.: 61. 1906.

TYPE: Harz, bei Goslar (auf Grauwacke), 7.1876, *Braun, G. Braun, Herb. Rub. Germ. no 19* (HAN – LECTOTYPE; Weber 1987).

Stems prostrate, terete, green or suffused red-brown, not pruinose, usually with sparse to numerous simple and tufted hairs, soon glabrescent. Prickles usually unequal, 12–18 per 5 cm, (2–)3–5 mm long, slender, straight, declining, grading into acicles and stalked glands. Leaves 3-foliolate, green and with sparse, adpressed hairs above, glaucous-green beneath and hairy, especially on the veins. Leaves 3-foliolate. Leaflets not contiguous, terminal ones with petiolules of dif-

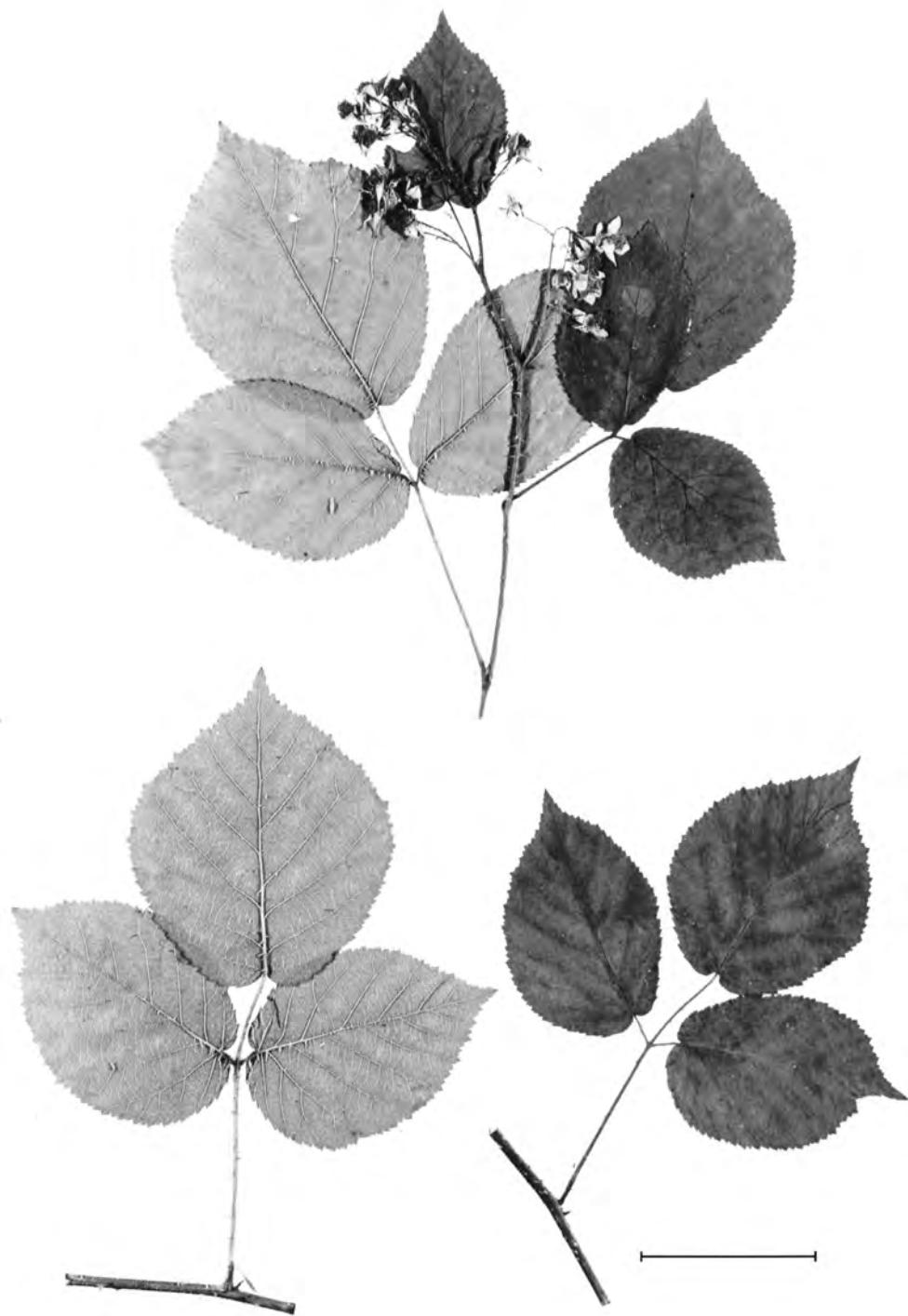


Fig. 186. *Rubus hercynicus* G. Braun (Zieliński 2012, KOR 30046). Scale bar = 5 cm.

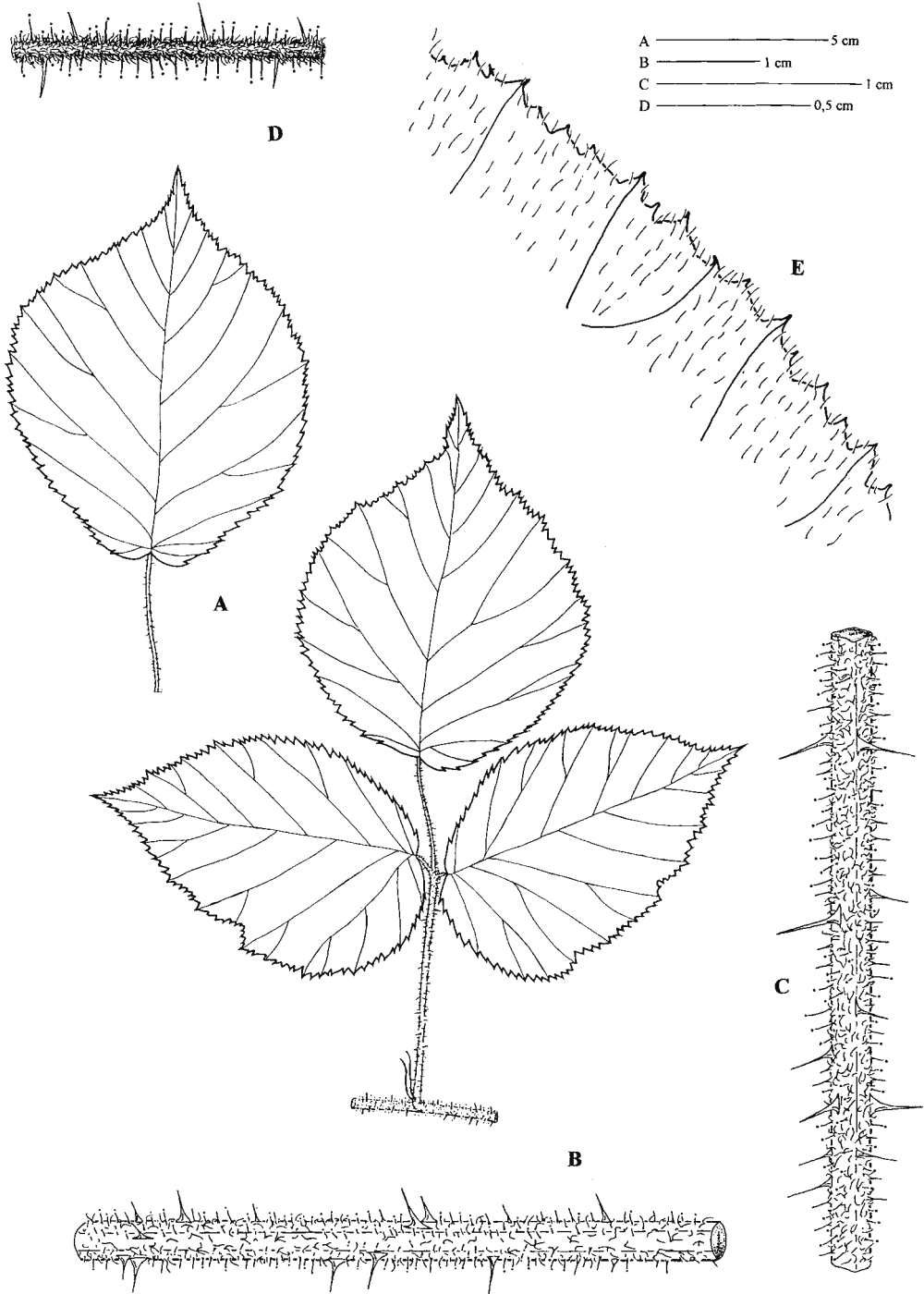


Fig. 187. *Rubus hercynicus* G. Braun. A – leaf from vegetative stem and terminal leaflet; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2012, KOR 30046).

ferent length (20–40%), broadly elliptical, broadly obovate to suborbicular, cordate at the base, with a gradually acuminate apex (10–)15–20 mm long, finely and evenly serrate; teeth mostly broad, apiculate, principal ones scarcely prominent. Lateral leaflets asymmetrically cordate at the base, with petiolules 2–10 mm long. Petioles with numerous hairs (especially above), numerous stalked glands, gland-tipped acicles and slender, slightly curved prickles. Stipules filiform, with stalked glands. Inflorescence conical, with 3-foliolate leaves below. Inflorescence axis with very numerous, short hairs, and numerous stalked glands up to 1(–1.5) mm long. Prickles 2.5–3 mm long, bright, straight, declining, slender but with a long decurrent base. Pedicels 0.5–1.5 cm long, shortly, densely hairy, with numerous stalked glands up to 1(–1.5) mm long and with straight or slightly curved, needle-like pricklets 2–2.5 mm long. Sepals long, narrow, grey-green, usually sparsely hairy, with numerous glands and acicles, patent or embracing the fruit. Petals white, narrowly elliptical, 8–10 mm long. Stamens longer than styles. Anthers and carpels glabrous. Receptacle with few hairs. – $2n = 28$ (Boratynska 1997). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems terete, usually green; prickles slender, grading into acicles and stalked glands; leaves 3-foliolate, glaucous-green beneath; terminal leaflets broad, evenly and finely serrate. Sometimes difficult to distinguish from many similar morphotypes of the series *Glandulosi*.

HABITAT. Open mixed forest, clearings, forest edges.

DISTRIBUTION IN POLAND. SW regions, at the foot of the Sudety Mts; easternmost localities near Racibórz.

GENERAL DISTRIBUTION. Widespread species. Central Europe: S Germany, E Czech Republic, Poland.

SELECTED HERBARIUM SPECIMENS. AE4667 – Bukowiec Mt. in Lubański Wielki Las SW of Lubań, $15^{\circ}15'4''$ – $51^{\circ}04'3''$, 9 & 12 Jul 1906, *Barber s.n.* (GLM

4840, 23318 a, b & WRSL); BE7328 – Golaźnia Mt. NE of Cieszów, $16^{\circ}16'3/4''$ – $50^{\circ}52'2/5''$, 27 Jul 1987, *Boratynski & Zieliński Z. 2012* (KOR 30046); BE7359 – near Książ, 400 m, $16^{\circ}18'$ – $50^{\circ}50'1/3''$, 27 Jul 1987, *Boratynski & Zieliński Z. 1957 & 1958* (KOR 31550 & 31549); BF1457 – Mnich Mt. near Radków, 440 m, $16^{\circ}25'5/6''$ – $50^{\circ}29'1/4''$, 6 Aug 1997, *Małek s.n.* (SGPN); BF2306 – Kościelny Las E of Kudowa, 510 m, $16^{\circ}16'6''$ – $50^{\circ}26'1/4''$, 31 Jul 1997, *Małek s.n.* (SGPN); BF4639 – Igliczna Mt. near Wilkanów, 565 m, $16^{\circ}45'$ – $50^{\circ}14'3/5''$, 28 Jul 1994, *Kosiński s.n.* (KOR 30039); CF1291 – Mańkowice, 200 m, $17^{\circ}28'1/3''$ – $50^{\circ}28'1/4''$, 14 Sep 1999, *Kosiński & Zieliński 134/99* (KOR 41460); CF2286 – near Zimne Kąty, 270 m, $17^{\circ}32'1/2''$ – $50^{\circ}23'1/2''$, 13 Sep 1999, *Kosiński & Zieliński Z. 101/99* (KOR 41678); CF3291 – Pokrzywna, 340 m, $17^{\circ}28'3/5''$ – $50^{\circ}17'1/2''$, 15 Sep 1999, *Kosiński & Zieliński 176/99* (KOR 41614); CF3313 – 2 km SW of Biała, 250 m, $17^{\circ}39'$ – $50^{\circ}21'2/3''$, 13 Sep 1999, *Kosiński & Zieliński 95/99* (KOR 41685); CF4201 – Zamkowa Góra Mt. near Pokrzywna, 340 m, $17^{\circ}28'3/5''$ – $50^{\circ}16'5/6''$, 27 Jul 1999, *Kosiński, Tomaszewski & Zieliński 146/99* (KOR 41738); CF4205 – W of Dębowiec, 390 m, $17^{\circ}32'$ – $50^{\circ}17'$, 29 Jul 1999, *Kosiński, Tomaszewski & Zieliński 90/99* (KOR 41689); CF4206 – Dębowiec, $17^{\circ}32'1/2''$ – $50^{\circ}17'1/6''$, 6 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 10/98* (KOR 39959); CF4217 – E of Dębowiec, 335 m, $17^{\circ}33'3/4''$ – $50^{\circ}16'1/2''$, 29 Jul 1999, *Kosiński, Tomaszewski & Zieliński 186/99* (KOR 41470); CF4382 – 1 km NNE of Prężynka, 260 m, $17^{\circ}37'4/5''$ – $50^{\circ}12'5/6''$, 14 Sep 1999, *Kosiński & Zieliński 116/99* (KOR 41669); CF4455 – 1 km N of Królowe, $17^{\circ}49'$ – $50^{\circ}14'3/5''$, 25 Aug 1994,

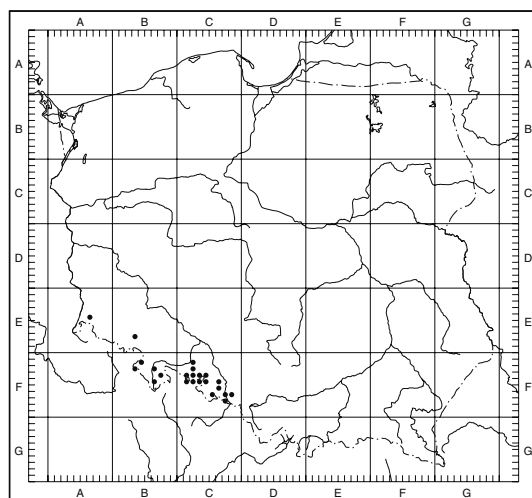


Fig. 188. Distribution of *Rubus hercynicus* G. Braun in Poland.

Zieliński 160/94 (KOR 30041); CF6727 – Obora, 18°16′–50°05¾′, 1963, *Żurek s.n.* (WRSL 14840 pp); CF6727 – ibidem, 18°16′–50°05½′, 24 Aug 1994, *Zieliński 138/94 & 143/94.* (KOR 30038 & 30044); CF6749 – between Kornowac & Racibórz, 6 km SEE of Racibórz, 18°18′–50°04½′, 17 Jul 1988, *Tomlik & Zieliński Z. 2316* (KOR 30043); CF6749 – W of Kornowac, E of Racibórz, 18°17½′–50°04¾′, 25 Aug 1994, *Zieliński 158/94* (KOR 30042); CF6768 – S of Pogwizdów, 18°16¾′–50°03¾′, 26 Jul 1898, *Spribille s.n.* (WRSL); CF6768 – SW of Brzeziny, 18°16½′–50°03½′, 25 Aug 1994, *Zieliński Z. 144/94 & 145/94* (KOR 30040 & 30045); CF6893 – between Syrynia & Pszów, 18°21¼′–50°02′, 17 Jul 1988, *Tomlik & Zieliński Z. 2324* (KOR 27976).

65. *Rubus lusaticus* Rostock (Figs 189–191)

Mitt. Voigt. Ver. Allgem. Naturk. Reichenbach 4: 22. 1884.

TYPE: Am Pichow bei Dretschen, sächsische Oberlausitz, sine die, *Rostock 8796* (GLM – LECTOTYPE; Weber 1985).

Stems prostrate, terete, with sparse to numerous simple and tufted hairs. Prickles unequal, the largest ones up to 4–5 mm long, straight or slightly curved, subulate, with a decurrent base, grading into acicles and numerous stalked glands. Leaves normally 3-foliolate, with sparse to numerous adpressed hairs, shining above, with rather numerous simple and tufted hairs beneath and a thin underlayer of stellate hairs at least on the veins. Terminal leaflets with short or mid-long petiolules (25–35%), elliptical or obovate, elongated, narrowly rounded or emarginate at the base, with an acuminate apex 10(–20) mm long, evenly and finely serrate, with slightly recurved principal teeth. Petiolules of lateral leaves (3–)5–10 mm long. Petioles with very numerous hairs and declining straight or slightly curved pricklets. Stipules filiform. Inflorescence conical, leafless above, with 3-foliolate leaves below. Inflorescence axis densely hairy, with declining straight or slightly curved prickles up to 5 mm long, grading into acicles and numerous stalked glands. Pedicels 1–2 cm long, densely hairy, with numerous stalked glands 0.5–1.5 mm long and (usually) several needle-like pricklets up to 2(–3) mm long. Se-

pals densely glandular, with numerous acicles, embracing the fruit. Petals white, narrowly elliptical or narrowly obovate, 7–9 mm long. Stamens usually slightly longer than styles. Anthers glabrous. Carpels (sub)glabrous. Receptacle glabrous. – $2n = 28$ (Boratyńska 1998). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems prostrate with unequal slender prickles; leaves 3-foliolate; leaflets narrow, finely and evenly serrate, shining above, stellate hairy at least on the veins beneath. The species sometimes difficult to distinguish from numerous local biotypes similar to it.

HABITAT. Open spruce or beech forests, clearings, usually on \pm acid soils.

DISTRIBUTION IN POLAND. On scattered localities in the south-west.

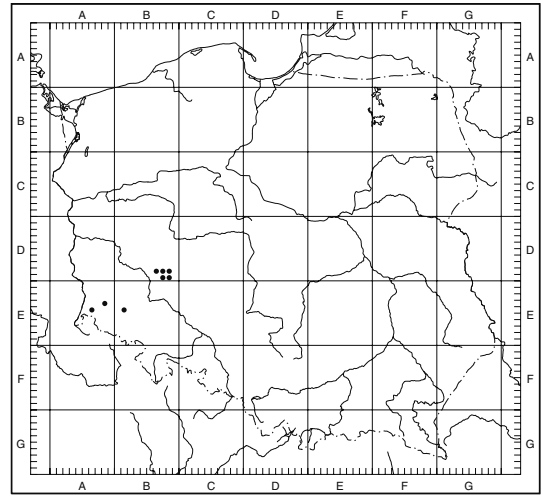


Fig. 189. Distribution of *Rubus lusaticus* Rostock in Poland.

GENERAL DISTRIBUTION. Regional species. Germany, Poland.

SPECIMENS SEEN. AD3566 – near Sarbia, 15°01′–52°03′, 10 Sep 1997, *Danielewicz & Maliński s.n.* (KOR & POZNF); AE3863 – SSW of Ocice, 15°28¾′–51°10½′, 21 Jul 1994, *Boratyńska et al. 121/94.* (KOR 29437a); AE4657 – a mountain ('Löbaner Berg') near



Fig. 190. *Rubus lusaticus* Rostock (*Pinkwart s.n.*, PR). Scale bar = 5 cm.

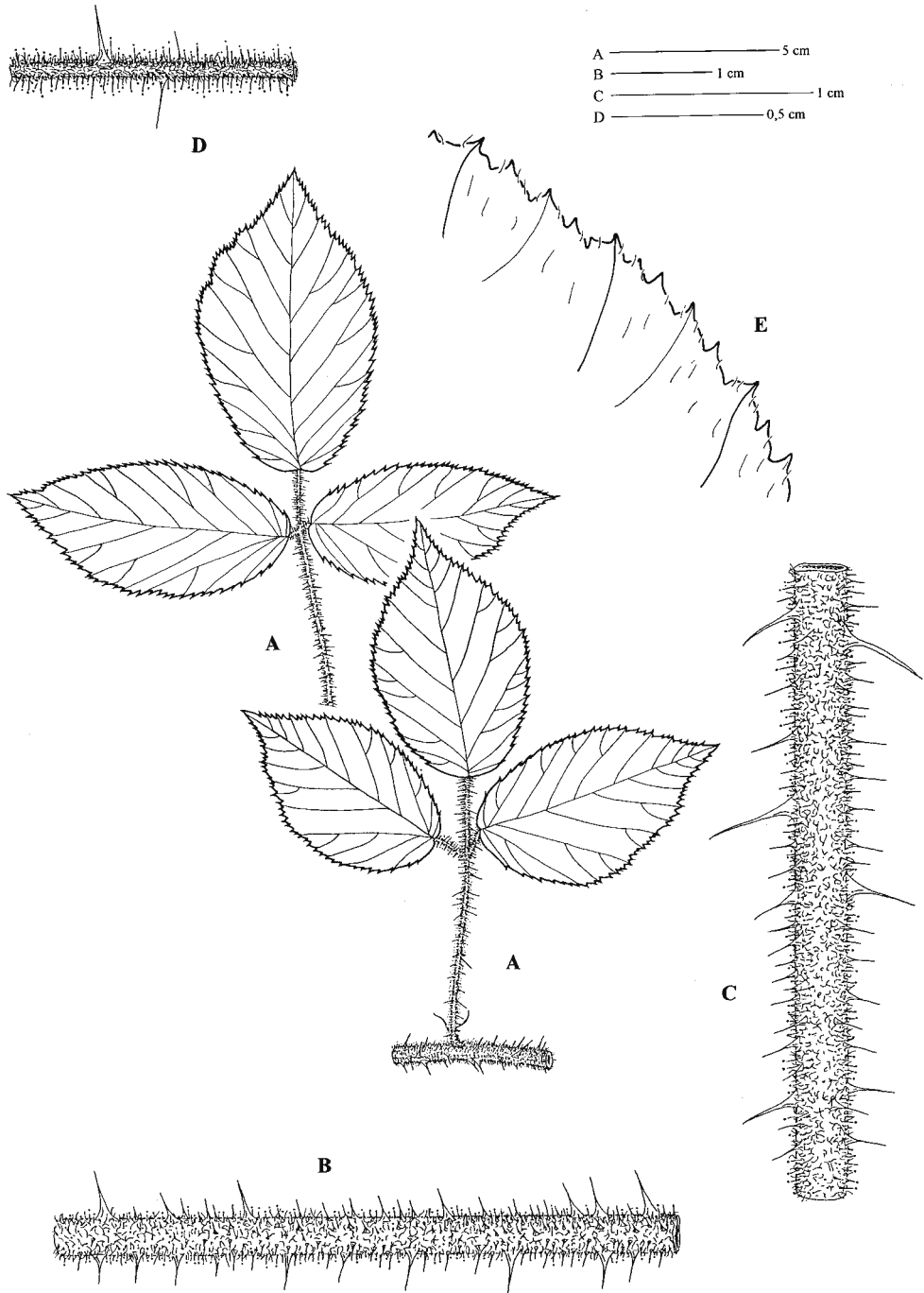


Fig. 191. *Rubus lusaticus* Rostock. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratynska et al., in Zieliński 129/94, KOR 29437).

Lubań, 15°15'–51°05', 13 Jul 1891, *Schuetze s.n.* (TRN); BD8667 – 1 km W of Bronów, 16°39'–51°39', 8 Aug 1997, *Zieliński 106/97* (KOR 39049); BD8728 – SW of Golinka, 16°48½'–51°41½', 7 Aug 1997, *Zieliński 95/97* (KOR 39067); BD8748 – Dąbrówka, 16°49'–51°40', 26 Jul 1996, *Zieliński 22/96* (KOR 38317); BD8780 – 1 km E of Rudna Wielka, 16°42'–51°38', 8 Aug 1997, *Zieliński 103/97* (KOR 39047); BD8831 – S of Kawcze, 16°51½'–51°40½', 27 Jul 1996, *Zieliński 37/96, 38/96 & 39/96* (KOR 38305, 38304 & 38303); BD8841 – between Kawcze & Konarzewo, 16°51½'–51°40½', 27 Jul 1996, *Zieliński 35/96 & 36/96* (KOR 38307 & 38306); BD8849 – 2 km N of Miejska Górka, 16°57¾'–51°40½', 4 Aug 1997, *Zieliński 86/97* (KOR 39046); BD8862 – W of Żołędzica, 16°52½'–51°39½', 25 Aug 1997, *Głowacki s.n.* (WSRP); BD9728 – Załęcze, 16°48½'–51°36', 26 Jul 1996, *Zieliński 17/96 & 18/96* (KOR 38262 & 38261); BD9852 – Przywście, 16°52½'–51°34½', 27 Jul 1996, *Zieliński 24/96 & 25/96* (KOR 38316 & 38315); BD9862 – 1.5 km W of Dębno, 16°52½'–51°33½', 26 Jul 1996, *Zieliński 29/96* (KOR 38311); BE4154 – 'Wilcza Góra' reserve, S of Złotyryja, 15°55'–51°06½', 27 Jul & 4 Sep 1898, *Baenitz s.n.* (BREM); BE4154 – ibidem, 15°55'–51°06½', 27 Jul, 4 Sep 1898 & 12 Aug 1900, *Pinkwart s.n.* (KOR 33181, LE & PR).

66. *Rubus barberi* H. E. Weber (Figs 192–194)

Abh. Ber. Naturkundemus. Görlitz **61**(8): 35. 1987.

Rubus rugosus Barber, Jahresb. Schles. Lehrerver. Naturwiss. 1907–1908: 32, non Sm. (1819).

TYPE: Neißtal, 27.7.1906, *Barber 4734* (GLM – HOLOTYPE).

Stems prostrate, densely hairy. Prickles 3–4 mm long, slender, subulate, usually straight, slightly declining, grading into acicles and numerous stalked glands. Leaves 3-foliolate, subglabrous above, with numerous soft, shimmering hairs beneath. Terminal leaflets with short or mid-long petiolules (20–30%), (broadly) elliptical, ovate or rarely obovate, rounded at the base, with a suddenly acuminate apex 10–15 mm long, evenly crenate-serrate, often with stalked glands at the margin; the serration 1–2 mm deep. Petiolules of lateral leaflets up to 3(–5) mm long. Petioles densely hairy, with numerous stalked glands and small needle-like prickles. Stipules filiform. Inflorescence conical, leafless above. Inflorescence

axis flexuose, densely hairy and glandular, with numerous straight needle-like prickles up to 3 mm long. Pedicels densely hairy, with numerous stalked glands up to 1.5 mm long, unarmed or with several needle-like prickles up to 2 mm long. Sepals hairy and glandular, patent or reflexed after anthesis. Petals white, narrowly elliptical. Stamens longer than styles. Anthers glabrous. Carpels densely hairy, glabrescent. Receptacle hairy. – 2n = ? – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems prostrate, densely hairy; leaves 3-foliolate; leaflets evenly crenate-serrate, inflorescence axis flexuose; young carpels densely hairy.

HABITAT. Open mixed or deciduous forests, forest margins.

DISTRIBUTION IN POLAND. On scattered stands in SW part of the country.

GENERAL DISTRIBUTION. Regional species: SE Germany, the Czech Republic, Poland.

SPECIMENS SEEN. AE4648 – Lubański Wielki Las, by the road Zareba – Kościelnik, 15°16'–51°05½', 10 Aug 1911, *Barber s.n.* (GLM 4729); AE4657 – Lubański Wielki Las SW of Lubań, 15°15'–51°05', Jul 1890 & 2 Sep 1906, *Barber s.n.* (GLM 4726 & 4725).

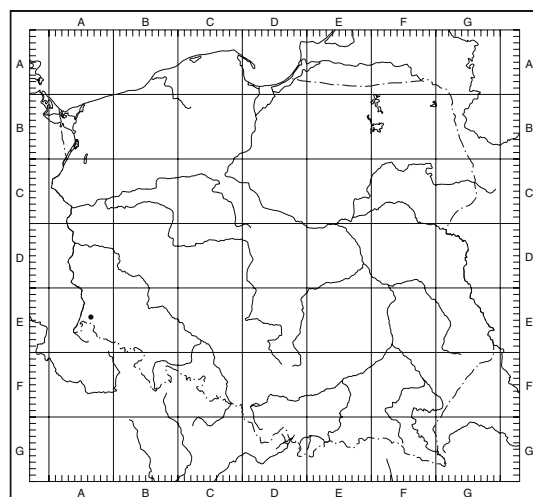


Fig. 192. Distribution of *Rubus barberi* H. E. Weber in Poland.



Fig. 193. *Rubus barberi* H. E. Weber (*Barber s.n.*, GLM 4725). Scale bar = 5 cm.

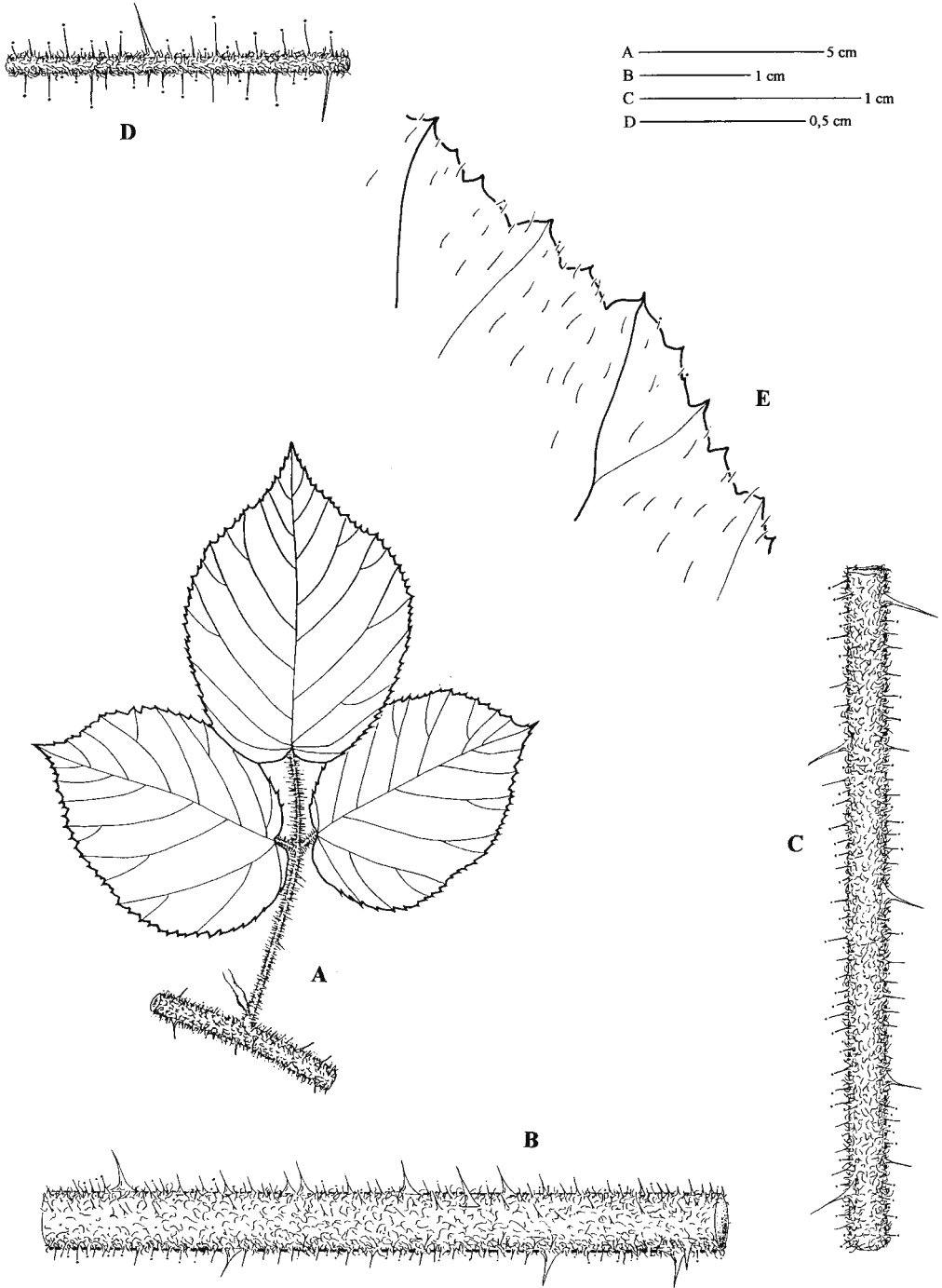


Fig. 194. *Rubus barberi* H. E. Weber. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Barber s.n.*, GLM 4725).

67. *Rubus guentheri* Weihe in Bluff & Fingerh.
(Figs 195–197)

Comp. Fl. Germ. 1: 679. 1825. – *Rubus hirtus* [Rasse] *guentheri* (Weihe) Focke in Ascherson & Graebner, Syn. mitteleur. Fl. 6, 1: 615. 1903.

TYPE: Sudetis, sine die, *Wimmer*, det. Weihe (KIEL – LECTOTYPE; Weber 1986).

Stems prostrate, usually thin, terete, red-brown, with sparse hairs and numerous dark stalked glands and (gland-tipped) acicles up to 2–3 mm long. The largest prickles 3–4 mm long, slender, with a long decurrent base, declining, straight or slightly curved. Leaves small, 3-foliolate, sometimes partly 3–5-foliolate and then pedate, dark green, sparsely hairy and sometimes with stalked glands on the veins above, sparsely hairy beneath and with red stalked glands on the veins. Leaflets not contiguous, terminal ones with mid-long petiolules (25–35%), obovate to broadly elliptical, narrowly rounded or emarginate at the base, with a suddenly acuminate apex 15–25 mm long, evenly or periodically serrate; the serration 2–4 mm deep; principal teeth somewhat prominent, retrorse. Petiolules of basal leaflets 10–15 mm long. Petioles patent-hairy, with violet-black stalked glands and subulate, slender, declining prickles. Inflorescence conical with 3-foliolate leaves below. Inflorescence axis distinctly flexuose, sparsely to densely grey-hairy, with numerous red-black stalked glands and gland-tipped acicles. Prickles slender, subulate, straight, declining, up to 3 mm long. Pedicels densely grey-felted, with very numerous dark stalked glands up to 1.5 mm long and black-red slender, straight needle-like prickles up to 2.5 mm long. Sepals grey-green-felted, with numerous dark stalked glands, without or with dark acicles, embracing the fruit. Petals white, narrowly elliptical, 7–8(–10) mm long. Stamens often unequal, usually much shorter than styles. Anthers glabrous. Carpels densely hairy. Styles reddish at the base. Receptacle densely hairy. – $2n = 28, 42$ (Boratyńska 1996). – Flowering VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems rather thin, prostrate, sparsely hairy, with delicate slender prickles; leaves small 3-foliolate; flowers

small; sepals grey-green-felted with numerous dark glands; stamens much shorter than styles. Numerous local morphotypes from the series *Glandulosi* are often mistaken for *R. guentheri*.

HABITAT. Beech or spruce-beech forests, clearings, along forest roads etc.

DISTRIBUTION IN POLAND. SW regions: Górny Śląsk, on isolated localities in S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. Central Europe: S Germany, N Czech Republic and Austria (Tyrol).

SELECTED HERBARIUM SPECIMENS. AE4657 – Lubański Wielki Las SW of Lubań, $15^{\circ}15' - 51^{\circ}05'$, 7 Jun 1890, *Barber s.n.* (WRSL); AE6637 – near Ulicko, $15^{\circ}16\frac{1}{2}' - 50^{\circ}55\frac{1}{2}'$, 19 Jul 1904, *Spribille s.n.* (WRSL); AE6762 – Świeradów Zdrój, $15^{\circ}20' - 50^{\circ}53\frac{3}{4}'$, 20 Aug 1982, *Boratyńska & Boratyński 229* (KOR 23471); AE7836 – Szklarska Poręba, by 'Zakręt Śmierci', $15^{\circ}32\frac{1}{2}' - 50^{\circ}50\frac{2}{3}'$, 28 Aug 1982, *Boratyńska & Boratyński s.n.* (KOR 23460); AE7930 – between Piechowice & Michałowice, 520 m, $15^{\circ}35\frac{1}{2}' - 50^{\circ}50\frac{1}{2}'$, 1 Sep 1982, *Boratyński 420* (KOR 23509); BD4809 – 1.5 km W of Nochow, $16^{\circ}57\frac{1}{3}' - 52^{\circ}04\frac{1}{4}'$, 27 Jul 1996, *Zieliński 46/96* (KOR 38294); BD6163 – Wojków, $15^{\circ}51\frac{1}{2}' - 51^{\circ}48\frac{1}{2}'$, 5 Aug 1991, *Zieliński 2165* (KOR 24788); BE1063 – Grodzanowice, $15^{\circ}45' - 51^{\circ}21\frac{2}{3}'$, 10 Aug 1900, *Schube s.n.* (WRSL); BE2678 – Warzyn, $16^{\circ}41\frac{1}{2}' - 51^{\circ}16\frac{2}{3}'$, 17 Aug 1995, *Głowacki s.n.* (WSRP); BE2888 – near Wilczyn, by the road to Mienice, $16^{\circ}58\frac{1}{2}' - 51^{\circ}16\frac{3}{4}'$, 17 Jul 1903, *Spribille s.n.* (WRSL); BE4093 – by Ostrzyca Mt. W of Proboszczów, $15^{\circ}46' - 51^{\circ}03\frac{1}{2}'$, 30 Jul 1986, *Awzan & Boratyński s.n.* (KOR 22525a); BE4153 – 'Wilcza Góra' reserve, S of Złotoryja, $15^{\circ}54\frac{2}{3}' - 51^{\circ}06\frac{1}{3}'$, 27 Jul 1901, *Spribille s.n.* (WRSL); BE5180 – N of Janochów by the road to Lubiechowa, 360 m, $15^{\circ}52' - 50^{\circ}59'$, 28 Jul 1986, *Awzan & Boratyński SU 1075* (KOR 23505); BE5204 – 1 km S of Bogaczów, $16^{\circ}03\frac{3}{4}' - 51^{\circ}03\frac{2}{3}'$, 15 Jun 1986, *Boratyński & Zieliński s.n.* (KOR 31390); BE5386 – E of Dzierzków, $16^{\circ}14\frac{1}{2}' - 50^{\circ}59\frac{1}{2}'$, 7 Aug 1991, *Zieliński 2988* (KOR 24843); BE5494 – Góra Zwycięstwa (350 m) near Graniczna, $16^{\circ}21\frac{2}{3}' - 50^{\circ}59\frac{1}{2}'$, 22 Jul 1869, *Schwarzer s.n.* (LE); BE7450 – Wilk Mt. (409 m) SW of Świebodzice, $16^{\circ}18\frac{1}{3}' - 50^{\circ}50\frac{2}{3}'$, 16 Jul 1868, *Schwarzer s.n.* (WRSL); BE7639 – Śleża Mt., $16^{\circ}43' - 50^{\circ}52'$, 14 Jul 1867, *Areschoug s.n.* (BM); BE8461 – a hill (662 m) N of Kamięńsk, $16^{\circ}19\frac{1}{2}' - 50^{\circ}44\frac{2}{3}'$, 10 Sep 1987, *Boratyński & Zieliński Z. 1664 & 1666* (KOR 23490 & 23506);



Fig. 195. *Rubus guentheri* Weihe (Boratyński & Zieliński, in Zieliński1582, KOR 32125). Scale bar = 5 cm.

