

THE GENUS *RUBUS* (ROSACEAE) IN SOUTHEASTERN LOWER SILESIA (POLAND)

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Abstract: This paper presents the results of extensive field research and herbarium studies on the occurrence of *Rubus* L. species in southeastern Lower Silesia (SW Poland). It is the area of the greatest accumulation of *Rubus* species in Poland, where 61 species (about 2/3 of all species growing in Poland) were documented; 28 species were found there for the first, and two appeared new to science. The distribution and routes of migration of particular species are discussed.

Key words: *Rubus*, geographical distribution, migration, Poland, Lower Silesia

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INTRODUCTION

The main aim of this study was to determine the distribution of *Rubus* L. species in southeastern Lower Silesia (Fig. 1), which had been relatively poorly studied in this respect. Preliminary research showed that this is an area of unusual accumulation of species of this genus, including some taxa previously not reported from Poland and some new taxa not yet described. Another goal was to reconstruct the routes of immigration of *Rubus* species into the study area. The working hypothesis was that the main route of their immigration after the last glaciation was the Moravian Gate.

STUDY AREA

The southern and western limit of the study area was demarcated by the border between Poland and the Czech Republic, the eastern limit by the Odra River, and the northern limit by the river Biała and the middle section of the Nysa Kłodzka River. The study area can be divided into several mesoregions of Lower Silesia, such as the Płaskowyż Głubczycki plateau, Góry Opawskie Mts, and the western part of the Kotlina Raci-

borska basin. There is little variation in altitude; the whole area is located above 250 m a.s.l. The highest peaks are Biskupia Kopa Mt. (alt. 889 m) and Góra Parkowa Mt. (alt. 542 m), located in the Góry Opawskie Mts (Kondracki 1998). Soils are generally very fertile there, covered with cultivated fields and meadows. Woodland patches are usu-

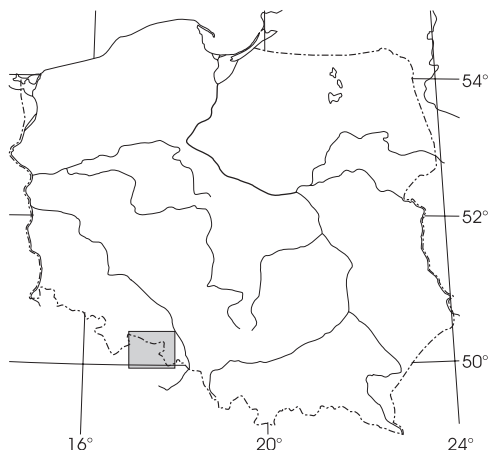


Fig. 1. Location of the study area in Poland.

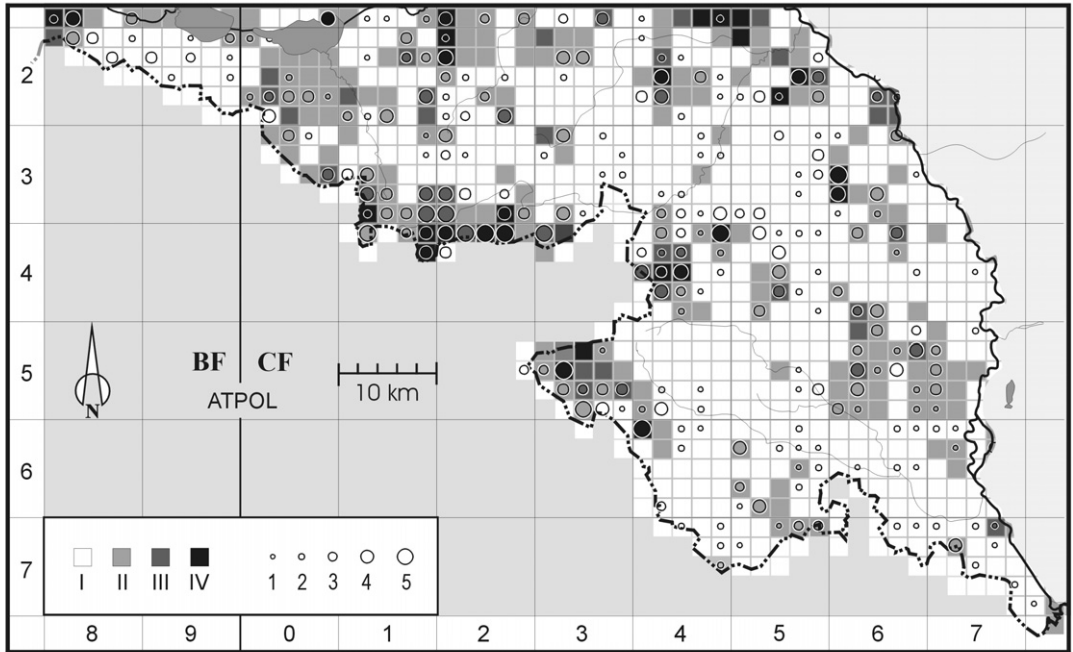


Fig. 2. Distribution of forests and density of *Rubus* species (number of species per square) in SE Lower Silesia. I – forest covering up to 5% of the square surface, II – forest covering 6–25% of the square surface, III – forest covering 26–50% of the square surface, IV – forest covering more than 50% of the square surface; 1 – 1–3 species, 2 – 4–6 species, 3 – 7–10 species, 4 – 11–15 species, 5 – >15 species.

ally small and scattered, except for the western part of the study area, where their proportion is higher (Fig. 2).

MATERIALS AND METHODS

Only scanty herbarium materials of the genus *Rubus* L. were available from the study area. Most of them were deposited at the Institute of Botany, University of Wrocław (WRSL), and some at the Institute of Dendrology, Polish Academy of Sciences, Kórnik (KOR). They documented the occurrence of 33 species. Published data on this subject were also sparse; we did not take them into account, as they are often unreliable or even misleading.

Field investigations were conducted throughout the study area, but special attention was paid to forest edges. Herbarium specimens of the rarest and most interesting species were collected and deposited at KOR. Common species, such as *R. idaeus* and *R. caesius*, were usually only noted. At each site, environmental conditions of individual taxa were assessed, and abundance of specimens was estimated.

The distribution of individual species was presented on maps with a 2 km x 2 km grid, based on the cartogram method used in the *Atlas of Distribution of Vascular Plants in Poland* (Zajac & Zajac 2001). New records were marked by circles, and those based on existing herbarium material by squares. The surroundings of the study area, although shown on the maps, was not thoroughly penetrated, but the recorded sites were also marked there. All records are stored in a database at the Institute of Dendrology, Kórnik, and are now included in the ATPOL database of the Institute of Botany, Jagiellonian University, Kraków. Records taken during preliminary field research have been included in the mentioned atlas (Zieliński 2001) and the monograph of Polish brambles (Zieliński 2004).

RESULTS

Intensive field investigations confirmed the richness of *Rubus* species in the study area and added much to the earlier available information. We documented the occurrence of 61 *Rubus* species there. They account for about 2/3 of all species

of this genus found in Poland. This means that the southeastern part of Lower Silesia is the area of the highest accumulation of *Rubus* species in Poland. It is noteworthy that 28 of the species, nearly half of the total, were not recorded there before. These include three alien species (*R. allegheniensis*, *R. armeniacus*, *R. canadensis*) and two new, previously undescribed species (*R. bohemo-polonicus* and *R. lucentifolius*).

We recorded some southern species in the study area for the first time, including *R. austroslovacus*, *R. flos-amygdalae* and *R. pericrispatus*, whose synopses had been published so far only in Czech (Trávníček et al. 2002).

Although the number of recorded species is high, most of them were infrequent in the study area. This may be due to the shortage of favorable forest habitats; only a small proportion of the area is covered by woodland. The 15 rarest native species, mostly with 1 or 2 localities, are endangered in that region: *R. chaerophylloides*, *R. constrictus*, *R. divaricatus*, *R. fabrimontanus*, *R. fasciculatus*, *R. franconicus*, *R. glivicensis*, *R. gothicus*, *R. guentheri*, *R. lamprocaulos*, *R. rudis*, *R. schleicheri*, *R. seebergensis*, *R. silesiacus* and *R. wahlbergii*. They have the limits of their geographic ranges in the study area and usually form only small, isolated, local populations there. We did not find several rare species that had been collected earlier: *R. graecensis*, *R. mollis*, *R. oboranus* and *R. ostroviensis*. They may now be extinct in this part of Lower Silesia.

Cooperation with Czech botanists and joint investigations on both sides of the border enabled us to draw conclusions about the probable origin and routes of migration of some species. We found that the borders of the geographic ranges of most of the recorded species cross the study area. The distribution of their localities shows that *Rubus* species migrated to southeastern Lower Silesia from various directions, but least frequently from the east. On the basis of their geographic ranges and probable directions of migration, the *Rubus* species recorded in the study area can be divided into five groups:

1. Widespread species; the study area is completely covered by their geographic ranges: *R. an-*

gustipaniculatus, *R. apricus*, *R. caesius*, *R. gracilis*, *R. grabowskii*, *R. hirtus*, *R. idaeus*, *R. nessensis*, *R. pedemontanus*, *R. plicatus*, *R. radula*, etc. It is impossible to determine the direction of their immigration into the study area.

2. Species that probably immigrated from the south, from Moravia and Bohemia: *R. austroslovacus*, *R. flos-amygdalae*, *R. henrici-egonis*, *R. micans*, *R. pericrispatus* and *R. wahlbergii*. They reach their northern limit in the study area.