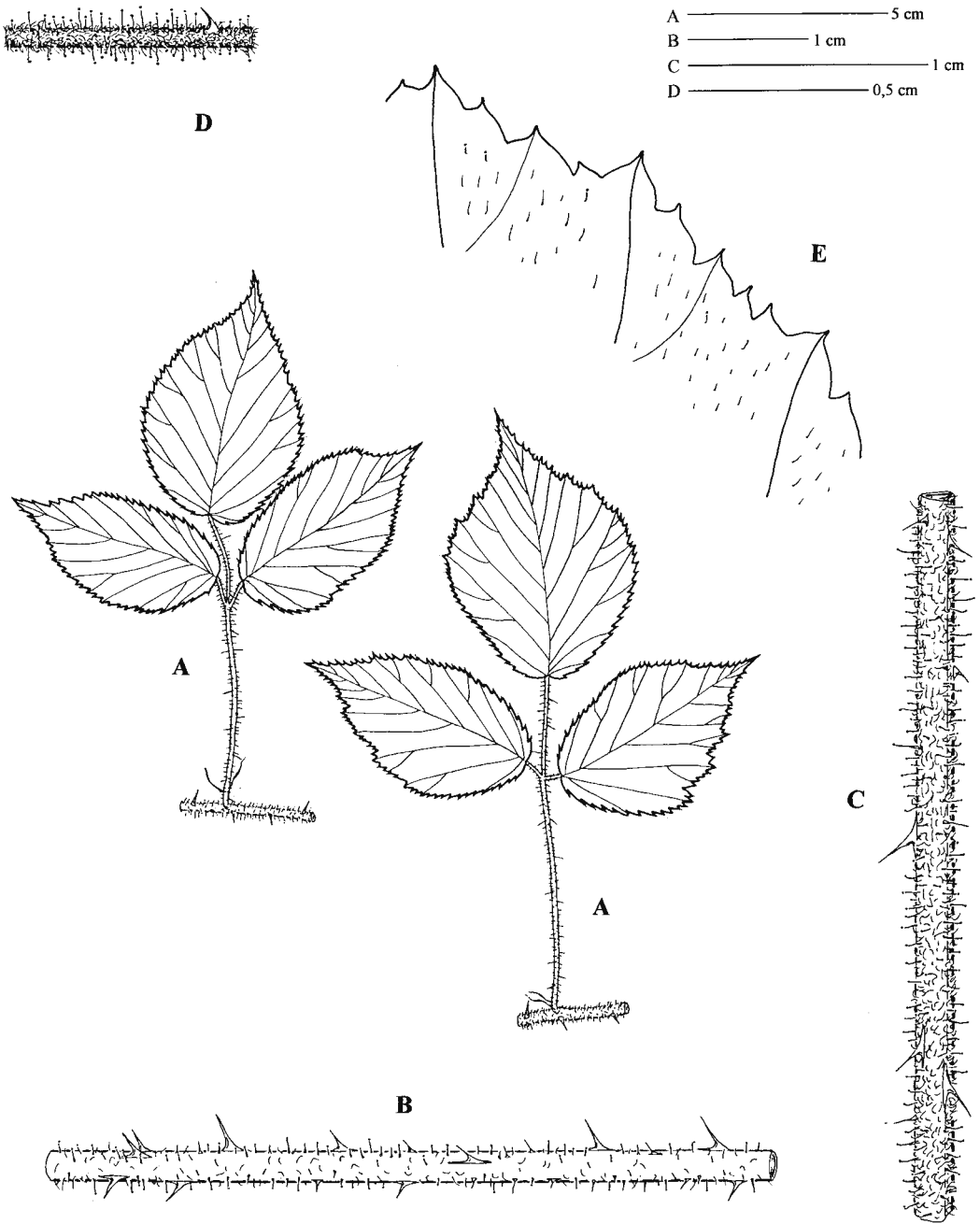


Fig. 196. *Rubus guentheri* Weihe. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratynski & Zielinski, in Zielinski 2027, KOR 23464).

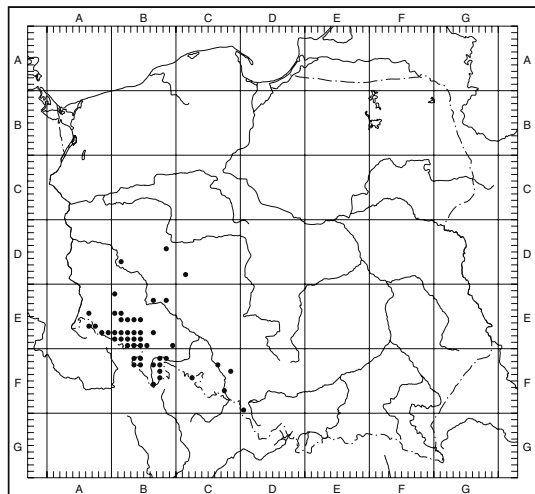


Fig. 197. Distribution of *Rubus guentheri* Weihe in Poland.

BE9542 – Wielka Sowa Mt. (1014 m), $16^{\circ}29\frac{1}{3}'$ – $50^{\circ}40\frac{2}{3}'$, 1 Aug 1910, *Schoepke s.n.* (WRSL); BE9926 – Gromnik Mt. NE of Romanów, $17^{\circ}06\frac{3}{4}'$ – $50^{\circ}42\frac{1}{6}'$, 10 Oct 1902, *Spribille s.n.* (WRSL); BF1809 – N of Niedźwiedź, $17^{\circ}01'$ – $50^{\circ}32\frac{1}{2}'$, 10 Aug 1920, *Spribille s.n.* (WRSL); CD8130 – between Baszków & Kobylin, $17^{\circ}16'$ – $51^{\circ}41\frac{1}{3}'$, 6 Aug 1996, *Zieliński 57/96* (KOR 38282); CF2647 – near Zdziechowice, $18^{\circ}07\frac{1}{2}'$ – $50^{\circ}25\frac{1}{2}'$, 6 Oct 1903, *Spribille s.n.* (WRSL); CF3883 – N of Stara Kuźnia, $18^{\circ}20\frac{1}{2}'$ – $50^{\circ}18\frac{1}{3}'$, 18 Jul 1988, *Tomlik & Zieliński Z. 2368* (KOR 22849); DF9062 – Parchów, $18^{\circ}37\frac{1}{2}'$ – $49^{\circ}47\frac{1}{2}'$, 28 Jul 1890, *Kotula s.n.* (KRAM 41111, 141111b, 141131 & 141131b).

68. *Rubus hirtus* Waldst. & Kit. (Fig. 198)

Descr. icon. pl. rar. Hung. 2: 150 & Tab. 141. 1804, *sensu lato*

Rubus glandulosus Bellardi, Appendix ad floram pedemontanam 25 (1792), *nom. ambig?*

TYPE: Waldstein & Kitaibel 1804, Icon. pl. rar. Hung. 2: Tab. 141 (LECTOTYPE – Weber 1998).

Stems terete, usually hairy. Prickles very slender, subulate to needle-like, usually straight, difficult to count, grading into dark stalked glands. Inflorescence with numerous dark long-stalked glands. Petals white, narrow. Sepals clasping the fruit. Extremely polymorphic as regards leaves,

armature, hairiness etc. – $2n = ?$ – Flowering VI–VII.

HABITAT. Deciduous, mixed or coniferous (spruce) forests, clearings.

DISTRIBUTION IN POLAND. Chiefly in S part, most common in submontane regions and at lower elevations in mountains.

GENERAL DISTRIBUTION. C and SE Europe, N Anatolia, the Caucasus and N Iran.

SELECTED HERBARIUM SPECIMENS. AE2993 – Łaziska, $15^{\circ}36\frac{2}{3}'$ – $51^{\circ}14\frac{1}{2}'$, Sep 1864, *Limpricht s.n.* (BREM); AE4657 – Lubański Wielki Las SW of Lubań, $15^{\circ}15'$ – $51^{\circ}05'$, 6 Aug 1908, *Barber s.n.* (WRSL); BD7821 – between Śmiłowo & Drzewce, $16^{\circ}50\frac{1}{2}'$ – $51^{\circ}46\frac{3}{4}'$, 16 Jul 1986, *Awzan & Zieliński Z. 1469* (KOR 31312); BE4093 – by Ostrzyca Mt. W of Proboszczów, $15^{\circ}46\frac{1}{3}'$ – $51^{\circ}03\frac{3}{5}'$, 30 Jul 1986, *Awzan & Boratyński SU 1094 & 1095* (KOR 31294); BF2651 – Czerwoniak Mt. near Krosnowice, 400 m, $16^{\circ}37\frac{1}{5}'$ – $50^{\circ}24\frac{1}{6}'$, 17 Oct 1995, *Kosiński s.n.* (KOR 39659); CD8263 – between Krotoszyn & Chwaliszew by the road to Sulmierzyce, $17^{\circ}28'$ – $51^{\circ}40'$, 21 Sep 1988 & 23 Aug 1994, *Zieliński 2147 & 99/94* (KOR 25553 & 29503); CD9840 – NE of Brzeziny towards Błaszki, $18^{\circ}17'$ – $51^{\circ}36'$, 22 Sep 1988, *Zieliński 2183* (KOR 31368); CE4524 – NE of Rychtal, $17^{\circ}55'$ – $51^{\circ}10'$, 24 Aug 1934, *Krawiec s.n.* (KOR 10789a); CF2322 – between Korfantów & Biała, $17^{\circ}37\frac{3}{5}'$ – $50^{\circ}26\frac{1}{2}'$, 20 Jul 1988, *Tomlik & Zieliński Z. 2405 & 2411* (KOR 25572 & 31362); DE5917 – between Smyków & Przyłanki, $19^{\circ}58'$ – $51^{\circ}05\frac{1}{3}'$, 10 Sep 1988, *Zieliński 2562* (KOR 24873); DF5164 – Orzesze, $18^{\circ}47'$ – $50^{\circ}09'$, 7 Sep 1982, *Rostański s.n.* (KTU); DG2514 – Korbiewów, by the road to Pilsko Mt., $19^{\circ}20'$ – $49^{\circ}34'$, 31 Jul 1973, *Browicz & Zieliński s.n.* (KOR 5816, 5830, 5844 & 5847); DG2927 – Rabska Góra near Sieniawa, $19^{\circ}56'$ – $49^{\circ}33\frac{1}{3}'$, 30 Jul 1953, *Kornaś s.n.* (KRA 44865); ED6791 – Rytomoczydła, $21^{\circ}03\frac{1}{2}'$ – $51^{\circ}48\frac{2}{3}'$, 16 Jul 1980, *Głowacki s.n.* (WSRP); EE3690 – S of Szydłowiec, $20^{\circ}52'$ – $51^{\circ}11'$, 9 Sep 1988, *Zieliński 2542* (KOR 24880); EF3153 – Sterczów-Ścianka, $20^{\circ}10'$ – $50^{\circ}19\frac{3}{4}'$, 3 Jul 1990, *Kowalczyk s.n.* (KTC); EF6732 – Pawezów, $20^{\circ}59\frac{1}{2}'$ – $50^{\circ}04'$, 20 Aug 1992, *Wayda s.n.* (KRA); EF8463 – Gosprzydowa, $20^{\circ}35'$ – $49^{\circ}52\frac{1}{4}'$, 29 Jul 1988, *Pacyna s.n.* (KRA); EG1943 – Wierszek Mt. S of Kraczeniówka, $21^{\circ}15\frac{1}{2}'$ – $49^{\circ}36\frac{2}{3}'$, 2 Sep 1995, *Oklejewicz s.n.* (KRA); FD7165 – 1 km S of Sobolew, $21^{\circ}41\frac{1}{4}'$ – $51^{\circ}43\frac{4}{5}'$, 21 Jul 1990, *Zieliński 2651* (KOR 23863); FD8174 – Paprotnia, $21^{\circ}39\frac{3}{5}'$ – $51^{\circ}38'$, 20 Jun 1994, *Głowacki s.n.* (WSRP); FE2889 – Świdnik, $22^{\circ}43'$ –

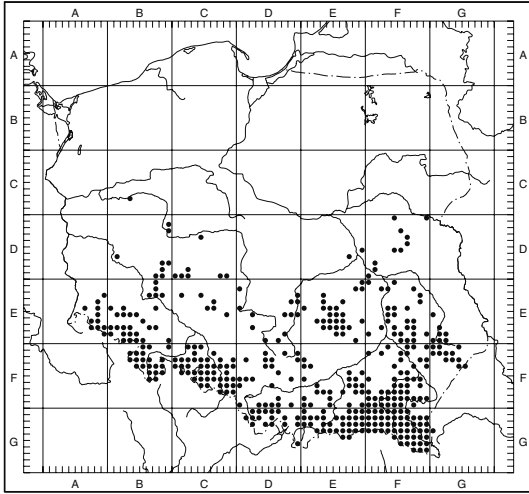


Fig. 198. Distribution of *Rubus hirtus* Waldst. & Kit. agg. in Poland.

51°14', Jun 1924, *Koporska s.n.* (LBL); FF0351 – Sokół, 21°50³/₄' – 50°34¹/₂', 19 Jul 1996, *Oklejewicz s.n.* (KRA); FF1655 – Glinianka, 22°18²/₃' – 50°28¹/₃', 19 Aug 1993, *Oklejewicz s.n.* (KOR 30455 & 30456); FG5792 – between Liszna & Roztoki Górne, 22°19¹/₄' – 49°10¹/₂', 18 Aug 1987, *Dolatowski s.n.* (KOR 31204 & 31359); GE5011 – Rybczewice, 22°52¹/₂' – 51°01²/₅', 12 Jun 1965, *Fijałkowski s.n.* (LBL); GE9244 – Szewnia, 23°10' – 50°37²/₃', 5 Jul 1911, *Ganeszyn s.n.* (LBL); GF0400 – Budy, 23°23⁵/₅' – 50°34', 24 Jul 1964, *Fijałkowski s.n.* (LBL); GF1252 – Hamernia, 23°07' – 50°26¹/₂', 22 Jun 1965, *Fijałkowski s.n.* (LBL).

Section *Corylifolii* Lindl.

Syn. Brit. Fl.: 93. 1835.

TYPE: *Rubus corylifolius* Sm.

Stems arching, often pruinose. The largest prickles small or medium, confined or not to the angles. Leaves 3–5(–7)-foliolate. Leaflets usually imbricate. Lower leaflets sessile or with petiolules 1–2(–3) mm long. Petioles usually sulcate above. Stipules lanceolate (not filiform). Inflorescence often irregular. Petals usually broad and contiguous, often wrinkled. Stamens often scarcely longer than styles. Fruit dull (not shining) black, usually composed of few drupelets, often imperfectly formed.

NOTES. As it was mentioned earlier to the section *Corylifolii* belong brambles showing intermediate characters between *R. caesius* L. and taxa representing the different taxonomical groups, chiefly from the section *Rubus*. Section *Corylifolii*, containing rather numerous local not stabilized morphotypes, is hitherto rather poorly known, hence these brambles are often grouped under the oldest name *R. corylifolius* Sm. agg. When separating taxa of this group the whole complex of characters should be taken into account.

Subsection *Sepincoli* (Weihe ex Focke) Hayek

Fl. Steiermark: 835. 1909.

Basionym: *Rubus* [Untergruppe] *Sepincoli* Weihe ex Focke, Syn. Rub. Germ.: 394. 1877.

TYPE: *Rubus dumetorum* Weihe

Stems terete or angled, with straight or curved, yellow or reddish prickles. Leaves 3–5-foliolate, exceptionally 6–7-foliolate. Carpels usually glabrous or sparsely hairy. Drupelets black when mature.

Series *Subrectigeni* H. E. Weber

Rev. Sect. *Corylifolii*: 88. 1981.

TYPE: *Rubus dissimulans* Lindb.

Stems glabrous, without or with stalked glands. Prickles equal. Leaves usually green, not felted beneath, exceptionally in full sun somewhat grey-hairy. Anthers glabrous. Carpels (sub)glabrous. Plants having characters of *R. caesius* and species of the subsection *Rubus* (= *Suberecti*).

69. *Rubus orthostachys* G. Braun (Figs 199–201)

Herb. Rub. Germ. 10: System. Übersicht. 1881.

Rubus pomeranicus (Holzfuss) Holzfuss, Allgem. Bot. Zeitschr. 22: 126. 1916.

TYPE: Buchhorst bei Braunschweig, 7.1879, *Braun 1881*, G. Braun, Herb. Rub. Germ. no. 144 (HAN – LECTOTYPE; Weber 1979b).

Stems arching, angled, with ± furrowed or rarely flat sides, glabrous and eglandular. Prickles few, 3–5 per 5 cm, 3–4(–5) mm long, straight, declining or rarely patent. Leaves subpedate, 5-foliolate or



Fig. 199. *Rubus orthostachys* G. Braun (Zieliński 55/95, KOR 32403). Scale bar = 5 cm.

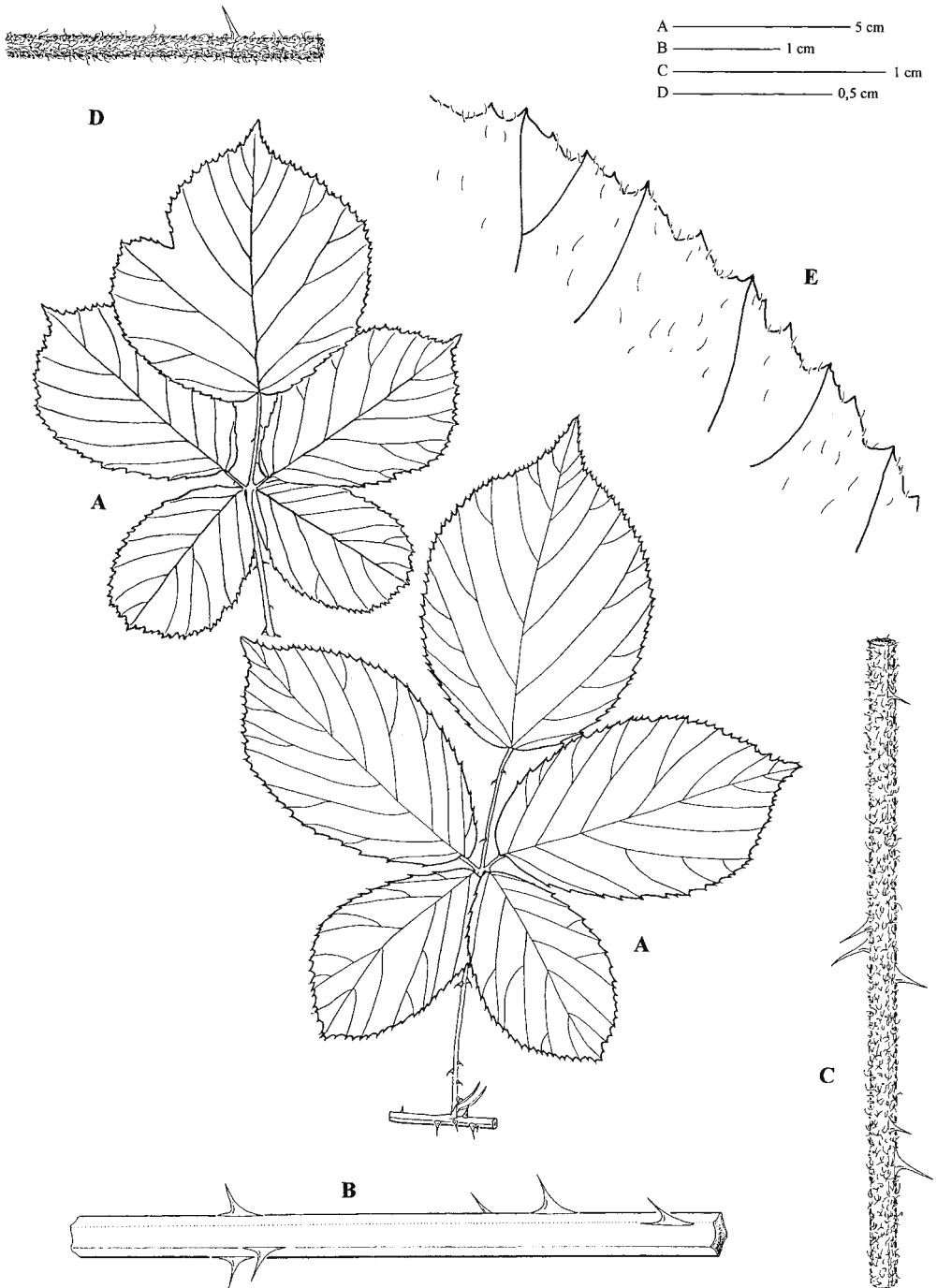


Fig. 200. *Rubus orthostachys* G. Braun. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Awzan & Zieliński, in Zieliński 1450, KOR 30473).

rarely, by splitting of the terminal leaflet, 6–7-foliolate, glabrous or with scattered hairs above, sparsely to rather densely hairy beneath, without stellate hairs. Terminal leaflets with mid-long or long petiolules [25–35(–40)%], elliptical, ovate, obovate or suborbicular, rounded or subcordate at the base, with a suddenly acuminate apex 5–10 mm long, usually \pm convex, evenly serrate; the serration 1–2(–3) mm deep; principal teeth straight or slightly retrorse. Petioles subglabrous, with weakly curved prickles, longer than lower leaflets. Stipules narrowly lanceolate. Inflorescence generally few-flowered, partly racemose, with rather stiff upright ramifications and 3-foliolate leaves below. Leaves usually more densely hairy beneath than those of the stem, hence sometimes greyish. Inflorescence axis straight, rather stiff, sparsely hairy, with sessile glands, with usually reddish prickles 3–4 mm long, without or with few short-stalked glands. Pedicels 1–3 cm long, grey-felted, without or with rather numerous very short-stalked glands, unarmed or with 1–3(–4) slightly curved pricklets. Sepals grey-green-felted, white-bordered, patent or reflexed after anthesis. Petals fresh-pink or rarely white, suborbicular, 8–12 mm long. Stamens as long or somewhat longer than styles. Anthers glabrous. Carpels sparsely hairy. Receptacle glabrous. – $2n = 28$ (Boratyńska 1994). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems usually angled, furrowed; prickles few and small; terminal leaflets often long-petiolulate, evenly serrate, often lobed; inflorescence stiff, rather few-flowered, often racemose; petals suborbicular, usually pink.

HABITAT. Thickets, forest edges, waysides, waste places, not seldom in ruderal places.

DISTRIBUTION IN POLAND. S and C regions, on isolated stands in the north-west, locally common.

GENERAL DISTRIBUTION. Widespread species. Mainly Central Europe: from E France through Germany to Poland and the Czech Republic.

SELECTED SPECIMENS. AB7368 – Szczecin-Golecino, $14^{\circ}36'4'' - 53^{\circ}28'5''$, Jun 1907, *Holzfluss s.n.* (PR); AD7967 – between Solniki & Cisów, $15^{\circ}37'3'' - 51^{\circ}43'$,

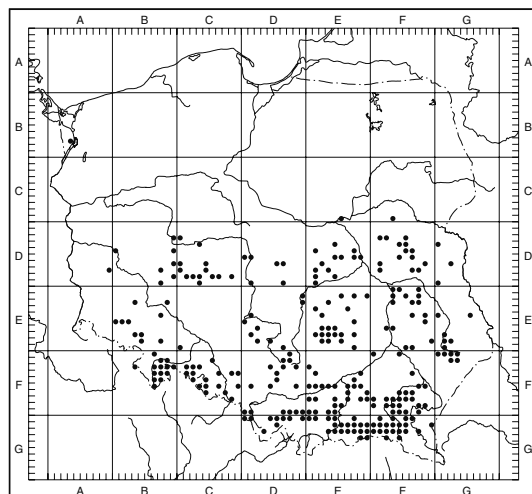


Fig. 201. Distribution of *Rubus orthostachys* G. Braun in Poland.

20 Jun 1968, *Dzwonko s.n.* (KRA 067010); BD2947 – between Kórnik & Radzewo, $17^{\circ}03'1/2'' - 52^{\circ}12'1/2''$, 19 Jul 1991, *Zieliński 2893* (KOR 24807); BD6900 – between Stary Gostyń & Gola, $16^{\circ}58' - 51^{\circ}53'1/3''$, 16 Jul 1986, *Awzan & Zieliński Z. 1450* (KOR); CD2091 – between Zaniemyśl, Kaleje & Jeziory, $17^{\circ}07' - 52^{\circ}10'$, 24 Jul 1987, *Zieliński 1934* (KOR); CD3370 – between Łgów & Brzostków, ca 5 km NW of Żerków, $17^{\circ}33' - 52^{\circ}06'$, 9 Jul 1986, *Awzan & Zieliński Z. 1533* (KOR 30739); CD6472 – near Taczanów, $17^{\circ}43'1/2'' - 51^{\circ}50'1/4''$, 1998, *Czarna s.n.* (POZ); CD8822 – NW of Szczytniki, by the road to Kalisz, $18^{\circ}18'1/2'' - 51^{\circ}42'1/3''$, 22 Sep 1988, *Zieliński 2196* (KOR 28008); CE9020 – Krzywina, $17^{\circ}09'2/3'' - 50^{\circ}42'1/2''$, 16 Jun & 22 Aug 1913, *Spribille s.n.* (WRSL); DD5135 – by the road Turek–Uniejów, $18^{\circ}47' - 51^{\circ}58'$, 27 Aug 1994, *Boratyńska 6/94* (KOR 29405); DD6682 – Łódź-Łagiewniki, $19^{\circ}28'1/2'' - 51^{\circ}50'1/4''$, 10 Jul 1977, *Dądela s.n.* (LOD); DD9624 – ‘Molenda’ reserve near Tuszyń, $19^{\circ}29'1/2'' - 51^{\circ}37'$, 2 Jul 1968, *Lewandowska s.n.* (LOD); DE1930 – ‘Lubiaszów’ reserve near Lubiaszów, $19^{\circ}52'1/2'' - 51^{\circ}25'2/3''$, 20 Aug 1981, *Jóźwiak & Ślaska s.n.* (LOD); EC9507 – Zapiecki, $20^{\circ}53' - 52^{\circ}31'$, 3 Oct 1995, *Głowacki s.n.* (WSRP); ED3469 – Żółwin, $20^{\circ}44'1/3'' - 52^{\circ}06'1/3''$, 31 Jul 1970, *Nowak s.n.* (WA); ED4743 – near Pilawa, $21^{\circ}05'1/2'' - 52^{\circ}01'3/4''$, 10 Jul 1913, *Tiśewski s.n.* (LE); ED5811 – 1 km SW of Góra Kalwaria, $21^{\circ}12' - 51^{\circ}58'$, 17 Jul 1990, *Zieliński 2589* (KOR 23711); FC9389 – S of Jartypany, $22^{\circ}05' - 52^{\circ}25'1/3''$, 18 Jul 1990, *Zieliński 2623* (KOR 23878); FD2593 – Grabianów, $22^{\circ}15'2/3'' - 52^{\circ}08'1/2''$, 17 Jul

1990, *Zieliński 2601* (KOR 23743); FD4661 – 1 km NW of Wólka Zagórna, 22°22'–51°59', 20 Jul 1990, *Zieliński 2641* (KOR 23854); FD6896 – Zbulitów Duży, 22°43'–51°46', 20 Jul 1974, *Milaniuk s.n.* (LBL); GD3093 – Styrzyniec, 22°59¼'–52°01½', 20 Aug 1965, *Fijałkowski s.n.* (LBL); GD6236 – Żeszczynka, 23°18'–51°48', 15 Aug 1962, *Fijałkowski s.n.* (LBL); GD9047 – Białka, 23°00½'–51°32', 28 Aug 1961, *Fijałkowski s.n.* (LBL); GE4531 – Wolawce, 23°35½'–51°04', 3 Jul 1963, *Fijałkowski s.n.* (LBL); GE8260 – Zawada, 23°07¼'–50°42½', 26 Jun 1959, *Fijałkowski s.n.* (LBL); GF0309 – Antoniówka, 23°22¼'–50°34½', 23 Jul 1964, *Fijałkowski s.n.* (LBL).

70. *Rubus lamprocaulos* G. Braun

(Figs 202–204)

Herb. Rub. Germ.: 116. 1877.

Rubus serrulatus Lindeb., Herb. Rub. Scand.: 46. 1885, non Foerster (1878).

TYPE: An den Teichrändern zu Riddagshausen bei Braunschweig, sine die, *Braun*, G. Braun, Herb. Rub. Germ.: 116 (GFW – LECTOTYPE; Weber 1981).

Stems usually low-arching, terete or bluntly angled, glabrous, without or more often with sparse to rather numerous, usually short-stalked glands 0.1–0.2(–0.5) mm long. Prickles usually equal, 8–12 per 5 cm, 3–5 mm long, straight, partly somewhat curved, patent or declining. Leaves 5-foliolate, digitate or subpedate, partly also 3-foliolate, green on both sides, ± hairy above, sparsely to rather densely and softly hairy beneath, without stellate hairs. Terminal leaflets with short to mid-long petiolules (25–35%), broadly ovate, elliptical to suborbicular, cordate at the base, with a suddenly acuminate apex 10–15 mm long, usually ± convex, regularly, finely serrate; the serration 1–1.5 mm deep. Basal leaflets sessile. Petioles with usually curved prickles. Stipules narrowly lanceolate. Inflorescence normally few-flowered, often subcorymbose. Inflorescence axis flexuose, rather sparsely hairy, with ± numerous stalked glands up to 0.2(–0.5) mm long and with curved, rather strong prickles up to 2.5(–3.5) mm long. Pedicels 1–3 cm long, shortly densely hairy, with short-stalked glands 0.1–0.2 mm long and usually slightly curved pricklets up to 1.5 mm long. Sepals grey-green, shortly glandular, unarmed or

with small pricklets at the base, patent or reflexed after anthesis. Petals pale pink, suborbicular, 10–12 mm long. Stamens shorter to slightly longer than styles. Anthers and carpels glabrous. Receptacle subglabrous. – 2n = 28 (Boratyńska 1995a). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems terete to bluntly angled; prickles small, slender; leaflets green without stellate hairs, convex, finely and evenly serrate; inflorescences few-flowered; petals suborbicular, pink. Shady, sparsely glandular forms of *R. fabrimontanus* can be mistaken for this species (see remarks at *R. fabrimontanus*).

HABITAT. Thickets, forest edges, clearings, open deciduous or mixed forests.

DISTRIBUTION IN POLAND. Chiefly Dolny Śląsk and Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. Germany, S Denmark, S Sweden, Poland.

SELECTED HERBARIUM SPECIMENS. AB2157 – Świnoujście, 14°14½'–53°55½', 18 Jul 1986, *Awzan 6* (KOR 31671); AB7364 – Szczecin-Warszewo, 14°33'–53°28½', 21 Jul 1903, *Holzfuß s.n.* (WA); AD1852 – between Przelazy & Mostki, 15°22½'–52°15¼', 28 Aug 1992, *Zieliński 158/92* (KOR 30048); AD3575 – Serbia, 14°59½'–52°02½', 5 Sep 1996, *Danielewicz s.n.* (POZNF); BC2690 – Trzcianka, 16°28½'–53°03½', 17 Jul 1997, *Boratyńska s.n.* (KOR 39127 & 39128); BC6852 – Lipa, 16°49'–52°44½', 12 Jul 1898, *Spribille s.n.* (TRN); BD1993 – between Mieczewo & Kamionki, 17°00'–52°15½', 8 Jul 1986, *Zieliński 1494* (KOR 30779); BD2947 – 1 km SE of Konarskie, 17°04'–52°13', 14 Jul 1987, *Boratyńska & Zieliński Z. 1920* (KOR); BD5150 – near Młynkowo-Pyrnik, 15°48½'–51°54½', 9 Sep 1995, *Danielewicz s.n.* (POZNF); BD9477 – between Kęblów & Nieszczyce, 16°22'–51°32½', 21 Jul 1994, *Boratyńska et al. 150/94* (KOR 29478); BE1634 – between Bożeń & Baszyn, 16°37½'–51°24½', 11 Sep 1987, *Boratyński & Zieliński Z. 1724* (KOR 30778); BE3805 – Pegów, 16°55½'–51°15½', 3 Aug 1920, *Spribille s.n.* (WRSL); CD4092 – Błazejewo, 17°09'–51°59½', 19 Jul 1996, *Czarna s.n.* (POZ); CD4302 – NE of Żerków, 17°34¾'–52°04½', 23 Sep 1995, *Czarna s.n.* (POZ); CD6253 – near Koźmin, by the road to Potarzyca, 17°27½'–51°51', 14 Jul 1898, *Milner s.n.* (KOR 10639); CD9334 – Wisławka, 17°37'–51°36', 9 Jul 1998, *Pawłowski s.n.* (POZ); CE4648 – be-

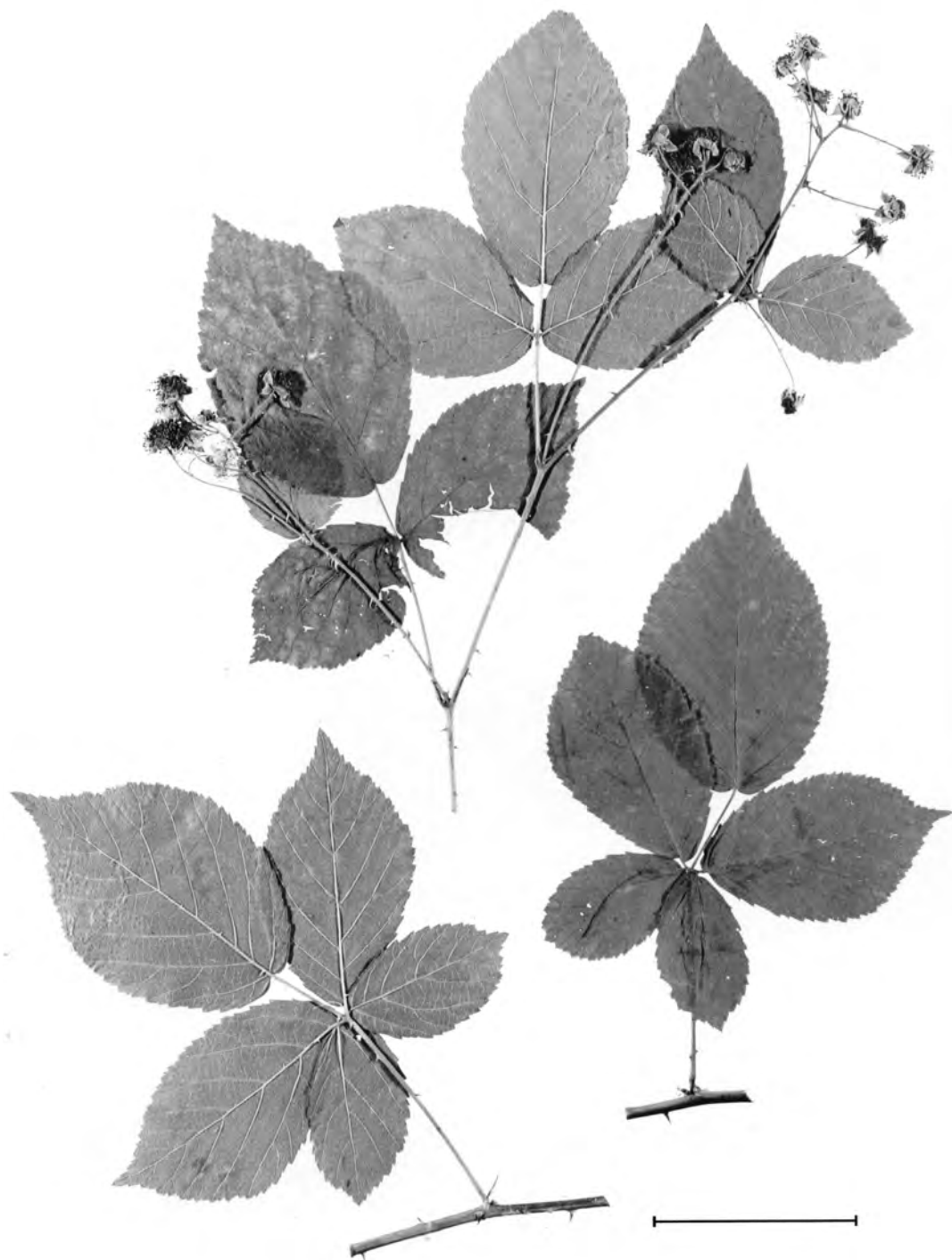


Fig. 202. *Rubus lamprocaulos* G. Braun (Zieliński 122/94, KOR 32424). Scale bar = 5 cm.

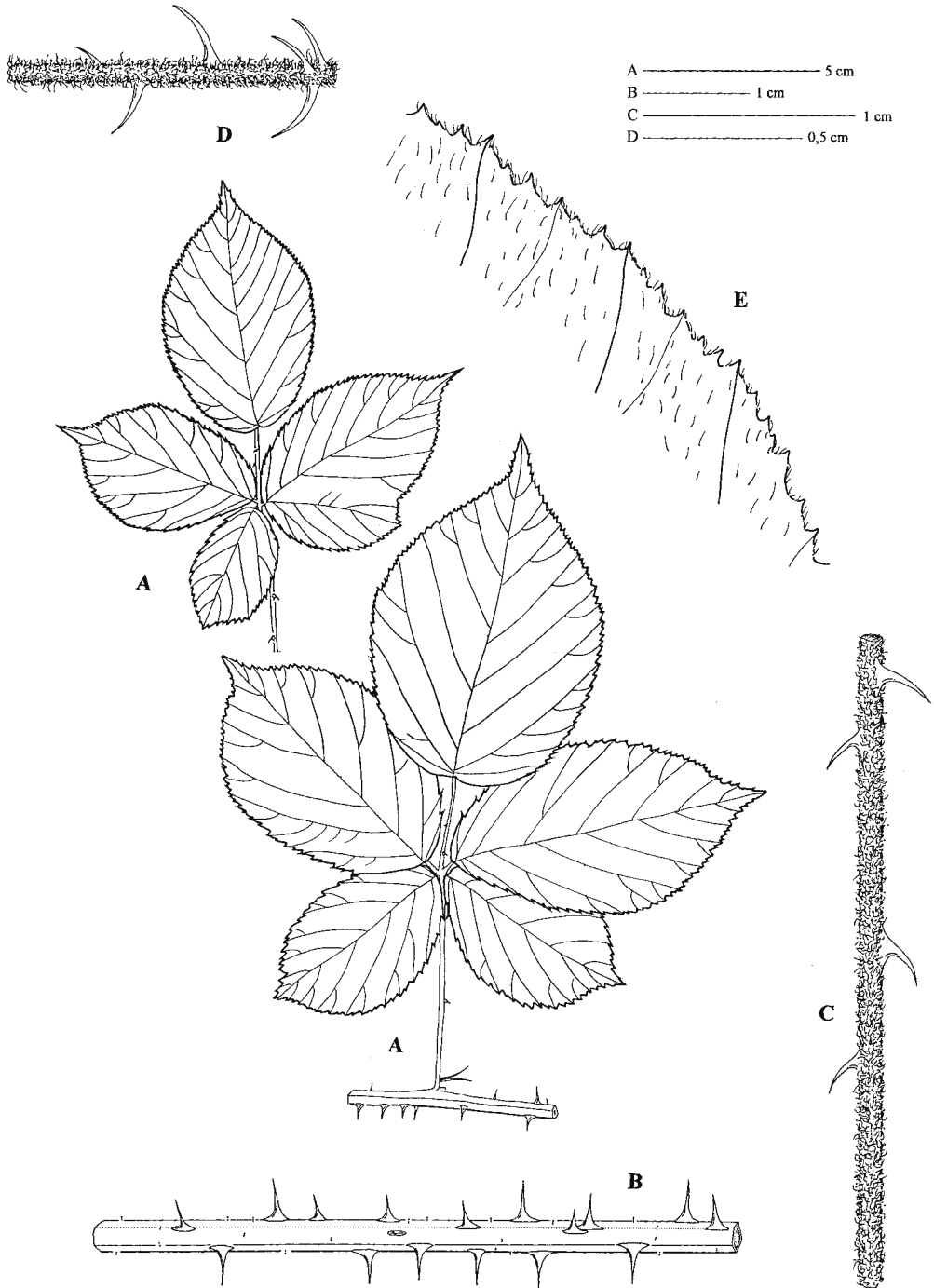


Fig. 203. *Rubus lamprocaulos* G. Braun. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Awzan 10*, KOR 31670).

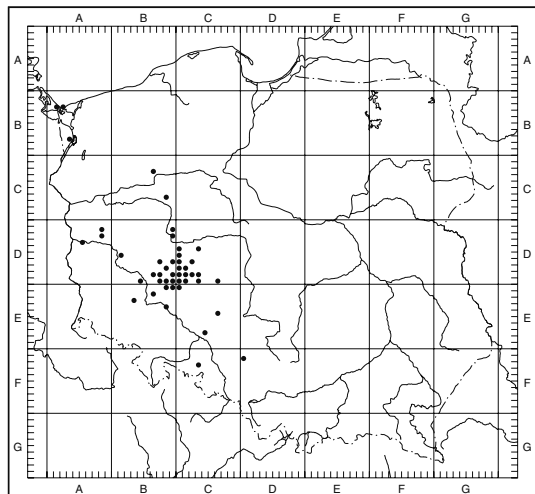


Fig. 204. Distribution of *Rubus lamprocaulos* G. Braun in Poland.

tween Kostów & Janówka, 18°07'–51°09½', 18 Sep 1990, *Zieliński 2675* (KOR 23891); CE7428 – Pokój, 17°50½'–50°54', 24 Jun 1899, *Baenitz s.n.* (BREM); CF2332 – W of Grabina, 205 m, 17°37½'–50°26½', 14 Sep 1999, *Kosiński & Zieliński Z. 129/99* (KOR 41658); DF1020 – near Kielcza towards Gliwice, 18°35'–50°32½', 24 Aug 1994, *Zieliński 121/94* (KOR 29517).

Series *Seppincoli*

Stems subglabrous, without or with sparse stalked glands. Prickles rather weak, uniform. Terminal leaflets broad, evenly, shallowly serrate, shortly acuminate. Stipules lanceolate, more than 1 mm wide.

71. *Rubus curvaciculatus* Walsemann ex H. E. Weber
(Figs 205–207)

Osnabr. Naturwiss. Mitt. **22**: 111. 1996.

Rubus dethardingii auct. non E. H. L. Krause, Arch. Ver. Freunde Naturgesch. Mecklemb. **34**: 203. 1880.

TYPE: Dänemark, Jütland, Kollund, Heckenweg, 13.7.1977, *Weber 77.713.8* (HGB – HOLOTYPE).