3. Species that probably migrated from the north, that is, from northwestern Poland and eastern Germany: *R. camptostachys*, *R. divaricatus*, *R. fabrimontanus*, *R. fasciculatus*, *R. koehleri*, *R. nemoralis*, *R. salisburgensis*, *R. tabaniontanus*, etc. Undoubtedly, five other species can be assigned to this group: *R. ostroviensis*, *R. capitulatus*, *R. posnaniensis*, *R. chaerophylloides* and *R. siemianicensis*. These seem to be very young taxa, formed in the Holocene in the area of Poland. The last three taxa, so far considered endemic to Poland, probably crossed our southern border recently, as localities of them were also found the Czech side of the border during this study.

4. Species that probably migrated from the east: *R. bifrons*, *R. glivicensis* and *R. wimmerianus*. They reach their western limit in the study area.

5. Regional species, having their center of distribution on both sides of the Czech/Polish border: *R. capricollensis*, *R. bohemo-polonicus* and *R. lucentifolius*. In all probability, this is their area of origin.

Most of the recorded species were found at the edges of forest patches, especially the warmer, southern edges. Consequently, more species were found in areas with many small forest islands than in extensive woodlands (Fig. 2). The highest number of species and the largest patches of *Rubus* thickets were observed in pine stands planted on the fertile potential sites of oak-hornbeam forest or in broadleaved stands with admixture of pine trees. The occurrence of *Rubus* thickets in less transformed oak-hornbeam communities is limited by the dense canopy and insufficient sunlight, while in poorer pine forest communities *Rubus* species are rare because of the low fertility of soils. In contrast, pine stands on potential oak-hornbeam

sites are fertile and have sufficient sunlight at the forest floor. Our observations show that such habitats are colonized by the richest and most extensive patches, composed of many *Rubus* species. Their presence under a pine stand indicates that the pine trees were planted on an inappropriate site, which is too fertile for this tree species.

The hypothesis that most *Rubus* species immigrated through the Moravian Gate was not confirmed. As mentioned above, the species recorded in the southeastern part of Lower Silesia probably came from various directions: from the south, from western Europe, and to a lesser extent from the east. Moreover, southern species could cross not only the Moravian Gate but also the relatively low mountain ranges. Nevertheless, the participation of the Moravian Gate in immigration of *Rubus* species to Poland, including the studied area of Lower Silesia, cannot be ruled out. The Moravian Gate is now nearly completely covered by farmland devoid of habitats suitable for *Rubus*, so the occurrence of species of this genus is currently very limited, but before deforestation of this terrain, it could have provided more favorable conditions for their existence and migration.

SCHEME OF CLASSIFICATION

Genus *Rubus*

Subgenus *Idaeobatus*

Rubus idaeus L.

Subgenus *Rubus*

Section *Rubus*

Subsection *Rubus*

Series *Nessenses*

Rubus nessensis Hall

Series *Rubus*

Rubus graecensis W. Maurer

Rubus sulcatus Vest

Rubus constrictus P. J. Müll. & Lefèvre

Rubus plicatus Weihe & Nees

Rubus divaricatus P. J. Müll.

Series *Canadenses*

Rubus canadensis L.

Series *Alleghenienses*

Rubus allegheniensis Porter

Subsection *Hiemales*

Series *Discolores*

Rubus bifrons Vest

Rubus armeniacus Focke

Rubus montanus Lib. ex Lej.

Rubus grabowskii Weihe ex Günther *et al.*

Rubus henrici-egonis Holub

Rubus crispomarginatus Holub

Rubus austroslovacus Trávniček

Rubus flos-amygdalae Trávniček & Holub

Rubus pericrispatus Holub & Trávniček

Series *Rhamnifolii*

Rubus nemoralis P. J. Müll.

Rubus gracilis J. Presl & C. Presl.

Series *Sylvatici*

Rubus wimmerianus (Sprib. ex Sudre) Sprib.

Rubus angustipaniculatus Holub

Rubus macrophyllus Weihe & Nees

Series *Sprengeliani*

Rubus capricollensis (Sprib.) Sprib.

Series *Micantes*

Rubus micans Godr.

Rubus silesiacus Weihe

Rubus tabanimontanus Figert

Rubus gliviciensis (Sprib. ex Sudre) Sprib.

Rubus chaerophylloides Sprib.

Series *Radulae*

Rubus radula Weihe

Rubus bohemo-polonicus Trávniček & Ziel.

Rubus rudis Weihe

Rubus salisburgensis Focke ex Cafilisch

Series *Pallidi*

Rubus posnaniensis Sprib.

Rubus oboranus (Sprib.) Sprib.

Series *Hystrices*

Rubus koehleri Weihe

Rubus schleicheri Weihe ex Tratt.

Rubus apricus Wimm.

Series *Glandulosi*

Rubus holzfussii Sprib.

Rubus ostroviensis Sprib.

Rubus siemianicensis Sprib.

Rubus pedemontanus Pinkw.

Rubus lucentifolius Ziel. & Kosiński

Rubus hercynicus G. Braun

Rubus guentheri Weihe
Rubus hirtus Waldst & Kit. agg.

Section ***Corylifolii***

Subsection ***Sepincoli***

Series ***Subrectigeni***

Rubus orthostachys G. Braun
Rubus lamprocaulos G. Braun

Series ***Sepincoli***

Rubus franconicus H. E. Weber

Series ***Subthyrsoidei***

Rubus wahlbergii Arrh.
Rubus kuleszae Ziel.
Rubus gothicus Frid. & Gelert ex E. H. L. Krause

Series ***Subsilvatici***

Rubus camptostachys G. Braun

Series ***Subcanescentes***

Rubus mollis J. Presl & C. Presl
Rubus fasciculatus P. J. Müll.

Series ***Subradulae***

Rubus fabrimontanus (Sprib.) Sprib.

Series ***Hystericopses***

Rubus capitulatus Utsch
Rubus dollnensis Sprib.
Rubus seebergensis Pfuhl ex Sprib.

Section ***Caesii***

Rubus caesius L.

Nothosubgenus ***×Idaeorubus***

Rubus ***×pseudidaeus*** (Weihe) Lej.

RUBUS SPECIES OCCURRING WITHIN THE STUDY AREA

Rubus allegheniensis Porter (Fig. 3)

A North American species formerly cultivated for fruit, naturalized in a few places in Poland (Zieliński 2001). We found it twice, near settlements, for the first time within the study area.

Rubus angustipaniculatus Holub (Fig. 4)

A species occurring exclusively in southwestern Poland, frequent in the study area. It grows at forest margins, rarely in wayside thickets. Not threatened.

Rubus apricus Wimm. (Fig. 5)

A species occurring in southern Poland in two clearly separated regions, in the southwest and southeast of the country. Rather frequent in the study area, but with irregularly distributed

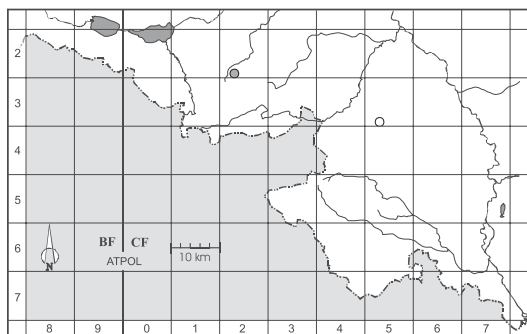


Fig. 3. Distribution of *Rubus allegheniensis* Porter in SE Lower Silesia.

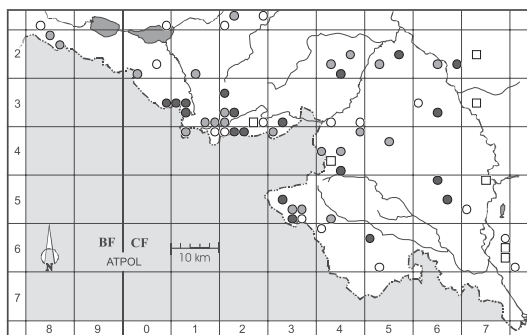


Fig. 4. Distribution of *Rubus angustipaniculatus* Holub in SE Lower Silesia.

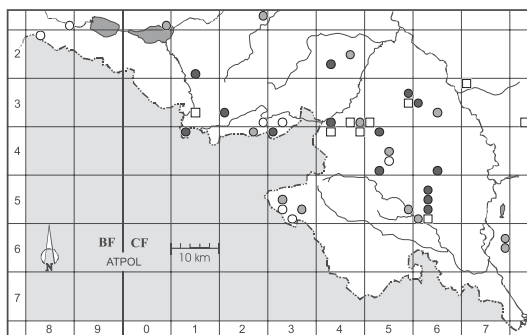


Fig. 5. Distribution of *Rubus apricus* Wimm. in SE Lower Silesia.

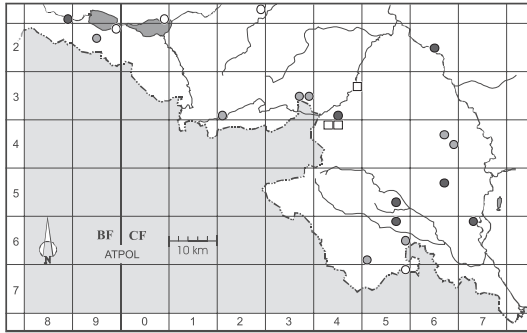


Fig. 6. Distribution of *Rubus armeniacus* Focke in SE Lower Silesia.