Stems arching, angled, with slightly furrowed sides, glabrous. Prickles uniform, 8–20 per 5 cm, 2–3.5(–4) mm long, slender, subulate, with a decurrent base, curved or straight, patent or declin-

ing. Leaves subpedate, 5-foliolate, with sparse, short hairs above, green-grey or grey, softly hairy beneath, with simple, tufted and usually stellate hairs. Leaflets imbricate. Terminal leaflets with short or mid-long petiolules (25–30%), broadly ovate, broadly elliptical to suborbicular, cordate at the base, with a suddenly acuminate apex 10–15(–20) mm long, evenly or indistinctly periodically serrate; the serration to 2(–2.5) mm deep, principal teeth only slightly prominent. Basal leaflets sessile. Petioles hairy, with small, strongly curved prickles. Stipules lanceolate with subsessile glands. Inflorescence rather irregular, paniculate. Leaves grey-hairy beneath, the lower ones 3-foliolate. Inflorescence axis densely hairy, with straight or slightly curved prickles 1.5–3 mm long, without or with short-stalked glands 0.1–0.2 mm long. Sepals grey-green, unarmed, usually without stalked glands, patent or slightly reflexed after anthesis. Petals white, rarely pink, suborbicular, 8–10 mm long. Stamens longer than styles. Anthers and carpels glabrous. Receptacle hairy. – 2n = ? – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, glabrous and eglandular; prickles very small, subulate, curved, 2–3(–4) mm long; leaves imbricate, green-grey or grey, softly hairy beneath; lea-

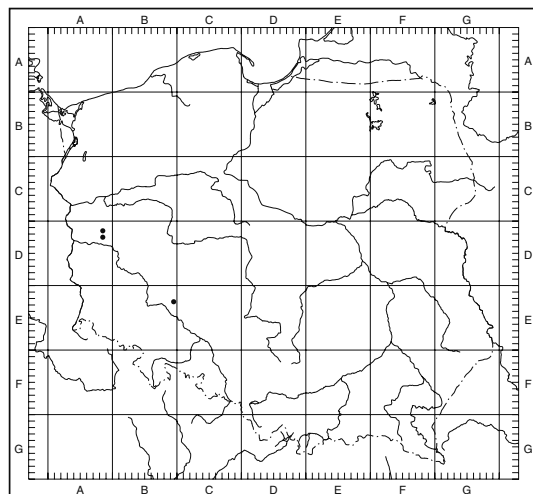


Fig. 205. Distribution of *Rubus curvaciculatus* Walsemann ex H. E. Weber in Poland.



Fig. 206. *Rubus curvaciculatus* Walsemann ex H. E. Weber (*Henker 31/88*, KOR 31670). Scale bar = 5 cm.

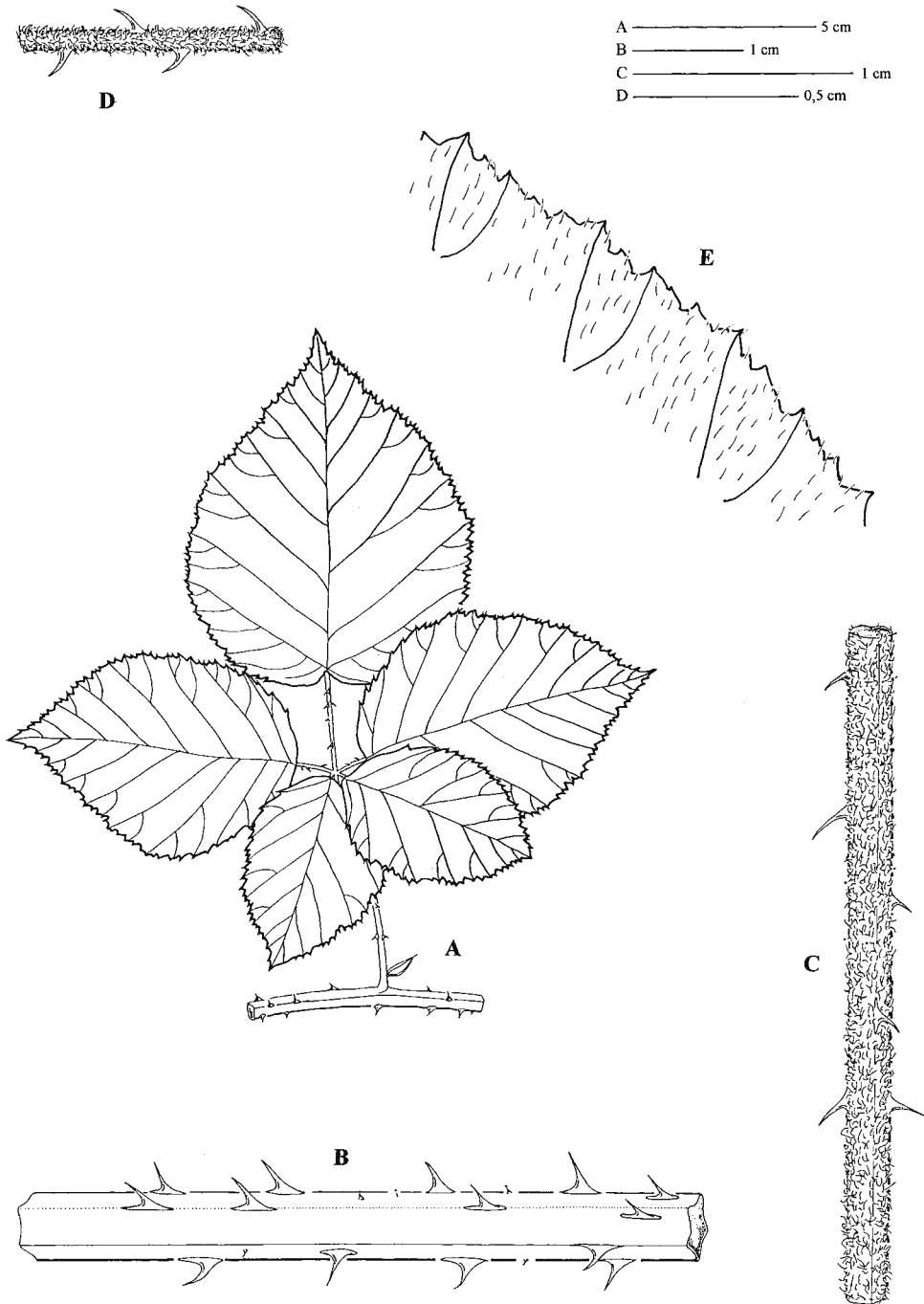


Fig. 207. *Rubus curvaciculatus* Walsemann ex H. E. Weber A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Henker 31/88, KOR 31670).

flets densely, finely serrate; serration up to 2(–2.5) mm deep. Until recently it was known under the name *R. dethardingii*, which appeared to be a different species (Weber 1996).

HABITAT. Thickets, forest edges.

DISTRIBUTION IN POLAND. Very rare, known only from three localities in the west.

GENERAL DISTRIBUTION. Widespread species: Denmark, Germany, the Czech Republic, Poland.

SPECIMENS SEEN. AD1882 – between Przelazy & Zloty Potok, by Nieslysz Lake, 15°22¼'–52°13½', 28 Aug 1992, *Zieliński s.n.* (KOR 29946); AD2806 – near Ołobok, 15°26'–52°12¾', 28 Aug 1992, *Zieliński 161/92* (KOR 30037); BE2994 – Wysoki Kościół, 17°03½'–51°16', Jun 1854, *Uechritz s.n.* (WRSL).

72. *Rubus czarnunensis* (Sprib.) Sprib.

(Figs 208–210)

Deutsche Ges. Kunst Wiss. Posen. Zeitschr. Naturwiss. Abt. 9: 132. 1902.

Basionym: *R. cyclophyllus* Lindeb. var. *czarnunensis* Sprib., Verh. Bot. Ver. Brandenb. 40: 18 (1898).

TYPE: Czarnuner Wald. 20.6.1897, *Spribille* (BREM – LECTOTYPE, designated here, WRSL – ISOLECTOTYPE).

Stems arching, angled, with flat or slightly furrowed sides, glabrous or rarely with scattered, simple hairs. Prickles (5)–6–8(–10) per 5 cm, (4)–5–6 mm long, slender, with a suddenly elongated base, straight, slightly declining, often with dark tips. Leaves 5-foliolate, sparsely but evenly hairy above, densely grey-hairy beneath; hairs long, patent, simple or tufted with an underlayer of stellate hairs. Leaflets imbricate. Terminal leaflets with mid-long or long petiolules (30–39%), broadly ovate, cordate at the base, with a shortly acuminate apex 5–12(–15) mm long, shallowly, indistinctly periodically serrate; principal teeth slightly prominent, straight or retrorse. Basal leaflets sessile or subsessile. Petioles usually longer than the basal leaflets, with 5–10 curved prickles up to 2 mm long, hairy on the upper surface only, without or with few short-stalked glands. Stipules narrowly lanceolate. Inflorescence short, few-

flowered with 3-foliolate lower leaves. Inflorescence axis loosely hairy, with simple, tufted and stellate hairs, few prickles to 2(–2.5) mm long, eglandular. Pedicels up to 1.5 cm long, felted, with subsessile glands, unarmed or with 2–4 straight or slightly curved pricklets up to 1.5 mm long. Sepals abruptly narrowed at the apex, cuspidate, grey-green-felted on the back, with subsessile glands, usually unarmed, reflexed after anthesis. Petals white or pinkish, suborbicular, 12–13 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or with few long hairs. Receptacle with protruding long hairs. – 2n = 28 (Boratyńska 1998). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, eglandular, with uniform prickles; leaflets imbricate, densely softly grey-patent-hairy beneath, finely, rather evenly serrate; terminal leaflets broadly ovate, cordate at the base.

HABITAT. Wayside thickets, forest edges, usually on rich soils.

DISTRIBUTION IN POLAND. Scattered in W part of Pomorze Zachodnie and N Wielkopolska.

GENERAL DISTRIBUTION. Regional species, probably endemic to Poland.

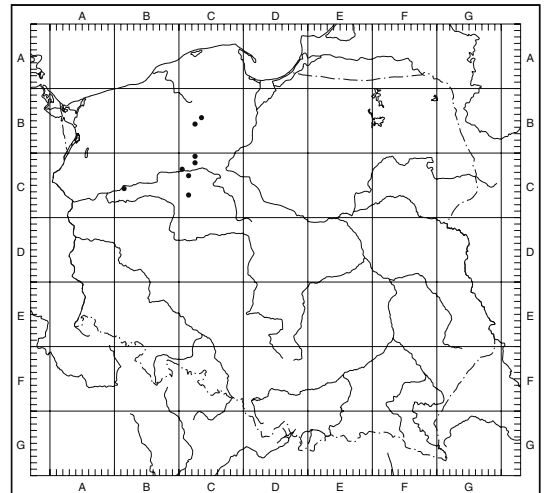


Fig. 208. Distribution of *Rubus czarnunensis* (Sprib.) Sprib. in Poland.

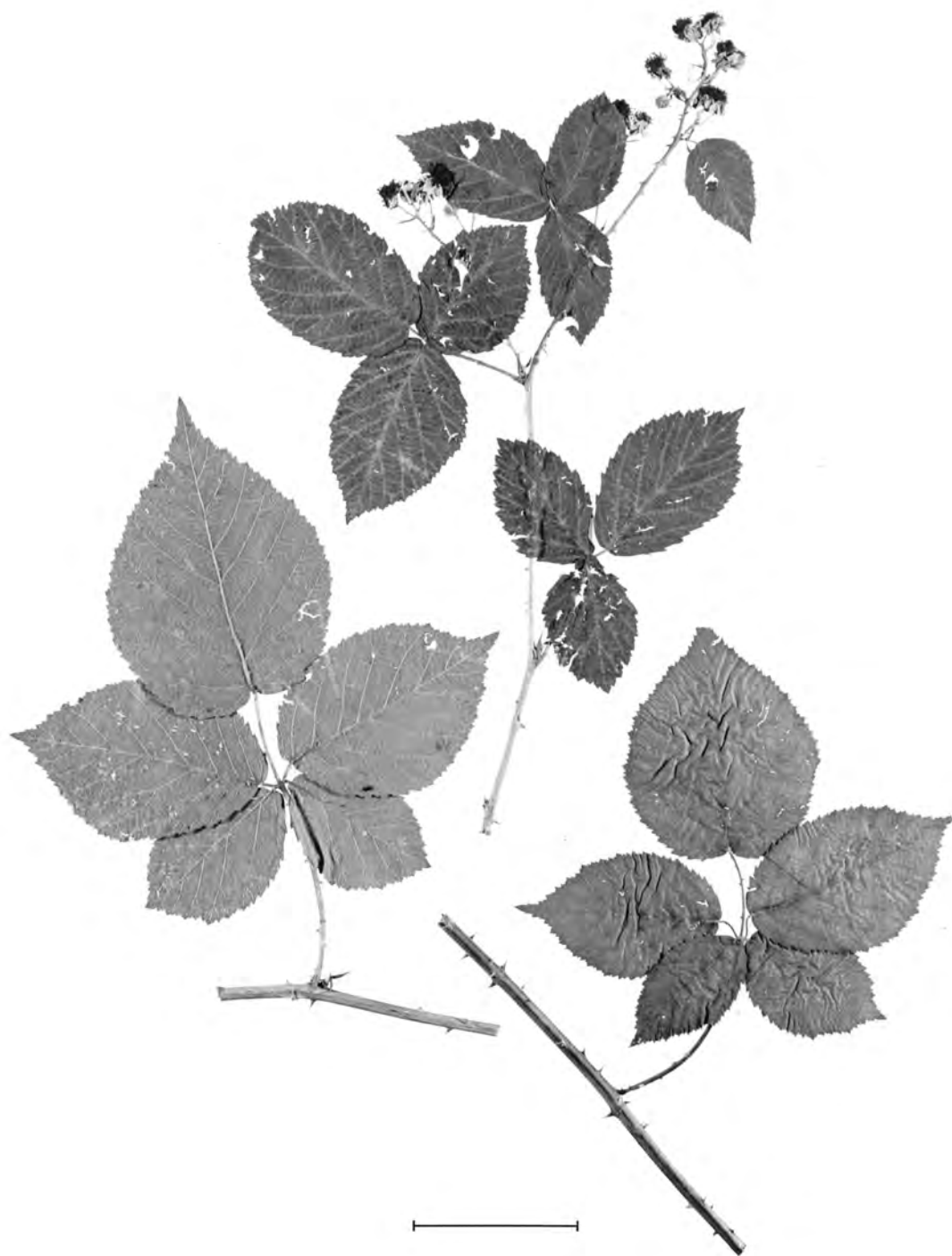


Fig. 209. *Rubus czamunensis* (Sprib.) Sprib. (*Spribille s.n.*, Holotype, BREM). Scale bar = 5 cm.

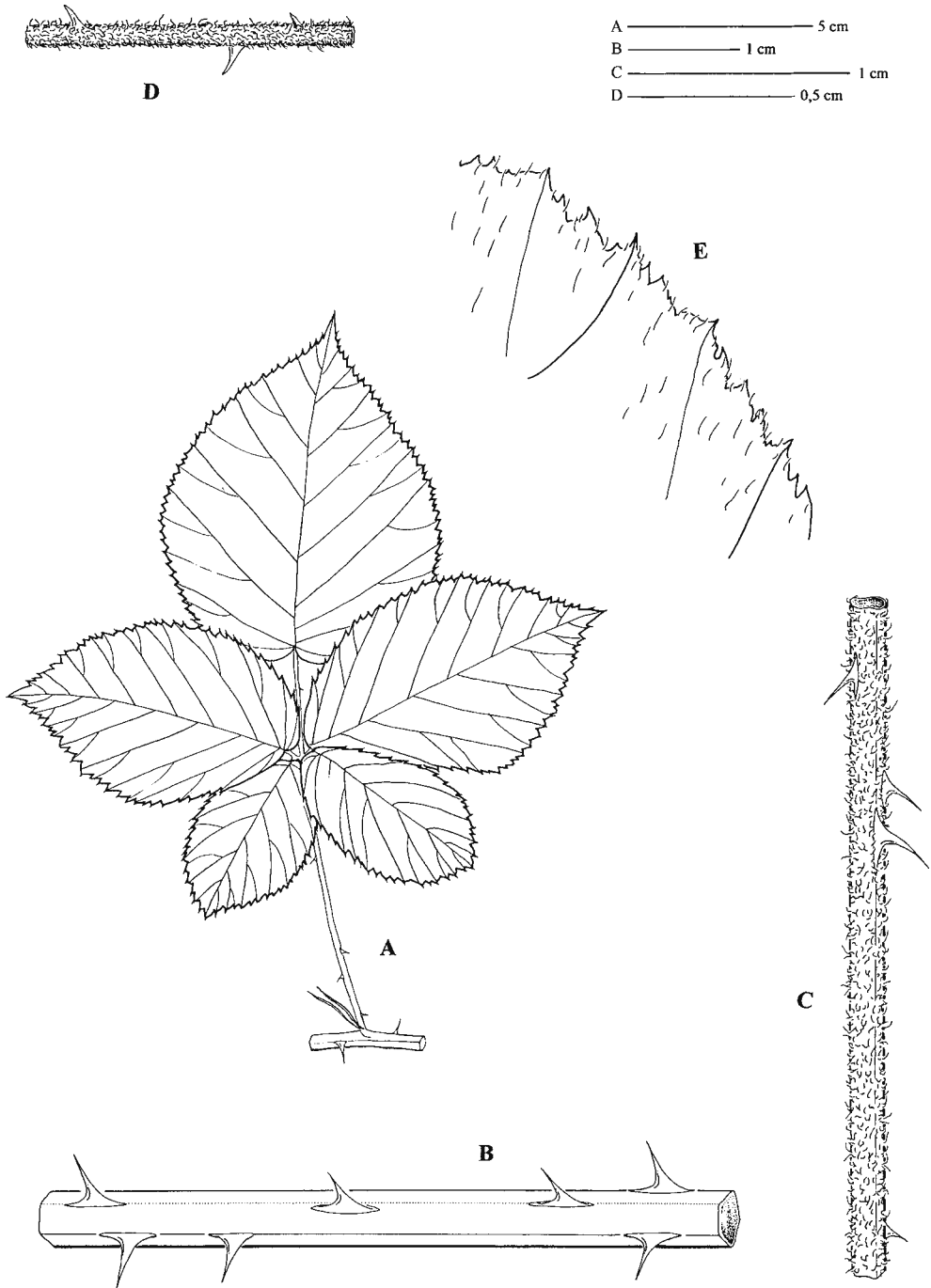


Fig. 210. *Rubus czarnunensis* (Spreng.) Spreng. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin *Boratyńska et al.*, in *Zieliński 3121*, *KOR 31979*).

SELECTED HERBARIUM SPECIMENS. BC5116 – Dresdenko, 15°49½′–52°50¼′, sine die, *Lasch s.n.* (KOR 68); CB4325 – Drzewicz, 17°34′–53°51′, 26 Jun 1991, *Tomlik s.n.* (KOR 31980); CB5269 – 7 km NW of Chojnice, 17°29′–53°43¾′, 4 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3121 & 3122* (KOR 31979 & 31978); CC0266 – Czarnuń, 17°27′–53°16½′, 20 Jun 1897, *Spribille s.n.* (BREM & WRSL); CC0299 – N of Witosław, 17°29½′–53°15′, 25 Aug 1897 & 29 Jun 1898, *Spribille s.n.* (BREM & POZ); CC1208 – near Witosław, 17°29′–53°14¾′, 15 Aug 1897, *Spribille s.n.* (TRN).

73. *Rubus franconicus* H. E. Weber
(Figs 211–213)

Ber. Bay. Bot. Ges. 50: 6. 1979.

TYPE: Bayern: Ostrand von Kulmain, Hecke am Abzweig des 'Höhenweges' von der Strasse Frankenreuth – Kemnath, 29.7.1978, *Weber 78.729.12* (M – HOLOTYPE).

Stems arching, terete or angled, without or more often with sparse to rather numerous short-stalked glands up to 0.2 mm long and sessile glands. Prickles usually numerous (10–)15–20(–30) per 5 cm, on angles or between them, 3–4(–5) mm long, rather stout-based, slightly curved or straight, declining. Leaves pedate, (3–)5-foliolate. Leaflets imbricate, glabrous or with scattered adpressed hairs above, loosely hairy beneath, usually without stellate hairs. Terminal leaflets with short or mid-long petiolules [25–35(–37)%], suborbicular to broadly ovate, often broader than long, not seldom with 1(–2) shallow lobes, cordate at the base, with a short suddenly acuminate apex 5(–10) mm long, periodically serrate; the serration 2 mm deep; teeth broad, suddenly acuminate, principal ones slightly prominent, straight or slightly retrorse. Basal leaflets sessile or subsessile. Petioles usually as long as the basal leaflets, hairy, with sessile glands and strongly curved pricklets 1–2 mm long. Stipules narrowly lanceolate, up to 1.5 mm wide. Inflorescence conical, leafless above, with 3-foliolate leaves below. Leaves clothed and serrate like those of the stems. Inflorescence axis loosely hairy, with short-stalked glands 0.2 mm long and usually curved prickles 3–4 mm long. Pedicels 1–2(–2.5) cm long, densely pubescent with spreading hairs,

usually with numerous short-stalked glands and yellowish, usually curved pricklets 1–2 mm long. Sepals densely grey-hairy, with short-stalked and sessile glands, without or with few pricklets, clasping the fruit. Petals white, obovate, 8–12 mm long. Stamens longer than styles. Anthers glabrous. Carpels glabrous or exceptionally with few hairs. Receptacle hairy. – 2n = 28 (material from the Czech Republic, Krahulcová & Holub 1997a). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, glabrous; prickles numerous, rather small, stout-based; terminal leaflets very broad, often broader than long.

HABITAT. Thickets, forest margins, on rich, moderately wet soils.

DISTRIBUTION IN POLAND. Rare in SW regions.

GENERAL DISTRIBUTION. Widespread species with the disjunctive range. Central Europe: mainly Germany and the Czech Republic, on isolated stands in Austria and Poland.

SPECIMENS SEEN. BE2866 – by the road to a hill (246 m) E of Oborniki Śląskie, 16°56½′–51°18′, 14 Jul 1897, *Baenitz s.n.* (BRNM 16984/35); BE5365 – between Czernica & Zimnik, 16°13½′–51°00½′, 7 Aug 1991,

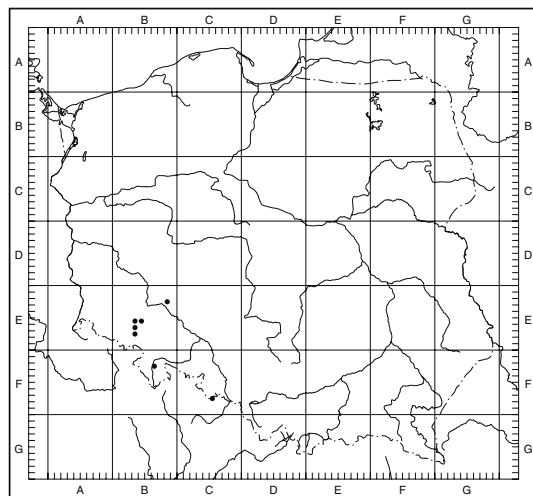


Fig. 211. Distribution of *Rubus franconicus* H. E. Weber in Poland.



Fig. 212. *Rubus franconicus* H. E. Weber (Zieliński 2978, KOR 24782). Scale bar = 5 cm.

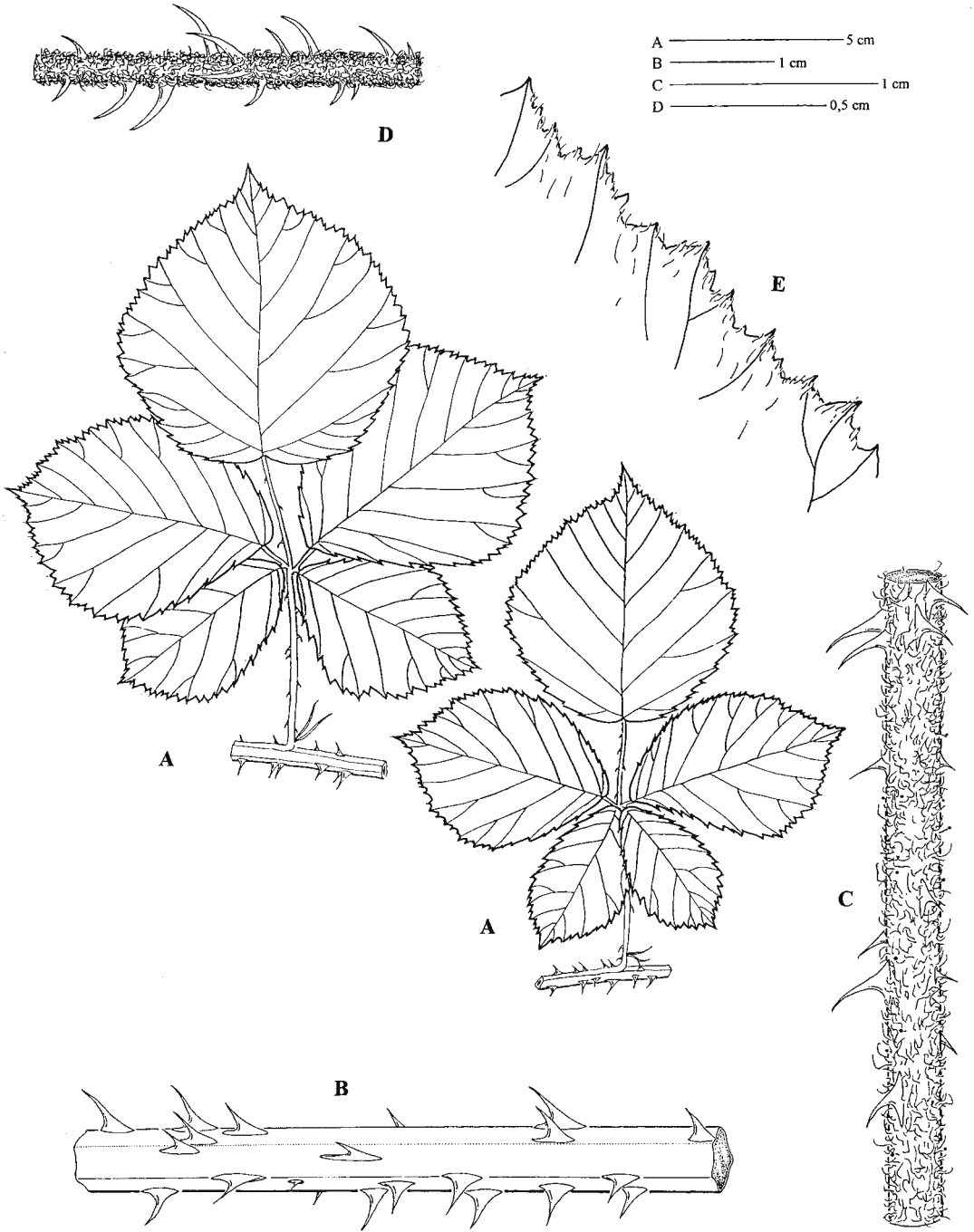


Fig. 213. *Rubus franconicus* H. E. Weber. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1962, KOR 30983).

Zieliński 2993 (KOR 24923); BE5495 – the S slope of Góra Zwycięstwa (350 m) near Strzegom, 16°22'–50°59½', 7 & 8 Aug 1991, *Zieliński 3001 & 3012* (KOR 24833 & 24792a); BE6356 – Jugowa, 16°15'–50°56', 7 Aug 1991, *Zieliński 2978* (KOR 24782); BE7327 – Golaźnia Mt. N of Cieszków, 16°16'–50°52½', 27 Jul 1987, *Boratyński & Zieliński Z. 2017* (KOR 30984); BE7349 – Pelcznica, 16°18'–50°51', 28 Jul 1987, *Boratyński & Zieliński Z. 1962* (KOR 30983); BE7359 – near Książ, 16°18'–50°50½', 27 Jul 1987, *Boratyński & Zieliński Z. 1935* (KOR 30985); CF7521 – Uciechowice, 305 m, 17°54'–50°00', 19 Jul 2000, *Kosiński, Tomaszewski & Zieliński 190* (KOR 42815).

Series *Subthyridoidei* (Focke) Focke

Sp. Rub. 3: 486. 1914.

Basionym: *Rubus* [Formenkreis] *Sub-Thyridoidei* Focke in Ascherson & Graebner, Syn. mitteleur. Fl. 6(1): 625, 642. 1903.

TYPE: *Rubus wahlbergii* Arrh.

Stems usually glabrous, without or with few short-stalked glands. Prickles uniform. Leaves usually ± grey-felted beneath. Terminal leaflets usually ± deeply periodically serrate, often with undulate margin. Inflorescence leaves (at least the upper ones) usually greyish, with numerous stellate hairs underneath. Sepals felted. Anthers glabrous. To this series belong brambles related to the species of the series *Discolores* and possibly also *Rhamnifolii*.

74. *Rubus wahlbergii* Arrh. (Figs 214–216)

Ruborum Suec. Dispositio Mon.: 45. 1839.

TYPE: Sine loco et die, Wahlberg scripsit: *R. corylifolius* β. *intermedius*, Herb. Hartman, Arrhenius scripsit: *R. wahlbergii* (UPS – LECTOTYPE; Beek 1974).

Stems arching, angled, with flat or usually furrowed sides, glabrous or rarely with few scattered hairs, without or with few short-stalked glands. Prickles rather uniform, mostly on the angles, 5–15 per 5 cm, 3–5(–6) mm long, slender, declining, straight or sometimes curved. Leaves digitate or subpedate, 5-foliolate, glabrous or with few scattered hairs above, usually greyish, thinly felted beneath. Leaflets imbricate. Terminal leaflets with short to mid-long petiolules (25–35%), broadly

ovate to suborbicular, cordate at the base, with an acuminate apex 10–15(–20) mm long, rather grossly, periodically serrate, sometimes shallowly lobed; the serration 3–5 mm deep; principal teeth straight. Basal leaflets (sub)sessile. Petioles longer than the basal leaflets, usually loosely hairy, without or with short-stalked glands and strongly curved prickles reddish at the base. Stipules oblong-lanceolate. Inflorescence conical, narrow. Leaves grey- or white-felted beneath with protruding longer hairs. The lower leaves (3–)5-foliolate. Lateral leaflets of 3-foliolate leaves sessile, truncate or subcordate at the base. Inflorescence axis sparsely hairy below, rather densely so above, mainly with tufted hairs and subsessile glands, without or with rather few short-stalked glands. Prickles rather strongly curved, reddish at the base, 2.5–4 mm long. Pedicels (0.5–)1–1.5 cm long, densely hairy, usually with subsessile glands only, without or with few short-stalked glands 0.1–0.2 mm long. Prickles rather strong, curved, yellow, reddish at the base, the longest ones 2–3 mm long. Sepals short, grey-felted, usually without stalked glands, reflexed after anthesis. Petals pale pink, suborbicular to very broadly ovate, 10–12 mm long. Stamens longer than styles. Anthers glabrous, exceptionally some of them with single hairs. Carpels glabrous or with few long hairs. Receptacle with long hairs. –2n = 35 (Weber 1995). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems with furrowed sides, glabrous, usually without stalked glands; prickles 3–5 mm long; leaflets imbricate, usually grey-felted below; terminal leaflets broad, deeply periodically serrate, often undulate along margins; lateral leaflets of 3-foliolate inflorescence leaves broad-based, sessile.

From *R. curvaciculatus* it can be distinguished by longer and thicker prickles, from *R. czarnunensis* by periodically serrate leaflets, from *R. kuleszae* by usually weaker, furrowed stems and more regular, compact inflorescence.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. Scattered, mainly in SW regions, probably undercollected.



Fig. 214. *Rubus wahlbergii* Arrh. (Zieliński 94/95, KOR 32894). Scale bar = 5 cm.

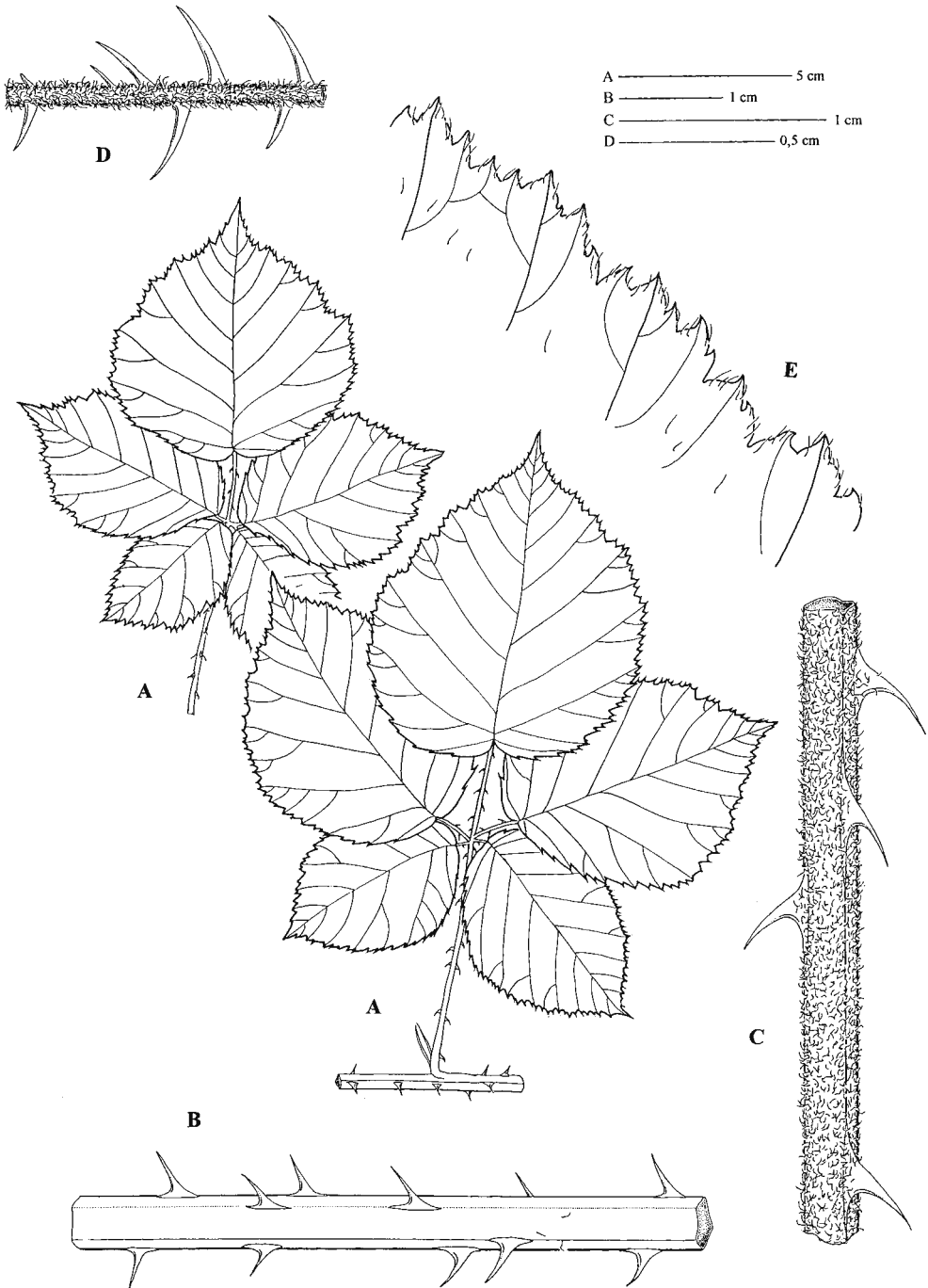


Fig. 215. *Rubus wahlbergii* Arrh. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribille s.n.*, WRSL).

GENERAL DISTRIBUTION. Widespread species: S Scandinavian Peninsula, Denmark, Germany, the Czech Republic, Poland.

SPECIMENS SEEN. BD4537 – Żegrowo, $16^{\circ}28\frac{3}{4}'$ – $52^{\circ}01\frac{2}{3}'$, Jul 1857, *Wimmer s.n.* (KOR); BE5437 – Końary, $16^{\circ}23\frac{1}{2}'$ – $51^{\circ}02\frac{1}{3}'$, 14 Jul & 5 Sep 1865, *Schwarzer s.n.* (WRSL); BE5494 – Góra Zwycięstwa (350 m) near Graniczna, $16^{\circ}21\frac{1}{2}'$ – $50^{\circ}59\frac{1}{2}'$, 16 Jul 1865, *Schwarzer s.n.* (WRSL); BE7754 – Gozdnik Mt. (314 m) SE of Księginice Małe, 280 m, $16^{\circ}47\frac{1}{4}'$ – $50^{\circ}51\frac{1}{3}'$, 29 Jul 1897, *Baenitz s.n.* (WRSL); BE7853 – NW of Suchowice, $16^{\circ}55\frac{1}{2}'$ – $50^{\circ}51\frac{1}{2}'$, 20 Sep 1917, *Spribille s.n.* (WRSL); BE9935 – Gromnik Mt. NE of Romanów, $17^{\circ}06'$ – $50^{\circ}42'$, 12 Jul 1904, *Spribille s.n.* (WRSL); BF0618 – Młodziejów, $16^{\circ}43'$ – $50^{\circ}37\frac{1}{4}'$, 27 Jul 1904, *Spribille s.n.* (WRSL); BF1440 – Pasterka, $16^{\circ}19\frac{3}{4}'$ – $50^{\circ}29\frac{1}{2}'$, 6 Aug 1978, *Pelczarska s.n.* (WRSL); CE6973 – Biskupice, $18^{\circ}28\frac{1}{2}'$ – $50^{\circ}56\frac{5}{6}'$, 12 Aug 1898, *Zuschke s.n.* (WRSL); CF5960 – Zwonowice, $18^{\circ}26\frac{2}{3}'$ – $50^{\circ}08\frac{2}{3}'$, 15 Aug 1919, *Schmattorsch s.n.* (WRSL); CF5994 – Orzepowice, $18^{\circ}30\frac{1}{2}'$ – $50^{\circ}07\frac{1}{2}'$, 20 Aug 1917, *Schmattorsch s.n.* (WRSL); CF5994 – S of Chwałęcice, $18^{\circ}30'$ – $50^{\circ}07'$, 26 Aug 1919, *Schmattorsch s.n.* (WRSL); CF6528 – Kietrz, $17^{\circ}59\frac{2}{3}'$ – $50^{\circ}05\frac{1}{2}'$, 19 Jul 2000, *Kosiński, Tomaszewski & Zieliński 189* (KOR 42814); CF6593 – Ludmierzycy, 300 m, $17^{\circ}56'$ – $50^{\circ}01\frac{1}{6}'$, 18 Jul 2000, *Kosiński, Tomaszewski & Zieliński 198* (KOR 42822); CF6913 – Zebrydowice, $18^{\circ}29\frac{2}{3}'$ – $50^{\circ}06'$, 17 Aug 1909, *Spribille s.n.* (WRSL); CF7508 – Rozumice, 290 m, $17^{\circ}59\frac{3}{4}'$ – $50^{\circ}01\frac{1}{6}'$, 18 Jul 2000, *Kosiński, Tomaszewski &*

Zieliński 200 (KOR 42824); DF6000 – Paruszowiec, $18^{\circ}35'$ – $50^{\circ}06\frac{1}{2}'$, 11 Aug 1908, *Spribille s.n.* (WRSL); DF6181 – by the road between Żory & Pszczyna, $18^{\circ}44\frac{2}{3}'$ – $50^{\circ}02\frac{1}{3}'$, 25 Aug 1916, *Spribille s.n.* (WRSL); EE8303 – Zelejowa, $20^{\circ}28'$ – $50^{\circ}49\frac{1}{6}'$, 25 Jul 1954, *col. ign.* (KOR 436).

75. *Rubus hevellicus* (E. H. L. Krause) E. H. L. Krause in Prahl (Figs 217–219)

Krit. Fl. Prov. Schleswig-Holst. 2: 84. 1889.

Rubus aschersonii Sprib., Verh. Bot. Ver. Brandenb. 41: 644. 1899.

TYPE: Koenigsdamm 1.7.1879, Krause, '*R. nemorosus* $\beta.$ *hevellicus*' (C – LECTOTYPE; Weber 1981).

Stems arching, angled, with flat or slightly furrowed sides, glabrous, without stalked glands. Prickles fairly few, 3–8 per 5 cm, uniform, usually on angles, 3–4 mm long, somewhat declining, straight or slightly curved. Leaves 3-foliolate with subsessile, gibbous lateral leaflets, or on stronger stems partly 4–5-foliolate, glabrous or with scattered hairs above, green-grey or grey beneath, densely covered with stellate hairs. Terminal leaflets usually short-petiolulate (20–25%), broadly elliptical to suborbicular, rounded or shallowly cordate at the base, with an acuminate apex (5–)10–15 mm long, evenly or periodically serrate; the serration 2–3 mm deep; principal teeth straight or indistinctly retrorse. Petioles subglabrous, with rather strong, weakly curved prickles. Stipules narrowly lanceolate. Inflorescence usually short, few-flowered, usually leafy to the apex. Leaves hairy like those of the stem, the lower ones 3-foliolate. Inflorescence axis with sparse tufted hairs, subglabrous below, without or usually with stalked glands. Prickles slightly curved, yellow, suffused red, 2.5–3 mm long. Pedicels 0.5–1.5 cm long, usually densely covered with spreading hairs, numerous subsessile or short-stalked glands up to 0.2 mm long and yellow slightly curved prickles 1.5–2 mm long. Sepals densely hairy, grey-green, unarmed, without or with glands scarcely exceeding hairs, reflexed or patent after anthesis. Petals pink, suborbicular, 8–12 mm long. Stamens slightly exceeding styles. Anthers glabrous. Carpels hairy, rarely glabrous.