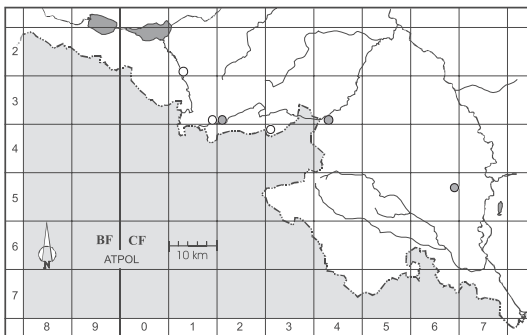


Fig. 7. Distribution of *Rubus austroslovacus* Trávniček in SE Lower Silesia.

localities. It grows usually in sunny places, mainly at forest margins. Not threatened.

***Rubus armeniacus* Focke** (Fig. 6)

A species of unknown origin, cultivated for fruit, fully naturalized in western Poland (Maliński 2000; Zieliński 2001). It grows in wayside thickets, usually not far from settlements, not infrequently in ruderal places in villages or towns. Scattered throughout the study area. Further east it grows also in Upper Silesia. Not threatened.

***Rubus austroslovacus* Trávniček, in press** (Fig. 7)

A species new to Poland. Known from Slovakia and the Czech Republic. Not yet formally published. Related to *R. montanus*, from which it differs by its oblong-elliptic, irregularly serrate

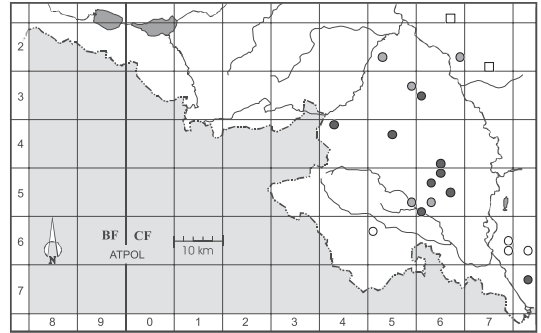


Fig. 8. Distribution of *Rubus bifrons* Vest in SE Lower Silesia.

terminal leaflets and narrower inflorescences. It reaches its northern limit of distribution in the study area. It usually grows in wayside thickets and at margins of broadleaf forests. Represented by a few individuals on particular stands, but probably not threatened.

***Rubus bifrons* Vest** (Fig. 8)

A species distributed in our country almost exclusively in the south, chiefly at the foot of the Carpathians and Góry Świętokrzyskie Mts. It attains its western limit in the study area. It grows mainly on the Płaskowyż Głubczycki plateau, where it does not cross the Osobłoga River valley. It grows in light places, at forest margins and in clearings, locally frequent. Not threatened.

***Rubus bohemo-polonicus* Trávniček & Ziel.** (Fig. 9)

A species new to science, recently published (Zieliński & Trávniček 2004). Discovered by Spribille (WRSL) at the beginning of the last century. However, it was known from very few localities and was hitherto treated as a local biotype. On Polish territory its localities are concentrated between the Osobłoga River and Odra River. Several stands are known from the vicinity of Strzelce Opolskie. It is closely related to *R. radula*, from which it differs by its glabrous stems and white petals. A forest species, frequent in pine forest planted on formerly cultivated land, on rather poor soils, where other brambles only rarely appear. Not threatened.

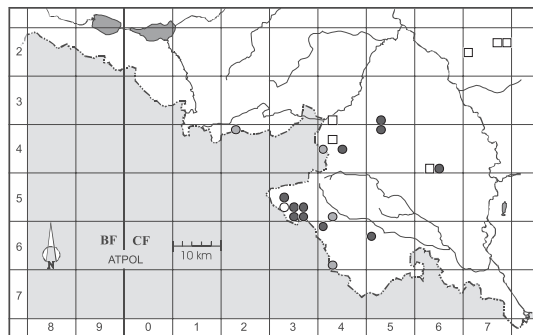


Fig. 9. Distribution of *Rubus bohemo-polonicus* Trávniček & Ziel. in SE Lower Silesia.

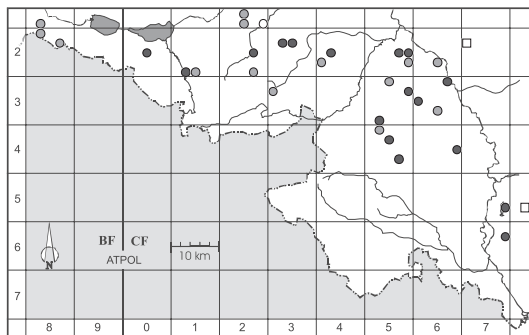


Fig. 11. Distribution of *Rubus camptostachys* G. Braun in SE Lower Silesia.

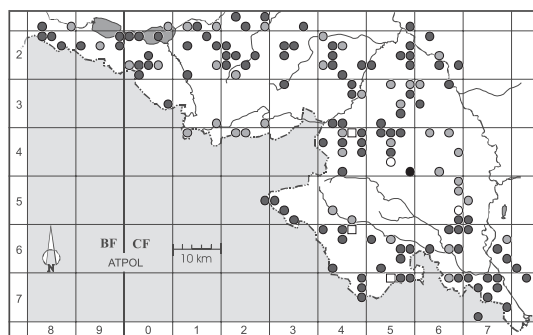


Fig. 10. Distribution of *Rubus caesius* L. in SE Lower Silesia.

***Rubus caesius* L.** (Fig. 10)

A species common throughout Poland, including the study area. Frequent both in forests and in open places.

***Rubus camptostachys* G. Braun** (Fig. 11)

A species occurring mainly in Lower Silesia and southern Wielkopolska. Found for the first time in the study area. Locally it attains its southern limit there. Observed in wayside thickets and at forest margins, usually in altered habitats. Not threatened.

***Rubus canadensis* L.** (Fig. 12)

A species new in the study area, found in one locality in the middle of broadleaf forest. A North American bramble, formerly cultivated for fruit,

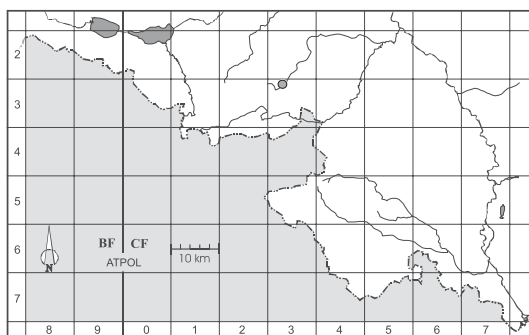


Fig. 12. Distribution of *Rubus canadensis* L. in SE Lower Silesia.

naturalized in southwestern Poland (Kosiński & Zieliński 1998).

***Rubus capitulatus* Utsch** (Fig. 13)

A species endemic to Poland, known chiefly from southern Wielkopolska and Lower Silesia. In the investigated area we found its southernmost localities. These stands are relatively rich, so the species is not imminently threatened.

***Rubus capricollensis* (Sprib.) Sprib.** (Fig. 14)

A species occurring in Poland chiefly within the study area and in the Kotlina Kłodzka basin, where it has its northwestern limit. Rather frequent also south of our border in northern Moravia and northeastern Bohemia. It usually grows in open forests and at forest margins. Not threatened.

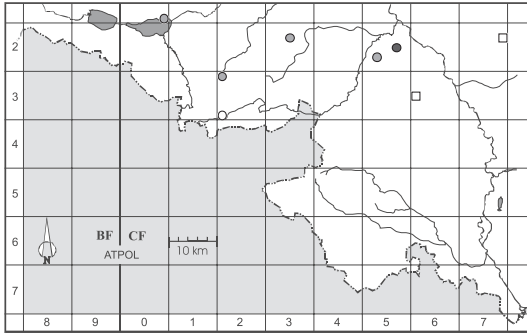


Fig. 13. Distribution of *Rubus capitulatus* Utsch in SE Lower Silesia.

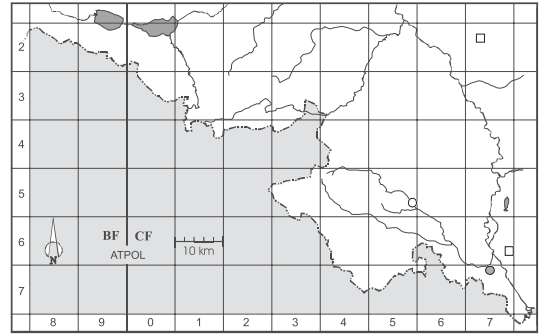


Fig. 16. Distribution of *Rubus constrictus* P. J. Müll. & Lefèvre in SE Lower Silesia.

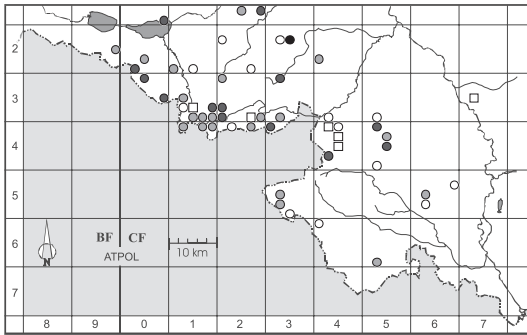


Fig. 14. Distribution of *Rubus capricollensis* (Sprib.) Sprib. in SE Lower Silesia.

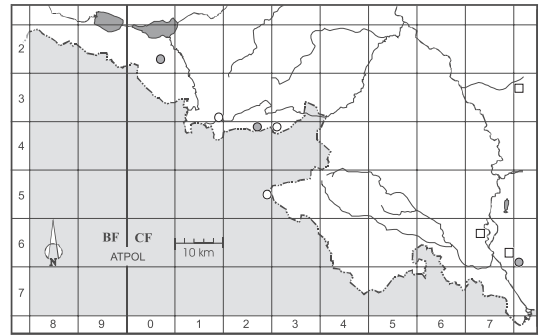


Fig. 17. Distribution of *Rubus crispomarginatus* Holub in SE Lower Silesia.

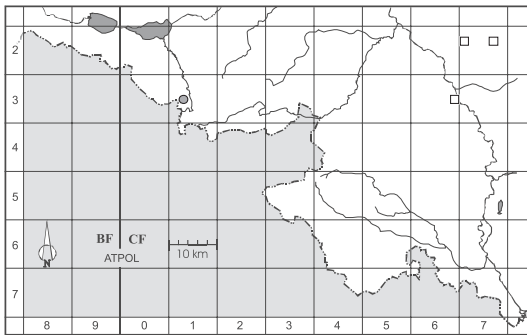


Fig. 15. Distribution of *Rubus chaerophylloides* Sprib. in SE Lower Silesia.

***Rubus chaerophylloides* Sprib. (Fig. 15)**

A species endemic to Poland, known chiefly from the southwestern part of the country, from southern Wielkopolska and eastern regions of

Lower Silesia. Within the study area it was found at its southernmost locality record. New for the area. Threatened on account of the small number of its localities.

***Rubus constrictus* P. J. Müll. & Lefèvre (Fig. 16)**

A species occurring in southern Poland. Found at one locality in the Odra River valley, for the first time within the study area. Threatened.

***Rubus crispomarginatus* Holub (Fig. 17)**

A species occurring chiefly in southern Poland. Rare in the study area, found in several places along the border, and discovered in the Odra River valley. It also grows east of the Odra River. Most localities are poor, with single individuals, so their future is uncertain. Threatened.

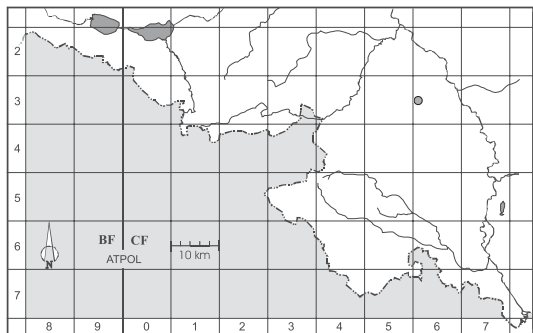


Fig. 18. Distribution of *Rubus divaricatus* P. J. Müll. in SE Lower Silesia.

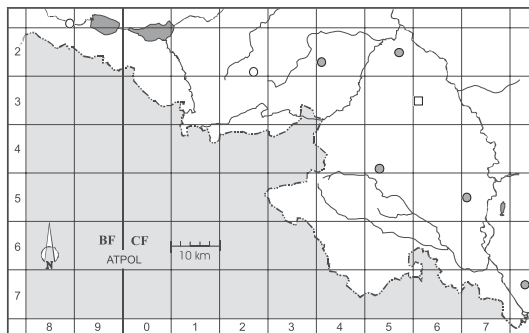


Fig. 20. Distribution of *Rubus fabrimontanus* (Sprib.) Sprib. in SE Lower Silesia.

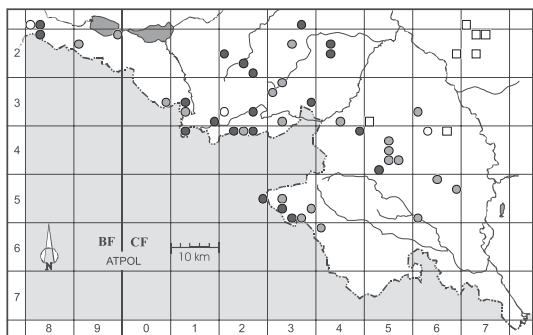


Fig. 19. Distribution of *Rubus dollnensis* Sprib. in SE Lower Silesia.

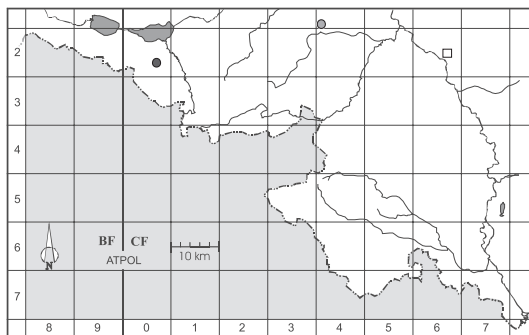


Fig. 21. Distribution of *Rubus fasciculatus* P. J. Müll. in SE Lower Silesia.

***Rubus divaricatus* P. J. Müll.** (Fig. 18)

A species known in Poland from Lower Silesia and southern Wielkopolska. Found for the first time within the study area at its southeasternmost locality, isolated from the main range. Threatened.

***Rubus dollnensis* Sprib.** (Fig. 19)

A species occurring mainly in southwestern Poland, frequent within the study area in forests, at forest margins and in wayside thickets. Not threatened.

***Rubus fabrimontanus* (Sprib.) Sprib.** (Fig. 20)

A species known mainly from western and central Poland. Within study area it was found at a few, rather poor localities that form the south-

western limit of its range in Poland. Threatened on account of its few and poor localities.

***Rubus fasciculatus* P. J. Müll.** (Fig. 21)

This bramble was found at two localities in the north, for the first time within the study area. These are the southernmost Polish stands of *R. fasciculatus*. Threatened.

***Rubus flos-amygdalae* Trávniček & Holub, in press** (Fig. 22)

A species new for the study area, and new for Poland. Found at the same time in the Kotlina Kłodzka basin (Kosiński 2001). It has its northern limit of the range in Silesia, where it undoubtedly came from regions south of Poland. It grows in sunny places, at forest margins, on sunny hillsides and in wayside thickets. Not yet formally

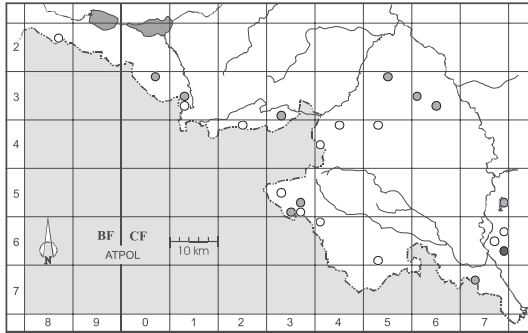


Fig. 22. Distribution of *Rubus flos-amygdalae* Trávníček & Holub in SE Lower Silesia.

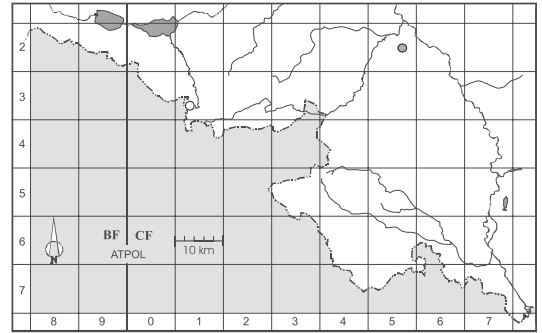


Fig. 25. Distribution of *Rubus gothicus* Frid. & Gelert ex E. H. L. Krause in SE Lower Silesia.

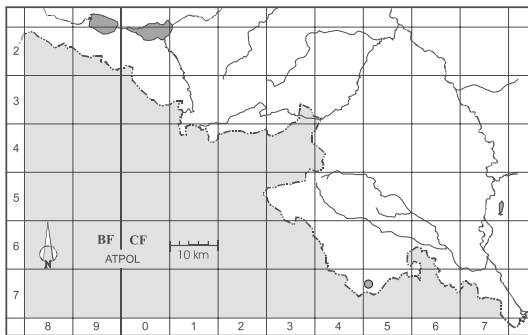


Fig. 23. Distribution of *Rubus franconicus* H. E. Weber in SE Lower Silesia.

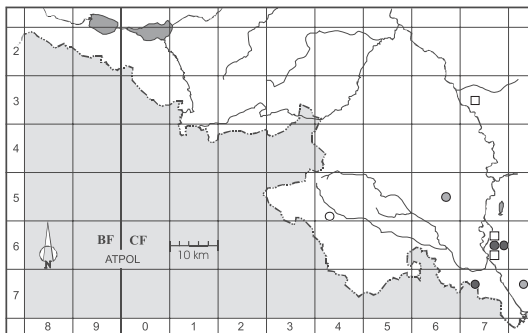


Fig. 24. Distribution of *Rubus glivicensis* (Sprib. ex Sudre) Sprib. in SE Lower Silesia.

published. Related to *R. montanus*, from which it differs by its unevenly brown-red stems, narrowly obovate terminal leaflets and pink flowers. Not threatened.

***Rubus franconicus* H. E. Weber**

(Fig. 23)

In Poland this species is known from a few places in the vicinity of Wałbrzych and in the Kotlina Kłodzka basin. Found for the first time within the study area, at one southernmost Polish locality. Threatened.

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

(Fig. 24)

A species occurring in southern Poland, east of the Odra River. Found for the first time within the study area. Further west it is known from only two localities in the Kotlina Kłodzka basin (Kosiński 2001). Threatened in Lower Silesia.

***Rubus gothicus* Frid. & Gelert ex E. H. L. Krause**

(Fig. 25)

A species known almost exclusively from western Poland, new for the study area, where it was found at two southernmost Polish localities. Threatened.