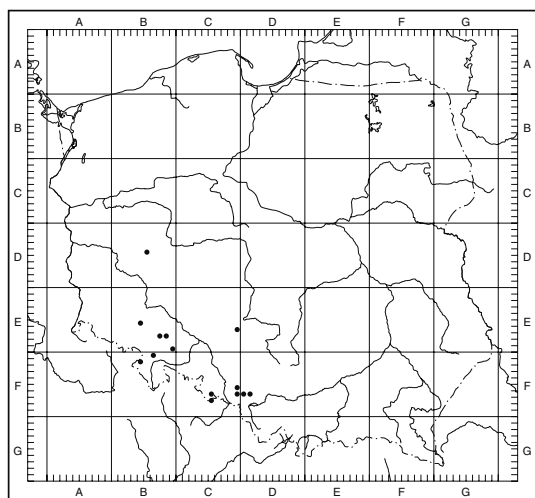


Fig. 216. Distribution of *Rubus wahlbergii* Arrh. in Poland.

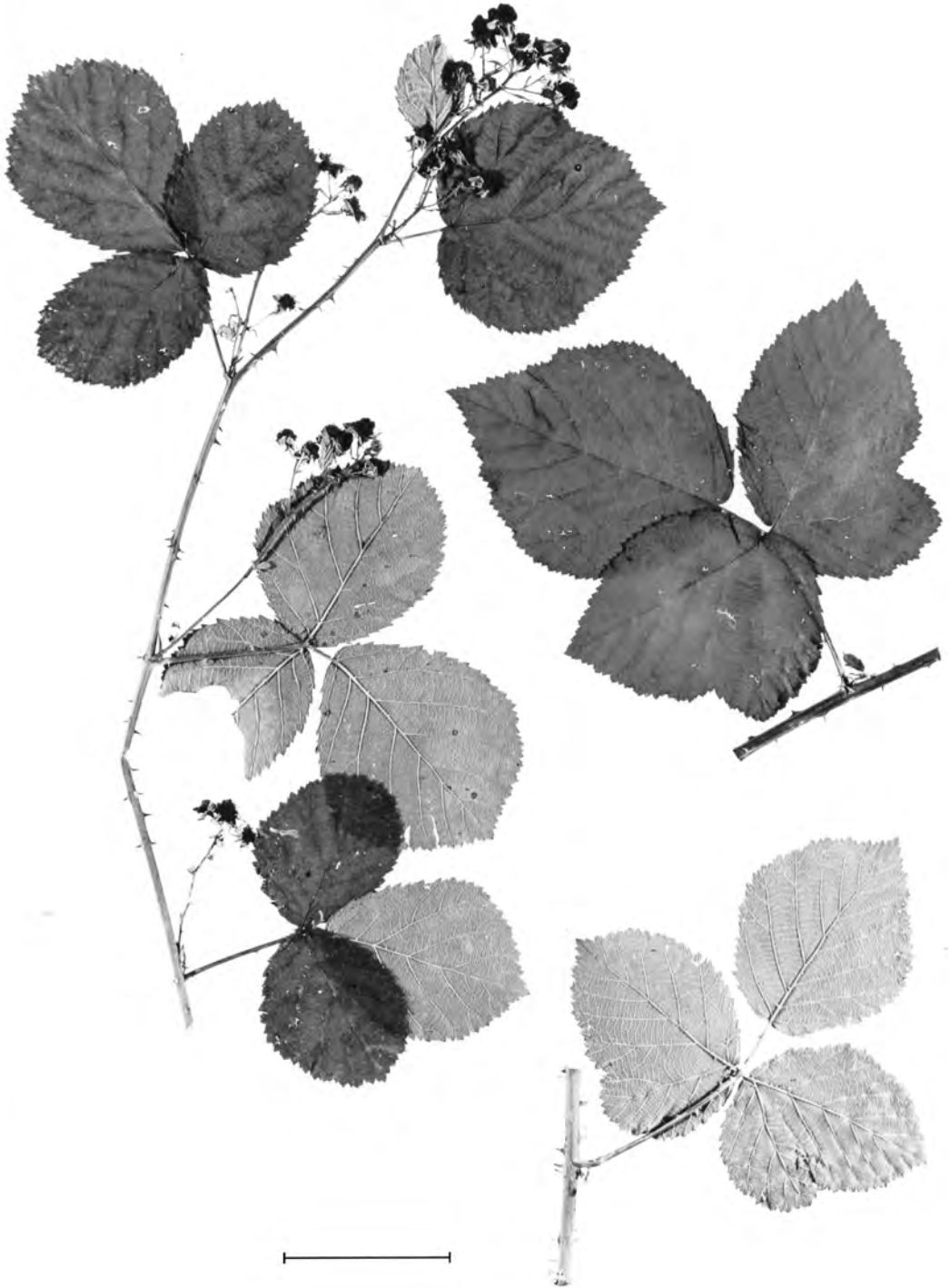


Fig. 217. *Rubus hevellicus* (E. H. L. Krause) E. H. L. Krause (*Zieliński 123/95, KOR 32887*). Scale bar = 5 cm.

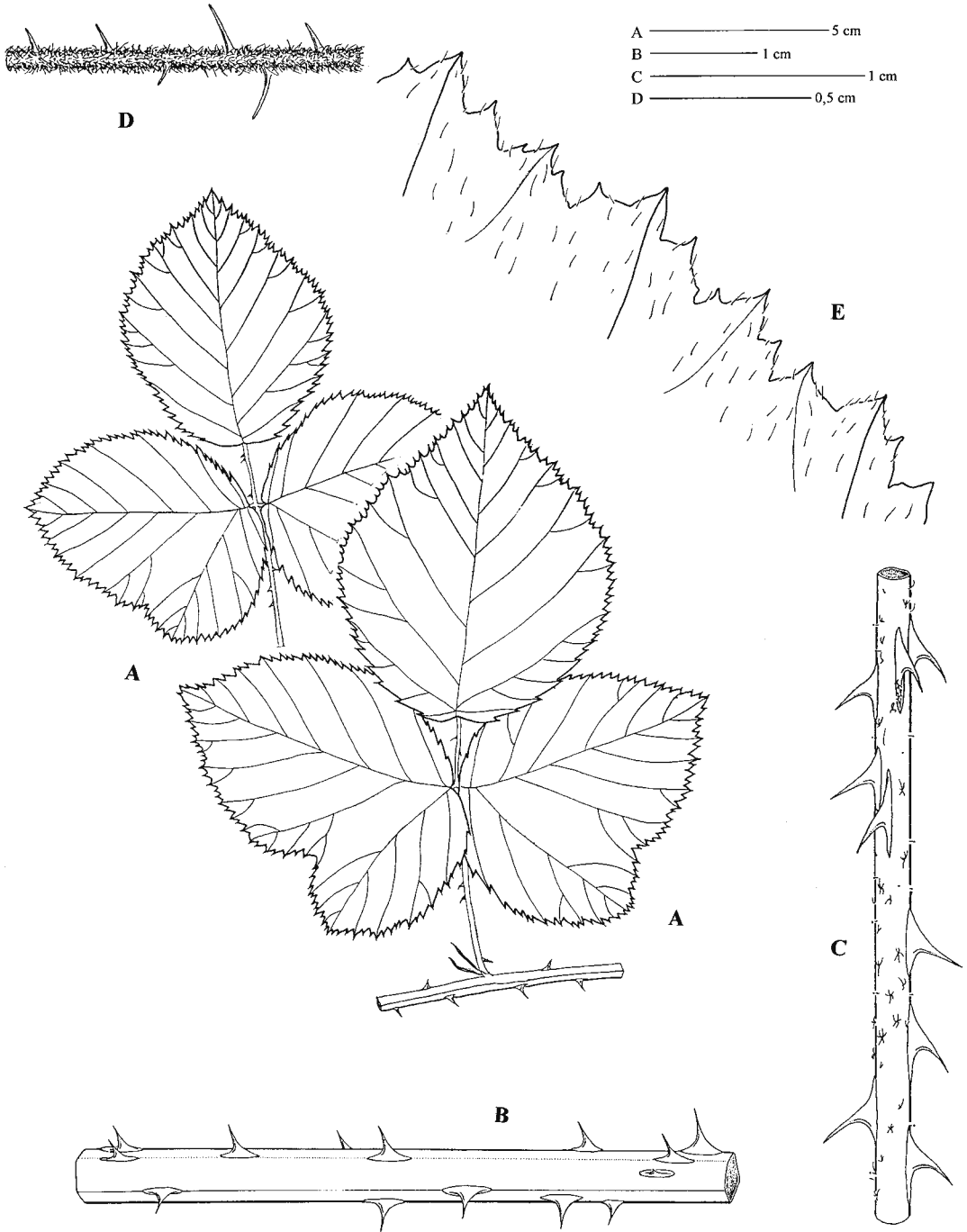


Fig. 218. *Rubus hevellicus* (E. H. L. Krause) E. H. L. Krause. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 129/95, KOR 32428).

Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VI–VII(–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems angled, prickles uniform up to 3.5 mm long; leaves 3-foliolate, green-grey or grey, \pm densely stellate below, with gibbous lateral leaflets; inflorescence short, usually leafy to the apex. Many local forms similar to *R. hevellicus* can be mistaken for this species.

HABITAT. Thickets, wood margins.

DISTRIBUTION IN POLAND. On scattered localities in SW regions, chiefly in Dolny Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. Central Europe: E Germany, Poland.

SELECTED HERBARIUM SPECIMENS. AB3335 – Karno-cice, $14^{\circ}31' - 53^{\circ}51\frac{1}{2}'$, 15 Aug 1954, *Piotrowska s.n.* (UGDA); AB9356 – Chlebowo, $14^{\circ}36' - 53^{\circ}18\frac{1}{2}'$, 21 Jul 1856, *Wimmer s.n.* (KOR 60 & 61); BC5116 – Drezdenko, $15^{\circ}49\frac{1}{2}' - 52^{\circ}50\frac{1}{4}'$, sine die, *Wimmer s.n.* (KOR 67); BD9619 – 1 km NE of Cieszkowice, $16^{\circ}41\frac{1}{2}' - 51^{\circ}36\frac{1}{2}'$, 25 Jul 1996, *Zieliński 14/96* (KOR 38267); BD9733 – between Wodniki & Wąsosz, $16^{\circ}44\frac{1}{2}' - 51^{\circ}35\frac{1}{2}'$, 25 Jul 1996, *Zieliński 4/96* (KOR 38321); BE0819 – by the road Radziądz–Gatka, $16^{\circ}58\frac{1}{2}' -$

$51^{\circ}31\frac{1}{4}'$, 26 Jul 1996, *Zieliński 32/96* (KOR 38308); BE2768 – Rościslawice, $16^{\circ}50' - 51^{\circ}17\frac{1}{2}'$, 25 Aug 1987, *Zieliński 1905* (KOR 31034); BE2779 – 2 km of Rościslawice, by the road to Uraz, $16^{\circ}50\frac{2}{3}' - 51^{\circ}17'$, 25 Aug 1987, *Zieliński 1882* (KOR); BE2793 – Kręsko, $16^{\circ}45\frac{1}{4}' - 51^{\circ}16'$, 15 Oct 1910, *Spribille s.n.* (WRSL); BE2844 – Siemianice, $16^{\circ}55' - 51^{\circ}19'$, 20 Jul 1896 & 14 Jul 1897, *Baenitz s.n.* (WRSL & WU 90–62/2); BE2855 – near Żytno, $16^{\circ}55\frac{1}{2}' - 51^{\circ}18\frac{1}{4}'$, Aug 1867, *Uechtritz s.n.* (WRSL); BE2865 – Oborniki Śląskie, $16^{\circ}55\frac{1}{2}' - 51^{\circ}18'$, 16 Aug 1882, *Uechtritz s.n.* (WRSL); BE3780 – between Miękinia & Kadłub, $16^{\circ}43' - 51^{\circ}11'$, 29 Oct 1910, *Spribille s.n.* (WRSL); BE7710 – by the road from Sobótka to Ślęza Mt., $16^{\circ}44\frac{1}{3}' - 50^{\circ}53\frac{1}{3}'$, 15 Jul 1904, *Spribille s.n.* (WRSL); CD8498 – Krepa, $17^{\circ}49\frac{2}{3}' - 51^{\circ}38\frac{1}{4}'$, 8 Aug 1894, *Miller s.n.* (POZ); CD9304 – Kuroch, $17^{\circ}37' - 51^{\circ}37\frac{3}{4}'$, 1 Jun 1998, *Pawłowski s.n.* (POZ); CD9408 – near Ostrów Wielkopolski, by the road to Przygodzice, $17^{\circ}49' - 51^{\circ}38'$, 15 Jul 1903, *Spribille s.n.* (TRN); CD9427 – between Janków Przygodzicki & Ostrów Wielkopolski, $17^{\circ}48\frac{1}{3}' - 51^{\circ}37'$, 23 Aug 1995, *Zieliński 104/95* (KOR 32444); CD9427 – between Przygodzice & Ostrów Wielkopolski, $17^{\circ}48\frac{2}{3}' - 51^{\circ}36\frac{3}{4}'$, 28 Sep 1996, *Boratyńska s.n.* (KOR 38340); CE1521 – between Szklarka & Ostrzeszów, $17^{\circ}52' - 51^{\circ}26\frac{1}{4}'$, 23 Aug 1994, *Zieliński 110/94* (KOR 31035); CE2572 – between Bralin & Tabor Mały, $17^{\circ}53' - 51^{\circ}18'$, 21 Sep 1915, *Spribille s.n.* (WRSL); CE3224 – near Sokołowice, $17^{\circ}29' - 51^{\circ}15'$, 4 Oct 1912, *Spribille s.n.* (WRSL); CF6907 – Rybnik-Ruda, $18^{\circ}33' - 50^{\circ}06\frac{1}{2}'$, 28 Jun 1917, *col. ign.* (WRSL).

76. *Rubus kuleszae* Ziel. (Figs 220–222)

Fragm. Flor. Geobot. 4(1): 250. 1996.

TYPE: Polonia occidentalis. Wielkopolska australis. Ad boreali-orientem Sulmierzyce. Ad marginem silvae. 25.08.1995, *Zieliński 138/95* (KOR – HOLOTYPE).

Stems usually high-arching, often very thick, up to 10(–12) mm in diameter, bluntly angled to subterete, glabrous, without or with very few stalked glands. Prickles (4–)5–10(–11) per 5 cm, usually on angles, (4–)5–6(–9) mm long, mostly straight, declining or patent. Leaves digitate, 5-foliolate, glabrous or sparsely hairy above, sparsely to fairly densely hairy, sometimes grey-green- to grey-felted below. Leaflets imbricate. Terminal leaflets with mid-long or rarely short petiolules [(22–)25–35%], broadly ovate to suborbicular, cordate at the base, with a short-acu-

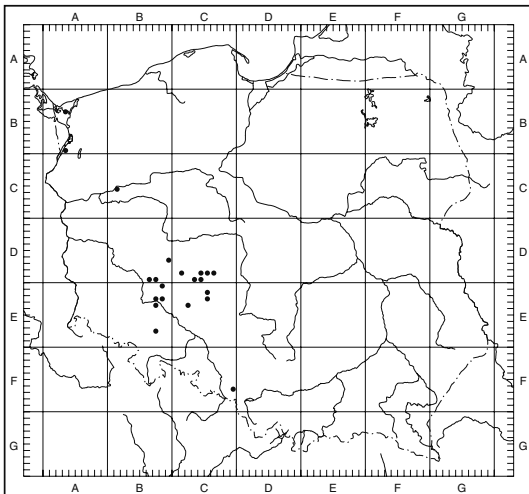


Fig. 219. Distribution of *Rubus hevellicus* (E. H. L. Krause) E. H. L. Krause in Poland.



Fig. 220. *Rubus kuleszae* Ziel. (Zieliński 2907, KOR 24831). Scale bar = 5 cm.

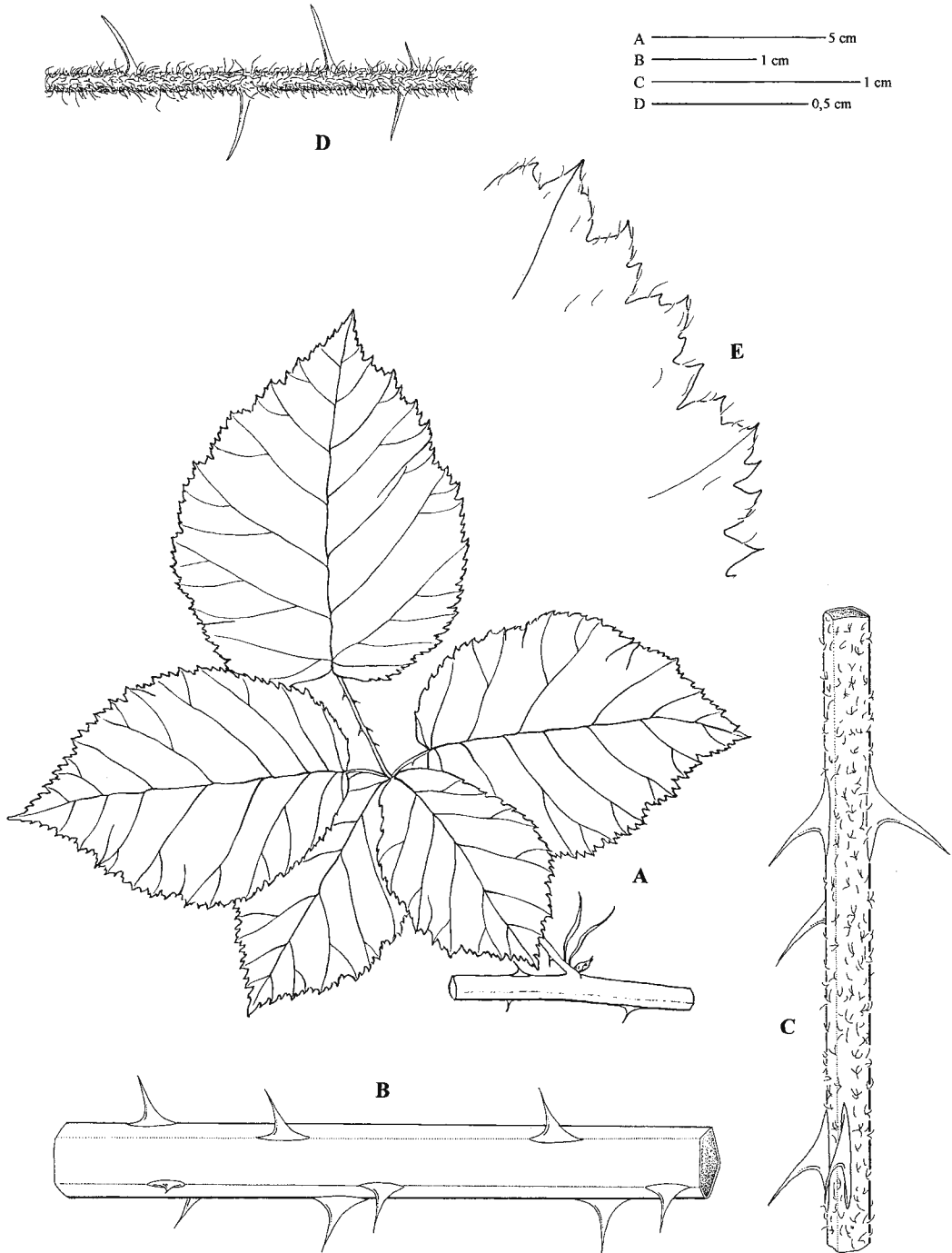


Fig. 221. *Rubus kuleszae* Ziel. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 138/95, KOR 32414).

minate apex 10–15(–20) mm long, irregularly serrate, often slightly incised, sometimes shallowly, bluntly lobed, usually waved along the margin. Teeth apiculate with red points, principal ones straight, slightly prominent. Petiolules of basal leaflets 1–2 mm long. Petioles as long or exceeding the basal leaflets, with sparse hairs and sessile glands. Prickles 8–15, strong, stout-based, 2.5–3.5 mm long. Stipules narrowly lanceolate. Inflorescence usually narrow, leafy to the apex. Upper leaves 3-foliolate or simple and then 3-lobed, normally grey-green-felted, densely stellate beneath. Inflorescence axis with sparse tufted and simple hairs, in the upper part with a distinct underlayer of stellate hairs, subglabrous below, usually without stalked glands. Prickles curved, 2–4 mm long. Pedicels 1.5–2(–3) cm long, with very numerous spreading hairs, subsessile glands and several straight or curved prickles 2–3 mm long. Sepals grey-felted, with subsessile glands, unarmed, patent after anthesis. Petals white, broadly ovate, ca 10 mm long. Stamens exceeding styles. Anthers glabrous. Carpels with sparse long hairs. Receptacle with long hairs protruding among carpels. Drupelets black, some of them often imperfectly formed. – $2n = 35$ (Boratyńska 1994, as *R. grossus* H. E. Weber). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems usually thick, obtusely angled to subterete, glabrous; leaves often large with imbricate leaflets; terminal leaflets broad, often shallowly lobed, undulate along margin; inflorescence usually leafy to the apex; inflorescence axis subglabrous in the lower half.

Species closely related to *R. wahlbergii*, but the latter species has furrowed stems, smaller leaves and different inflorescence.

HABITAT. Forest margins, thickets, usually on rich, moderately wet soils.

DISTRIBUTION IN POLAND. S regions, chiefly Dolny Śląsk, locally common.

GENERAL DISTRIBUTION. Widespread species. the Czech Republic, Austria, SE Germany, Poland.

SELECTED HERBARIUM SPECIMENS. AE6909 – 1 km N of Piaszczyńska, 450 m, 15°43'–50°58', 30 Sep 1983, *Boratyński 809* (KOR 30500a); BD4086 – near Mielno, 15°44½'–51°58', 13 Sep 1995, *Danielewicz s.n.* (POZNF); BE1307 – by the road between Lubin & Rudna, near Małomice, 16°14¼'–51°25½', 21 Jul 1994, *Boratyńska et al. 147/94* (KOR 29481); BE3519 – Rzezcyca, 16°33½'–51°14¾', 16 Aug 1993, *Smyk s.n.* (POZNF); BE4290 – Stanisławów, 16°01'–51°04', 15 Jun 1986, *Boratyński & Zieliński SU 1024* (KOR 30490a); CD7713 – between Skarszew & Beżnata, 18°11'–51°48¼', 23 Sep 1988, *Zieliński 2200* (KOR 30478); CD8381 – E of Chwaliszew, by the road from Biadki to Chruszczyn, 17°34½'–51°38½', 10 Jul 1995, *Zieliński 8/95* (KOR 32257); CD9325 – 1 km of Glińnica towards Kuroch, 17°38½'–51°36¾', 15 Jun 1998, *Pawłowski s.n.* (POZ); CE1586 – Rogaszyce, 17°57'–51°23', 23 Aug 1994, *Zieliński 111/94 & 112/94* (KOR 29798 & 29799); CE5043 – near Janowice, 17°12'–51°02½', 11 Jul 1994, *Zatorski s.n.* (POZNF); CF2705 – Dolna, 18°14½'–50°28½', 26 Jul 1899, *Spribille s.n.* (WRS�); CF4997 – by the road from Pilchowice to Stanice, 18°32½'–50°12½', 27 Jul 1995, *Zieliński 73/95* (KOR 32388); CF5705 – Miejsce Odrzańskie, 18°14'–50°12', 3 Sep 1994, *Danielewicz s.n.* (POZNF); DD9461 – Łask, 19°10'–51°34¾', 10 Sep 1988, *Zieliński 2563* (KOR 30502a); DE6284 – between Kłobuck & Mokra, 4 km NNW of Kłobuck, 18°55½'–50°56', 14 Jul 1993, *Zieliński 15/93 & 16/93* (KOR 30501a & 30502b); DE8592 – Przymiłowice-Kotysów, 19°19½'–50°44¾', 26 Jul 1991, *Zieliński 2934* (KOR 24822);

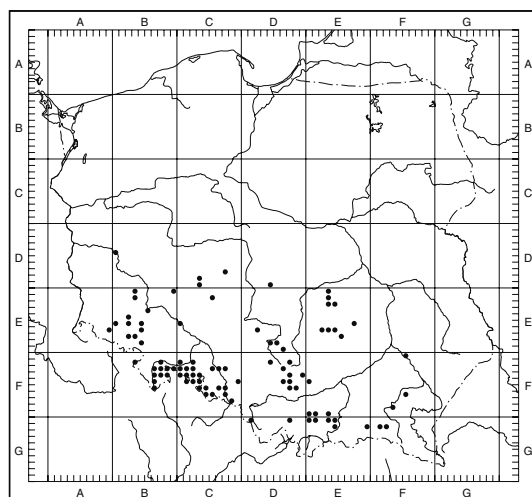


Fig. 222. Distribution of *Rubus kuleszae* Ziel. in Poland.

DF1486 – between Siewierz & Nowa Wioska, 19°14¼'–50°29¼', 27 Jul 1993, *Nowak s.n.* (KTU); EE0384 – NE of Drzewica, 20°30'–51°28', 7 Sep 1988, *Zieliński 2509* (KOR 24852); EE2442 – Janów, 20°37'–51°19', 9 Sep 1988, *Zieliński 2551* (KOR 25696); EE5731 – Rataje, 21°01'–51°03½', 29 Jul 1932, *Kaznowski s.n.* (POZ); EE7500 – Masłów, 20°42½'–50°54½', 12 Aug 1987, *Zieliński 1737, 1803 & 1804* (KOR 30492a, 30494a & 30486); EF4074 – Wesoła, 20°02½'–50°13¼', 24 Jul 1991, *Zieliński 2912* (KOR 24931); EG0456 – Zawadka Koszary, 20°36¼'–49°41¾', 6 Aug 1998, *Oklejewicz s.n.* (KRA).

77. *Rubus gothicus* Frid. & Gelert ex E. H. L. Krause
(Figs 223–225)

Ber. Deutsch. Bot. Ges. 6: 108. 1888, pro hybr. *R. radula* × *caesius* (×?)

Rubus acuminatus Lindeb., Herb. Rub. Scand.: 38. 1815, non Sm. (1815).

TYPE: Als. Mellem Sønderborg og Sønderskov, 3.8.1882, *Gelert* (C – NEOTYPE; Weber 1981).

Stems arching, bluntly angled, with flat, convex or rarely slightly furrowed sides, (sub)glabrous, without or with scattered glands 0.2–0.5 mm long. Prickles usually on angles, (5–)8–15(–18) per 5 cm, uniform, 2.5–4 mm long, slender, straight, ± declining or some of them patent; small needle-like prickles few. Leaves 5-foliolate, subpedate, with evenly scattered adpressed hairs above, green or grey-green-pubescent with stellate and longer tufted hairs beneath; surface of the blade visible through the indumentum. Leaflets imbricate, terminal ones with mid-long petiolules (30–35%), (broadly) ovate, shallowly cordate at the base, with a long-acuminate apex (10–)25–20 mm long, periodically serrate, with straight principal teeth. Basal leaflets sessile. Petioles usually longer than the basal leaflets, without or with few stalked glands and several curved prickles 1.5–2(–3) mm long. Stipules oblong-lanceolate, with stalked glands. Inflorescence narrowly conical, often leafy almost to the apex, with 3-foliolate leaves below. Upper leaves usually more densely hairy beneath than those of the stem, grey-green-felted. Inflorescence axis sparsely to densely hairy, with stellate and longer tufted hairs, with few or rarely numerous stalked glands 0.2–0.5 mm long. Prick-

les 2–3(–4) mm long, mostly ± curved. Pedicels usually 1–2 cm long, with numerous spreading hairs, without or usually with numerous short-stalked glands up to 0.2 mm long, besides with few to numerous yellowish, slightly curved pricklets up to 2 mm long. Sepals green-grey-felted, shortly glandular, unarmed or with few needle-like pricklets, patent or loosely reflexed after anthesis. Petals white or pale pink, broadly obovate to suborbicular, 10–12 mm long. Stamens as long or exceeding styles. Anthers glabrous. Carpels glabrous or sparsely hairy. Receptacle with long hairs protruding between carpels. – 2n = 28 (Boratyńska 1997). – Flowering (VI–)VII–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems (almost) glabrous, with slender, rather small prickles; leaves 5-foliolate, with imbricate leaflets; terminal leaflets ovate, periodically serrate; upper inflorescence leaves grey-green-felted, stellate-hairy beneath; sepals patent or loosely reflexed after anthesis.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. On scattered localities in W regions, chiefly in W Pomorze, S Wielkopolska and Dolny Śląsk.

GENERAL DISTRIBUTION. Widespread species. S Scandinavia, Denmark, Germany, the Czech Republic and Poland.

SELECTED HERBARIUM SPECIMENS. AB0794 – Niechorze, 15°06'–54°05¾', 8 Aug 1993, *Boratyńska 6/93* (KOR 29401); AB1548 – Łukęcin, 14°51½'–54°02¼', 2 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3086, 3087 & 3088* (KOR 31985, 31967 & 31960a); AC3616 – Mostkowo, 15°04½'–52°59¾', 2 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3067 & 3068* (KOR 31986 & 31984); AC9512 – 2 km of Ośno Lubuskie towards Sulęcín, 14°55'–52°27½', 13 Aug 1974, *Boratyński, Kaczmarek & Zieliński s.n.* (KOR 6973); BA6781 – 2 km S of Naćmierz, 16°33'–54°30', 31 Jul 1986, *Zieliński 1526 & 1527* (KOR 31964 & 31966); BB5717 – Gałowo, 16°41½'–53°45½', 8 Jul 1975, *Rutkowski s.n.* (TRN); BB9280 – by the road from Kalisz Pomorski to Suchowo, 15°51½'–53°18¾', 15 Sep 1980, *Banasik s.n.* (POZ); BB9579 – between Kłębowiec & Golce, 16°26'–53°20½', 12 Jul 1977, *Zieliński 870* (KOR 8715); BC2218 – S of Pustelnia, by Ostrowiec Lake, 15°59½'–53°06¾', 12 Aug 1993, *Kujawa-Pawlaczyk*



Fig. 223. *Rubus gothicus* Frid. & Gelert ex E. H. L. Krause (*Boratyńska et al.*, in *Zieliński 3064*, KOR 31959). Scale bar = 5 cm.

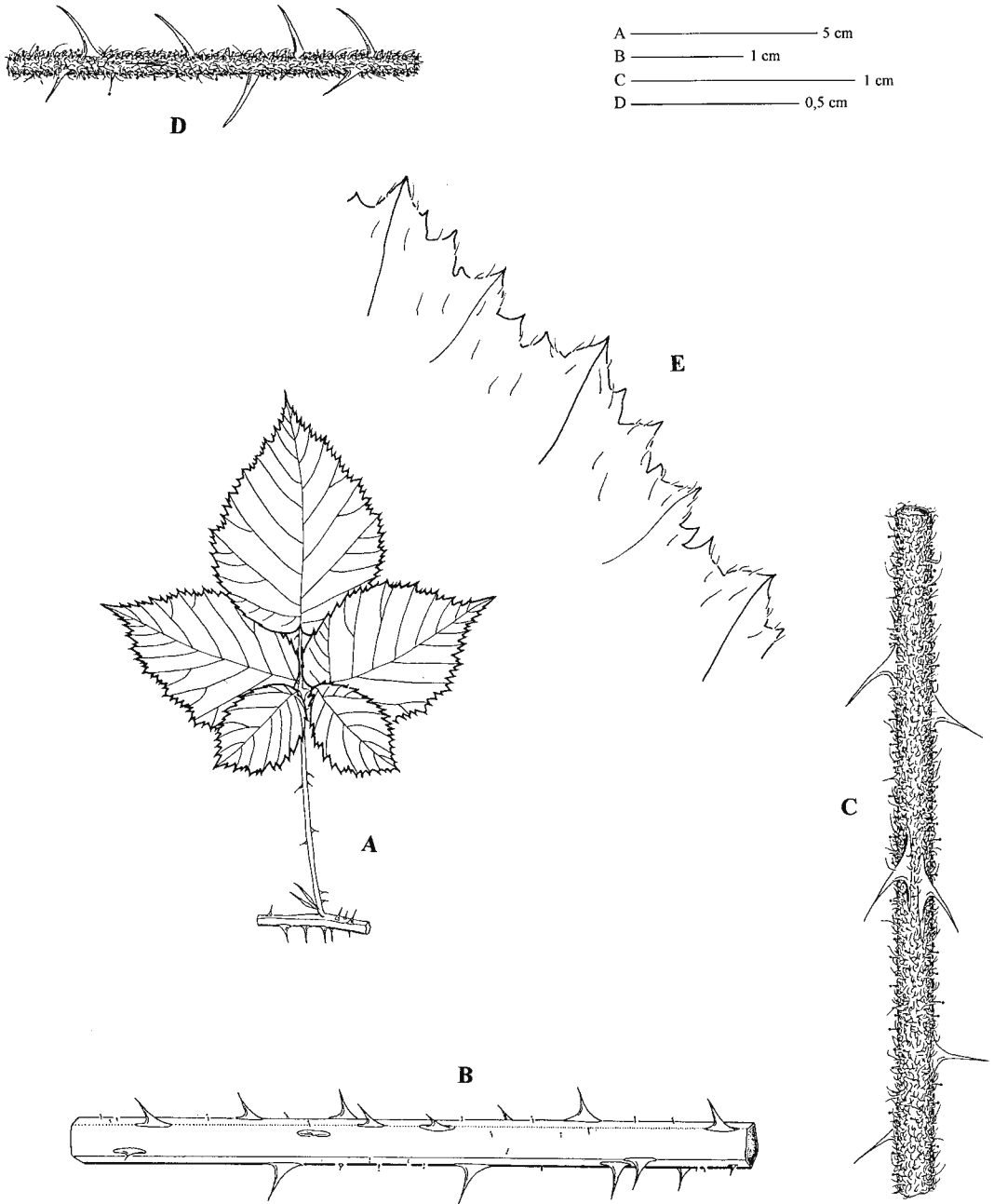


Fig. 224. *Rubus gothicus* Frid. & Gelert ex E. H. L. Krause. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin. (Boratyńska et al., in Zieliński 3065, KOR 31982).

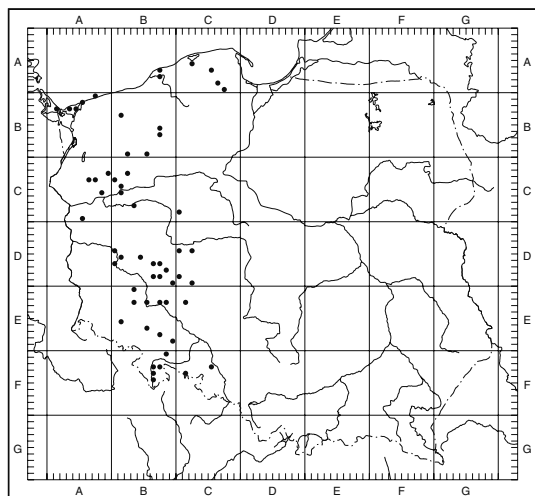


Fig. 225. Distribution of *Rubus gothicus* Frid. & Gelet ex E. H. L. Krause in Poland.

s.n. (HB. KUJ-PAW.); BC4163 – between Drezdenko & Dobiegniew, $15^{\circ}46\frac{3}{4}'$ – $52^{\circ}53'$, 1 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3056* (KOR 31556); BC7313 – near Bucharzewo, $16^{\circ}06'$ – $52^{\circ}40\frac{1}{3}'$, 6–7 Jul 1991, *Tomlik s.n.* (KOR 24965); BD4033 – near Borek, $15^{\circ}42'$ – $52^{\circ}00\frac{3}{4}'$, 14 Sep 1995, *Maliński s.n.* (POZNF); BD5410 – 1 km W of Olejnica, towards Ostonin, $16^{\circ}14\frac{2}{3}'$ – $51^{\circ}57\frac{1}{2}'$, 19 Jun 1998, *Zieliński 1/98* (KOR 39666); BD6629 – near Kąkolewo, $16^{\circ}40\frac{1}{2}'$ – $51^{\circ}52'$, 2 Oct 1897, *Spribille s.n.* (C); BD8746 – Pakówka, $16^{\circ}46\frac{1}{2}'$ – $51^{\circ}40\frac{1}{3}'$, 26 Jul 1996, *Zieliński 20/96 & 21/96* (KOR 38319 & 38318); BE5168 – near Jurczyce towards Muchów, $15^{\circ}59'$ – $51^{\circ}00\frac{1}{2}'$, 19 Jul 1994, *Boratyńska et al. 77/94* (KOR 31958); BE6507 – Buczyzna Mt. (273 m) S of Pyszczyń, $16^{\circ}33'$ – $50^{\circ}59'$, 15 Jul 1920, *Spribille s.n.* (WRSL); BE8973 – between Gąbczyce & Strzelin, $17^{\circ}04\frac{1}{3}'$ – $50^{\circ}45'$, 12 Jul 1904, *Spribille s.n.* (WRSL); BF3603 – Wapniarka Mt. near Mielnik, 430 m, $16^{\circ}40'$ – $50^{\circ}21\frac{1}{4}'$, 8 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 42/98* (KOR 39999); CA6511 – near Kębtowo, $17^{\circ}47\frac{1}{2}'$ – $54^{\circ}34\frac{2}{3}'$, 4 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3118 & 3120* (KOR 31956 & 31957); CA9792 – by Ostrzyckie Lake, $18^{\circ}07'$ – $54^{\circ}14\frac{3}{4}'$, 30 Jul 1931, *Kulesza s.n.* (POZNB); CC8062 – Zielonka, $17^{\circ}07'$ – $52^{\circ}33\frac{1}{4}'$, 16 Aug 1995, *Danielewicz s.n.* (POZNF); CD4250 – Szyplów, $17^{\circ}24\frac{1}{4}'$ – $52^{\circ}02'$, 15 Jul 1896, *Spribille s.n.* (C); CD9208 – near Chwaliszew, $17^{\circ}32'$ – $51^{\circ}37\frac{1}{2}'$, 19 Jun 1998, *Pawłowski s.n.* (POZ); CE2135 – Białe Błoto, $17^{\circ}21\frac{1}{2}'$ – $51^{\circ}20'$, 18 Oct 1911, *Spribille s.n.* (WRSL).

78. *Rubus lidforssii* (Gelert) Lange

(Figs 226–228)

Rettelser Tilføj. Haandb. Danske Fl.: 37. 1897.

TYPE: Bornholm, Sandflugstkoven v. Rønne, 26.7.1890, *Gelert* (BREM – LECTOTYPE; Weber 1981).

Stems arching, angled with flat or shallowly furrowed sides, glabrous, usually somewhat pruinose, without stalked glands. Prickles usually uniform, 3–5(–8) per 5 cm, usually on angles, declining, straight or rarely slightly curved, 3–4 mm long. Leaves 5-foliolate, \pm distinctly pedate, subglabrous above, grey-green, rather loosely softly hairy beneath, with long simple and stellate hairs (surface of the blade visible through the indumentum). Terminal leaflets with mid-long petiolules (25–35%), elliptical, broadly ovate or rhombic-ovate, shallowly cordate or rounded at the base, with a long-acuminate apex 10–20 mm long, periodically serrate, sometimes shallowly lobed; the serration 3–4 mm deep. Basal leaflets sessile. Petioles subglabrous or sparsely hairy, mainly with tufted hairs, without or with sparse sessile glands and several prickles 2–3 mm long. Inflorescence conical, usually narrow, leafy to the apex. Leaves more densely hairy beneath than those of the stem, chiefly with stellate hairs, lower ones 4–5-foliolate. Terminal leaflets rhombic, cuneate or narrowly rounded at the base. Inflorescence axis stiff, \pm zigzag, loosely hairy, chiefly with stellate hairs, its surface visible through the indumentum. Prickles few, strongly curved, 1.5–2.5 mm long; stalked glands absent. Pedicels (0.5–)1–1.5(–2) cm long, densely hairy, with spreading hairs, without stalked glands, without or with few, weakly curved pricklets 0.5–1(–1.5) mm long and sessile glands. Sepals grey-green-felted, patent after anthesis. Petals white, obovate, ca 8 mm long. Stamens exceeding styles. Anthers glabrous. Carpels sparsely hairy. Receptacle hairy. – $2n = 28$ (Weber 1995). – Flowering VI–VIII.

MAIN DIAGNOSTIC CHARACTERS. Stems angled, glabrous, without glands, slightly pruinose; leaves pedate; terminal leaflets deeply serrate, sometimes shallowly lobed; inflorescence axis stiff, zigzag, with few prickles; petals small, ca 8 mm long.



Fig. 226. *Rubus lidforsii* (Gelert) Lange (Henker 14/88, KOR 32303). Scale bar = 5 cm.