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

(Fig. 26)

A species rather frequent in southwestern Poland, not rare within the study area. Most numerous in western regions of the Płaskowyż Głubczycki plateau, where it grows in light places, mainly at forest margins and in wayside thickets. Not threatened.

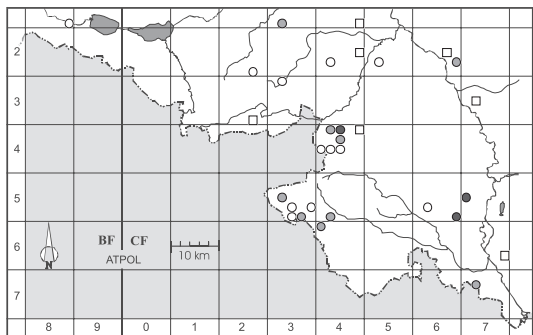


Fig. 26. Distribution of *Rubus grabowskii* Weihe ex Günther in SE Lower Silesia.

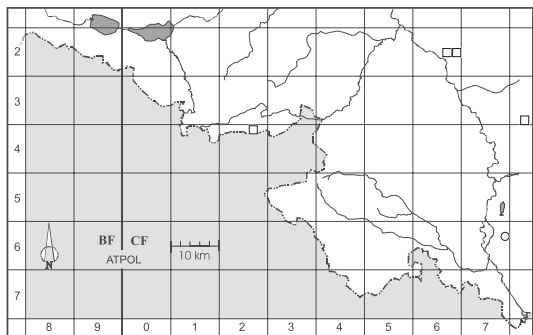


Fig. 29. Distribution of *Rubus guentheri* Weihe in SE Lower Silesia.

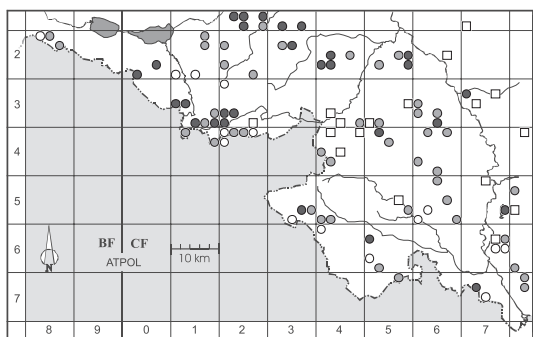


Fig. 27. Distribution of *Rubus gracilis* J. Presl & C. Presl in SE Lower Silesia.

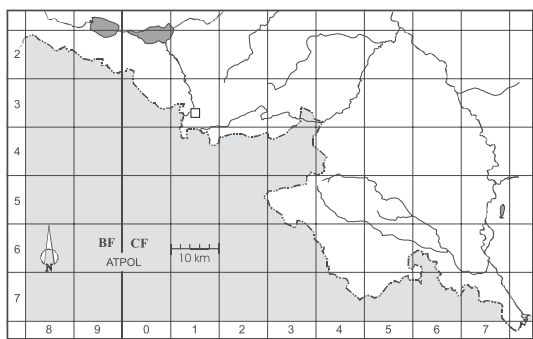


Fig. 28. Distribution of *Rubus graecensis* W. Maurer in SE Lower Silesia.

***Rubus gracilis* J. Presl & C. Presl (Fig. 27)**

One of the commonest brambles in southern and western Poland, rather frequent within the study area, where it usually grows at forest margins and in wayside thickets. Not threatened.

***Rubus graecensis* W. Maurer (Fig. 28)**

A species found in Poland only in the study area, south of Nysa, at the beginning of the 20th century (*Spribile s.n.*, WRSL, as *R. thyrsanthus* var. *subvelutinus* Linberg). We did not find it in the field. Probably extinct in the study area. However, several years ago it was discovered in the Kotlina Kłodzka basin (Kosiński 1999).

***Rubus guentheri* Weihe (Fig. 29)**

A species occurring in Poland mainly in the Sudety Mts, from where it probably reached the study area. It was found at one locality at the border. Further east it grows only at several stands in the Odra River valley in Upper Silesia. Threatened.

***Rubus henrici-egonis* Holub (Fig. 30)**

Within the study area, *R. henrici-egonis* occurs along the Czech-Polish frontier, mainly in the Opawa Mts and on the Płaskowyż Głubczycki plateau. We found it also at several localities east of the Odra River in Upper Silesia. At the same time, it was found in the Kotlina Kłodzka basin (Kosiński 2001). It came to Poland from Bohemia and Moravia, from where it was described not long ago (Holub 1991). It is related to *R. grabowskii*, from which it differs by its shallowly serrate leaflets. It grows in sunny places at forest margins, for example in wayside thickets or in clearings of oak forests. Not threatened.

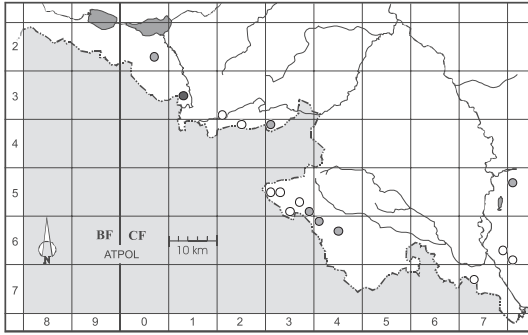


Fig. 30. Distribution of *Rubus henrici-egonis* Holub in SE Lower Silesia.

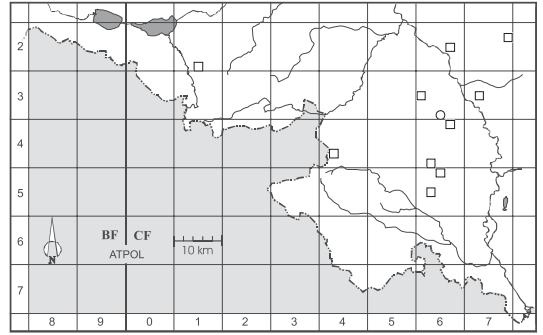


Fig. 33. Distribution of *Rubus holzfussii* Sprib. in SE Lower Silesia.

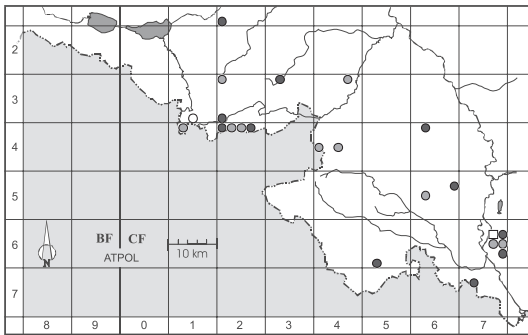


Fig. 31. Distribution of *Rubus hercynicus* G. Braun in SE Lower Silesia.

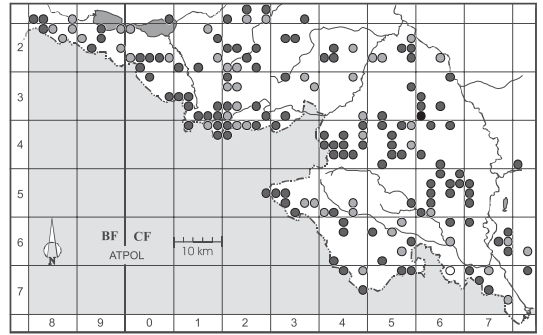


Fig. 34. Distribution of *Rubus idaeus* L. in SE Lower Silesia.

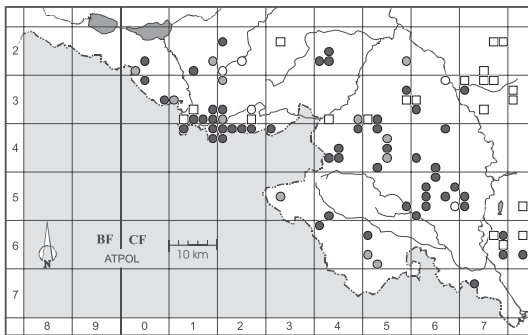


Fig. 32. Distribution of *Rubus hirtus* Waldst & Kit. agg. in SE Lower Silesia.

it reaches southwestern Upper Silesia. A forest bramble, often connected with spruce forests, locally frequent. Not threatened.

***Rubus hirtus* Waldst & Kit. agg. (Fig. 32)**

A collective species, very frequent in southern Poland, including the study area. A forest bramble, practically absent from woodless regions. Not threatened.

***Rubus hozfussii* Sprib. (Fig. 33)**

A regional species, endemic to Poland, described from Silesia (Spribille 1904). It is known mainly from herbarium specimens collected by Spribille (WRSL). We found it only once in the northwestern part of the Kotlina Raciborska basin. Threatened.

***Rubus hercynicus* G. Braun (Fig. 31)**

In Poland the species grows mainly at the foot of the Sudety Mts. Within the study area it has its limitory northwestern localities. Further east

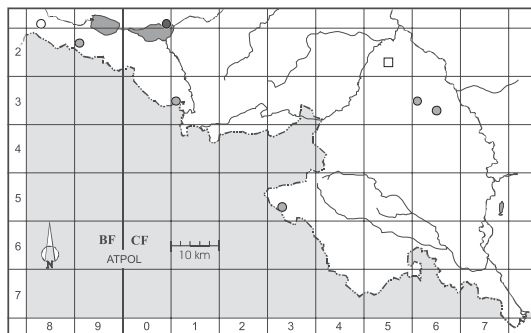


Fig. 35. Distribution of *Rubus koehleri* Weihe in SE Lower Silesia.