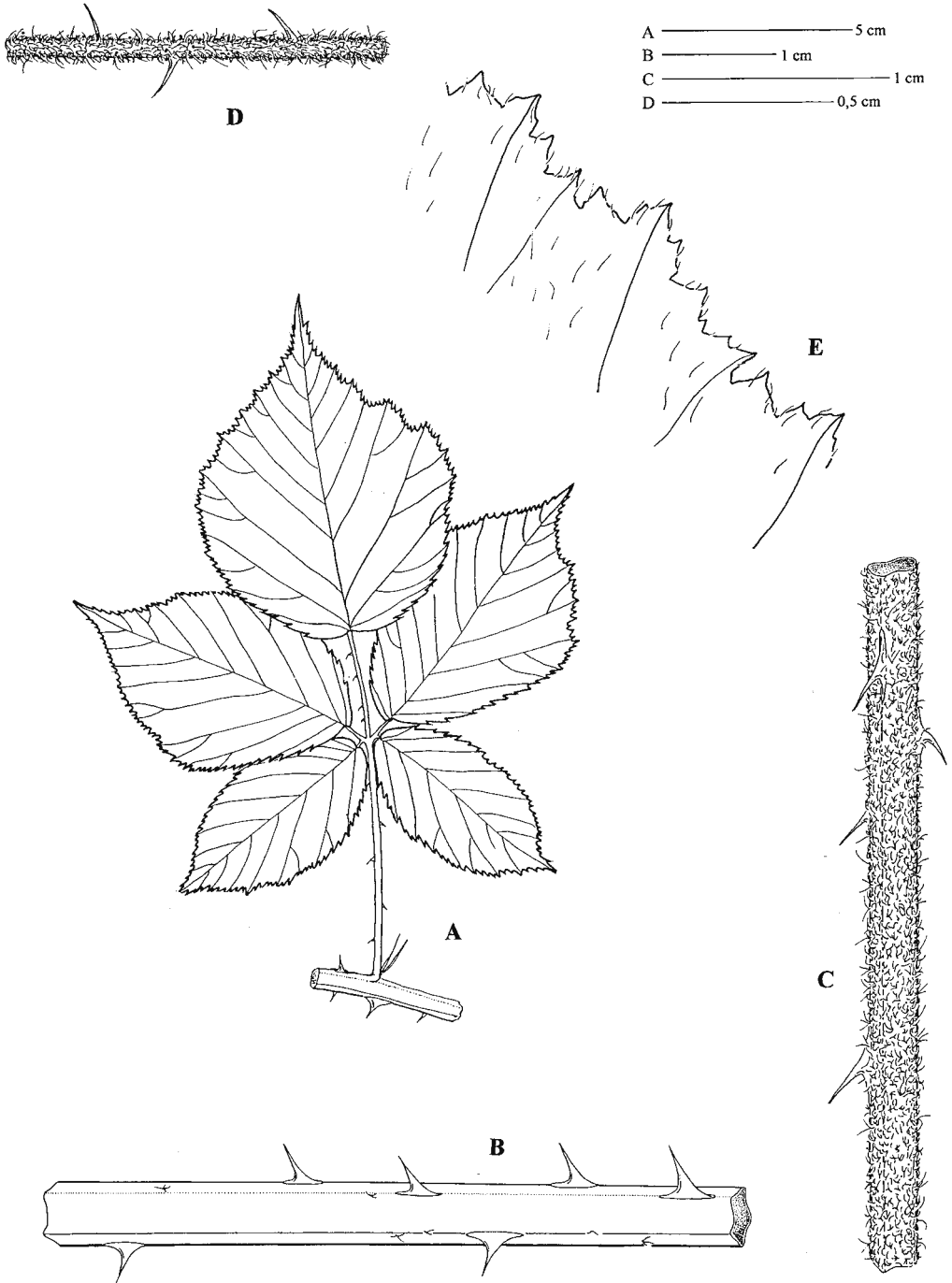


Fig. 227. *Rubus lidforssii* (Gelert) Lange. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Boratynska et al.*, in *Zieliński 3123*, KOR 29183).

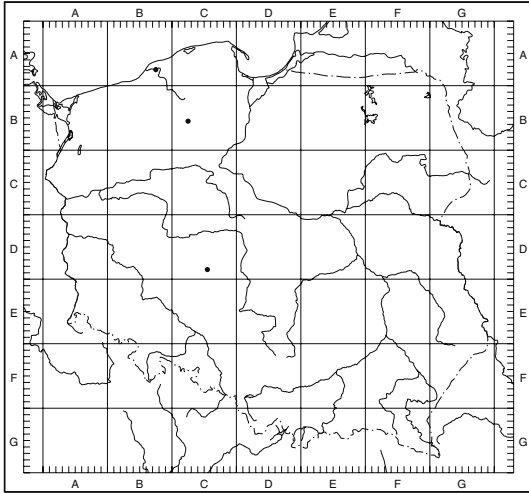


Fig. 228. Distribution of *Rubus lidforssii* (Gelert) Lange in Poland.

HABITAT. Thickets, forest margins, waysides.

DISTRIBUTION IN POLAND. Very rare, collected in few places in the west, possibly undercollected.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: Sweden, Denmark, Germany, Poland.

SPECIMENS SEEN. BA7702 – 3 km E of Barzowice, 16°34'–54°28¾', 31 Jul 1986, *Zieliński 1536* (KOR 31524); CB5269 – 7 km NW of Chojnice, 17°29'–53°43½', 4 Jul 1992, *Boratyńska, Dolatowska & Zieliński Z. 3123* (KOR 29183); CD8590 – between Wysocko Wielkie & Pruślin, 17°50¾'–51°38½', 19 Jul 1897, *Spribille s.n.* (C).

Series *Subsilvatici* (Focke) Focke

Spec. Rub. 3: 483. 1914.

Basionym: *Rubus* [Formenkreis] *Sub-Silvatici* Focke in Ascherson & Graebner, Syn. mitteleur. Fl. 6(1): 625, 638. 1903.

TYPE: *R. nemorosus* Hayne & Willd.

Stems terete to bluntly angled, usually hairy. Prickles uniform (in our area). Stalked glands absent to fairly numerous. Anthers hairy. Species related to the taxa of the series *Silvatici*.

79. *Rubus nemorosus* Hayne & Willd. in Willdenow (Figs 229–231)

Berl. Baumzucht. ed. 2: 411. 1811.

Rubus balfourianus A. Bloxam ex Bab., Ann. Mag. Nat. Hist. 9: 86. 1847.

TYPE: '*R. nemorosus* Berl.' ex Herb. Willdenow (BREM – LECTOTYPE; Weber 1980).

Stems arching, bluntly angled to terete, with sparse to rather numerous simple hairs, sometimes intermingled with tufted and stellate hairs, without or rarely with few stalked glands. Prickles usually uniform, 5–10 per 5 cm, unevenly spaced, 3–5(–7) mm long, mostly straight, patent, usually hairy at the base. Leaves (3–)4–5-foliolate, pedate, with fairly numerous adpressed hairs above, green to green-grey beneath, mainly with simple, patent hairs, sometimes felted. Leaflets imbricate, terminal ones with short to mid-long petiolules (20–30%), (broadly) elliptical or broadly ovate to suborbicular, shallowly cordate, rounded or truncate at the base, with a short suddenly acuminate apex 5–10 mm long, shallowly, periodically serrate, sometimes with 1–2 lobes in the middle; teeth apiculate. Basal leaflets sessile. Petioles usually longer than the basal leaflets, with numerous hairs, subsessile glands and straight or slightly curved, patent prickles 2–3(–4) mm long, usually without stalked glands. Stipules broadly lanceolate. Inflorescence irregular. Leaves more densely hairy than those of the stem, lower ones 3-foliolate. Inflorescence axis zigzag, usually with numerous, spreading long hairs, often with an underlayer of short tufted hairs, hence not seldom felted. Stalked glands absent or few, rarely more numerous, 0.1–1 mm long. Prickles straight, patent, slightly declining, (3–)4–6 mm long. Pedicels (0.5–)1–2(–3.5) cm long, rarely longer, with very numerous spreading short hairs, besides with longer patent hairs, subsessile and stalked glands not exceeding the pedicel diameter. Sepals green-grey-felted, usually densely glandular, and with short glandular acicles, clasping the fruit. Petals pink, suborbicular to broadly elliptical, 12–18 mm long. Stamens exceeding styles. Anthers hairy. Carpels with few long hairs. Receptacle hairy. – $2n = 28$ (Boratyńska 1997). – Flowering VI–VII(–VIII).



Fig. 229. *Rubus nemorosus* Hayne & Willd. (Boratyńska et al., in Zieliński 104/94, KOR 29499). Scale bar = 5 cm.

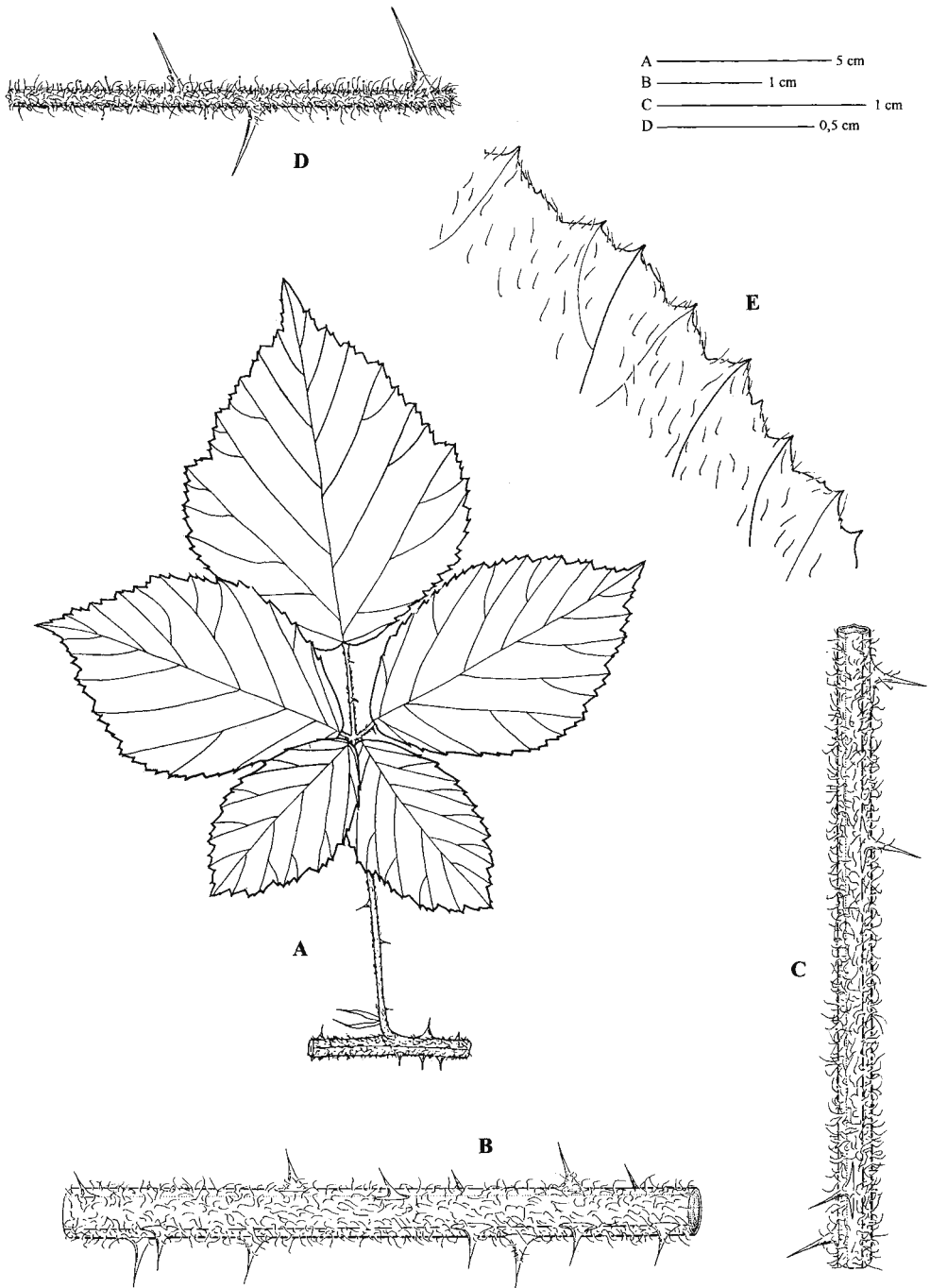


Fig. 230. *Rubus nemorosus* Hayne & Willd. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Boratynska et al.*, in *Zieliński 104/94*, KOR 29499).

MAIN DIAGNOSTIC CHARACTERS. Stems (sub) terete, persistently hairy; prickles usually few, slender; leaves distinctly hairy above; flowers fairly large, pink; anthers hairy.

HABITAT. Thickets, waysides, forest margins.

DISTRIBUTION IN POLAND. On scattered localities in Dolny Śląsk and in S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. NW and Central Europe: England, France, Holland, Belgium, Denmark, Germany, the Czech Republic, Poland.

SPECIMENS SEEN. AD6643 – E of Tuchola Żarska, 15°08'–51°48½', 26 Oct 1995, *Zieliński s.n.* (KOR 32881); AD8899 – Kartowice, 15°32'–51°35½', 13 Jul 1916, *Schmattorsch s.n.* (WRSL); AE4555 – between Mikulowa & Sulików, 15°05'–51°04½', 20 Jul 1994, *Boratyńska et al. 104/94* (KOR 29499); BE4154 – Wilkołak Mt. NW of Wilków, 15°55'–51°06¼', 18 Jul 1994, *Boratyńska et al. 65/94 & 64/94* (KOR 29462 & 29463); BE7701 – Sobótka, 16°44½'–50°54', sine die, *col. ign.* (KIEL); CD8288 – near Chwaliszew, 17°32¼'–51°39', 15 Jun 1998, *Pawłowski s.n.* (POZ); CD8387 – 1 km of Wierzbno towards Łąkociny, 17°40'–51°39', 14 Jun 1998, *Pawłowski s.n.* (POZ); CD9333 – Wisławka, 17°36'–51°36¼', 13 Jul 1998, *Pawłowski s.n.* (POZ); CD9352 – near Lipiny, 17°35½'–51°35¼', 31 May 1998,

Pawłowski s.n. (POZ); CE2458 – between Marcinki & Perzów, 17°49½'–51°19', 21 Sep 1915, *Spribille s.n.* (WRSL).

80. *Rubus camptostachys* G. Braun

(Figs 232–234)

Herb. Rub. Germ. Übersicht. 1881.

Rubus ciliatus Lindeb., Herb. Rub. Scand.: 50. 1885.

TYPE: Am Mastbruche bei Braunschweig, sine die, *Braun*, G. Braun, Herb. Rub. Germ. 145 (LD – LECTO-TYPE; Weber 1981).

Stems low-arching, terete or bluntly angled, with usually convex sides, sparsely hairy, glabrescent, with sparse to fairly numerous, unevenly spaced stalked glands up to 0.5(–1) mm long, rarely glands absent. Prickles rather uniform, usually 10–15(–22) per 5 cm, rarely less numerous, slender, 3.5–4(–5) mm long, sometimes mixed with short acicles. Leaves (3–)4–5-foliolate, digitate or subpedate, with fairly numerous hairs above, densely and softly hairy beneath; leaflet blades distinctly darker along veins, the latter somewhat sunken, hence leaves slightly wrinkled. Leaflets imbricate, terminal ones with short or rarely mid-long petiolules (20–30%), broadly elliptical or broadly ovate, rounded or shallowly cordate at the base, with a short-acuminate apex up to 10 mm long, periodically serrate, in the upper half sometimes incised-lobed, with retrorse principal teeth. Basal leaflets (sub)sessile. Petioles with thin, slightly curved prickles and short-stalked glands. Stipules linear-lanceolate. Inflorescence usually irregular, few-flowered. Leaves more densely hairy than those of the stem, the lower ones 3-foliolate. Inflorescence axis loosely hairy, with spreading hairs, sparse to fairly numerous stalked glands and usually straight, declining prickles up to 3(–4) mm long. Pedicels 1–2 cm long, densely hairy, with spreading hairs, numerous stalked glands not exceeding the pedicel diameter and small pricklets up to 2 mm long. Sepals grey-green-felted, glandular and usually with small pricklets, clasping the fruit. Petals white, rarely pinkish, broadly elliptical, usually 10–12 mm long. Stamens exceeding styles. Anthers densely

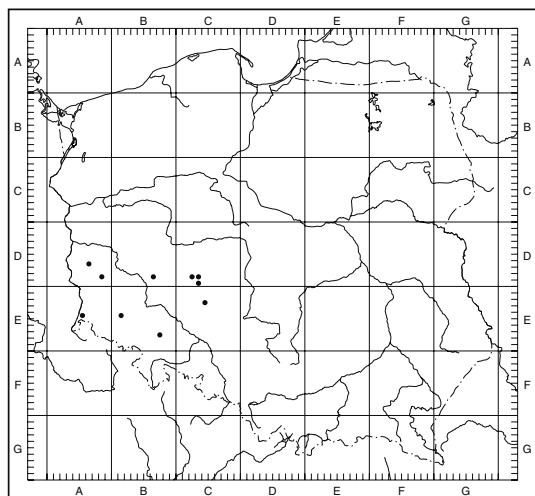


Fig. 231. Distribution of *Rubus nemorosus* Hayne & Willd. in Poland.

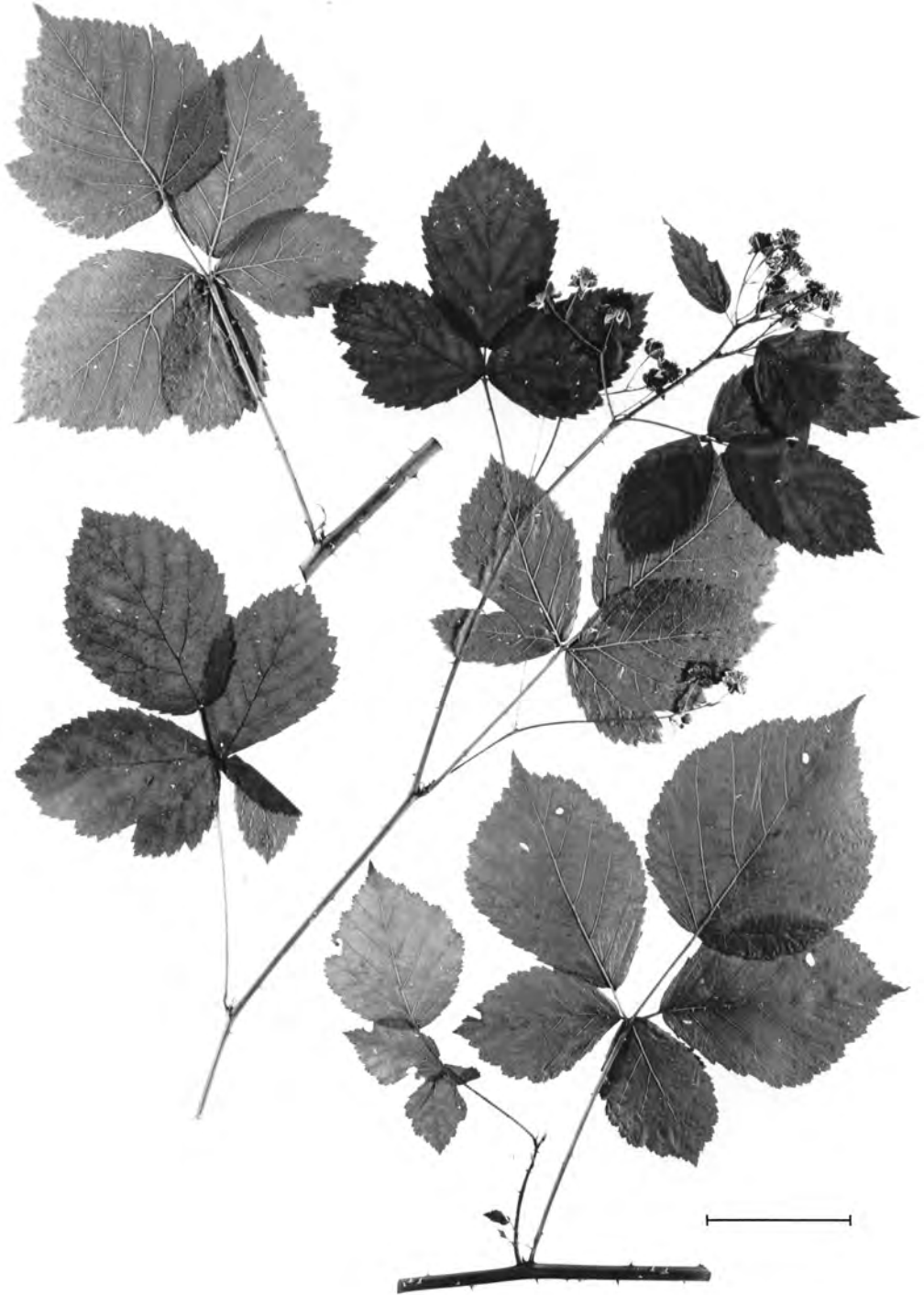


Fig. 232. *Rubus camptostachys* G. Braun (Zieliński 1941, KOR 31559). Scale bar = 5 cm.

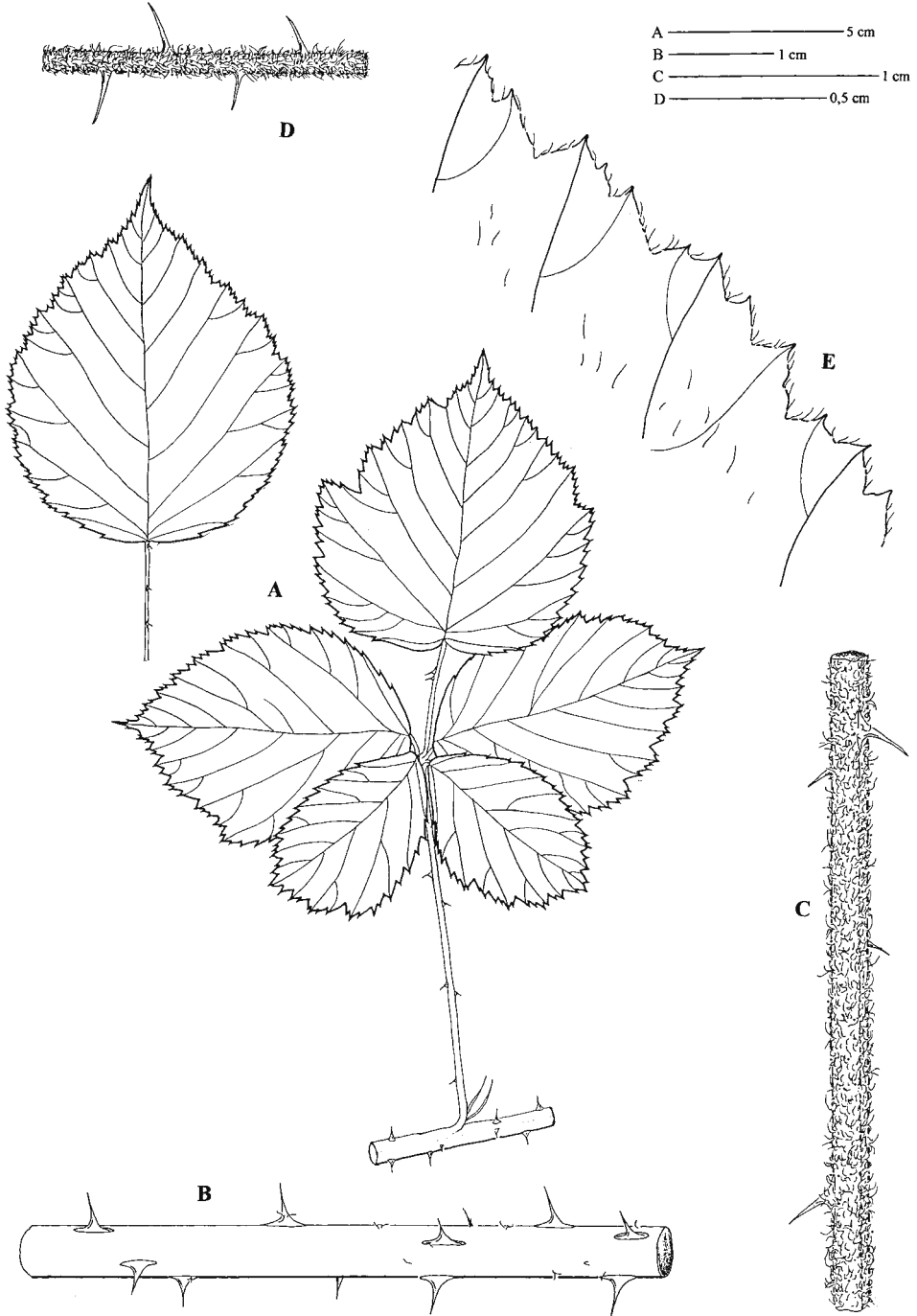


Fig. 233. *Rubus camptostachys* G. Braun. A - leaf from vegetative stem and terminal leaflet; B - fragment of vegetative stem; C - fragment of the inflorescence axis; D - pedicel; E - terminal leaflet margin (Zieliński 2661, KOR 23899).

hairy. Carpels glabrous. Receptacle hairy. – $2n = 28$ (Boratyńska 1996). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems terete, glabrous, with scattered stalked glands; prickles rather numerous, slender; leaflets with slightly sunken venation; anthers densely hairy.

HABITAT. Thickets, forest margins.

DISTRIBUTION IN POLAND. Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. S Sweden, Denmark, Belgium, Holland, Luxembourg, Germany, the Czech Republic, Poland.

SELECTED HERBARIUM SPECIMENS. AD9539 – N of Witoszyn Górny, $15^{\circ}06' - 51^{\circ}32\frac{1}{2}'$, 29 Jun 1913, *Barber s.n.* (WRSL); AD9620 – between Mirostowice Górne & Witoszyn Górny, $15^{\circ}06\frac{1}{3}' - 51^{\circ}33\frac{1}{3}'$, 29 Jun 1913, *Barber s.n.* (WRSL); AE2982 – a hill in SE part of Bolesławiec, $15^{\circ}35\frac{1}{2}' - 51^{\circ}15'$, 25 Jun 1913, *col. ign.* (WRSL); BE7338 – 1–2 km NW of Pelcznica, $16^{\circ}17' - 50^{\circ}51\frac{1}{2}'$, 28 Jul 1987, *Boratyński & Zieliński Z. 1977* (KOR); BE7693 – Kielczyńskie Mts N of Kielcyn, $16^{\circ}38' - 50^{\circ}49'$, 6 Jun 1896, *Callier s.n.* (WRSL); BE7876 – between Podgaj & Głownin, $16^{\circ}57\frac{1}{2}' - 50^{\circ}50\frac{1}{2}'$, 9 Aug 1991, *Zieliński 3041* (KOR 25853); BF0628 – Lutomerz, $16^{\circ}43' - 50^{\circ}36\frac{1}{2}'$, 4 Jul 1904, *Kinscher s.n.* (WRSL); CD8009 – between Kobylin & Rzemiechów, $17^{\circ}15\frac{1}{2}' - 51^{\circ}42\frac{2}{3}'$,

5 Aug 1996, *Zieliński 53/96* (KOR 38286); CD8579 – Latowice, $17^{\circ}58\frac{1}{2}' - 51^{\circ}39\frac{1}{3}'$, 22 Sep 1988, *Zieliński 2172* (KOR 28000); CD9840 – near Brzeziny towards Błaszki, $18^{\circ}17' - 51^{\circ}36'$, 22 Sep 1988, *Zieliński 2180 & 2181* (KOR 28002 & 28003); CE4639 – by the road between Kostów & Janówka, SSE of Kępno, $18^{\circ}07\frac{3}{4}' - 51^{\circ}09\frac{1}{2}'$, 18 Sep 1990, *Zieliński 2660, 2661 & 2664* (KOR 23900, 23899 & 23896); CE5346 – near Namysłów, by the road to Smarchowice Śląskie, $17^{\circ}40' - 51^{\circ}03\frac{1}{2}'$, 19 Sep 1913, *Spribile s.n.* (WRSL); DF5094 – Przygdza, $18^{\circ}39' - 50^{\circ}07\frac{1}{2}'$, 28 Aug 1917, *Schmattorsch s.n.* (WRSL); FF1655 – Glinianka, $22^{\circ}19' - 50^{\circ}28\frac{1}{3}'$, 19 Aug 1993, *Oklejewicz s.n.* (KOR 30561); FG0939 – Gaje, $22^{\circ}44' - 49^{\circ}40\frac{1}{2}'$, 17 Sep 1999, *Oklejewicz s.n.* (KRA).

Series *Subcanescentes* H. E. Weber

Rev. Sect. *Corylifolii*: 166. 1981.

TYPE: *Rubus mollis* J. Presl & C. Presl.

Stems glabrous or hairy, without or with numerous stalked glands. Prickles uniform. Leaves with usually very numerous hairs above, felted beneath. Taxa related to the sexual species *R. canescens* DC.

81. *Rubus mollis* J. Presl & C. Presl

(Figs 235–237)

Del. Prag. 1: 218. 1823.

TYPE: *Dumosa hortorum* Tuap. C. Tabor. Jun. 1819, *Presl* (PRC – HOLOTYPE; Weber 1979a).

Stems prostrate or low-arching, fairly thin, angled, with flat sides, rarely subterete, sometimes slightly pruinose, glabrous or with few tufted hairs, usually with scattered stalked glands or stalks 0.2–0.5(–1) mm long. Prickles up to 20 per 5 cm, 2–3(–4) mm long, declining, straight or slightly curved, mixed with usually few small needle-like pricklets and (gland-tipped) acicles. Leaves 5-foliolate, pedate, bright green, dull, glabrous or with sparse to numerous tufted and/or stellate hairs above, green-grey- to white-felted beneath, with adpressed stellate and long patent tufted and simple hairs. Leaflets imbricate, the terminal ones with short to mid-long petiolules (20–35%), broadly elliptical to broadly ovate, rounded at the base, with a short-acuminate apex 5–10 mm long, grossly unevenly periodically (incised-)serrate, sometimes with 2 shallow lobes; principal

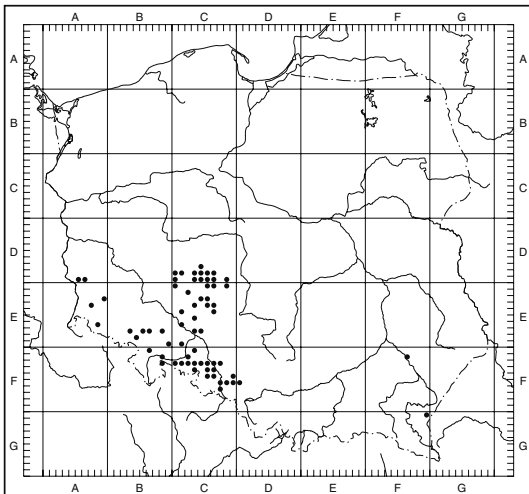


Fig. 234. Distribution of *Rubus camptostachys* G. Braun in Poland.

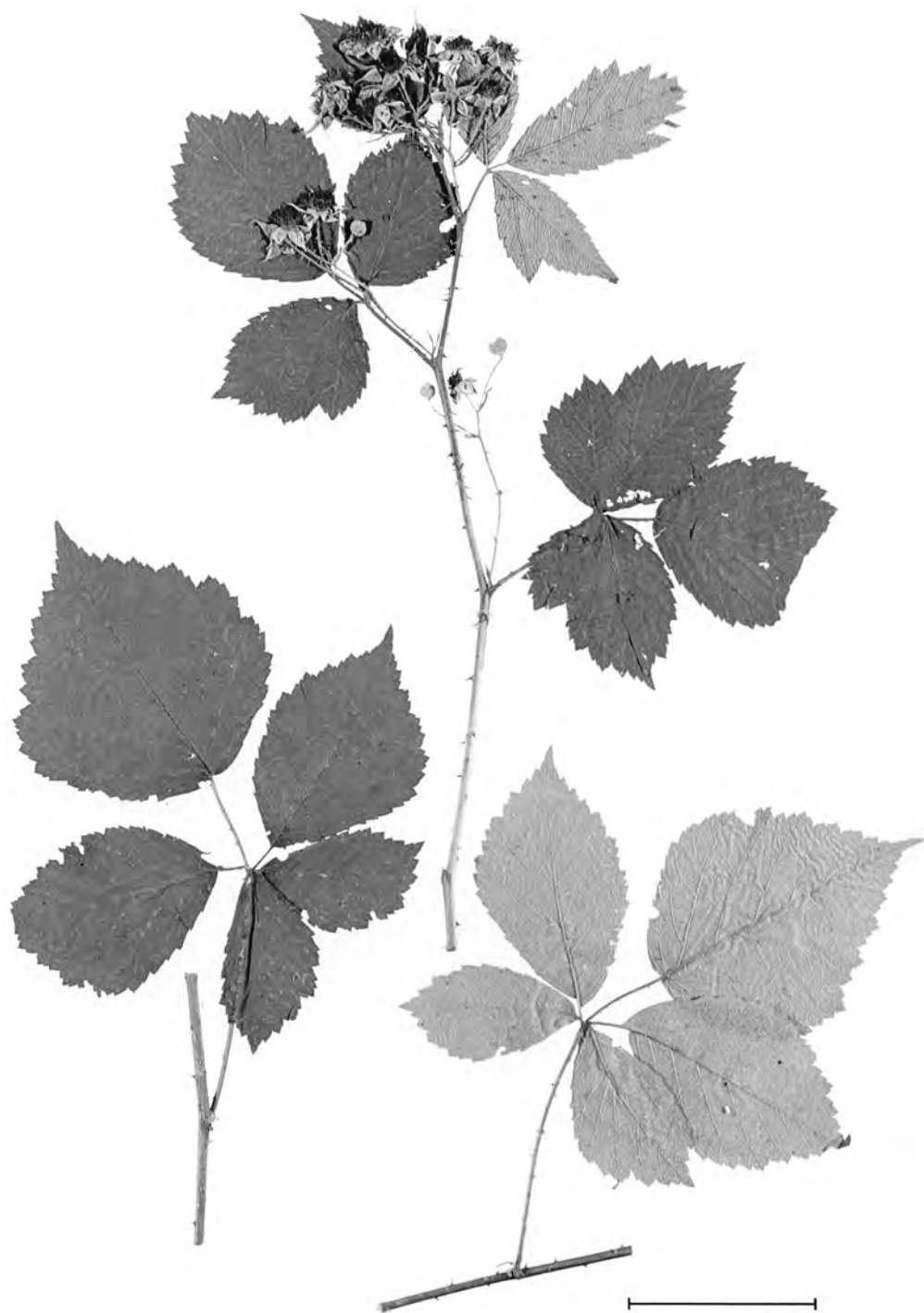


Fig. 235. *Rubus mollis* J. Presl & C. Presl. (*Spribille s.n.*, WRSL). Scale bar = 5 cm.

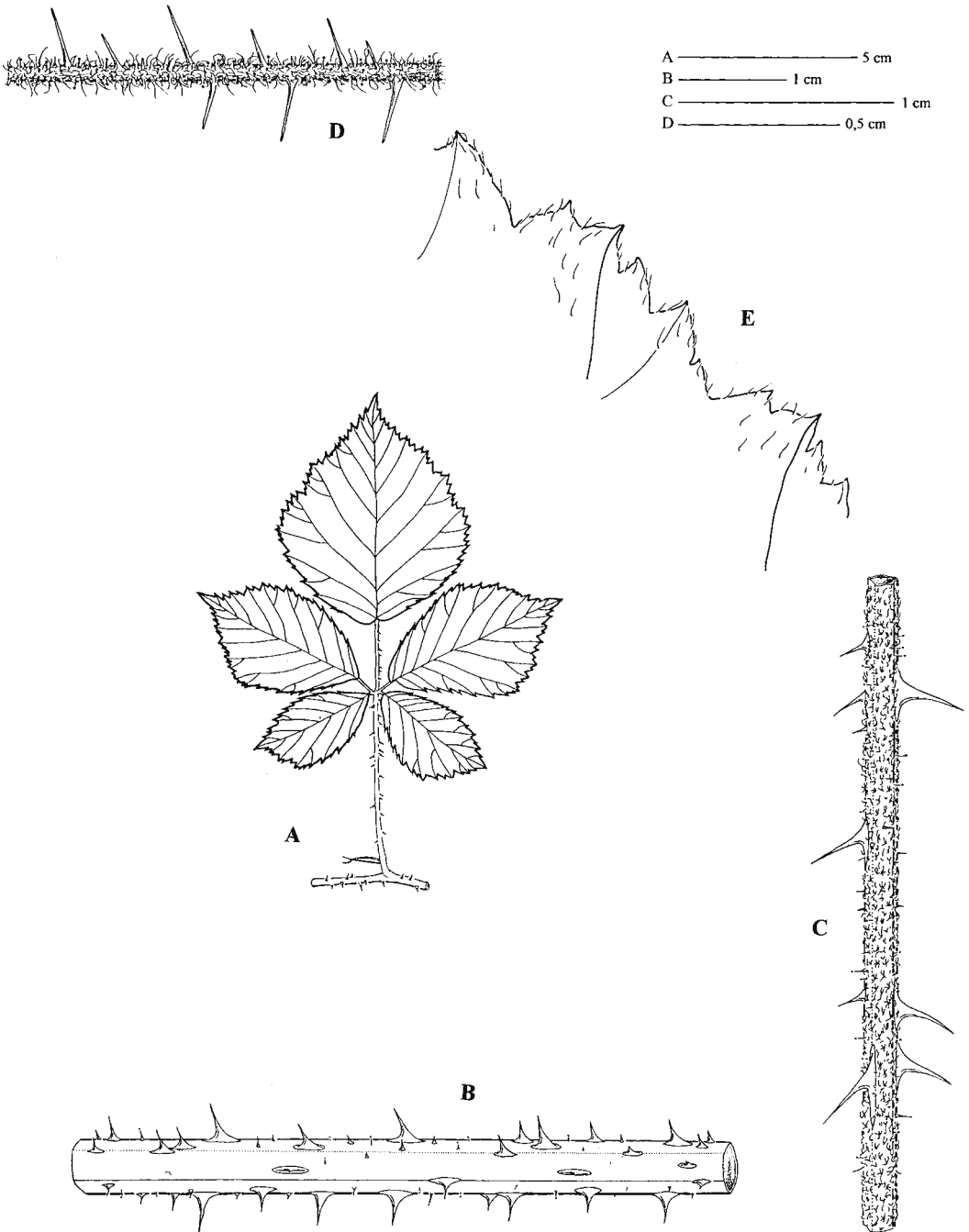


Fig. 236. *Rubus mollis* J. Presl & C. Presl. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Spribille s.n., WRSL).

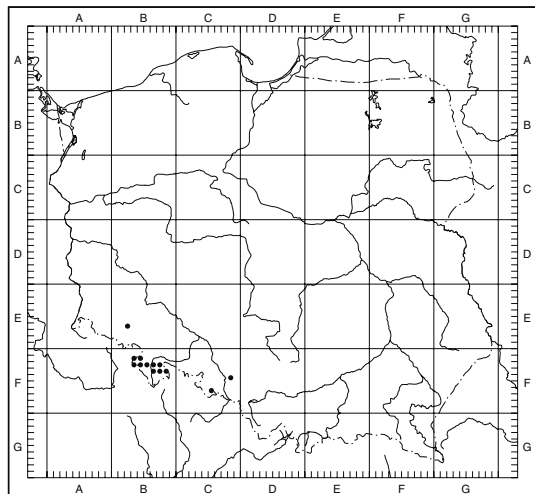


Fig. 237. Distribution of *Rubus mollis* J. Presl & C. Presl in Poland.

teeth straight or slightly retrorse. Basal leaflets sessile or with petiolules 1–2(–4) mm long. Petioles with sparse hairs, without or with stalked glands and numerous, slender, straight, declining prickles up to 2 mm long. Stipules oblong-lanceolate. Inflorescence few-flowered, rather irregular, usually leafy to the flattened apex. Leaves more densely hairy than those of the stem, lower ones 4–5-foliolate. Central leaflets of upper 3-foliolate leaves narrowly obovate, narrowly rounded to narrowly cuneate at the base. Inflorescence axis usually zigzag, sparsely to densely stellate-hairy, with slender, straight or slightly curved, declining prickles up to 3(–4) mm long and with scattered stalked glands 0.2–1 mm long. Pedicels 1.5–2 cm long, densely hairy, with spreading hairs, bright stalked glands not exceeding the pedicel diameter and rather numerous slender, straight, declining pricklets up to 2 mm long. Sepals greenish-grey, felted, glandular, with acicles at the base, patent after anthesis. Petals white, obovate to suborbicular, 8–12 mm long. Stamens longer than styles. Anthers and carpels glabrous. Receptacle hairy. – $2n = 28$ (Boratynska 1997). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems prostrate or low arching, fairly thin; prickles slender up to 2.5(–3) mm long; leaves grey, densely stel-

late-hairy at least beneath, grossly serrate; central leaflets of upper inflorescence leaves narrowly obovate, narrowly rounded to narrowly cuneate at the base.

HABITAT. Thickets, forest margins, usually on sunny places.

DISTRIBUTION IN POLAND. On scattered stands in the south-west.

GENERAL DISTRIBUTION. Widespread species. Central Europe: Austria, S Germany, the Czech Republic, W Slovakia, Poland.