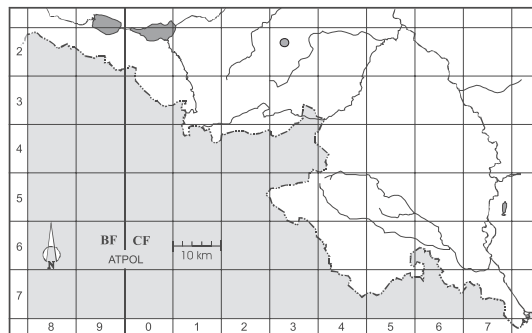


Fig. 37. Distribution of *Rubus lamprocaulos* G. Braun in SE Lower Silesia.

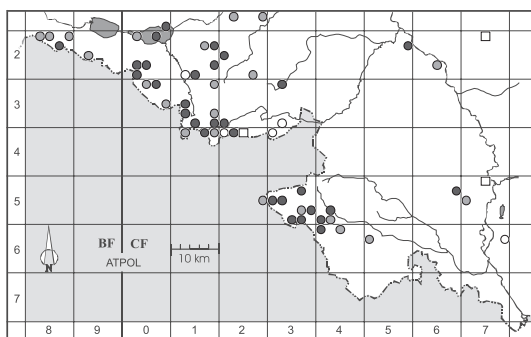


Fig. 36. Distribution of *Rubus kuleszae* Ziel. in SE Lower Silesia.

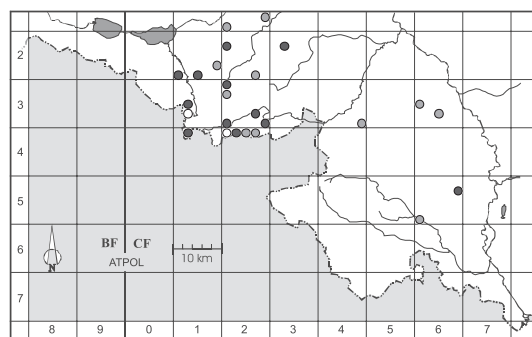


Fig. 38. Distribution of *Rubus lucentifolius* Ziel. & Kosiński in SE Lower Silesia.

***Rubus idaeus* L.** (Fig. 34)

The commonest *Rubus* species in Poland, very frequent within the study area. It grows in forests, at forest margins and in wayside thickets. Not threatened.

***Rubus koehleri* Weihe** (Fig. 35)

A bramble connected geographically with Lower Silesia and southern Wielkopolska. Within the study area it was noted at a few scattered localities locally forming the southeastern limit of its range. It grows exclusively at forest margins or in open woods. Localities not numerous but rather rich. Not imminently threatened.

***Rubus kuleszae* Ziel.** (Fig. 36)

A species occurring in south and southwest Poland. Within the study area it is frequent only

in the west. In the east it occurs only in the Odra River valley. It grows at margins of broadleaf forests, in wayside thickets, sometimes in ruderal places, usually on rich soils. Not threatened.

***Rubus lamprocaulos* G. Braun** (Fig. 37)

A species occurring in Lower Silesia and southern Wielkopolska. Within the study area we found it only once. Threatened.

***Rubus lucentifolius* Ziel. & Kosiński** (Fig. 38)

A species new to science, recently published (Zieliński et al. 2004). Within the study area it occurs mainly in the Opawa Mts, and also the Kotlina Kłodzka basin. Locally frequent. Its distribution needs to be studied further. It belongs to the series *Glandulosi* and is characterized by (sub)glabrous leaves, narrowly elliptic or narrowly ovate, short-

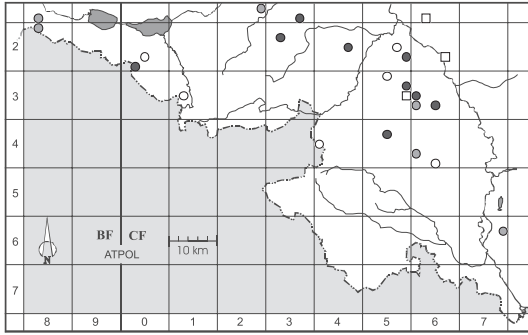


Fig. 39. Distribution of *Rubus macrophyllus* Weihe & Nees in SE Lower Silesia.

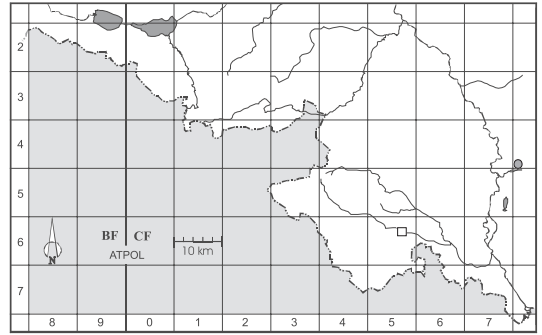


Fig. 41. Distribution of *Rubus mollis* J. Presl & C. Presl in SE Lower Silesia.

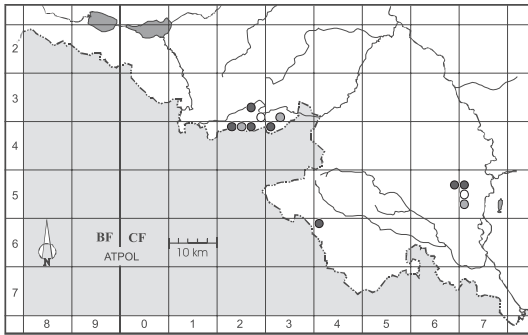


Fig. 40. Distribution of *Rubus micans* Godr. in SE Lower Silesia.

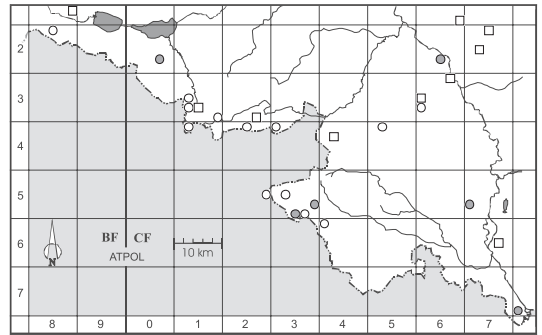


Fig. 42. Distribution of *Rubus montanus* Lib. ex Lej. in SE Lower Silesia.

petiolulate terminal leaflets, short stamens, and hairy carpels. Not threatened.

***Rubus macrophyllus* Weihe & Ness (Fig. 39)**

A species occurring mainly in southern Wielkopolska and Lower Silesia. Within the study area its localities demarcate the southwestern limit of its range in Poland. A typical lowland forest bramble. Presumably it arrived from northwestern Poland. Not threatened.

***Rubus micans* Godr. (Fig. 40)**

A species occurring in Poland only within the study area, where it probably came from the south. Earlier, at the end of the 19th century, it was collected in Poland only once near Prudnik (*Bruchsch & Kinscher s.n.*, ER). The bramble grows in open broadleaf or mixed forests or at forest margins. Locally frequent, not threatened.

***Rubus mollis* J. Presl & C. Presl (Fig. 41)**

A species connected in Poland with the Sudety Mts, especially with the Kotlina Kłodzka basin. Within the study area it was found only once, in the village of Kozłówki at the end of the 19th century (*Sintenis s.n.*, WRSL). It was determined and cited in the literature as *R. canescens* DC. (= *R. tomentosus* Borkh.) (Schube & Spribille 1904), which does not occur in Poland. We did not find it within our area, but it grows further east in the Odra River valley, which is the easternmost locality of this species in Poland.

***Rubus montanus* Lib. ex Lej. (Fig. 42)**

A species rather frequent in southern Poland. Within the study area its localities are situated mostly along the Czech border. The localities are represented mostly by single individuals, but generally the species is not threatened.

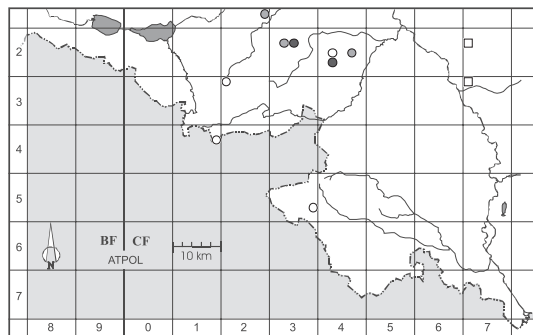


Fig. 43. Distribution of *Rubus nemoralis* P. J. Müll. in SE Lower Silesia.

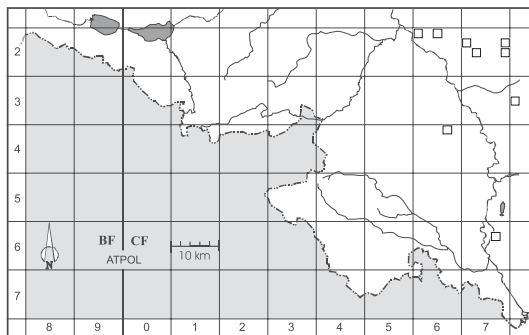


Fig. 45. Distribution of *Rubus oboranus* (Sprib.) Sprib. in SE Lower Silesia.

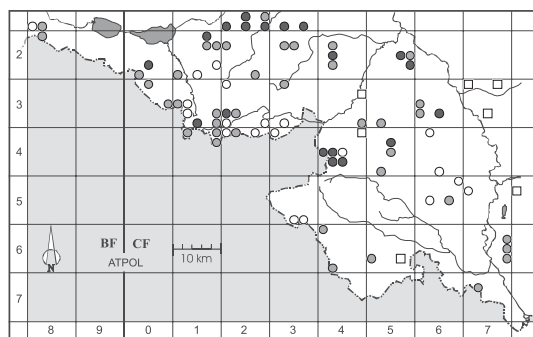


Fig. 44. Distribution of *Rubus nessensis* Hall in SE Lower Silesia.