SPECIMENS SEEN. BF1374 – Czermna Mt. in Kudowa-Zdrój, 450 m, $16^{\circ}15' - 50^{\circ}27\frac{2}{3}'$, 16 Jul 1997, *Matek s.n.* (SGPN); BF1397 – near Kudowa-Zdrój, by the road to Karlów, $16^{\circ}17\frac{1}{2}' - 50^{\circ}27'$, 25 Jul 1904, *Spribille s.n.* (WRSL); BF1490 – E of Darnków, 625 m, $16^{\circ}20' - 50^{\circ}26\frac{3}{4}'$, 3 Jul 1997, *Matek s.n.* (SGPN); BF2304 – Kudowa-Zdrój, $16^{\circ}15' - 50^{\circ}26\frac{1}{2}'$, 5 Jul 1910 & 11 Jul 1913, *Barber s.n.* (WRSL & GLM 47168 & 47169); BF2304 – ibidem, $16^{\circ}15' - 50^{\circ}26\frac{1}{2}'$, 12 Jul 1911, *Marker s.n.* (PR); BF2305 – E of Kudowa-Zdrój, $16^{\circ}16' - 50^{\circ}26\frac{1}{2}'$, 14 Jul 1913, *Barber s.n.* (GLM 47167); BF2452 – Zielone Ludowe, $16^{\circ}21\frac{1}{2}' - 50^{\circ}24'$, 2 Aug 1992, *Świerkosz s.n.* (WRSL); BF2583 – Pokrzywno, $16^{\circ}31' - 50^{\circ}22\frac{1}{2}'$, 9 Oct 1902 & 1905, *Spribille s.n.* (WRSL); BF3707 – Sędzisz Mt. near Łądek-Zdrój, $16^{\circ}51\frac{1}{2}' - 50^{\circ}21\frac{1}{2}'$, 7 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 29/98* (KOR 39944); BF3718 – between Łądek-Zdrój & Radochów, 475 m, $16^{\circ}52\frac{1}{4}' - 50^{\circ}21\frac{1}{2}'$, 25 Jul 1995, *Kosiński s.n.* (KOR 39780); BF3718 – SW slopes of Trzykrzyska Mt. in Łądek-Zdrój, $16^{\circ}52\frac{1}{2}' - 50^{\circ}21'$, 7 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 20/98* (KOR 39948); BF3748 – Stojków, 475 m, $16^{\circ}52\frac{2}{5}' - 50^{\circ}19\frac{3}{5}'$, 23 Jul 1995, *Kosiński s.n.* (KOR 39779); BF3875 – Nowy Gieraltów, $16^{\circ}58' - 50^{\circ}18\frac{1}{2}'$, 10 Sep 1991, *Szeląg s.n.* (KRAM); CF4890 – Kuźnia Raciborska, 180 m, $18^{\circ}18\frac{2}{3}' - 50^{\circ}12\frac{1}{2}'$, 3 Jul 2001, *Kosiński, Tomaszewski & Zieliński (obs.)*; CF6526 – Kozłówek, $17^{\circ}58' - 50^{\circ}05\frac{1}{2}'$, 10 Aug 1879, *Sintenis s.n.* (WRSL).

82. *Rubus fasciculatus* P. J. Müll.

(Figs 238–240)

Flora **41**: 182. 1858.

Rubus commixtus Frid. & Gelert, Bot. Tidsskr. **17**: 245. 1889, non P. J. Müll. (1859).

TYPE: Ruelle Coussaill. à l'ouest des carrières, sine die, *Müller*, 'Esel No. 11', Herb. Müller 3623 (LAU – LECTOTYPE; Weber 1981).

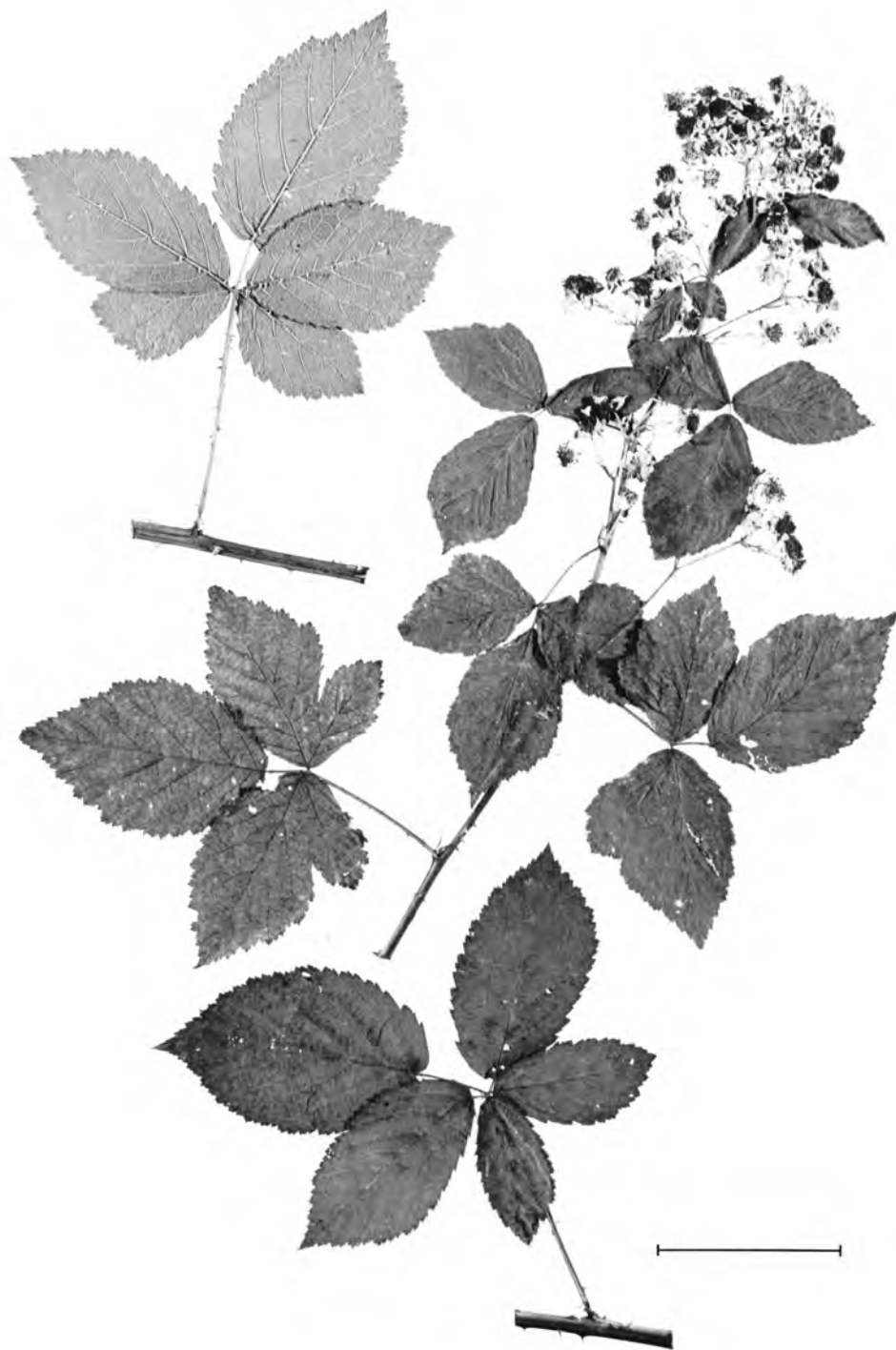


Fig. 238. *Rubus fasciculatus* P. J. Müll. (Zieliński 24/95, KOR 32347). Scale bar = 5 cm.

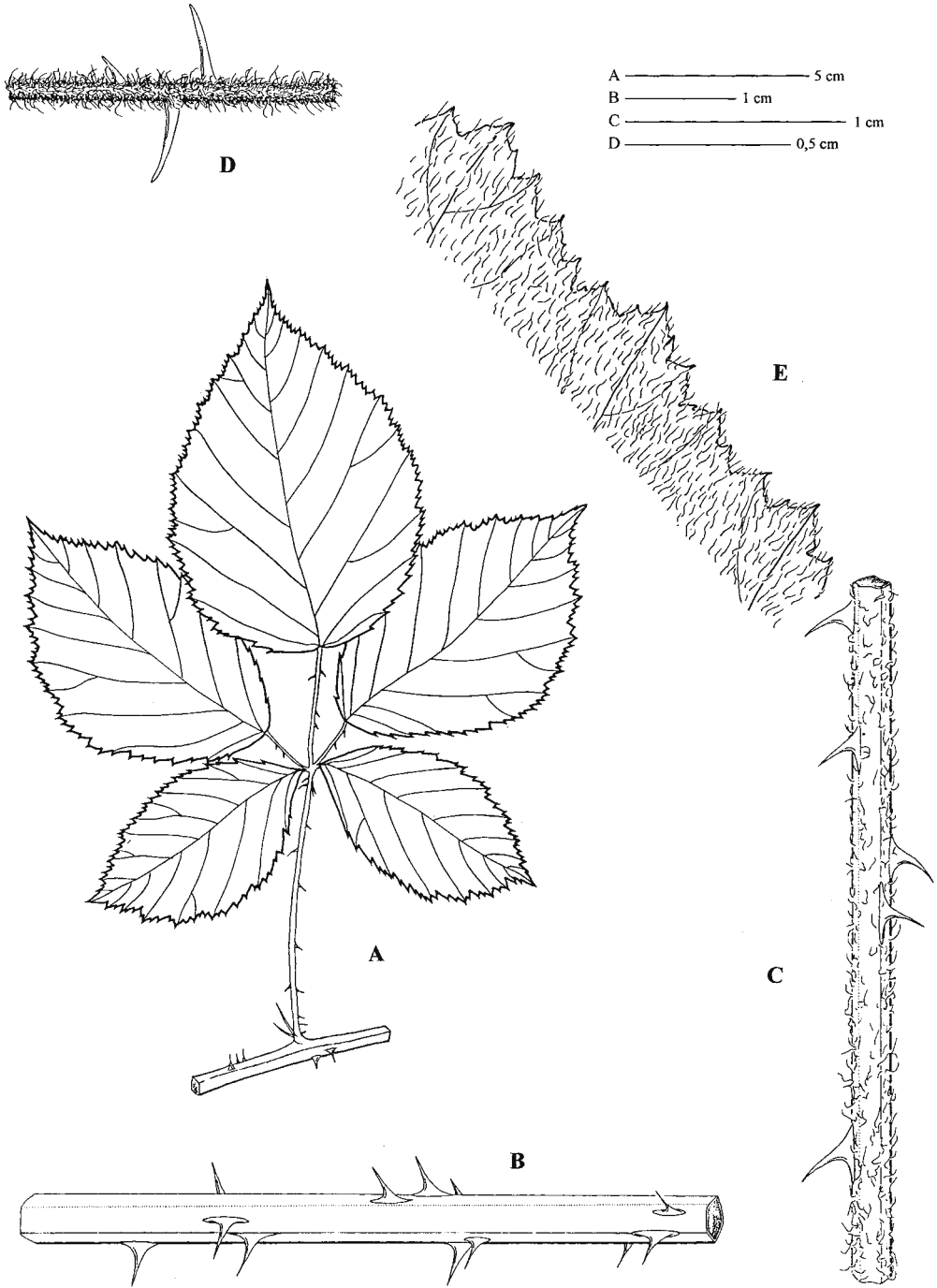


Fig. 239. *Rubus fasciculatus* P. J. Müll. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Boratyński & Zieliński, in Zieliński 2015, KOR 30982).

Stems arching, glabrous, terete or bluntly angled, with slightly convex or flat, rarely shallowly furrowed sides. Prickles usually uniform, (5–)7–15 per 5 cm, (3–)4–5 mm long, mostly curved. Leaves digitate to pedate, 5-foliolate, with numerous adpressed hairs above, densely hairy, grey-green to grey, often felted beneath. Terminal leaflets with short or mid-long petiolules (25–35%), (broadly) ovate or elliptical, rounded or shallowly cordate at the base, with a suddenly acuminate apex 5–10(–15) mm long, usually distinctly periodically serrate, shallowly lobed; principal teeth straight. Basal leaflets sessile. Petioles \pm as long as the basal leaflets, with curved prickles, usually without stalked glands. Stipules linear-lanceolate. Inflorescence conical, usually narrow. Leaves grey-green beneath, with numerous adpressed, shining hairs above. Inflorescence axis usually stiff, rather sparsely hairy, without or with few short-stalked glands 0.1–0.2 mm long, with curved prickles 2–3.5(–5) mm long. Pedicels 0.5–1.5 cm long, densely covered with spreading hairs, with short-stalked and sessile glands hidden in hairs and slightly curved prickles 2–2.5(–3) mm long. Sepals short, densely covered with spreading hairs, patent or loosely reflexed after anthesis. Petals white, rarely pinkish, broadly elliptical, 12–14 mm long. Stamens as long or exceeding styles. Anthers and carpels glabrous. Receptacle with long hairs protruding among carpels. – $2n = 28$ (Boratyńska 1997). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems glabrous; prickles curved; leaves 5-foliolate with very numerous adpressed hairs above; terminal leaflets distinctly periodically serrate, often shallowly lobed.

HABITAT. Thickets, forest margins, waysides.

DISTRIBUTION IN POLAND. Dolny Śląsk, S Wielkopolska, besides on isolated stands in Pomorze and in the south-east.

GENERAL DISTRIBUTION. Widespread species. S Sweden, Denmark, Germany, the Czech Republic, Slovakia, Poland.

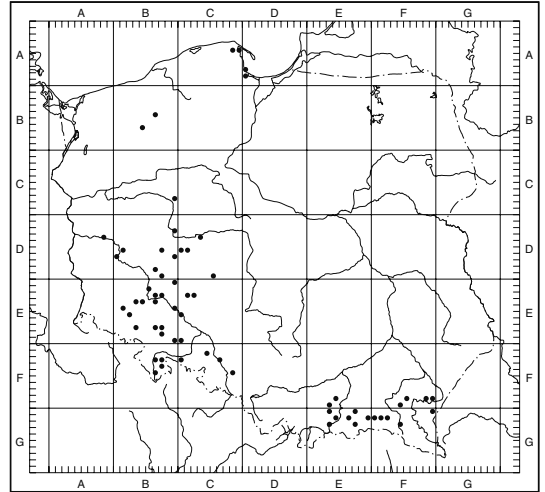


Fig. 240. Distribution of *Rubus fasciculatus* P. J. Müll. in Poland.

SELECTED HERBARIUM SPECIMENS. AD3898 – 1 km E of Pomorsko, $15^{\circ}28\frac{1}{2}' - 52^{\circ}02\frac{2}{3}'$, 8 Aug 1995, *Danielewicz s.n.* (POZNF); BB4671 – Storkowo, $16^{\circ}27' - 53^{\circ}47\frac{1}{2}'$, 23 Jun 1992, *Rutkowski s.n.* (TRN); BB6489 – near Sikory, $16^{\circ}16' - 53^{\circ}36'$, 25 Jun 1991, *Tomlik s.n.* (KOR 29942); BC7900 – 1.5 km of Parkowo towards Słomowo, $16^{\circ}56\frac{1}{2}' - 52^{\circ}41\frac{1}{2}'$, 2 Jul 1977, *Stefanek s.n.* (KOR 10610); BD2953 – 2 km SE of Radzewice, $17^{\circ}00' - 52^{\circ}12\frac{2}{5}'$, 19 Jul 1991, *Zieliński 2895* (KOR 24814); BD5141 – Pynik, $15^{\circ}49' - 51^{\circ}55'$, sine die, *col. ign.* (WRSL); BD5766 – N of Świerczyna, $16^{\circ}46' - 51^{\circ}55\frac{1}{2}'$, 27 Jul 1996, *Zieliński 44/96* (KOR 38297); BD8699 – 1 km S of Rudna Mała, $16^{\circ}41\frac{1}{3}' - 51^{\circ}37\frac{1}{4}'$, 27 Jul 1996, *Zieliński 15/96* (KOR 38266); BE2618 – Uskorz Wielki, $16^{\circ}41\frac{1}{3}' - 51^{\circ}20'$, 8 Oct 1910, *Spribille s.n.* (WRSL); BE3314 – Pątnów, $16^{\circ}12\frac{1}{3}' - 51^{\circ}14'$, 20 Jun 1879, *Gerhardt s.n.* (WRSL); BE4161 – Polna, $15^{\circ}53' - 51^{\circ}05\frac{3}{4}'$, 6 Aug 1894, *Figert s.n.* (WRSL); BE4975 – Wrocław – Park Szczytnicki, $17^{\circ}04\frac{3}{4}' - 51^{\circ}06\frac{1}{3}'$, 30 Aug 1914, *Spribille s.n.* (WRSL); CA4886 – E of Darzłubie, $18^{\circ}19\frac{1}{3}' - 54^{\circ}42'$, 20 Jun 1895, *Graebner s.n.* (TRN); CA4921 – 1 km S of Swarzewo, $18^{\circ}24' - 54^{\circ}45'$, 23 Jul 1981, *Zieliński 1411* (KOR); CD3384 – Brzostków, $17^{\circ}36' - 52^{\circ}05\frac{1}{2}'$, 15 Jun 1996, *Czarna s.n.* (POZ); CD5001 – near Ostrowieczno, by the road to Lipówka, $17^{\circ}07\frac{1}{2}' - 51^{\circ}58\frac{2}{3}'$, 8 Sep 1994, *Boratyńska, Dolatowska & Zieliński 172/94* (KOR 29372); CD9501 – by the road Wysocko Wielkie – Pruślin, $17^{\circ}52' - 51^{\circ}38'$, 1896 & 11 Sep 1898, *Spribille s.n.* (POZ & TRN); CE2209 – Gola Wielka, $17^{\circ}33' - 51^{\circ}21\frac{1}{3}'$, 9 Nov 1910, *Spribille s.n.* (WRSL); CF2647 – Rozwadza, $18^{\circ}07\frac{1}{2}' - 50^{\circ}25\frac{4}{5}'$,

6 Oct 1903, *Spribille s.n.* (WRS�); CF4804 – by the road Kotlarnia – Stara Kuźnia, 18°21½′–50°17½′, 29 Aug 1917, *Spribille s.n.* (WRS�); EF8476 – Tymowa, 20°37′–49°51¾′, 16 Jun 1995, *Pacyna s.n.* (KRA); EG0309 – Źmijača, 392 m, 20°31¼′–49°44¾′, 5 Aug 1998, *Oklejewicz s.n.* (KRA); EG0738 – Łuźna, 21°03½′–49°42½′, 9 Jun 1988, *Oklejewicz s.n.* (KOR); EG1909 – Ostrzeż Mt. SE of Bednarka, 360 m, 21°20¾′–49°38½′, 8 Sep 1997, *Oklejewicz s.n.* (KRA); EG2388 – Krupówki, 20°29½′–49°29½′, 7 Aug 1998, *Oklejewicz s.n.* (KRA); FF8560 – Kałolówka-Cebulówka, 22°04′–49°50½′, 1 Sep 1997, *Oklejewicz s.n.* (KRA); FF8976 – Łętownia, 22°41¾′–49°48½′, 17 Sep 1999, *Oklejewicz s.n.* (KRA); FG0939 – Gaje, 22°44′–49°40½′, 17 Sep 1999, *Oklejewicz s.n.* (KRA); FG1277 – Pachanowa Mt. near Dukla, 21°43½′–49°34½′, 27 Jul 1994, *Oklejewicz s.n.* (KOR 37969); FG2412 – between Rudawka Rymanowska & Pastwiska, 21°55¾′–49°31½′, 17 Jul 1995, *Oklejewicz s.n.* (KOR 37967).

Series *Subradulae* W. C. R. Watson

Jour. Ecol. **33**: 344. 1946.

TYPE: *Rubus adenocaulos* Chab.

Stems with distinct larger prickles, small needle-like prickles and very numerous stalked glands. Leaves (in our area) green beneath, not felted. Inflorescence densely glandular. – Brambles related to the species of the series *Radulae* and *Pallidi*.

83. *Rubus fabrimontanus* (Sprib.) Sprib. (Figs 241–243)

Jahresb. Schles. Ges. Vaterl. Cult. **83**: 108. 1905.

Basionym: *R. oreogeton* var. *fabrimontanus* Sprib. in Schube, Fl. Schlesien: 216. 1904.

TYPE: Hirschberg, Weg von Schmiedeberg nach der Tannenbaude, 21.7.1904, *Spribille* (JE – LECTOTYPE; Weber 1981).

Stems prostrate or low-arching, terete or subterete, with sparse to fairly numerous simple or tufted hairs, sometimes subglabrous, with numerous stalked glands 0.5–1(–1.5) mm long. Prickles 3–5(–7) mm long, straight, slender, subulate, patent or somewhat declining, usually intermingled with numerous gland-tipped acicles. Leaves digitate or subpedate, 5-foliolate, but in shady places

also 3-foliolate, green on both sides, distinctly adpressed hairy above, loosely to densely hairy beneath, without stellate hairs. Leaflets imbricate, the terminal ones with short to long petiolules (25–40%), (broadly) elliptical to suborbicular, cordate at the base, with a suddenly acuminate apex 5–15(–20) mm long, shallowly (1–2 mm), evenly serrate. Petioles ± hairy, with numerous stalked glands, gland-tipped acicles and numerous, slightly curved prickles 1.5–3 mm long. Stipules lanceolate to narrowly lanceolate. Inflorescence cylindrical, loose, often leafy to the apex, with 3-foliolate leaves below. Leaves more grossly serrate than those of the stem. Inflorescence axis densely covered, chiefly with tufted hairs, also with stalked glands 0.2–1(–1.5) mm long, gland-tipped acicles and slender, patent prickles 2.5–4 mm long. Pedicels 0.5–1(–1.5) cm long, densely covered with spreading hairs, with numerous dark red stalked glands not exceeding the pedicel diameter, gland-tipped acicles and several straight or slightly curved prickles 1.5–3.5 mm long. Sepals grey-green, with numerous stalked glands, gland-tipped acicles, clasping the fruit. Petals white or pink, broadly elliptical to suborbicular, 10–13 mm long. Stamens exceeding styles. Anthers, styles and carpels glabrous. Receptacle sparsely hairy. – 2n = 35 (Boratyńska 1995a). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems with subulate prickles mixed with very numerous stalked glands and gland-tipped acicles; leaves imbricate with broad terminal leaflets; leaflets finely, evenly serrate. Shady forms, with less glandular stems can be mistaken for *R. lamprocaulos*, but stems of the latter species are eglandular or glands are few and shorter 0.1–0.3(–0.5) mm long (see also remarks at *R. capitulatus*).

HABITAT. Open woods, woods margins, clearings, along forest roads.

DISTRIBUTION IN POLAND. SW and C regions, on isolated stands in SE part of the country, between Rzeszów and Stalowa Wola.

GENERAL DISTRIBUTION. Widespread species. Chiefly Germany and Poland but also in S Denmark, S Sweden and the Czech Republic.



Fig. 241. *Rubus fabrimontanus* (Sprieb.) Sprieb. (Zieliński 1503, KOR 31558). Scale bar = 5 cm.

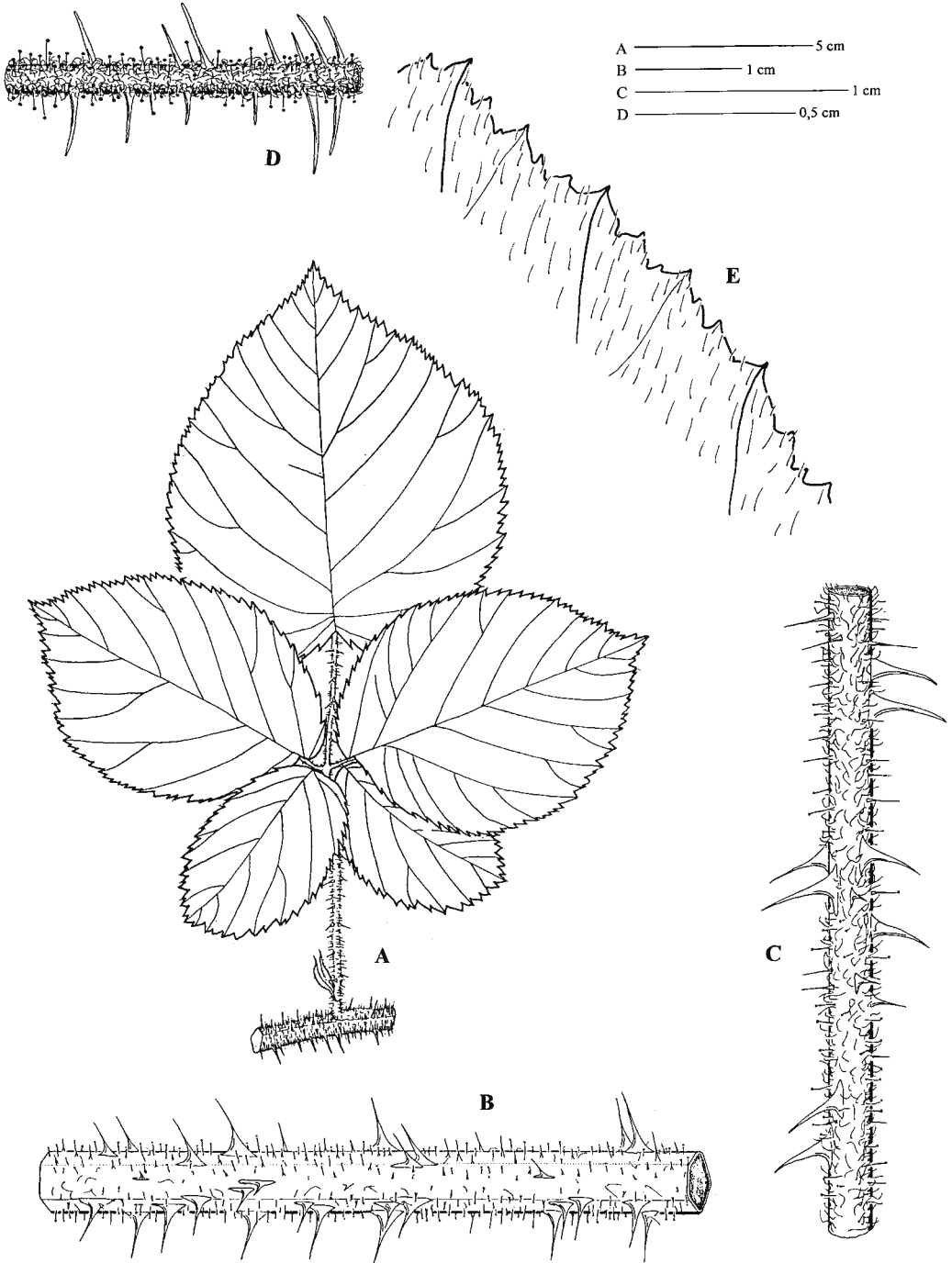


Fig. 242. *Rubus fabrimontanus* (Sprib.) Sprib. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 1503, KOR 31558).

SELECTED HERBARIUM SPECIMENS. AB1555 – Dziwnówek, 14°48½′–54°02′, 17 Aug 1991, *Głowacki s.n.* (WSRP); AB2277 – Lubiewo-Lunowo, 14°24′–53°54½′, 26 Aug 1954, *Piotrowska s.n.* (UGDA); AB4690 – between Świątoszewo & Łoźnica, 14°55′–53°43½′, 15 Jul 1977, *Zieliński 957* (KOR 8726); AD4903 – near Krępa, 15°33½′–52°02′, 9 Sep 1996, *Danielewicz s.n.* (POZNF); AD8319 – Trzebiel, 14°48′–51°38½′, 25 Aug 1976, *Zdobych s.n.* (LOD); AE6798 – 1.5 km W of Rozdroże Izerskie, 15°25¾′–50°52¼′, 12 Sep 1982, *Boratyński 491* (KOR); AE6876 – S slope of Trzcinnik Hill E of Chromiec, 15°32′–50°53½′, 16 Jun 1986, *Boratyński & Zieliński SU 1043* (KOR); AE7931 – Cicha Dolina between Sobieszów & Piechowice, 15°36¾′–50°50½′, 12 Sep 1982, *Boratyński 480 & 481* (KOR); BD2909 – Zwierzyniec, 17°05′–52°14¾′, 8 Jul 1986, *Zieliński 1486* (KOR); CC7368 – 2 km SW of Bożacin, 17°39′–52°39′, 22 Jun 1992, *Chmiel s.n.* (POZ); CC8062 – Zielonka, 17°07′–52°33¼′, 16 Aug 1995, *Danielewicz s.n.* (POZNF); CD0576 – 1 km NW of Niezgoda, 17°55′–52°22½′, 4 Jun 1992, *Chmiel s.n.* (POZ); CD0964 – Dąbrowa, 18°29′–52°23¼′, 2 Jul 1963, *Mikołajczyk s.n.* (LOD); CE4617 – Marianka Siemieńska, 18°06¾′–51°10½′, 30 Jul 1898, *Spribille s.n.* (KOR); CE8349 – between Mikolin & Golczowice, 17°43¼′–50°47½′, 9 Jul 1994, *Zatorski s.n.* (POZNF); CF5740 – Ponięćce, 18°10′–50°10′, 16 Jul 1988, *Tomlik & Zieliński 2239* (KOR 27009); DC7206 – Lubanie, 18°57′–52°43′, 20 Jun 1972, *Baczewska s.n.* (LOD); DD0625 – Gašno, 19°31′–52°25¼′, 28 Jul 1989, *Głowacki s.n.* (WSRP);

DE4148 – between Krzeczów & Szczyty, 18°50′–51°09′, 26 Jul 1977, *Zieliński 1033* (KOR); DE5105 – ‘Węże’ reserve near Działoszyn, 18°47¾′–51°05¾′, 8 Jul 1974, *Stachurski s.n.* (LOD); EC9464 – Kosewo, 20°40¾′–52°28′, 3 Jun 1988, *Głowacki s.n.* (WSRP); EC9527 – Wójtostwo, 20°52¾′–52°30½′, 4 Oct 1995, *Głowacki s.n.* (WSRP); ED1382 – near Korfowe & Wiejca, 20°30½′–52°16½′, 11 Aug 1994, *Głowacki s.n.* (WSRP); ED2097 – Dębsk Stary, 20°07¾′–52°10¾′, 30 Aug 1990, *Głowacki s.n.* (WSRP 034973); ED9079 – ‘Konewka’ reserve near Spała, 20°08½′–51°34′, 25 May 1956, *Sobolewska s.n.* (LOD); EE4583 – Bliżyn, 20°46′–51°06′, 22 Jun 1955, *Iwanowski s.n.* (LOD); EF4074 – Wesola, 20°02½′–50°13¼′, 24 Jul 1991, *Zieliński 2914* (KOR 24928); FF3652 – Wola Żarczycka, 22°16′–50°17½′, 26 Aug 1999, *Zieliński 39/99* (KOR 41301); FF5759 – Gniewczyzna Łańcucka, 22°29¼′–50°06′, 25 Aug 1999, *Zieliński 26/99* (KOR 41316); FF5832 – between Wólka Małkowa & Giewczyzna Tryniecka, 22°32′–50°07¼′, 25 Aug 1999, *Oklejewicz s.n.* (KRA).

Series *Hystricopses* H. E. Weber

Rev. Sect. *Corylifolii*: 187. 1981.

TYPE: *Rubus hystricopsis* (Frid.) A. Gust.

Stems terete or bluntly angled. Prickles unequal, grading into acicles and stalked glands. – Brambles related to the species of the series *Hystrices* and *Glandulosi*.

84. *Rubus capitulatus* Utsch in Baenitz

(Figs 244–246)

Herb. Eur. Prospect 6 & nr 9521. 1898, *pro hybr. R. schleicheri* × *bellardii*.

Rubus chlorophyllus var. *krotoschinensis* Sprib., Verh. Bot. Ver. Brandenb. **39**: 51. 1897. – *R. krotoschinensis* (Sprib.) Sprib., Jahresbl. Schles. Ges. Vaterl. Cult. **83**: 107. 1905, *nom. superfl.*

TYPE: Flora Silesiaca: Breslau, an einem Abhange in der Schonung des Waldes zwischen Oberglauche und Skarsine (Katzengebirge), 184 m, 12.7.1898, *Baenitz*, Herb. Eur. 9521 (BREM, JE, M, WRSL – SYNTYPES; Weber 1988).

Stems low-arching or prostrate, terete, sparsely hairy, with numerous stalked glands of different length. Prickles unequal, the largest ones 3.5–

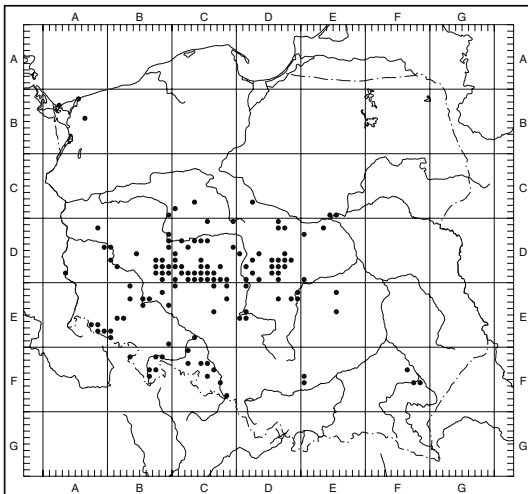


Fig. 243. Distribution of *Rubus fabrimontanus* (Sprib.) Sprib. in Poland.

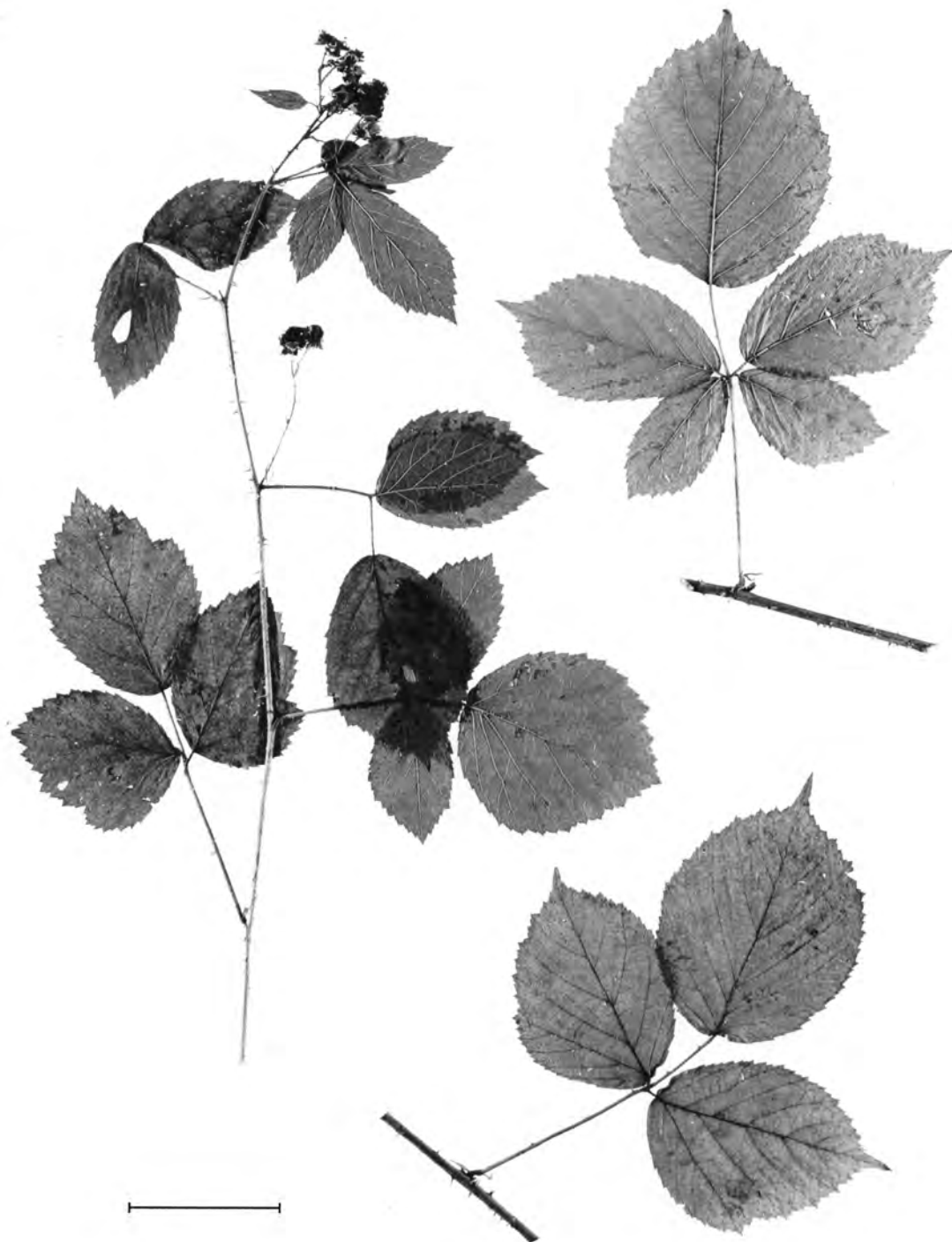


Fig. 244. *Rubus capitulatus* Utsch (Zieliński 1918, KOR 23077). Scale bar = 5 cm.

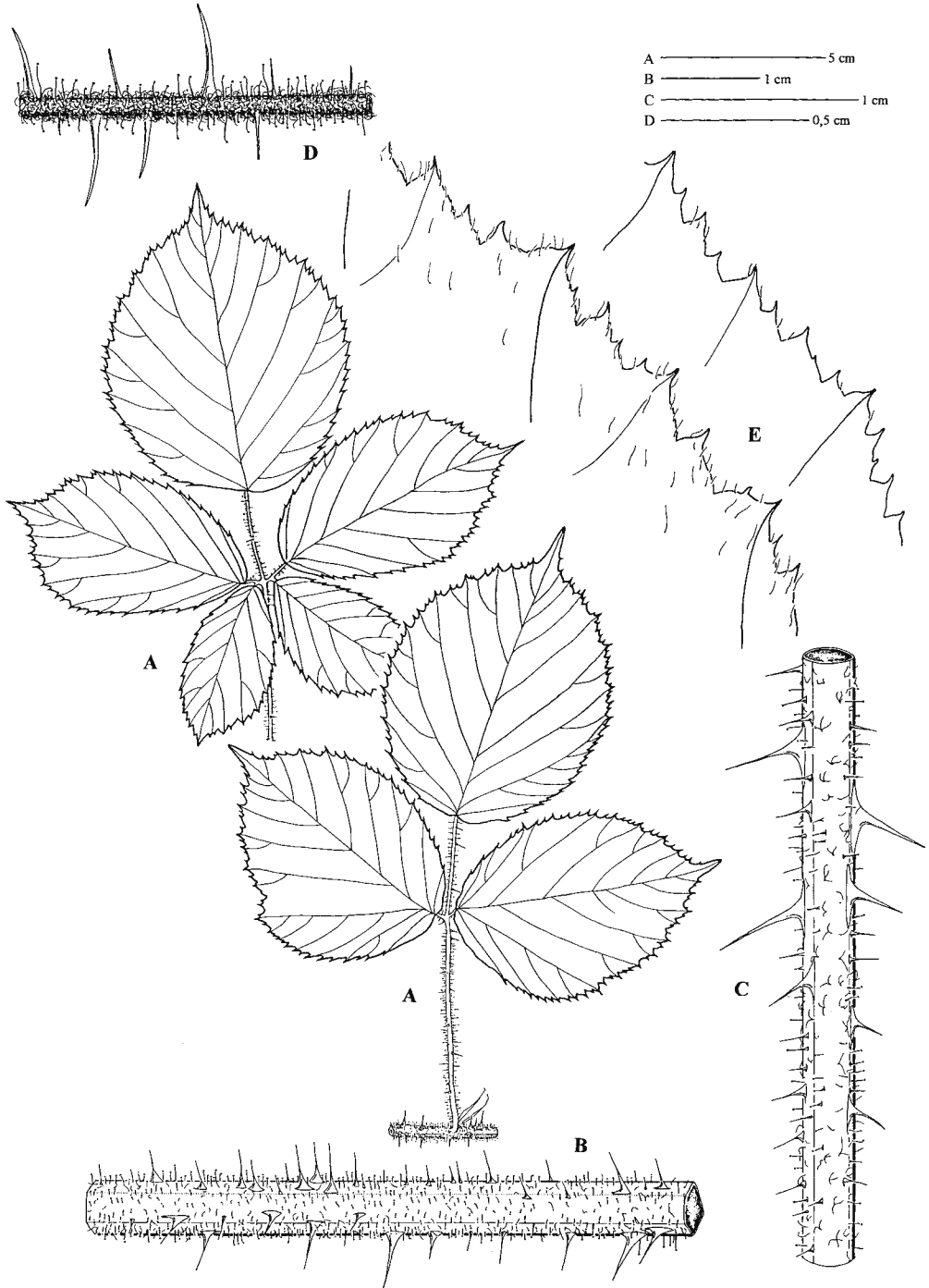


Fig. 245. *Rubus capitulatus* Utsch. A – leaves from vegetative stems; B – fragment of the inflorescence axis; D – pedicel; E – terminal leaflets margins (Awzan & Zieliński, in Zieliński 1472, KOR 34715).

4(–5) mm long, slender, subulate, straight or slightly curved, somewhat declining, yellowish, sometimes tinged with reddish. Leaves 3-foliolate or 4–5-foliolate and then pedate, green on both sides, glabrous or with sparse, scattered hairs above, sparsely hairy beneath, without stellate hairs. Leaflets usually imbricate, the terminal ones with short to mid-long petiolules (22–30%), sub-orbicular, broadly elliptical or broadly obovate, cordate at the base, usually with a shortly acuminate apex (5–)10–15(–20) mm long, periodically serrate, with distinctly prominent, usually retrorse principal teeth. Petioles sparsely hairy, with unequal stalked glands and with straight, slightly declining prickles. Inflorescence conical, often flattened and leafless at the apex, with 3-foliolate leaves below. Inflorescence axis rather stiff, with sparse, usually tufted hairs (the axis visible through the indumentum) and unequal stalked glands. Prickles 3–5 mm long, usually straight, very slender but with distinctly decurrent base. Pedicels 1–1.5(–2) cm long, with spreading hairs, numerous stalked glands 0.5–1 mm long, unarmed or more often with small needle-like pricklets. Sepals grey-green, hairy, with numerous long-stalked glands, sometimes also with small pricklets, patent or clasping the fruit. Petals white, broadly elliptical, abruptly constricted at the base, 9–11 mm long. Stamens longer than styles. Anthers, carpels and receptacle glabrous. – $2n = 42$ (Boratyńska 1996). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching, with unequal subulate prickles grading into acicles and stalked glands; terminal leaflets broad, periodically serrate; inflorescence axis stiff with subulate prickles.

HABITAT. Forest margins, clearings.

DISTRIBUTION IN POLAND. Dolny Śląsk and S Wielkopolska.

GENERAL DISTRIBUTION. Regional species, endemic to Poland.

SELECTED SPECIMENS. BD1755 – Dębienko, $16^{\circ}44\frac{1}{2}' - 52^{\circ}17\frac{1}{2}'$, 22 Aug 1994, *Zieliński 90/94* (KOR 29508); BD1957 – near Gądki, $17^{\circ}03' - 52^{\circ}17\frac{1}{2}'$, 29 Jun 1992,

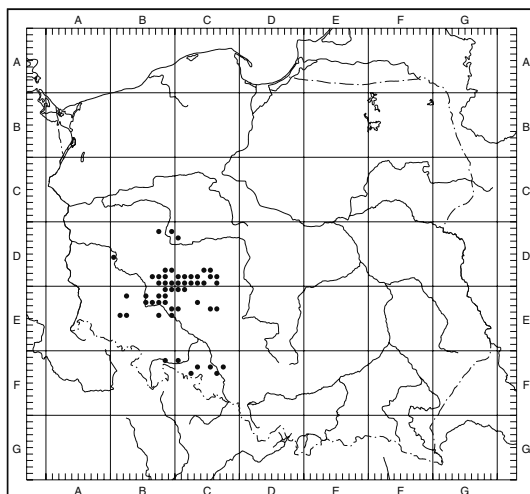


Fig. 246. Distribution of *Rubus capitulatus* Utsch in Poland.

Boratyńska & Zieliński Z. 3050 (KOR 29926); BD5086 – near Bobrowniki, $15^{\circ}45' - 51^{\circ}53'$, 13 Sep 1995, *Danielewicz s.n.* (POZNF); BD7821 – between Drzewce & Poniec, $16^{\circ}50\frac{1}{2}' - 51^{\circ}46\frac{3}{4}'$, 16 Jul 1986, *Awzan & Zieliński Z. 1473* (KOR); BD7833 – between Drzewce & Karzec, $16^{\circ}53' - 51^{\circ}46'$, 16 Jul 1986, *Awzan & Zieliński Z. 1472* (KOR); BD9742 – 3 km NE of Wąsosz, $16^{\circ}43\frac{1}{3}' - 51^{\circ}34\frac{2}{3}'$, 25 Aug 1977 & 15 Jul 1978, *Zieliński 1105 & 1193* (KOR 8750 & 8878); BD9779 – Laskowo, $16^{\circ}50' - 51^{\circ}33\frac{1}{2}'$, 12 Jul 1910, *Spribille s.n.* (WRSL); BD9862 – Przywście, $16^{\circ}52\frac{2}{3}' - 51^{\circ}34'$, 26 Jul 1996, *Zieliński 27/96* (KOR 38313); BE0995 – by the road between Koniowo, Książęca Wieś & Koniówko, $17^{\circ}04' - 51^{\circ}27'$, 10 Sep 1910, *Spribille s.n.* (WRSL); BE1282 – near Żabice, $16^{\circ}01' - 51^{\circ}21'$, 18 Jul 1994, *Boratyńska et al. 60/94* (KOR 29465); BE1593 – Tarchalice, $16^{\circ}28' - 51^{\circ}21'$, 13 Jul 1993, *Smyk s.n.* (POZNF); BE1719 – near Piotrkowice, $16^{\circ}50\frac{1}{2}' - 51^{\circ}25\frac{1}{2}'$, 5 Aug 1991, *Zieliński 2945 & 2948* (KOR 24780 & 24783); BE1847 – near Prusice, $16^{\circ}57\frac{1}{3}' - 51^{\circ}24\frac{1}{3}'$, 29 Sep 1920, *Spribille s.n.* (WRSL); BE2533 – between Gliniany & Domaszków, $16^{\circ}28' - 51^{\circ}18\frac{2}{3}'$, 9 Aug 1991, *Zieliński 3046* (KOR 24897); BE2676 – Warzyn, $16^{\circ}39\frac{2}{3}' - 51^{\circ}17'$, 17 Aug 1995, *Głowacki s.n.* (WSRP); BE2679 – near Warzyn, $16^{\circ}42\frac{1}{4}' - 51^{\circ}17'$, 22 & 26 Aug 1991, *Głowacki s.n.* (WSRP); BE2741 – between Bukowice & Lipnica, $16^{\circ}44' - 51^{\circ}18\frac{1}{2}'$, 25 Aug 1987, *Zieliński 1918* (KOR); BE2756 – between Rościslawice & Bukowice, $16^{\circ}48' - 51^{\circ}18\frac{1}{4}'$, 25 Aug 1987, *Zieliński 1909* (KOR); BE2770 – NE of Warzyn, $16^{\circ}42\frac{2}{3}' - 51^{\circ}17'$, 21 Aug 1991, *Głowacki s.n.* (WSRP); BE2779 – S of Rościsla-

wice, 16°50 $\frac{2}{3}$ '–51°17', Oct 1901, *Spribille s.n.* (BREM); BE2789 – 2.5 km S of Rościszewice, by the road to Uraz, 16°50 $\frac{1}{2}$ '–51°16 $\frac{2}{3}$ ', 25 Aug 1987, *Zieliński 1889* (KOR); BE2881 – Jary, 16°52'–51°16 $\frac{3}{5}$ ', 18 Aug 1995, *Głowacki s.n.* (WSRP); BE2889 – near Wilczyn, by the road to Mienice, 16°59'–51°16 $\frac{1}{2}$ ', 17 Jul 1903, *Spribille s.n.* (WRSL); BE3937 – near Siedlec, 17°06'–51°14', 8 Jul 1912, *Spribille s.n.* (BREM); BE4125 – a mountain (235 m) in NE part of Złotoryja, 15°56 $\frac{1}{2}$ '–51°07 $\frac{3}{4}$ ', 2 Jul 1898, *Pinkwart s.n.* (WRSL); BE4154 – 'Wilcza Góra' reserve, S of Złotoryja, 15°55'–51°06 $\frac{1}{2}$ ', 27 Jul 1901, *Figert & Spribille s.n.* (TRN); BE4196 – between the quarry on Góra Śmierci & Wilków, 15°57 $\frac{1}{4}$ '–51°04 $\frac{1}{2}$ ', 19 Jul 1994, *Boratyńska et al. 90/94* (KOR 29449); BE4230 – between Prusice & Łażniczki, 16°00 $\frac{1}{4}$ '–51°07 $\frac{1}{2}$ ', 12 Jul–7 Sep 1898, *Pinkwart s.n.* (BRNM 17996/35); BE4707 – near Żurawiniec, 16°49 $\frac{1}{2}$ '–51°10 $\frac{1}{2}$ ', 29 Oct & 6 Nov 1909, *Spribille s.n.* (WRSL); BE4975 – Wrocław – Park Szczytnicki, 17°05'–51°06 $\frac{3}{4}$ ', Sep 1912, *Spribille s.n.* (WRSL); BF1809 – between Starczówek & Niedźwiedz, 17°01'–50°32 $\frac{4}{5}$ ', 6 Oct 1919 & 7 Jul 1920, *Spribille s.n.* (WRSL); BF1809 – N of Niedźwiedz, 17°01'–50°32 $\frac{4}{5}$ ', sine die, *Kinscher s.n.* (PR); CD2060 – between Błazejewko & Jeziory, 17°06'–52°11 $\frac{1}{2}$ ', 24 Jul 1987, *Dolatowski & Zieliński Z. 1929* (KOR); CD8265 – between Chwaliszew & Krotoszyn, 17°29 $\frac{1}{2}$ '–51°39 $\frac{3}{4}$ ', 17 Jul 1897 & 26 Aug 1899, *Spribille s.n.* (BREM, TRN & WRSL); CD9014 – between Dubin & Zaborowo, 17°11'–51°37', 20 Sep 1988, *Zieliński 2136 & 2137* (KOR 28004 & 27991); CD9034 – near Janowo, 17°11 $\frac{1}{2}$ '–51°36', 15 Jul 1898, *Spribille s.n.* (WRSL); CD9427 – between Przygodzice & Ostrów Wielkopolski, 17°48 $\frac{3}{5}$ '–51°36 $\frac{3}{4}$ ', 28 Sep 1996, *Boratyńska s.n.* (KOR 38342); CD9489 – between Przygodzice & Strugi, 17°50 $\frac{1}{2}$ '–51°33 $\frac{2}{3}$ ', 28 Sep 1996, *Boratyńska s.n.* (KOR 38334); CE0190 – near Borowina, 17°16 $\frac{1}{2}$ '–51°27 $\frac{1}{2}$ ', 6 Aug 1992, *Zieliński 143/92* (KOR 29927); CE2396 – between Stradomia Wierzchnia & Nowy Dwór, 17°39 $\frac{3}{5}$ '–51°17', 26 Aug 1977, *Zieliński 1134* (KOR 8672); CE3001 – between Głuchów Górny & Skarszyn, 17°09 $\frac{1}{4}$ '–51°15 $\frac{2}{3}$ ', 17 Jul 1897, *Baenitz s.n.* (BRNM 17126/35, KRAM 140924, LE, PR, W & WU 90–62/23); CE3090 – by the road between Zakrzów & Olszyca, 17°08 $\frac{1}{2}$ '–51°10 $\frac{3}{4}$ ', 27 Jun 1901, *Geinzmann s.n.* (WRSL); CE3578 – 1 km of Mroczeń towards Rychtal, 17°59'–51°12 $\frac{1}{2}$ ', 26 Aug 1977, *Zieliński 1150* (KOR 8756); CE3648 – N of Trzebień, 18°07 $\frac{1}{4}$ '–51°14 $\frac{1}{2}$ ', 29 Sep 1899, *Spribille s.n.* (TRN); CF1088 – near Głębinów, 200 m, 17°17 $\frac{1}{2}$ '–50°28 $\frac{1}{2}$ ', 11 Sep 1999, *Kosiński & Zieliński Z. 58/99* (KOR 41717); CF2324 – N of Grabina, 220 m, 17°39'–50°27', 14 Sep 1999, *Kosiński & Zieliński Z. 120/99* (KOR

41665); CF2729 – near Olszowa, 18°17 $\frac{1}{3}$ '–50°27', 3 Aug 1905, *Spribille s.n.* (WRSL); CF3631 – 2–3 km W of Pokrzywnica, 18°02'–50°21', 16 Jul 1988, *Tomlik & Zieliński Z. 2256* (KOR 25679).

85. *Rubus dollnensis* Sprib. (Figs 247–249)

Verh. Bot. Ver. Brandenb. **42**: 170. 1900.

Rubus montivivus Kinscher, *Allgem. Bot. Zeitschr.* **15**: 183. 1910.

TYPE: Flora Silesiaca: Eulengebirge, in der Schöpfung auf der Spitze des Galgenberges bei Neurode, 650 m, 5.7.1898, *Baenitz*, Herb. Eur. 10000 (M – LECTO-TYPE; Weber 1988).

Stems prostrate, terete, glabrous, rarely with unevenly spaced tufted hairs. Prickles unequal, usually 2–4 mm long, somewhat declining, straight, rarely slightly curved, usually grading into gland-tipped acicles and stalked glands. Leaves mostly 3-foliolate, rarely also 4–5-foliolate and then pedate, dark green, sparsely hairy to subglabrous above, brighter beneath and with scattered hairs on the veins. Terminal leaflets short-petiolate (15–25%), elliptical, ovate, obovate to suborbicular, rounded or cordate at the base, with a short-acuminate apex 5–10 mm long, rather shallowly (2–3 mm) periodically serrate; principal teeth usually slightly prominent, sometimes slightly retrorse. Lateral leaflets often gibbous. Petioles sparsely hairy, with stalked glands and straight, needle-like pricklets. Stipules narrowly lanceolate. Inflorescence rather short, few to multiflowered, leafless at the apex. Inflorescence axis with short spreading hairs, unequal stalked glands and delicate, straight, needle-like prickles up to 3 mm long. Pedicels 1–2(–3) cm long, densely covered with spreading hairs, with numerous stalked glands up to 1 mm, unarmed or with straight needle-like prickles and gland-tipped acicles. Sepals grey-green, with numerous stalked glands, gland-tipped acicles, usually without prickles, clasping the fruit. Petals white, suborbicular, 8–10 mm long. Stamens exceeding styles. Anthers, carpels and receptacle glabrous. – $2n = 28$ (Boratyńska 1994), $2n = 35$ (material from the Czech Republic, Krahulcová & Holub 1997a). – Flowering VI–VII.

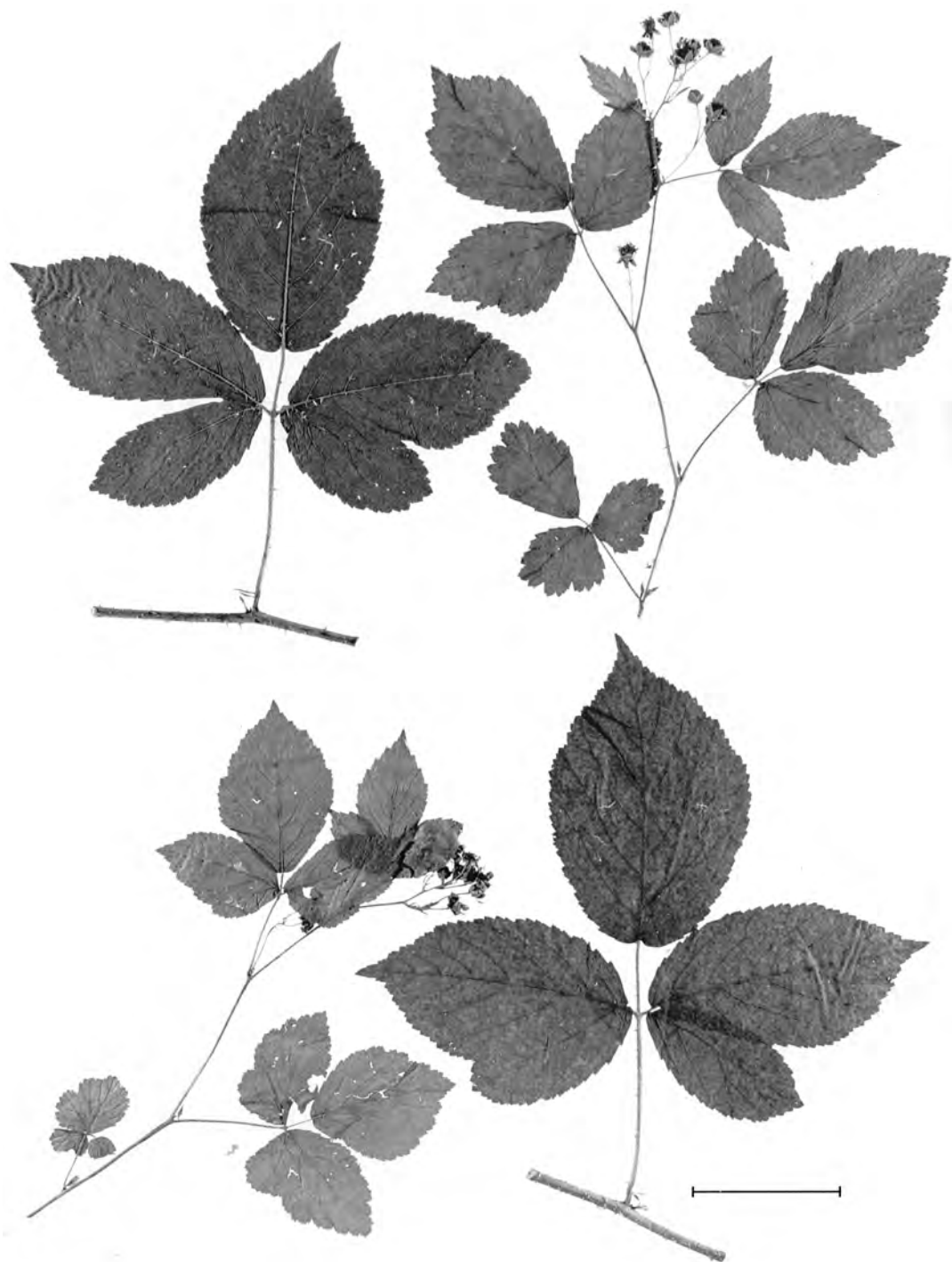


Fig. 247. *Rubus dollnensis* Sprib. (Spribille s.n., WRSL). Scale bar = 5 cm.

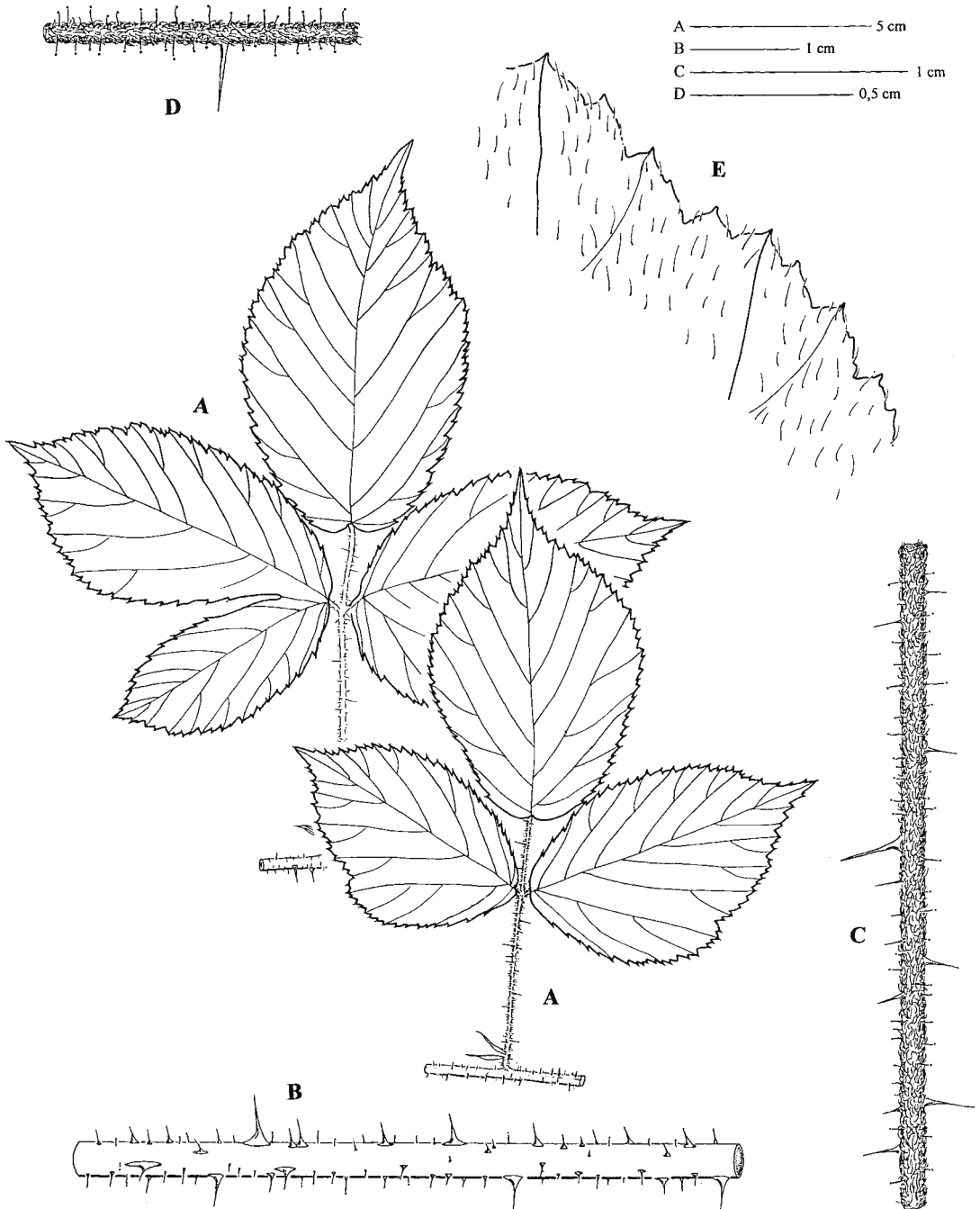


Fig. 248. *Rubus dollnensis* Strib. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (*Spribille s.n.* WRSL).

MAIN DIAGNOSTIC CHARACTERS. Stems low-arching to prostrate, terete, not pruinose; prickles slender, subulate, grading into stalked glands; leaves sparsely hairy; petals suborbicular; sepals clasping the fruit.

Rubus seebergensis differs from this species by having leaves densely hairy beneath, narrower petals, hairy receptacle and different distribution. *R. caesius*, for which *R. dollnensis* is usually mistaken, differs by \pm pruinose stems, wrinkled, usually retuse petals and perfectly formed pruinose drupelets.

HABITAT. Thickets, open woods, forest margins, clearings.

DISTRIBUTION IN POLAND. Dolny Śląsk and on isolated stands in S Wielkopolska.

GENERAL DISTRIBUTION. Widespread species. S Germany, the Czech Republic, Slovakia, Poland.

SELECTED HERBARIUM SPECIMENS. AE3885 – between Niwnice & Kotliska, $15^{\circ}30' - 51^{\circ}09\frac{1}{3}'$, 21 Jul 1994, *Boratyńska et al. 128/94* (KOR 29488); BE2714 – Godzięcin, $16^{\circ}46\frac{1}{2}' - 51^{\circ}20'$, 9 Sep 1992, *Głowacki s.n.* (WSRP 33116); BE2852 – near Rościławice, $16^{\circ}53\frac{1}{2}' - 51^{\circ}18'$, sine die, *Baenitz s.n.* (BREM); BE6336 – between Jugowa & Roztoka, $16^{\circ}15' - 50^{\circ}57'$, 7 Aug 1997, *Zieliński 2979* (KOR 24781); BE7876 – between Podgaj & Głownin, $16^{\circ}57\frac{1}{2}' - 50^{\circ}50\frac{1}{2}'$, 9 Aug 1991, *Zieliński 3042 & 3045* (KOR 24900 & 24896); BE8311 – Lubominek, $16^{\circ}11\frac{1}{2}' - 50^{\circ}47'$, 7 Sep 1987, *Boratyński & Zieliński Z. 1560* (KOR 30978); BE8461 – a hill (662 m) N of Kamieńsk, $16^{\circ}19\frac{1}{2}' - 50^{\circ}44\frac{3}{4}'$, 10 Sep 1987, *Boratyński & Zieliński Z. 1678* (KOR); BE9926 – Gromnik Mt. NE of Romanów, $17^{\circ}06\frac{3}{4}' - 50^{\circ}42\frac{1}{6}'$, 12 Jul 1904, *Spribille s.n.* (WRSL); BE9965 – between Dobroszów & Jasienica, $17^{\circ}05\frac{1}{2}' - 50^{\circ}40\frac{1}{2}'$, 9 Aug 1991, *Zieliński 3033* (KOR 24892); BF0618 – Młodziejów, $16^{\circ}43' - 50^{\circ}37\frac{1}{4}'$, 27 Jul 1904, *Kinscher s.n.* (WRSL); BF1385 – Świni Grzbiet Mt. (534 m) N of Kudowa-Zdrój, $16^{\circ}15\frac{3}{4}' - 50^{\circ}27\frac{1}{3}'$, 19 Jul 1911, *Barber s.n.* (GLM 47170 & WRSL); BF1508 – Słupiec, $16^{\circ}34\frac{2}{3}' - 50^{\circ}32\frac{1}{4}'$, 13 Jul 1910, *Schoepke s.n.* (WRSL); BF1809 – N of Niedźwiedz, $17^{\circ}01' - 50^{\circ}32\frac{1}{2}'$, 16 Oct 1919 & 7 Jul 1920, *Spribille s.n.* (WRSL); BF2315 – Kudowa-Zdrój, 476 m, $16^{\circ}16' - 50^{\circ}26'$, 9 Jul 1997, *Matek s.n.* (SGPN); BF2522 – near Chocieszów, $16^{\circ}30\frac{1}{2}' - 50^{\circ}25\frac{2}{5}'$, 8 Aug 1995, *Boratyńska & Boratyński s.n.* (KOR 32276 &

32277); BF2651 – Czerwoniak Mt. near Krosnowice, 340 m, $16^{\circ}37\frac{2}{3}' - 50^{\circ}24'$, 8 Jul 1991, *Szeląg s.n.* (KRAM); BF3589 – between Stara Bystrzyca & Wyszki, $16^{\circ}36\frac{1}{2}' - 50^{\circ}17\frac{1}{2}'$, 21 Aug 1899, *Baenitz s.n.* (BRNM 18349/35); BF3612 – between Mielnik & Gorzanów, 335 m, $16^{\circ}38\frac{4}{5}' - 50^{\circ}21'$, 15 Oct 1995, *Kosiński s.n.* (KOR 39676); BF3720 – Trzebieszowice, 405 m, $16^{\circ}45\frac{5}{5}' - 50^{\circ}20\frac{1}{2}'$, 12 Sep 1995, *Kosiński s.n.* (KOR 38950); BF3761 – between Nowy Waliszów & Konradów, 580 m, $16^{\circ}46\frac{1}{2}' - 50^{\circ}18\frac{2}{5}'$, 8 Jul 1995, *Kosiński s.n.* (KOR 39626); BF3810 – S of Lutynia, 515 m, $16^{\circ}54' - 50^{\circ}21\frac{1}{4}'$, 25 Jul 1995, *Kosiński s.n.* (KOR 39766); BF3890 – near Młynowiec, $16^{\circ}54' - 50^{\circ}16\frac{2}{3}'$, 7 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 18/98* (KOR 39950); BF4641 – Długopole Górne, 400 m, $16^{\circ}38\frac{1}{3}' - 50^{\circ}14'$, 1 Oct 1995, *Kosiński s.n.* (KOR 38982); BF4730 – Igliczna Mt. near Marianówka, 700 m, $16^{\circ}46' - 50^{\circ}14\frac{2}{5}'$, 6 Aug 1995, *Boratyńska & Boratyński s.n.* (KOR 32280); BF4741 – Bogoryja Valley by Międzygórze, $16^{\circ}47' - 50^{\circ}14'$, 2 Aug 1995, *Boratyńska & Boratyński s.n.* (KOR 32299); BF5653 – Międzyzlesie, 505 m, $16^{\circ}40\frac{1}{3}' - 50^{\circ}08'$, 12 Oct 1995, *Kosiński s.n.* (KOR 39690); BF5674 – Boboszków, 495–500 m, $16^{\circ}41\frac{1}{5}' - 50^{\circ}07'$, 12 & 13 Oct 1995, *Kosiński s.n.* (KOR 39660 & 39687); CF1990 – between Błotnica Strzelecka & Pluźnica Wielka, $18^{\circ}27' - 50^{\circ}28\frac{1}{2}'$, 14 Aug 1913, *Spribille s.n.* (WRSL); CF2705 – Dolna, $18^{\circ}14\frac{1}{3}' - 50^{\circ}28\frac{1}{5}'$, 24 Jul 1899, *Spribille s.n.* (POZ); CF3049 – near Gierałcice, 350 m, $17^{\circ}18\frac{1}{2}' - 50^{\circ}20'$, 16 Sep 1999, *Kosiński & Zieliński Z. 186/99* (KOR 41605); CF3591 – Kazimierz, $17^{\circ}54' - 50^{\circ}17\frac{2}{3}'$, 30 Jul 1988, *Szotkowski s.n.* (HB).

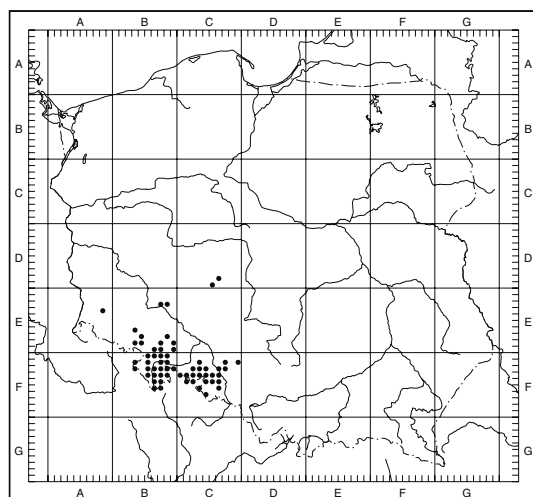


Fig. 249. Distribution of *Rubus dollnensis* Sprib. in Poland.

SZOT.); CF4409 – 2 km SE of Szonów, 17°52'–50°17', 16 Jul 1988, Tomlik & Zieliński Z. 2257 (KOR 22816); CF4502 – Kazimierz, 17°54½'–50°17½', 30 Jul 1988, Szotkowski s.n. (KOR 31489).

86. *Rubus seebergensis* Pfuhl ex Strib.
(Figs 250–252)

Verh. Bot. Ver. Brandenb. 39: 51. 1897.

TYPE: Kreis Schrimm. Bei Moschin nach F. H. Seeberg. Ende September 1897, Pfuhl (POZ – HOLOTYPE; Zieliński 1993).

Stems prostrate, terete, glabrous or with sparse, scattered hairs usually at the base of prickles and usually with fairly numerous stalked glands 0.2–1(–1.2) mm long. Prickles usually numerous, up to 2(–3) mm long, delicate, subulate, straight, somewhat declining, sometimes slightly curved, usually grading into gland-tipped acicles and stalked glands. Leaves normally 3-foliolate, occasionally also 5-foliolate and then pedate, with fairly numerous adpressed hairs above, bright green and densely hairy beneath; hairs partly patent, partly pectinately arranged on the veins, often mixed with short tufted hairs. Terminal leaflets with short to mid-long petiolules [21–25(–28)%], broadly elliptical, obovate, rarely ovate, rounded or shallowly cordate at the base, with an acuminate apex 12–18 mm long, usually evenly shallowly serrate; teeth mostly broader than long, apiculate, the principal ones straight or rarely indistinctly recurved. Lateral leaflets sessile or on petiolules up to 2 mm long, often gibbous. Petioles usually shorter than the lateral leaflets, with small straight or slightly curved needle-shaped prickles and stalked glands. Stipules oblong-lanceolate, with stalked glands. Inflorescence usually few-flowered, leafless at the apex, with 3-foliolate leaves below. Leaves with shimmering adpressed hairs above, rather densely patent-hairy beneath, coarsely serrate. Inflorescence axis loosely patent-hairy, with ± numerous stalked glands, acicles and straight or slightly curved slender prickles up to 3.5(–4) mm long. Pedicels 0.5–1.5(–3) cm long, rather densely hairy, with straight yellow prickles up to 2.5 mm long and numerous stalked glands mostly longer than the diameter of pedicels. Se-

pals apiculate, with the point (–)1.5–2.5 mm long, greyish-green-felted, glandular, sometimes with small needle-shaped pricklets and gland-tipped acicles, clasping the fruit. Petals white, elliptical or elliptical-obovate, 8–10 mm long. Stamens exceeding styles. Anthers and carpels glabrous. Receptacle hairy. – 2n = 28 (Boratyńska 1997). – Flowering VI–VII.

MAIN DIAGNOSTIC CHARACTERS. Stems prostrate, rather thin, not pruinose, covered with slender subulate prickles grading into acicles and stalked glands; leavaes 3-foliolate, densely, softly patent-hairy beneath; petals elliptical or elliptical-obovate; receptacle hairy; sepals clasping the fruit.

The species is often mistaken for *R. dollnensis* and *R. caesius*. The former bramble differs by subglabrous leaves, suborbiculate petals and glabrous receptacle, the latter species by pruinose stems, usually broader, wrinkled and notched petals, glabrous receptacle and pruinose drupelets.

HABITAT. Open forests, forest margins, clearings.

DISTRIBUTION IN POLAND. S Wielkopolska, Dolny Śląsk.

GENERAL DISTRIBUTION. Regional species, probably endemic to Poland.

SELECTED HERBARIUM SPECIMENS. AE4990 – Pławna, 310 m, 15°35'–51°03½', 31 Jul 1986, Awzan & Boratyńska s.n. (KOR); BC9914 – 1 km E of Owińska, 17°00½'–52°30½', Aug 1986, Zieliński 1497 (KOR); BD2800 – Ludwikowo, 16°49'–52°14½', 8 Jul 1927 & 28 Jun 1938, Krawiec s.n. (KOR 30751 & 31086); BD2919 – Zwierzyniec, 17°05'–52°14½', 15 Jul 1991, Zieliński 2885 (KOR 24803); BD4701 – between Kurzagóra & Racot, 16°41½'–52°04', 24 Jul 1899, Stribille s.n. (WRS�); BD4973 – between Melpin & Lubiatowo, 17°01'–52°00¼', 16 Jul 1986, Awzan & Zieliński Z. 1426 & 1427 (KOR); BD6811 – between Nowy Bełęcin & Krzemieniewo, 16°50½'–51°52½', 16 Jul 1986, Awzan & Zieliński Z. 1458 (KOR); BD6900 – 3 km W of Gostyń, 16°58'–51°53½', 16 Jul 1986, Awzan & Zieliński Z. 1440 (KOR); BD7909 – between Domachowo & Siedlec, 17°06½'–51°48', 16 Jul 1986, Awzan & Zieliński Z. 1475 (KOR); BD8801 – 1.5 km NNW of Kawcze, 16°50½'–51°42½', 27 Jul 1996, Zieliński 40/96 (KOR

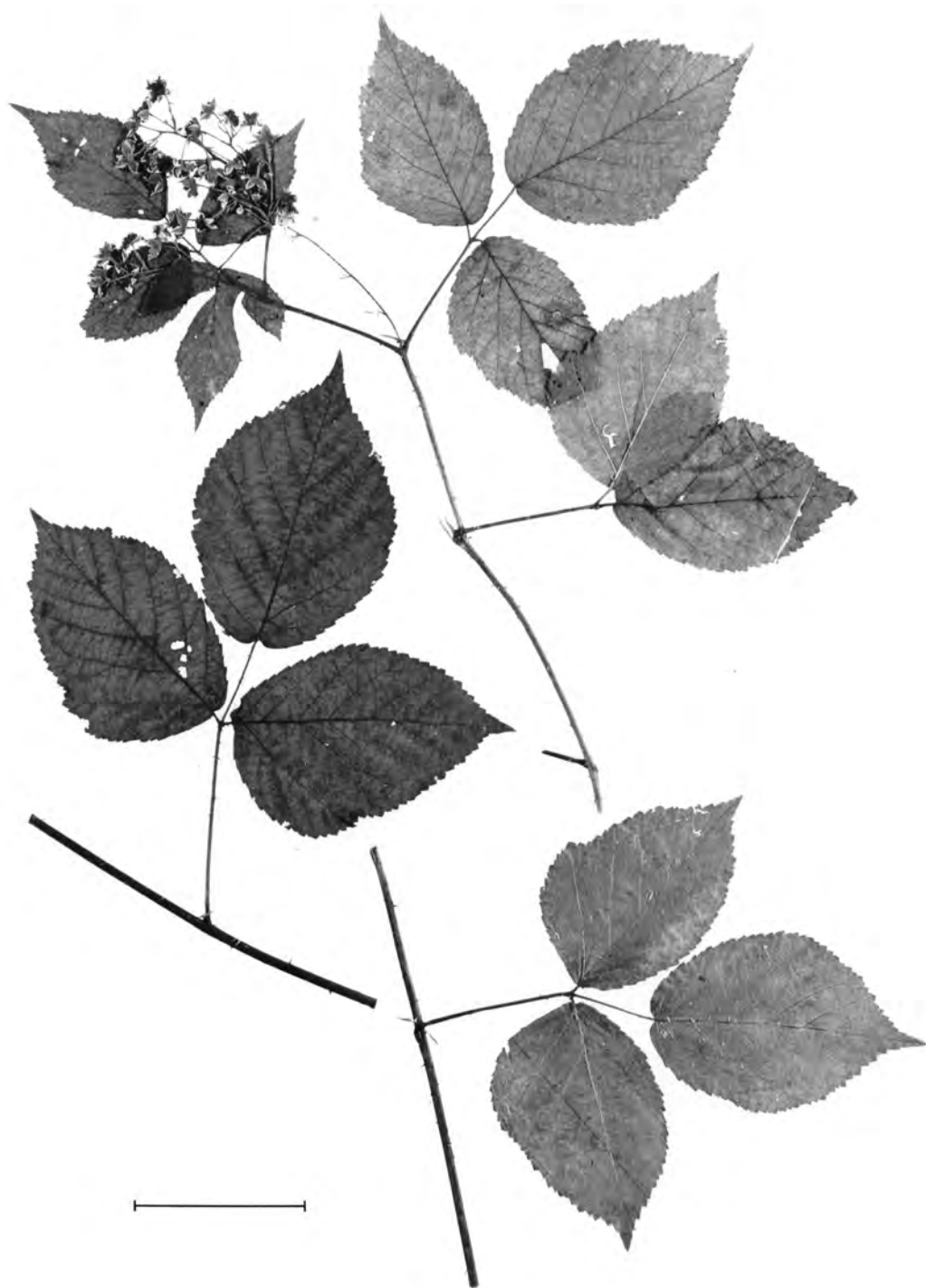


Fig. 250. *Rubus seebergensis* Pfuhl ex Spreng. (Awzan & Zieliński, in Zieliński1522, KOR 32892). Scale bar = 5 cm.

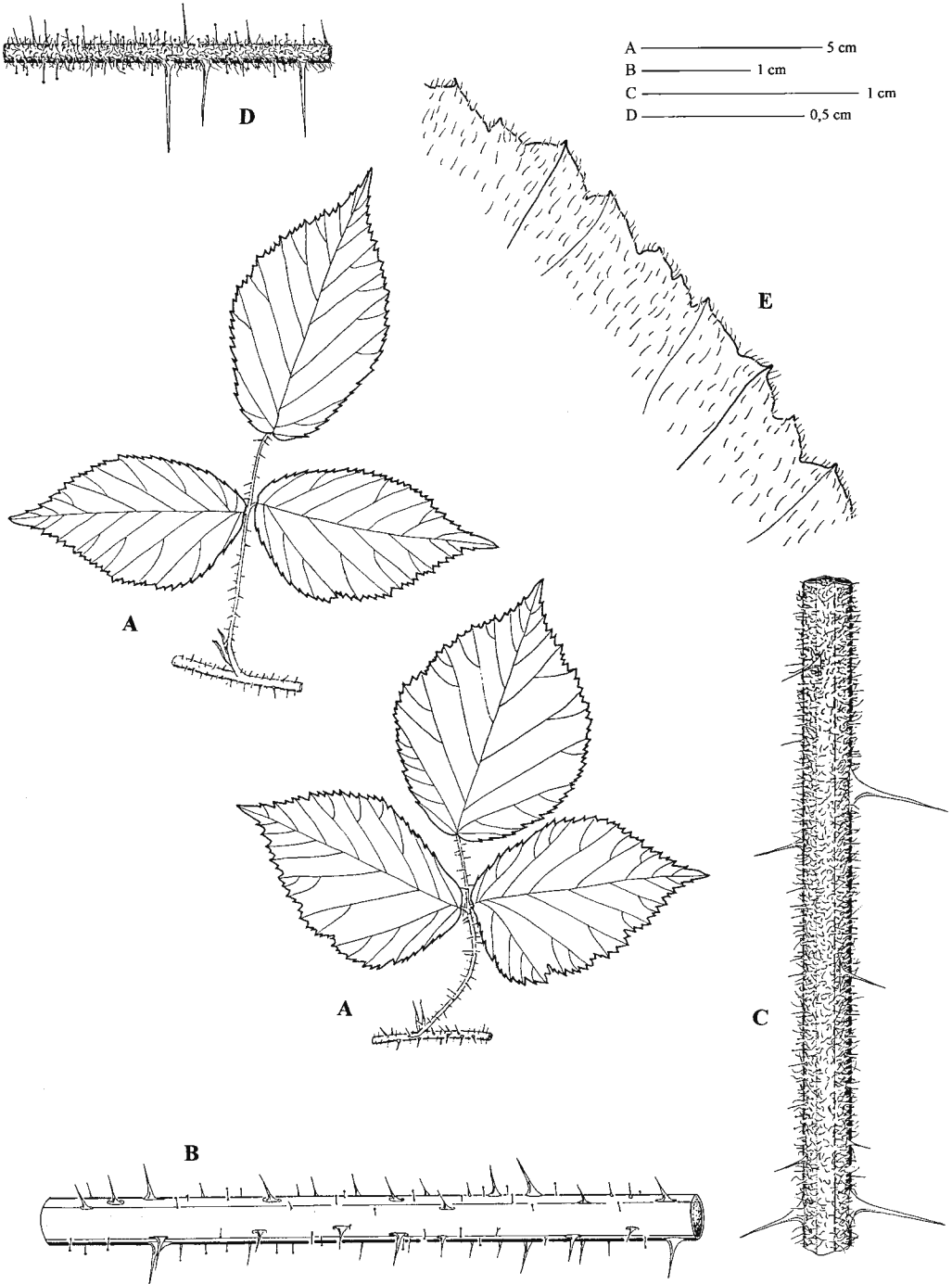


Fig. 251. *Rubus seebergensis* Pfuhl ex Spreng. A – leaves from vegetative stems; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Awzan & Zieliński, in Zieliński 1522, KOR 32892).