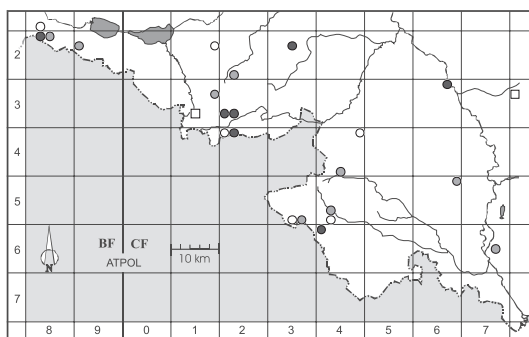


Fig. 46. Distribution of *Rubus orthostachys* G. Braun in SE Lower Silesia.

***Rubus nemoralis* P. J. Müll. (Fig. 43)**

This species is found exclusively in south-western Poland. Within the study area it occurs at its liminary southeastern localities. Not imminently threatened.

***Rubus nessensis* Hall (Fig. 44)**

A species widespread throughout Poland, mainly in broadleaf forests and at forest margins. Within our area it is represented by the very frequent subsp. *nessensis* and the rare subsp. *scissoides* H. E. Weber, which we found at two localities close to each other in the Opawa Mts. It differs from the type subspecies by its acicular green (not violet-black) prickles, hairy ovaries, and other characters. At both stands the populations were rather rich. Apparently not threatened.

***Rubus oboranus* (Sprib.) Sprib. (Fig. 45)**

A taxon described from Silesia (Spribille 1907), endemic to Poland. Known from few localities, exclusively from herbarium material. Recorded also from the study area, but we did not find it in the field. Possibly extinct.

***Rubus orthostachys* G. Braun (Fig. 46)**

A species occurring in southern Poland, with scattered localities within the study area. It grows at forest margins and in wayside thickets, not infrequently in ruderal places. Not threatened.

***Rubus ostroviensis* Sprib. (Fig. 47)**

A species endemic to Poland, occurring mainly in southern Wielkopolska and Lower Silesia. Within the study area it was collected only

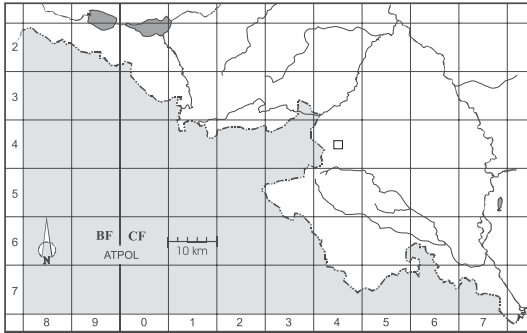


Fig. 47. Distribution of *Rubus ostroviensis* Strib. in SE Lower Silesia.

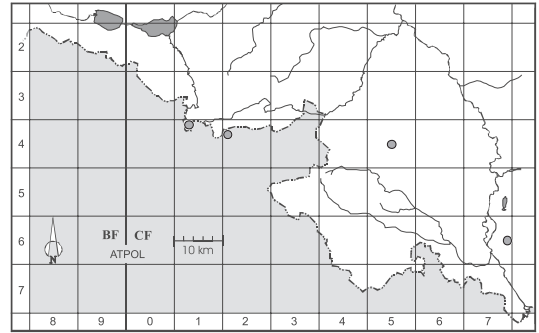


Fig. 49. Distribution of *Rubus pericrispatus* Holub & Trávníček in SE Lower Silesia.

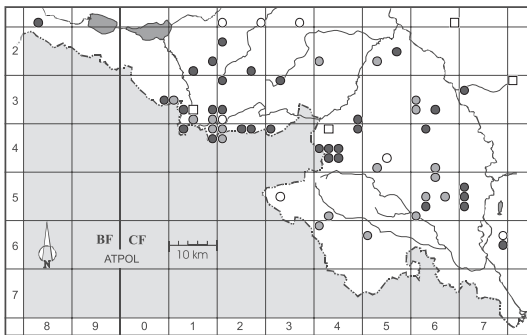


Fig. 48. Distribution of *Rubus pedemontanus* Pinkw. in SE Lower Silesia.

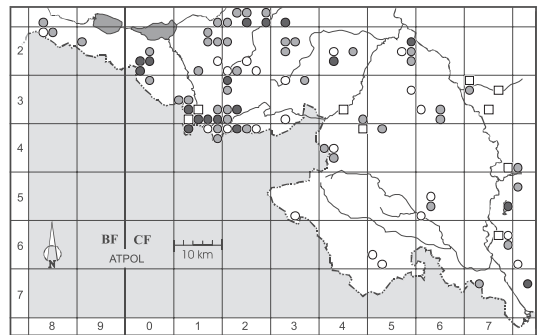


Fig. 50. Distribution of *Rubus plicatus* Weihe & Nees in SE Lower Silesia.

once near Głubczyce at the beginning of the 20th century. Not found during our field work. Possibly extinct.

***Rubus pedemontanus* Pinkw.** (Fig. 48)

A species frequent in Poland, absent only in the country's central belt of lowlands. Within the study area observed in numerous localities. Forest species. Not threatened.

***Rubus pericrispatus* Holub & Trávníček, in press** (Fig. 49)

A species not yet formally published, occurring in the Czech Republic, Slovakia, Austria and Germany, and not reported till now from Poland. It can be distinguished from the similar *R. montans* by its somewhat broader and undulate leaflets. It grows in open sunny places, at forest margins and

in wayside thickets. At the same time, *R. pericrispatus* was collected by Kosiński in the Kotlina Kłodzka basin (vouchers at KOR) and by Oklejewicz in southeast Poland (vouchers at KRA). Probably not threatened.

***Rubus plicatus* Weihe & Ness** (Fig. 50)

One of the commonest brambles in Poland. Also frequent within the study area, but somewhat rarer in southern parts of the Płaskowyż Głubczycki plateau. It grows both in forests and in open places. Not threatened.

***Rubus posnaniensis* Strib.** (Fig. 51)

A species described from Poland and most frequent there. Within the study area it attains its southwestern limit. During the present field work it was discovered in the Czech Republic, where

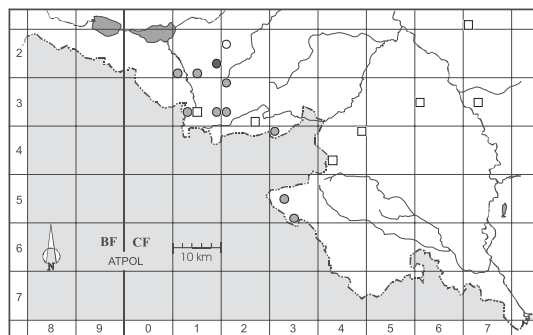


Fig. 51. Distribution of *Rubus posnaniensis* Sprib. in SE Lower Silesia.

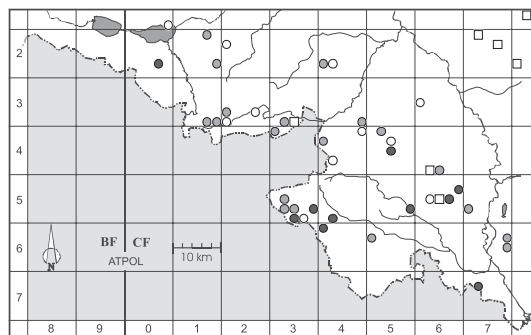


Fig. 53. Distribution of *Rubus radula* Weihe in SE Lower Silesia.

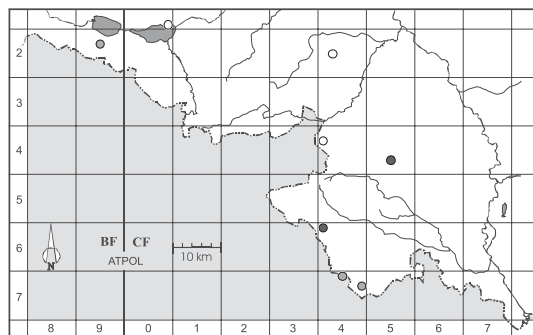


Fig. 52. Distribution of *Rubus x pseudidaeus* (Weihe) Lej. in SE Lower Silesia.

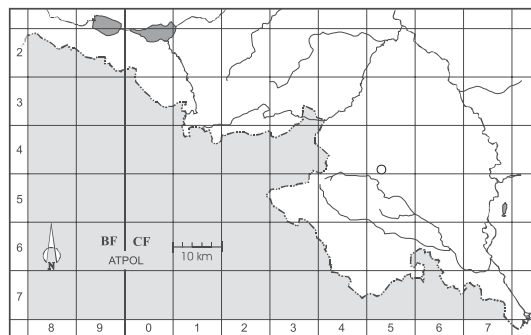


Fig. 54. Distribution of *Rubus rudis* Weihe in SE Lower Silesia.

it probably arrived from Poland. Forest species. Not threatened.

***Rubus x pseudidaeus* (Weihe) Lej. (Fig. 52)**

A hybrid between *R. caesius* and *R. idaeus*, species representing subgen. *Rubus* and subgen. *Idaeobatus*, respectively. It occurs at scattered localities throughout Poland, where its parental species meet. Often not distinguished from the parents. Within the study area it was found at eight localities, most of them on the Płaskowyż Głubczycki Plateau, where it grows both in forest and in open places, along roads, and not infrequently in ruderal places. Not threatened.