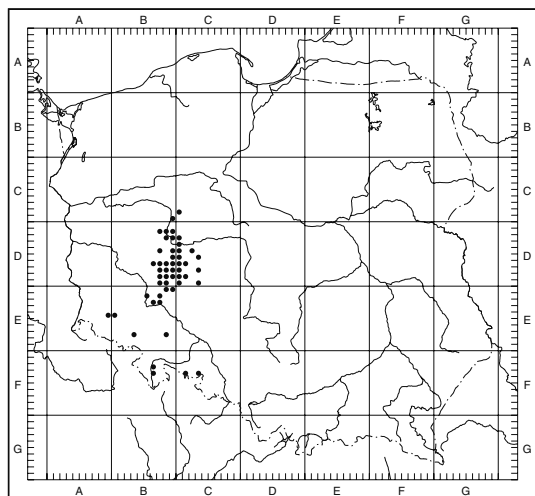


Fig. 252. Distribution of *Rubus seebergensis* Pfuhl ex Sprib. in Poland.

38302); BE1587 – between Wodnica & Rudno, $16^{\circ}31\frac{1}{2}'$ – $51^{\circ}21\frac{1}{2}'$, 12 Oct 1910, *Spribille s.n.* (WRSL); BE1764 – by the road between Gródek & Proszkowa, $16^{\circ}46\frac{1}{4}'$ – $51^{\circ}22\frac{3}{4}'$, 18 Oct 1912, *Spribille s.n.* (WRSL); BE1765 – Grodki, $16^{\circ}46\frac{1}{2}'$ – $51^{\circ}23'$, 18 Oct 1912, *Spribille s.n.* (WRSL); BE2602 – near Rudna, $16^{\circ}35\frac{1}{2}'$ – $51^{\circ}20\frac{1}{2}'$, 14 Sep 1910, *Spribille s.n.* (WRSL); BE2722 – by the road between Garwol & Radeck, $16^{\circ}44'$ – $51^{\circ}19\frac{1}{2}'$, 8 Oct 1910, *Spribille s.n.* (WRSL); BE7317 – Jaskulin, $16^{\circ}16'$ – $50^{\circ}52\frac{3}{4}'$, 31 Jul 1987, *Boratynski & Zieliński Z. 2107* (KOR); BE7852 – near Suchowice, $16^{\circ}54\frac{1}{2}'$ – $50^{\circ}51\frac{1}{2}'$, 28 Sep 1917, *Spribille s.n.* (WRSL); BF2696 – Bukówka Mt. near Oldrzychowice Kłodzkie, 360 m, $16^{\circ}42\frac{1}{2}'$ – $50^{\circ}22\frac{1}{6}'$, 9 Jul 1998, *Kosiński, Tomaszewski & Zieliński Z. 48/98* (KOR 39995); CC8062 – Zielonka, $17^{\circ}07'$ – $52^{\circ}33\frac{1}{4}'$, 16 Aug 1995, *Danielewicz s.n.* (POZNF); CD3013 – Zaniemyśl, $17^{\circ}09\frac{1}{2}'$ – $52^{\circ}09\frac{1}{3}'$, 28 Jun 1998, *Czarna s.n.* (POZ); CD4088 – Mchy, $17^{\circ}13\frac{1}{2}'$ – $52^{\circ}00'$, 16 Oct 1995, *Czarna s.n.* (POZ); CD4235 – between Kłęka & Radlin, $17^{\circ}29'$ – $52^{\circ}02\frac{2}{3}'$, 31 Jul 1897, *Spribille s.n.* (WRSL); CD4263 – Mieszków, $17^{\circ}26\frac{2}{3}'$ – $52^{\circ}01\frac{1}{2}'$, 22 Jun 1996, *Czarna s.n.* (POZ); CD5031 – NE of Mszczyczyn, $17^{\circ}07\frac{1}{2}'$ – $51^{\circ}57'$, 20 Sep 1988, *Zieliński 2122* (KOR); CD6101 – Międzyborze, $17^{\circ}17'$ – $51^{\circ}53\frac{3}{4}'$, 20 Sep 1988, *Zieliński 2127* (KOR 22826); CD7013 – between Babkowice & Gumienice, $17^{\circ}10'$ – $51^{\circ}47\frac{2}{3}'$, 16 Jul 1986, *Awzan & Zieliński Z. 1479 & 1481* (KOR); CD7342 – between Ryczków & the road Roszki–Koźminiec, $17^{\circ}35\frac{1}{2}'$ – $51^{\circ}46\frac{1}{2}'$, 2 Aug 1897, *Spribille s.n.* (WRSL); CD9333 – between Sulmierzyce

& Odolanów, $17^{\circ}36'$ – $51^{\circ}36'$, 21 Sep 1988, *Zieliński 2157* (KOR 22828); CF3198 – Krzyżowa Mt. in Jarnołtówek, 410 m, $17^{\circ}26\frac{1}{6}'$ – $50^{\circ}17\frac{2}{5}'$, 28 Jul 1999, *Kosiński, Tomaszewski & Zieliński 172* (KOR 41724).

87. *Rubus spribillei* (Pfuhl ex Sprib.) Kulesza
in Szafer (Figs 253–255)

Flora Polska 4: 160. 1930.

Basionym: *R. jenseni* var. *spribillei* Pfuhl ex Sprib., *Deutsch. Ges. Kunst Wissensch. Posen. Zeitschr. Naturwiss. Abt. 9*: 127. 1902.

TYPE: Schrimm: Gondek, 9.7.1898, *Spribille* (POZ – HOLOTYPE; Zieliński 1993).

Stems prostrate, terete or subterete, with sparse simple and tufted hairs, sometimes glabrous. Prickles 15–20 per 5 cm, small, needle-shaped, 1.5–2 mm long, straight, slightly declining, with compressed decurrent base, grading into slender acicles and usually sparse stalked glands 0.3–1 mm long. Leaves 3-foliolate with numerous or sparse adpressed hairs above, sparsely hairy beneath, with more numerous hairs on the veins only; hairs simple. Leaflets not contiguous, terminal ones with short petiolules (20–25%), suborbicular to (broadly) obovate, shallowly cordate or rounded at the base, with a short-acuminate apex 10–12 mm long, evenly serrate; teeth often broader than long, apiculate, principal ones not prominent. Lateral leaflets with petiolules 1–1.5 mm long, sometimes gibbous. Petioles usually shorter than the lateral leaflets, with spreading hairs, numerous stalked glands 0.2–0.8 mm long and declining pricklets up to 1.5 mm long. Stipules broadly lanceolate. Inflorescence conical or irregularly branched, leafless at the apex, with 3-foliolate leaves below, their lateral leaflets sessile. Inflorescence axis rather stiff, slightly zigzag, with spreading simple and tufted hairs mixed with stellate hairs. Stalked glands numerous, up to 0.8(–1) mm long, intermingled with gland-tipped acicles. Prickles yellow, up to 2 mm long, slender but with a long decurrent base. Pedicels 0.5–1 cm long, shortly, densely hairy, with numerous stalked glands protruding above hairs, but usually not longer than the diameter of pedicels. Prickles (if present) small, needle-shaped, yellow, up to 2 mm long. Sepals short, up

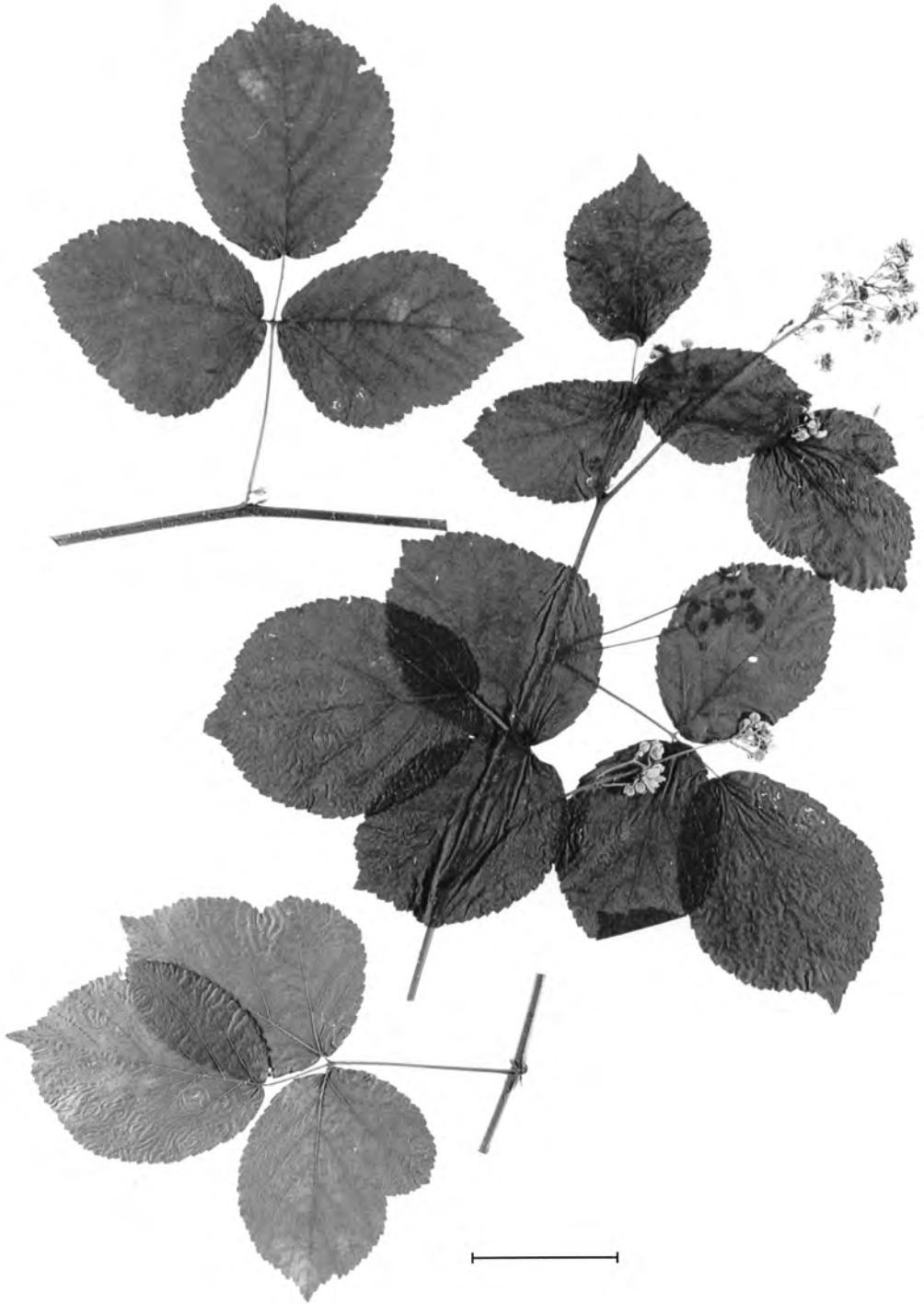


Fig. 253. *Rubus spribillei* (Pfuhl ex Sprib.) Kulesza (*Zieliński* 2884, KOR 42804). Scale bar = 5 cm.

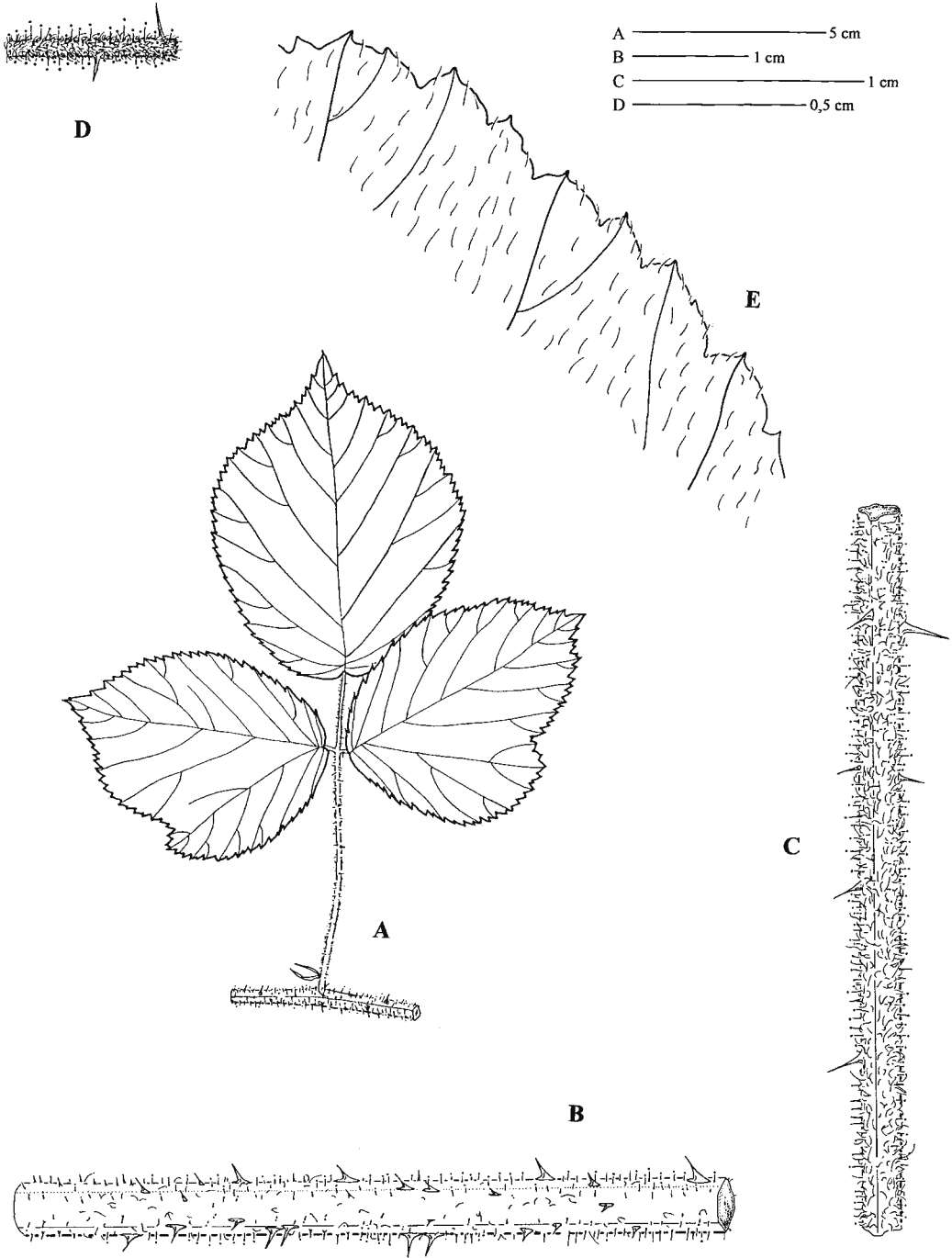


Fig. 254. *Rubus spribillei* (Pfuhl ex Sprib.) Kulesza. A – leaf from vegetative stem; B – fragment of vegetative stem; C – fragment of the inflorescence axis; D – pedicel; E – terminal leaflet margin (Zieliński 2884, KOR 42804).

to 4–5(–6) mm long, apiculate, with the point less than 1 mm long, green-grey, usually patent after anthesis. Petals white, slightly pinkish in buds, broadly elliptical, 7–9 mm long, 4–5 mm wide. Stamens exceeding styles. Anthers and carpels glabrous. Receptacle with long hairs. Fruit often imperfectly formed. – $2n = 28$ (Boratyńska 1997). – Flowering VI–VII (–VIII).

MAIN DIAGNOSTIC CHARACTERS. Stems terete with very small prickles and sparse, short-stalked glands; leaves rather small, sparsely hairy; flowers small, white, slightly pinkish in buds; sepals with the point less than 1 mm long, patent after anthesis; fruit often imperfectly formed.

The species closely related to and often mistaken for *R. dollnensis* and *R. seebergensis*. From the former species it differs by narrower petals, hairy receptacle and less glandular stems, from *R. seebergensis* by glabrous or sparsely hairy leaves and broader, short-acuminate terminal leaflets, from both species by very shortly apiculate, usually patent sepals.

HABITAT. Forest margins, clearings, along forest roads.

DISTRIBUTION IN POLAND. Chiefly S Wielkopolska.

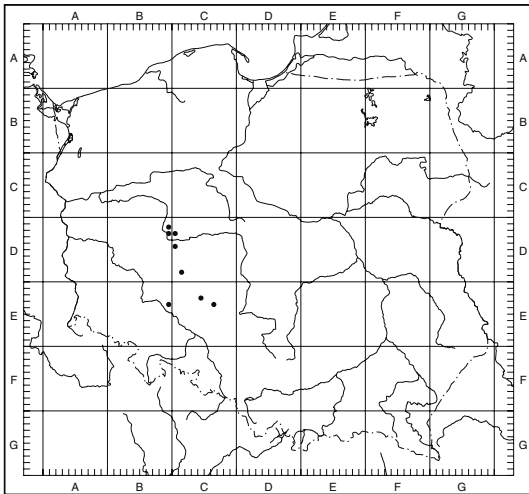


Fig. 255. Distribution of *Rubus spribillei* (Pfuhl ex Spreng.) Kulesza in Poland.

GENERAL DISTRIBUTION. Regional species, endemic to Poland.

SPECIMENS SEEN. BD1946 – Gądky, $17^{\circ}02\frac{2}{3}' - 52^{\circ}18'$, 9 Jul 1895, *Spribille s.n.* (POZ); BD1978 – Borówiec, $17^{\circ}04' - 52^{\circ}16\frac{4}{5}'$, 23 Jul 1993, *Boratyńska, Dolatowska & Zieliński s.n.* (KOR 30525); BD1978 – Skrzynki, $17^{\circ}04' - 52^{\circ}16\frac{1}{3}'$, 1 Aug 1974, *Zieliński s.n.* (KOR 6417 & 6426); BD2907 – E of Czołowo, $17^{\circ}03\frac{1}{2}' - 52^{\circ}15'$, 7 Jul 1899, *Pfuhl s.n.* (POZ); BD2915 – 0.5 km of Czołowo towards Mosina, $17^{\circ}02' - 52^{\circ}14\frac{1}{2}'$, 6 Aug 1986, *Awzan 46* (KOR 29770); BD2919 – Zwierzyniec, $17^{\circ}05' - 52^{\circ}14\frac{1}{3}'$, Jun 1987 & 29 Jun 1992, *Boratyński & Zieliński Z. 3047 & 3048* (KOR 23677, 30574a & 30575a); BD2946 – between Radzewo & Konarskie, $17^{\circ}02\frac{2}{3}' - 52^{\circ}13'$, 19 Jul 1991, *Zieliński 2894* (KOR 24808); BD2947 – 1 km SE of Konarskie, $17^{\circ}04' - 52^{\circ}13'$, 14 Jul 1987, *Boratyńska & Zieliński Z. 1919* (KOR 29831); BD2947 – between Kórnik & Radzewo, $17^{\circ}03\frac{1}{2}' - 52^{\circ}12\frac{4}{5}'$, 19 Jul 1991, *Zieliński 2886, 2887 & 2889* (KOR 24800–24802); BD2959 – Błażejewo, $17^{\circ}05' - 52^{\circ}12'$, 22 Jun 1952, *Bugata s.n.* (KOR 31087); BE3914 – Wisznia Mała, $17^{\circ}03\frac{1}{2}' - 51^{\circ}15'$, 2 Nov 1912 & 17 Jun, 4 Jul & 2 Sep 1913, *Spribille s.n.* (WRSL); CD2050 – Błażejewo, $17^{\circ}06' - 52^{\circ}12'$, 22 Jun 1952, *Bugata s.n.* (KOR 10651); CD4094 – near Włocławek-Ługi by the road to Lipówka, $17^{\circ}10\frac{3}{4}' - 51^{\circ}59\frac{1}{4}'$, 3 Jul 1996, *Czarna s.n.* (POZ); CD8110 – S of Rzemiechów, $17^{\circ}16\frac{1}{2}' - 51^{\circ}42\frac{1}{3}'$, 6 Aug 1996, *Zieliński 56/96* (KOR 38283); CE2458 – by the road between Marcinki & Perzów, $17^{\circ}49\frac{1}{2}' - 51^{\circ}19'$, 21 Sep 1915, *Spribille s.n.* (WRSL); CE3671 – 2 km NNW of Laski, $18^{\circ}00\frac{3}{4}' - 51^{\circ}12\frac{3}{4}'$, 29 Jul 1992, *Zieliński 113/92* (KOR 34323).

Section *Caesii* Lej. & Court.

Comp. Fl. Belg. 2: 161. 1831.

Monotype section

Stems low-arching or procumbent, rooting, weakly armed, pruinose. Stipules broadly lanceolate. Fruits pruinose.

88. *Rubus caesius* L. (Figs 256–259)

Sp. Pl. 1: 706. 1753.

TYPE: Habitat in Europae dumetis. Hortus Cliff.: 192 no 2 [BM – LECTOTYPE, designated by A. O. Chater, C. Jarvis & A. Newton (Edees & Newton 1988)].

Stems low-arching or procumbent at the end, usually much branched, with rooting tips, terete,



Fig. 256. *Rubus caesius* L. – plant from shady place (Awzan 4, KOR 32300). Scale bar = 5 cm.



Fig. 257. *Rubus caesius* L.– plant from dry sunny place (Awzan 23, KOR 31560). Scale bar = 5 cm.

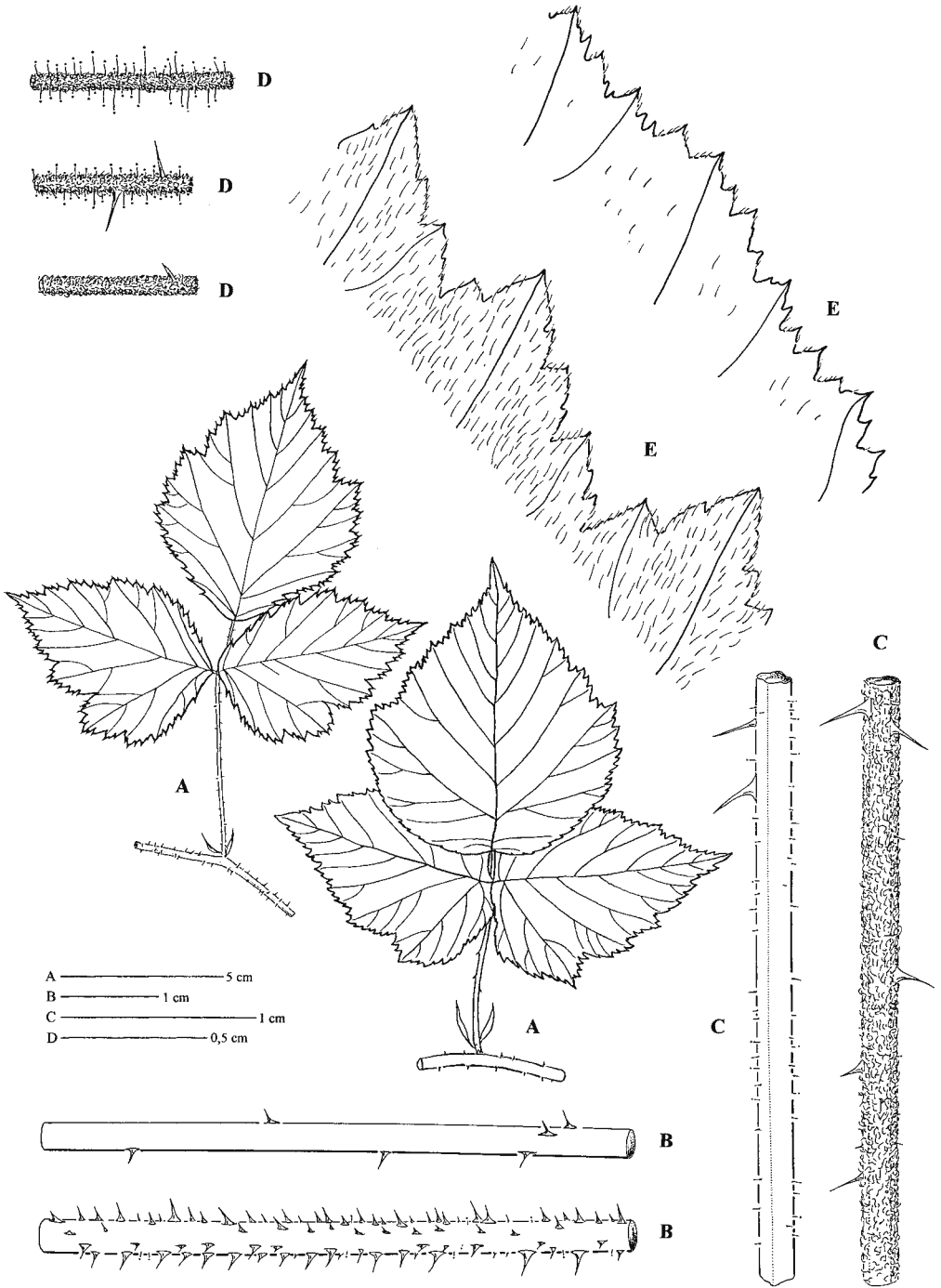


Fig. 258. *Rubus caesius* L. A – leaves from vegetative stems; B – fragments of vegetative stems; C – fragments of the inflorescence axis; D – pedicels; E – terminal leaflets margins. (From different specimens in KOR)

usually flexible, generally up to 4(–5) mm in diameter, reddish-blue or violet-red in exposure, pruinose at least when young, glabrous or rarely hairy, without or with numerous stalked glands up to 0.5 mm long. Prickles scattered or (especially in sunny places) very numerous, small, needle-like, easily breaking, straight or curved, up to 1–2.5(–3) mm long. Leaves deciduous, 3-foliolate, exceptionally at the base of the stem 4–5-foliolate, flat or distinctly wrinkled (in exposure), glabrous or hairy above, glabrous or softly hairy beneath; hairs simple, straight; stellate hairs absent. Terminal leaflets with short or mid-long petiolules (15–30%), variable in shape, ovate, rhombic or obovate, cordate or rounded at the base, acuminate at the apex, evenly or distinctly periodically serrate, sometimes shallowly incised, often lobed; principal teeth straight. Lateral leaflets sessile or on petiolules up to 2 mm long, asymmetric, broadly rounded at the base, usually gibbous. Petioles distinctly canaliculated above, glabrous or hairy, without or with stalked glands, unarmed or with small needle-like pricklets. Stipules broadly lanceolate. Inflorescences weakly branched, appearing both on last-year or on annual stems. Inflorescence axis hairy at least in the upper part, usually pruinose, with scattered stalked glands and needle-like pricklets. Pedicels usually 1.5–3 cm long, felted, rarely glabrous, without or with few stalked glands 0.3–0.5(–0.8) mm long, sometimes with subsessile glands only, unarmed or with needle-like pricklets. Sepals abruptly narrowed into a long tip, grey-green, densely felted, with unequal stalked glands, erect after anthesis, clasping the fruit. Petals white, roundish, broadly elliptic or broadly ovate, usually notched at the apex, wrinkled, (sub)glabrous, 8–16 mm long. Stamens as long or somewhat longer than styles. Anthers, carpels and receptacle glabrous. Ripe drupelets black, pruinose, usually not more than 20 in the compound fruit. – $2n = 28$ (Boratyńska 1995b). – Flowering V–VIII(–X).

MAIN DIAGNOSTIC CHARACTERS. Stems usually slender, \pm pruinose; prickles short, slender, needle-like; leaves 3-foliolate with broad-based, gibbous lateral leaflets; stipules broadly lanceo-

late; flowers white, appearing both on previous-year and current-year twigs; carpels and receptacle glabrous; ripe drupelets pruinose. The species of the subsection *Corylifolii* are often mistaken for *R. caesius*, but they can be usually distinguished by nearly always stronger prickles, stems not or less pruinose and fruit often not perfectly formed.

Rubus caesius is one of the most variable species but without distinct geographical forms. Many infraspecific taxa described hitherto have no or little taxonomical value. The most often separated taxon, var. *agrestis* Weihe & Nees (var. *arvalis* Reichb.) is a phenotype only, associated with sunny, drier places.

HABITAT. Forest margins, wayside thickets, balks, railway embankments, wastelands, usually on rich, not too dry soils, both on open and rather shady places.

DISTRIBUTION IN POLAND. Abundant or scattered in the whole country, somewhat rarer in the north-east. In Poland chiefly in the lowland, between sea-level and 600 m, on most elevated stands in the Tatra Mts at 840 m (Pawłowski 1956).

GENERAL DISTRIBUTION. Widespread species. Almost the whole Europe (except for the most northern and most southern regions), W and C Asia.

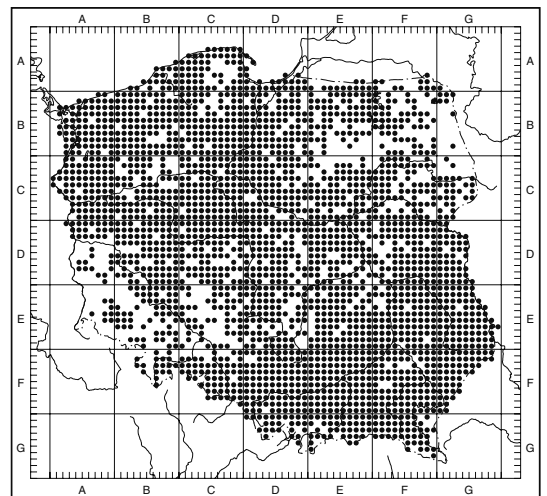


Fig. 259. Distribution of *Rubus caesius* L. in Poland.

SELECTED HERBARIUM SPECIMENS. AD0425 – Rzepin, 14°49½'–52°21', 22 Jun 1997, *Kozłowski s.n.* (KOR 39358); BF1374 – Bluszczowa Mt. near Czerwna, 475 m, 16°15½'–50°27¾', 16 Jul & 8 Aug 1997, *Matek s.n.* (SGPN); BF2315 – Kudowa-Zdrój, 435 m, 16°15¾'–50°26', 22 Jul 1997, *Matek s.n.* (SGPN); CC1492 – between Ślesin & Trzeciewnica, 17°41½'–53°10', 4 Jul 1952, *Arendt s.n.* (TRN); CD9311 – near Sulmierzyce, 17°34½'–51°37¾', 19 Jun 1998, *Pawłowski s.n.* (POZ); CF6416 – Jędrychowice, 17°50'–50°05¾', 21 Sep 1967, *Kuźniewski s.n.* (SZUB); DC5107 – Raciażek, 18°49'–52°53½', 18 Aug 1976, *Kalinowska s.n.* (LOD); DE4940 Bąkowa Góra, 19°52'–51°09', 14 Jul 1981, *Witołowski s.n.* (LOD); DE8563 Turów, 19°19¾'–50°46½', 19 Jun 1986, *Hereźniak s.n.* (LOD); DF3347 Tworzeń, 19°06'–50°20½', 4 Aug 1993, *Nowak s.n.* (KTU); DF8667 Wadowice, 19°31'–49°52½', 20 Aug 1996 & 9 Sep 1997, *Banaś s.n.* (KRA); ED1698 Warszawa, 21°02'–52°15½', 20 Jul 1962, *Wróblewska s.n.* (WA 036574); ED3410 – Tłuste, 20°37'–52°09½', 1938, *Wilczyński s.n.* (KRAM); EE1188 – Opoczno, 20°16'–51°23', 7 Aug 1966, *Pytel s.n.* (LOD); EG3378 – Szczawnica, 20°30'–49°25', 26 Jun 1956, *Puchar s.n.* (LOD).

Nothosubgenus ×*Cylarubus* Holub

Preslia **64**: 130. 1992.

= Subgen. *Rubus* × Subgen. *Cylactis* Raf.

89. *Rubus* ×*areschoughi* A. Blytt

Bot. Not. 1875: 42. 1875.

A hybrid *R. caesius* × *R. saxatilis* described from Norway.

Herbaceous plant like *R. saxatilis*, from which it differs by broader, elliptic petals, more numerous ovaries and slightly convex to conical receptacle. From *R. caesius* (besides herbaceous habit) it differs by smaller, not notched petals and hairy receptacle.

NOTES. Rare hybrid between the species representing two different subgenera *Rubus* and *Cylactis*, known hitherto from few localities in Norway, Finland and Germany. In Poland collected only once, near Poznań. Probably not distinguished from *R. saxatilis*. It is not unlikely that there are also nothomorphs of *R. ×areschoughi* close to *R. caesius*, difficult to distinguish from the latter bramble.

SPECIMEN SEEN. CC9068 – Pobiedziska near Poznań, 17°13'–52°28¼', 7 Jun 1896, *Mielkie s.n.* (KOR 10985).

Nothosubgenus ×*Idaeorubus* Holub

Preslia **64**: 130. 1992.

= Subgen. *Rubus* × Subgen. *Idaeobatus* (Focke) Focke.

90. *Rubus* ×*pseudidaeus* (Weihe) Lej.

(Figs 260 & 261)

Rev. Fl. Spa :102. 1825.

Basionym: *R. caesius* L. var. *pseudidaeus* Weihe in Boenn., Prodr. Fl. Monast.: 151. 1824.

TYPE: Minden, sine die, *Weihe* (KIEL – LECTOTYPE; Weber 1985).

A hybrid *R. caesius* × *R. idaeus*, very variable morphologically, containing a full scale of forms resembling in different degree the parent species. Forms with 3-foliolate leaves, close to *R. caesius*, one can usually distinguish from this bramble by hairy carpels and usually curled hairs on the lower side of leaves. Drupelets, if developed, usually red-black, not pruinose. Forms close to *R. idaeus* may be separated from this species by leaves only loosely hairy beneath, broader stipules and usually distinctly larger petals. From both parent species it differs by being fully or partly sterile. Chromosome number variable, $2n = 21$, rarely 28, 35 and 42 (Weber 1995).

HABITAT. Forest margins, waysides, not infrequently in ruderal places. Scattered probably all over Poland, frequent in places, often not distinguished from parent species, especially from *R. idaeus* and probably for this reason only rarely represented in herbarium material.

SELECTED HERBARIUM SPECIMENS. AB2169 – Świnoujście, 14°16'–53°55', 18 Jul 1986, *Awzan 8* (KOR 29826); AC0207 – Międzyodrze between Widuchowa & Szczecin, 14°28'–53°15½', 7 Sep 1993, *Danielewicz s.n.* (POZNF); AD0334 – near Kunowice, 14°40'–52°20½', 6 Jun 1997, *Kozłowski s.n.* (KOR 39356); BA6649 – near Jarosławiec, 1 km towards Darłowo, 16°31½'–54°31¼', 20 Jul 1986, *Zieliński 1514* (KOR 27928); BC6672 – near Piotrowo, 16°31'–52°43', 24 Jun 1991, *Tomlik s.n.* (KOR 26071); BD0859 – Poznań, 16°56¼'–52°23', Sep 1974, *Zieliński s.n.* (KOR 6382); BE0440 – Juszowice, 16°16'–51°29', 18 Jul 1994, *Boratyńska et al. 59/94* &



Fig. 260. *Rubus x pseudidaeus* (Weihe) Lej., the nothomorph similar to *R. caesius* (Awzan 8, KOR 10562). Scale bar = 5 cm.

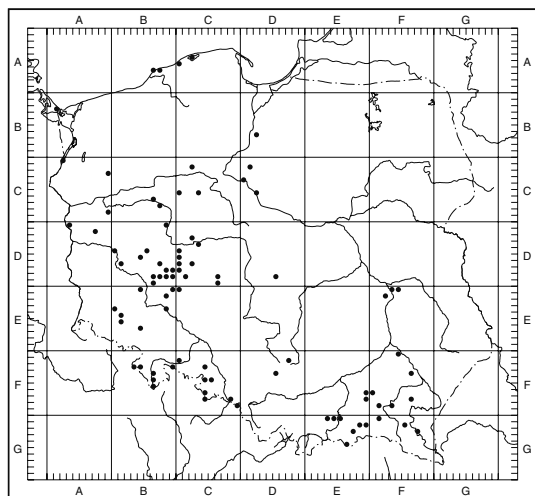


Fig. 261. Distribution of *Rubus x pseudidaeus* (Weihe) Lej. in Poland.

57/94 (KOR 29426 & 32137); BF2305 – Kudowa-Zdrój, 425 m, $16^{\circ}15\frac{1}{3}'$ – $50^{\circ}26\frac{1}{2}'$, 9 Jul 1997, *Matek s.n.* (SGPN); BF3672 – Bystrzyca Kłodzka, 355 m, $16^{\circ}39'$ – $50^{\circ}17\frac{3}{4}'$, 27 Sep 1995, *Kosiński s.n.* (KOR 38792 & 38797); CA5042 – between Rowy & Objazda, $17^{\circ}01\frac{1}{3}'$ – $54^{\circ}38'$, 21 Jul 1981, *Zieliński 1389* (KOR 10588); CC1209 – Witosław, $17^{\circ}29\frac{1}{3}'$ – $53^{\circ}14\frac{1}{2}'$, 15 Aug 1897, *Spribille s.n.* (KOR 10631); CC5368 – Cerkwica, $17^{\circ}38\frac{1}{2}'$ – $52^{\circ}49\frac{3}{4}'$, 23 Aug 1976, *Kaczmarek s.n.* (KOR 10621); CD2274 – Białe Piątkowo, $17^{\circ}27\frac{3}{4}'$ – $52^{\circ}11\frac{3}{5}'$, 9 Jul 1986, *Awzan & Zieliński Z. 1547* (KOR 30031); CD6243 – Obrą Nowa, $17^{\circ}27\frac{1}{2}'$ – $51^{\circ}51\frac{1}{2}'$, 26 Aug 1898, *Miller s.n.* (KOR 10633); CE0019 – Milicz, $17^{\circ}16'$ – $51^{\circ}31\frac{3}{4}'$, 31 Oct 1897, *Spribille s.n.* (WRSŁ); DB6205 – Rozpędziny, $18^{\circ}56'$ – $53^{\circ}42'$, 29 Jul 1975, *col. ign.* (TRN); DC1119 – between Ryńsk & Sosnowka, $18^{\circ}51'$ – $53^{\circ}14\frac{1}{2}'$, 7 Sep 1993, *Tomlik s.n.* (KOR); DC3010 – Barbarka, $18^{\circ}34'$ – $53^{\circ}03\frac{1}{2}'$, 1897, *Krause s.n.* (TRN); DC5203 – Nowogródek, $18^{\circ}54'$ – $52^{\circ}53\frac{1}{2}'$, 6 Jul 1996, *Rutkowski s.n.* (TRN); DD8521 – NW of Szczytniki, $19^{\circ}18\frac{1}{2}'$ – $51^{\circ}42\frac{1}{3}'$, 22 Sep 1988, *Zieliński 2197* (KOR 28007); DF1726 – S of Pradła, by the road to Pilica, $19^{\circ}39'$ – $50^{\circ}32\frac{1}{2}'$, 24 Jul 1991, *Zieliński 2922* (KOR 24927); DF3580 – Strzemieszycze, $19^{\circ}17\frac{1}{2}'$ – $50^{\circ}18\frac{3}{4}'$, 22 May 1992, *Nowak s.n.* (KTU); EG0364 – Limanowa-Szarysz, $20^{\circ}27'$ – $49^{\circ}41\frac{3}{4}'$, 8 Aug 1998, *Oklejewicz s.n.* (KRA); EG4646 – Mikowa Mt. SW of Muszyna, $20^{\circ}53'$ – $49^{\circ}20\frac{5}{6}'$, 14 Jul 1999, *Oklejewicz s.n.* (KRA); FE0381 – NW of Bronowice, $21^{\circ}54'$ – $51^{\circ}26\frac{1}{2}'$, 8 Sep 1988, *Zieliński 2524* (KOR 30032); FE1206 – near Leokadiów, $21^{\circ}49\frac{1}{3}'$ – $51^{\circ}25\frac{5}{6}'$,

8 Sep 1988, *Zieliński 2530* (KOR 24889); FF0435 – Rozwadów, $22^{\circ}03'$ – $50^{\circ}35\frac{1}{5}'$, 31 Aug 1999, *Oklejewicz s.n.* (KRA); FF6070 – Latoszyn, $21^{\circ}22\frac{1}{2}'$ – $50^{\circ}01\frac{1}{2}'$, 13 Jul 1999, *Oklejewicz s.n.* (KRA); FG0180 – Świerchowa, $21^{\circ}29\frac{2}{3}'$ – $49^{\circ}39\frac{1}{2}'$, 22 Aug 1989, *Oklejewicz s.n.* (KOR 22799); FG2795 – Zwierzyń, $22^{\circ}22\frac{3}{4}'$ – $49^{\circ}26\frac{1}{2}'$, 12 Aug 1999, *Oklejewicz s.n.* (KRA).

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