***Rubus radula* Weihe (Fig. 53)**

A species distributed chiefly in western Poland, and one of the commonest within the study area. It

grows usually in forests, chiefly at their margins, rarely in wayside thickets. Not threatened.

***Rubus rudis* Weihe (Fig. 54)**

A species occurring in southern Poland, but more frequent only in the southeast. Within the study area it was found for the first time, only once, in mixed forest. Very poor locality, threatened. Possibly a recent newcomer to Lower Silesia.

***Rubus salisburgensis* Focke ex Cafilich (Fig. 55)**

A species known from southwestern Poland, where it grows at the foot of the Sudety Mts. Found for the first time within the study area, locally frequent (vicinity of Prudnik). The new localities in Silesia are the easternmost stands of this species in Poland. Not threatened.

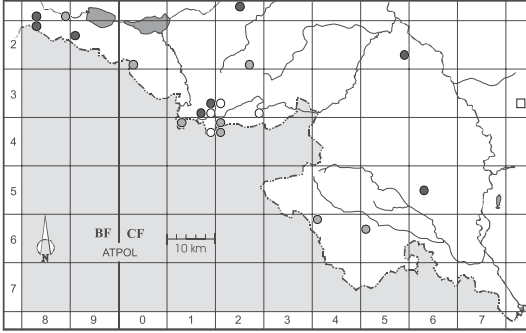


Fig. 55. Distribution of *Rubus salisburgensis* Focke ex Caffisch in SE Lower Silesia.

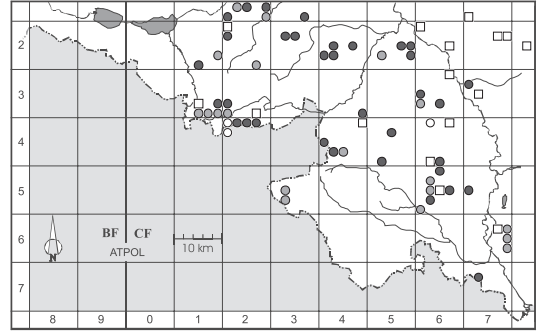


Fig. 58. Distribution of *Rubus siemianicensis* Sprib. in SE Lower Silesia.

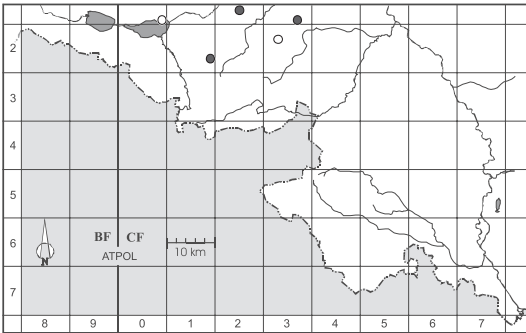


Fig. 56. Distribution of *Rubus schleicheri* Weihe ex Tratt. in SE Lower Silesia.

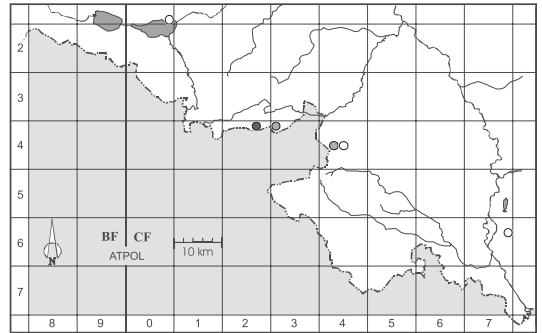


Fig. 59. Distribution of *Rubus silesiacus* Weihe in SE Lower Silesia.

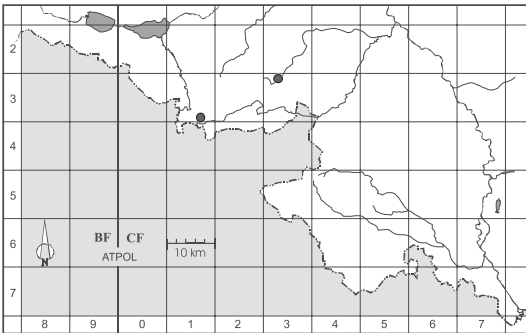


Fig. 57. Distribution of *Rubus seebergensis* Pfuhl ex Sprib. in SE Lower Silesia.

***Rubus schleicheri* Weihe ex Tratt. (Fig. 56)**

A species occurring in southwestern Poland. Within the study area it was found at five localities

demarcating the southeastern limit of its range in Poland. A typical forest bramble, observed exclusively in forest communities. Threatened on account of the small number of its localities, most of which are poor.

***Rubus seebergensis* Pfuhl ex Sprib. (Fig. 57)**

A species endemic to Poland, known primarily from southern Wielkopolska and Lower Silesia. Within the study area it was found at isolated, southernmost localities. Threatened on account of the small number of stands.

***Rubus siemianicensis* Sprib. (Fig. 58)**

A species known mainly and until quite recently only from Poland. Rather frequent within the study area, but absent in southern parts of the Płaskowyż Głubczycki plateau. During the

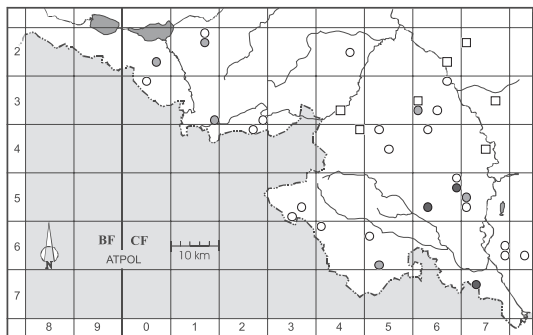


Fig. 60. Distribution of *Rubus sulcatus* Vest in SE Lower Silesia.

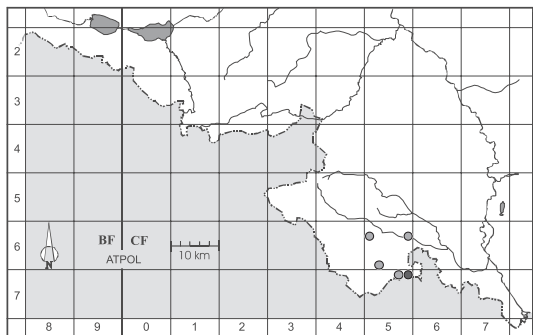


Fig. 62. Distribution of *Rubus wahlbergii* Arrh. in SE Lower Silesia.

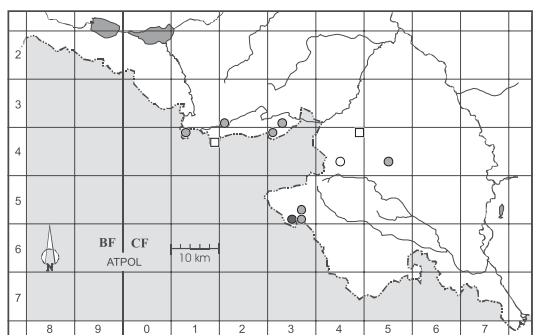


Fig. 61. Distribution of *Rubus tabanimitanus* Figert in SE Lower Silesia.

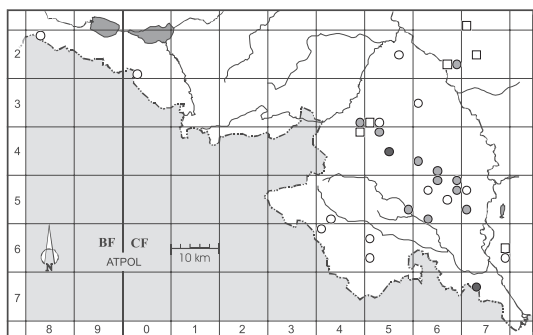


Fig. 63. Distribution of *Rubus wimmerianus* (Sprib. ex Sudre) Sprib. in SE Lower Silesia.

present field work it was found in neighboring Czech territory, where it is probably a recent newcomer from Poland. One of the few species whose origin is undoubtedly connected with Poland. Not threatened.

***Rubus silesiacus* Weihe (Fig. 59)**

A species occurring in southwestern Poland. New for the study area, found in four localities next to the Czech border. They are among the southernmost Polish localities. Further east we found this blackberry beyond our area in the Odra River valley. Threatened on account of the small number of localities.

***Rubus sulcatus* Vest (Fig. 60)**

A species occurring mainly in southern Poland, scattered throughout the study area. It grows at

forest margins, along forest roads and in wayside thickets. Not threatened.

***Rubus tabanimitanus* Figert (Fig. 61)**

A species occurring in Poland mainly at the foot of the Sudety Mts. Within the study area it grows in the Opawskie Mts and western parts of the Płaskowyż Głubczycki plateau. These localities are among the easternmost Polish stands of *R. tabanimitanus*. A forest species. Relatively rare but not imminently threatened.

***Rubus wahlbergii* Arrh. (Fig. 62)**

A species occurring at scattered localities in southwestern Poland. We found it in several places in the south, where it grows along roads, in villages, in ruderal places. Threatened in Silesia on account of the small number of its localities.

Rubus wimmerianus (Sprib. ex Sudre) Sprib.
(Fig. 63)

A species occurring in southern Poland. Within the study area it is frequent only between the Odra River and Osobłoga River. These localities demarcate the western limit of its range in Poland. Further west it grows at scattered localities in the Kotlina Kłodzka basin (Kosiński 2001). Not threatened.

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